MODERATING EFFECT OF PARENTING, PERSONALITY TRAITS AND COPING STRATEGIES ON THE RELATIONSHIP BETWEEN SIBLING'S SUBSTANCE ABUSE AND PSYCHOLOGICAL HEALTH STATUS AMONG MIZO ADOLESCENTS

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CERTIFICATE

This is to certify that the present piece of research titled "MODERATING EFFECT OF PARENTING, PERSONALITY TRAITS AND COPING STRATEGIES ON THE RELATIONSHIP BETWEEN SIBLING'S SUBSTANCE ABUSE AND PSYCHOLOGICAL HEALTH STATUS AMONG MIZO ADOLESCENTS" is the bonafide research conducted by Ms. Lalremruati Pachuau under my supervision. Ms. Lalremruati Pachuau worked methodically for her dissertation being submitted for the Degree of Doctor of Philosophy in Psychology of the Mizoram University.

This is to further certify that the research conducted by Ms. Lalremruati Pachuau has not been submitted in support of an application of this or any other university or an institute of learning.

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DECLARATION

I, Lalremruati Pachuau, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis for the award of any previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University or Institute.

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Research on the effects of a substance abuser on the family has indicated that severe and enduring stress are experienced by the family members, which can result in high levels of physical and psychological morbidity (Orford, Natera, Davies, Nava, Mora, Rigby, Bradbury, Copello, and Velleman, 1998; Velleman, Bennett, Miller, Orford, and Tod, 1993). A government report on supporting families of drug and alcohol users in Scotland identified four key areas of impact on relatives: physical and psychological health, finance and employment, social life and family relationships (Barnard, 2005).Each family member is uniquely affected by the individual using substances. This includes having unmet developmental needs, impaired attachment, economic hardship, legal problems, emotional distress, and sometimes, violence being perpetrated against him or her. The studies of families with Substance Use Disorders (SUDs) reveal patterns that significantly influence child development and the likelihood that a child will struggle with emotional, behavioural, or substance use problems (Substance Abuse and Mental Health Services Administration [SAMHSA], 2003).

The latest version of the Diagnostic and Statistical Manual of Mental Disorders, DSM-5 (American Psychiatric Association, 2013) does not separate the diagnoses of substance abuse and dependence as in DSM-IV-TR (APA, 2000), but instead have given criteria for substance use disorders. Substance abuse, according to DSM-IV-TR (also considered similar to ICD-10 category of Harmful Use of psychoactive substances) is defined as: A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one or more of the following, occurring within a 12-month period: (i) Recurrent substance use resulting in a failure to fulfil major role obligations at work, school, or home (e.g. repeated absences or poor work performance related to substance use; substance-related absences, suspensions, or expulsions from school; neglect of children or household) (ii) Recurrent substance use in situations in which it is physically hazardous (e.g. driving an automobile or operating a machine when

impaired by substance use) (iii)Recurrent substance-related legal problems (e.g. arrests for substance-related disorderly conduct) (iv) Continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance (e.g. arguments with spouse about consequences of intoxication, physical fights).Additionally, the symptoms for substance abuse have never met the criteria for substance dependence.

Different types of substances create different stresses and demands on family members. Families of illicit drug users are exposed to significantly more stressful life events than families of those who misuse prescribed drugs. For instance, they experience more stealing and greater pressure for money, pressure from the legal system and more serious health hazards (Velleman *et al*., 1993). Some evidence indicated that parents are generally more concerned about illicit drug use than they are about alcohol use (Hayes, Smart, Toumbourou & Sanson, 2004). **Different emotional and behavioural patterns are associated with the type of substance abused.** Some studies have found that alcohol abusers tend to experience more elated mood, pleasure-seeking, disinhibition, aggressiveness, assertiveness impaired judgement, incoordination, impaired social and occupational functioning. Alcoholics also tend to be low in control, harm-avoidance and constraint. Heavy drinkers also often experience pathological jealousy, hallucinosis, blackouts and depression. Drug abusers tend to experience impaired judgement, anxiety, unstable mood, impaired attention and motivation, confusion, self-destructive behaviours, panic, irritability, agitation, suspiciousness, impulsivity and aggression. They also tend to have unstable friendships and inadequate social support (Greenblatt, J.C, 2000; DSM-IV-TR, 2000).

Substance abuse is clearly experienced as highly stressful for all family members. It has been conservatively estimated that every substance abuser will negatively

affect at least two close family members to a sufficient extent that they will require primary health care services (Macdonald, Russell, Bland, Morrison & De La Cruz, 2002).Substance use and abuse among adolescents continues to be a serious condition that impacts cognitive and affective growth, school and work relationships, and all family members. There also seem to be an increasing rate of substance use by youth and first onset of substance use at younger ages. As youth abuse alcohol and illicit drugs, they may establish a continuing pattern of behaviour that damages their legal record, educational options, psychological stability, and social development. Alcohol and other psychoactive drugs play a prominent role in violent death for teenagers, including homicide, suicide, traffic accidents, violent behaviour, delinquency, psychiatric disorders, risky sexual behaviours, neurological and developmental impairment, and the adolescent may also develop a limited range of social skills (Alexander & Gwyther, 1995).

The family's struggle to cope with and solving the problem has been associated with immense stress and conflict, not only between parent and child, but also between siblings. Relationships within the family seem to disintegrate, adding to the seemingly relentless negative impacts of the problem. The initial discovery of the problem itself is embedded deeply within the family as a turning point towards something worse waiting to happen. More often than not, the family response upon discovery tends to range from profound anger, disbelief, shock and panic, to utter confusion. Parents feel an overwhelming sense of powerlessness and anger at their inability to restore some order within the family (Barnard, 2005). Most often, unhealthy **coping strategies** are employed. Deception and distortion occurs frequently and the reality of the addiction becomes distorted. Family members learn to live with abuse, anger, chaos, compulsive control, depression, disordered relationships, fear, guilt, impulsive behaviour, intergenerational addiction, mistrust, neglect, shame, and unhealthy coping strategies. These dysfunctional

ways of being can transfer outside of family relationships, thus affecting physical health, emotional well-being, school and occupational functioning, and so on.

Reilly (1992) describes several characteristic patterns of interaction, one or more of which are likely to be present in a family that includes parents or children abusing alcohol or illicit drugs: 1. *Negativism*, which refers to any communication that occurs among family members is negative, taking the form of complaints, criticism, and other expressions of displeasure. In such families, the only way to get attention or enliven the situation is to create a crisis. This negativity may serve to reinforce the substance abuse. 2) *Parental inconsistency* which refers to erratic rule setting, inconsistent enforcement and inadequate family structure. Children are confused because they cannot figure out the boundaries of right and wrong. As a result, they may behave badly in the hope of getting their parents to set clearly defined boundaries. These inconsistencies tend to be present regardless of whether the person abusing substances is a parent or child and they create a sense of confusion—a key factor—in the children. 3) *Parental denial* where, despite obvious warning signs, the parental stance is: "What drug/alcohol problem? We don't see any drug problem!" or "You are wrong! My child does not have a drug problem!" *4) Miscarried expression of anger*, where children or parents who resent their emotionally deprived home and are afraid to express their outrage use drug abuse as one way to manage their repressed anger. 5) *Self-medication* where either a parent or child will use drugs or alcohol to cope with intolerable thoughts or feelings, such as severe anxiety or depression. 6) *Unrealistic parental expectations* where children can excuse themselves from all future expectations by saying, "I'm just a pothead/speed freak/junkie." Alternatively, they may work obsessively to overachieve, all the while feeling that no matter what they do it is never good enough.

Although the impact of substance abusers on the whole family has attracted research, the impact on other brothers and sisters has not attracted as much research attention. Research specifically analyzing sibling influence on adolescent substance abuse did not emerge until the 1980s (Brook & Brook, 1990). Needle *et al*. (1986) had proclaimed, "Investigations of the role of siblings on adolescent substance use have been neglected". There could be several reasons for the limited number of research. Siblings have not been really identified as potential influencers aside from familial factors. Recent studies have only started to identify parents and siblings as separate constructs within the family (Bank, Burraston, & Snyder, 2004). Another explanation may be a technical one. National surveys of adolescents do not ask questions regarding sibling substance use (Sonenstein, Pleck, Ku, & Turner, 2000). Researchers (Slomkowski, Rende, Conger, Simons, & Conger, 2001) have concluded that "the neglect of sibling effects on delinquency, relative to parental and peer influences, is being challenged by an emerging literature suggesting that siblings exert a detectable, pronounced, and unique influence on the development of antisocial behaviour in childhood and adolescence".

Literature review suggests that there is little research specifically focussing on the siblings of substance abusers. However, there are parallels with siblings of an addict in research that examines the experiences of brothers and sisters of siblings with special needs or those with chronic illnesses or mental health problems (e.g., cerebral palsy, mental retardation, cancer; e.g., Gerace, Camilleri, & Ayers, 1993; Lamorey, 1999; Sharpe & Rossiter, 2002; Summers, White, & Summers, 1994). Although siblings understand that increased energy and time must be dedicated to the ill sibling, it does not prevent some resentment regarding the lack of time, energy, and attention available to them. Such children may experience a range of negative consequences, including anxiety or depressive symptoms (Sharpe & Rossiter, 2002), embarrassment, fear, neglect, resentment,

guilt, conflict with peers (e.g., Lobato, Kao, & Plante, 2005), and, globally, increased emotional problems (Hannah & Midlarsky, 1985; Lobato, 1983; Summers *et al*., 1994).

Drawing parallels from studies involving siblings having ill brothers or sisters, Lamorey (1999) hypothesized that siblings, like parents, may also feel overwhelmed, especially if they lack the tools to understand the meaning of the disability or disease. In a study of siblings of children with cancer, it was found that healthy siblings experience a greater burden from the disease than recognized by the parents (Murray, 2000). This is alarming since psychological stress that goes unacknowledged for extended periods may develop serious psychopathology. According to Cicrelli (1995), parents may become preoccupied with the ill child, giving little attention to the other children. The healthy children may be required to take on additional household responsibilities which allows less time for engaging in their own preferred activities.

In her study of siblings of children with chronic disability or disease, Lamorey (1999) found that healthy siblings must adjust to "differentness" in their family. Redefinition of roles, including parent-child and siblings roles, can occur in times of family crisis and stress. Positive sibling outcomes included opportunities to handle greater responsibility, which in turn contributed to healthy identity formation and increased self-esteem. These siblings learned sensitivity, altruism, and compassion. However, in some families, parentification of children occurred. Parentification is apparent when roles are reversed and the child habitually takes on adult roles and responsibilities (Hooper, 2007). Behaviours associated with parentification can include "extreme helpfulness, hyper-responsibility, and pseudomaturity" which can contribute to "depression, shame, excessive guilt, unrelenting worry, social isolation, psychosomatic problems, and conduct disturbances" (Lamorey, 1999). Lamorey (1999) reviewed 33 studies examining self-concept, internalizing symptoms, externalizing symptoms, or general level symptoms in siblings of children with chronic disability. It was generally found that having a sibling

with chronic illness or disability negatively impacted the healthy sibling's self-concept. Healthy siblings were at heightened risk for "depression, social isolation, anxiety, and insecurity" and "aggression, oppositional behaviour, delinquency, and peer difficulties". Additionally, the studies found irregularities in sibling roles and relationships including "increased child care responsibilities carried out by siblings, increased household tasks assigned to siblings, or decreased leisure time".

It is hardly surprising that other children in the family are largely ignored as attention shifted to the substance abusing sibling (Barnard, 2005). Parents' over-attention on the substance abusing sibling tends to lead to feelings of isolation, estrangement and being side-lined. The initial discovery of the sibling's substance abuse is typically met by a range of emotions, including shock, anger, dismay and guilt (Velleman *et al*., 1993). Siblings often report feeling guilty for a brother or sister's substance abuse. They also reported fear of being blamed or judged for a sibling's substance abuse (Dorn, Ribbens & South, 1994; Orford, Natera, Copello, Atkinson, Moro & Velleman, 2005; Sayer-Jones, 2006).This was accompanied by feelings of hostility, sadness, anger and resentment towards both the parents and the abusing sibling. Most siblings feel that their own interests have been compromised or sacrificed. Some reported that they have had to 'grow up' and take on responsibilities earlier than they would have taken if the problem had not been present. Most children also were often protective and defensive of their parents. Much like their parents, these siblings felt powerless and helpless to alter things. Given the stigma associated with substance abuse, it is also hardly surprising that some siblings felt ashamed and embarrassed to publicly acknowledge their brother's or sister's abuse (Barnard, 2005).

Siblings also lamented that their sibling's problem would drive a permanent wedge between them. The loss of a valued relationship with an elder sister or brother in whom

they could confide and share positive experiences was keenly felt. Some even reported that the relationship was forever lost. Siblings often worry about the health and well being of their brothers and sisters when they were using drugs or alcohol. They were anxious, unable to concentrate on other aspects of their lives and most often, felt helpless. Some siblings report that they experience dual lives as they try to conceal their pain, confusion and strife from others. They give the appearance of a carefree and happy life by not telling others about the family chaos. They often withdraw and isolate themselves from peers. Their self confidence and self image are often badly affected by their experiences (Dorn, Ribbens & South, 1994).

Families with drug-using children are likely to have a pervasive negative atmosphere in the family, as the entire family may focus their attention on the drug-using sibling, making the non user sibling feel marginalized. Sense of shame and embarrassment would also increase the sense of isolation felt by the non-drug-using sibling, and leading to a decrease in family attachment (Gregg & Toumbourou, 2003), and also an unwillingness to seek social support from outside the family because of fear of disclosure and the intense feeling of shame (Frye, Dawe, Harnett, Kowalenko & Harlen, 2008; Bamberg, Toumbourou & Marks, 2008).They are likely to be expected to play "good" in the family and not to elicit more troubles to their families, often requiring more maturity beyond their ages (Frye *et al*., 2008). It is reported that young people with drug-taking older siblings typically have a pervasive sense of loss about "losing" a former, more "normal" relationship with his/her sibling, and experience more anxiety and concern of the well being of their siblings. They also need to cope with seeing their parents struggle with their drug-using sibling (Frye *et al*., 2008). Thus a sibling with drug use may present a risk factor for sibling who is a not (Lloyd, 1998).

In the long run, substance abuse is a source of chronic trauma and its devastating impact accumulates over the years. As such siblings of substance abusers display a range of social, developmental, psychological and physical impairments. Health problem reported includes ulcers, shingles, raised blood pressure and angina. Social isolation is common and they often have difficulty relating to and empathizing with others. They also tend to have low self-esteem, self-blame, helplessness, hopelessness, expectations of rejection and loss, overestimation of the amount of danger in the world, and/or expectation of maltreatment or abandonment from others. Psychological symptoms such as anorexia, depression, panic attacks, 'nervous breakdown', somatoform disorders, sleep disorders, increased oppositional behaviour, difficulty regulating emotion, poor impulse control, aggression, self destructive behaviour, dissociation, compulsive sexual behaviour, bingeing, purging and, sometimes, thoughts of wanting to die have also been reported (Barnard, 2005; Coffey, Saladin, Drobes, Brady, Dansky & Kilpatrick, 2002; Greenblatt, 2000; Sayer-Jones, 2006; Snyder, Bank & Burraston, 2005; Velleman, Bennett, Miller, Oxford, & Tod, 1993).

Siblings are important sources of influence for many children and adolescents. Sibling relationships are unique and can be influenced by birth order, age groupings, gender dynamics and stages of individual development (Huberty & Huberty, 1986). Siblings from the same household differ in personality, psychopathology and cognition (Dunn & Stocker, 1989). However, if siblings are less than two years apart in age, are of the same sex, and spend time together at home or outside of home with little parental monitoring, siblings can become significant role models (Windle, 2000; Boyle *et al*., 2001). This is true especially related to the effects that older siblings have on younger ones, and if they are of the same gender (Vorst *et al*., 2007). Some studies even argue that, when comparing sibling versus parental influences, the former serves as a more powerful

role model especially during adolescence (Epstein, Williams, and Botvin, 2002; Fagan and Najman, 2005). Siblings have a long history of shared experiences that peers cannot replace and cannot have an effect of "peer selection" (Gregg & Toumbourou, 2003).

Two main theories of sibling influences are posited in the psychology literature. The first is the role model hypothesis which says that younger siblings observe and emulate the behaviour of an older sibling. A variant of this hypothesis for delinquent behaviour is Patterson's (1984) theory of "siblings as key pathogens." Patterson argues that siblings provide social learning or training models for developing antisocial tendencies, such as delinquent behaviour. Conflict ridden and coercive sibling relationships may act as a causative agent in the development, maintenance, and escalation of antisocial behaviour. The second theory is the "opportunity hypothesis". The basic idea is that siblings provide opportunity through friends and settings for sexual initiation/behaviour, substance use, etc. This theory posits that sibling resemblance in behaviour may be enhanced by positive dimensions of the sibling relationship. As a result, siblings who have a better and warmer relationship towards each other would tend to engage in this type of behaviour together. Several papers argue that the pattern of influence runs from older siblings to younger siblings (Buhrmester, 1992).

Two kinds of exposure to sibling drug use have been identified: routine everyday kind of exposure and deliberate exposure. Routine exposure to drug use refers to the kinds of everyday ways in which siblings sharing the same house or seeing each other fairly regularly might be exposed. In this kind of exposure, effort is made to conceal the abuse from other non abusing siblings. However, this often proves difficult to sustain, and some have been 'caught in the act' by their siblings. In deliberate exposure, the substance abusing sibling takes the decision to directly involve the non abusing sibling in his or her lifestyle. No attempt is made to conceal the substance abuse or substance of abuse.

However, the motive here is not solely about encouraging use but, sometimes, with the intention that it might be a deterrent. The intent could also sometimes be one of self interest, wherein the abuser uses the sibling to obtain the substance of abuse. There also seem to be situations in which the motive was to create some kind of equality between the siblings. Whatever the type, both kinds of exposure could either result in initiation or it could have the opposite effect on the other siblings (Barnard, 2005).

Various studies have confirmed the importance of sibling's substance abuse as an influence for drug or alcohol use. Merikangas, Rounsaville and Prusoff (1992) reported that in first-degree relatives of opiate dependent patients, 69% of siblings reported using at least one illegal drug, and 63% met diagnostic criteria for substance abuse. Copello, Velleman and Templeton (2005) also reported that siblings of substance abusers are at risk of abusing substances themselves. Conger and Reuter (1996) found evidence that a sibling's drinking intensify an adolescent's tendency to drink. Windle (2000) found that siblings' substance use strongly predict adolescent's substance use. Rowe and Gulley (1992) found strong correlations between siblings' substance use and another sibling's use of tobacco, alcohol, marijuana and inhalants. Needle, McCubbin, Wilson, Reineck, Lazar and Mederer (1986) also found associations between sibling's substance abuse and adolescent drug use. Barnard (2005) also reported that siblings who had been anti-drugs, often for reasons of close familial experience with their negative effects, went on to become drug addicts. Others have also found their research to be consistent with such findings (Bierut, Dinwiddie, Begleiter, Crowe, Hasselbrock & Nurnberger, 1998; Boyle, Sanford, Szatman, Merikangas, & Offord, 2001; Compton, Cottler, Ridenour, Ben-Abdallah & Spitznagel, 2002; Darling & Cumsille, 2003; Duncan, Duncan, & Hops, 1996; Hops, Andrews, Duncan, Duncan, & Tildesly, 2000; Kendler, Ji, Edwards, Ohlsson,

Sundquist & Sundquist, 2015; Kendler, Maes, Sundquist, Ohlsson & Sundquist, 2014; McGue, Sharma, & Benson, 1996).

However, just because one sibling has a drug or alcohol problem does not mean that the other sibling will have the same problem (Barnard, 2005; Hartman, Lessem, Hopfer, Crowley & Stallings, 2006; Stallings, Cherny, Young, Miles, Hewitt & Fulker, 1997). Resilience research suggests that while a large proportion of siblings show maladjustment, a certain proportion will also show positive adaptation in spite of their challenging circumstances (Luthar, Cicchetti, & Becker, 2000). Thus, while literature shows that siblings experience a range of negative consequences, some studies have reported that they may also show greater competencies and strengths, such as greater compassion, helpfulness, maturity and empathy (Hannah & Midlarsky, 1985; Labay & Walco, 2004; Sargent, 1995). Kaufman's (1985) theory on siblings also asserts that siblings of substance abusers either also become addicted or they become "good children". Therefore, no theory has provided a complete explanation of how genetically similar people raised in similar environments, in the same family structure develop different patterns of substance abuse. Thus, the process by which more than one sibling in a family goes on to become a drug addict or an alcoholic seems unclear, and more likely to result from the presence of a number of risk factors which includes genetic, biological, psychological and social dynamic processes.

Parents are known to be the most important agents of socialization. The role that parents play towards a child's optimum development and adjustment cannot be stressed enough. Several theories have focussed on the way parents interact and socialize with their children and this has led to what is known as ***parenting styles*** or child rearing styles. Parenting styles are broad patterns of childrearing practices, values, and behaviours. It is the way parents take care of their children which can have impact on the children's

personality, development and the ways of interacting with social and close relations (Akhtar, 2012). Baumrind's (1971) distinction between three styles of parenting viz., *authoritative, authoritarian and permissive,* and a fourth style known as *neglectful or uninvolved*, added by Maccoby and Martin (1983) has lent a clearer picture of related child behaviours. Authoritative parents are characterised as being firm, setting clear and consistent limits. They tend to be strict, but are loving and supportive. They try to reason with their children, giving explanations for why they should behave in a certain way. Authoritarian parents are controlling, punitive, rigid and cold. They value strict and unquestioning obedience from their children and often known to be rejecting. Permissive parents are warm, un-controlling and undemanding. They place little or no limits on their children's behaviour. Uninvolved parents show virtually no interest in their children and display indifferent, rejecting behaviour. They are emotionally detached with little involvement and control (Feldman, 2014).

Authoritative parenting has been positively linked to psychosocial competence, academic success, fewer internalizing problems (Steinberg, 2001), fewer externalizing problems (Patock-Peckham & Morgan-Lopez, 2006; Steinberg, 2001), higher levels of self-regulatory skills among young women (Patock-Peckham & Morgan-Lopez, 2001), and also self conceptualization, greater well being and fewer behavioural problems including drug involvement (Baumrind, 1991). Some studies found permissive parenting to be as effective as authoritative parenting and sometimes even better for self esteem and school performance (Calafat *et al*., 2014). Other researchers, however, found that permissive parenting led to worse outcomes on attitude to school, higher frequency of substance abuse, school misconduct, low self-esteem, less persistence on learning tasks, low tolerance for frustration, and extrinsic motivational orientation (Ang, 2006).

Researchers have found that Authoritarian parenting put children at risk for alcohol and drug abuse (Abikoye *et al*., 2014; Ang, 2006; Calafat *et al.,* 2014; Changalwa, Ndurumo, Barasa & Poipoi, 2012; Patock-Peckham & Morgan-Lopez, 2007), negative self perceptions (Buri, Louiselle, Misukanis, & Mueller, 1988), depression (Patock-Peckham & Morgan-Lopez, 1997) and other internalizing symptoms (Patock-Peckham & Morgan-Lopez,1996).Uninvolved parenting have also been linked with more licit and illicit drug use, low self esteem, lower impulse control and alcohol abuse (Baumrind, 1991; Brennan, 1986; Changalwa *et al.,* 2012). Children of uninvolved/neglecting parents may lack the ability to form close relationships, feel unloved, helpless and isolated. Children may even develop bitter, hostile and anxious feelings (Stein, 2001). Researchers found that uninvolved parenting style was related to delinquent acts such as vandalism and petty theft as well as assault and rape (Hoeve, Dubas, Eichelsheim, van der Laan, Smeenk, & Gerris, 2009).

According to Rohner's (1986, 2014) interpersonal acceptance–rejection theory (IPARTheory), children's and adults' perceptions of interpersonal (e.g., parental) acceptance is the foundation of healthy psychological adjustment. IPARTheory (formerly known as parental acceptance–rejection theory, PARTheory) is an evidence-based theory that aims to explain and predict the major consequences and other correlates of interpersonal (parental) acceptance–rejection worldwide (R. P. Rohner, 1986; R. P. Rohner, Khaleque, & Cournoyer, 2012).Together, parental acceptance and rejection form the warmth dimension of parenting. This is a dimension or continuum on which all humans can be placed because everyone has experienced in childhood more or less love at the hands of major caregivers. One end of the continuum is marked by parental acceptance, which refers to the "warmth, affection, care, comfort, concern, nurturance, support, or simply love" that children can experience from their parents and other

caregivers. The other end of the continuum is marked by parental rejection, which refers to the "absence or significant withdrawal of these feelings and behaviours and by the presence of a variety of physically and psychologically hurtful behaviours and affects" (Rohner, 2004).

Parental rejection can be experienced by any combination of four principal expressions: (1) cold and unaffectionate, the opposite of being warm and affectionate, (2) hostile and aggressive, (3) indifferent and neglecting, and (4) undifferentiated rejecting. Parental *warmth and affection* can be shown physically (e.g. hugging, kissing, caressing, and comforting), verbally (e.g. praising, complimenting, and saying nice things to or about the child), or symbolically in some other way, as with the use of culturally specific gestures. When parents act on feelings of *hostility*, anger, resentment, or enmity, the resulting behaviour is generally called *aggression*. Parents may be physically aggressive (e.g., hitting, pushing, throwing things, and pinching) and verbally aggressive (e.g. sarcastic, cursing, mocking, shouting, saying thoughtless, humiliating, or disparaging things to or about the child). Additionally, parents may use hurtful, nonverbal symbolic gestures toward their children. Parental *indifference* can be seen as *neglect*. Neglect is not simply a matter of failing to provide for the material and physical needs of children, however; it also pertains to parents' failure to attend appropriately to children's social and emotional needs. Neglecting parents pay little attention to children's needs for comfort, solace, help, or attention; they may also remain physically as well as psychologically unresponsive or even unavailable or inaccessible. *Undifferentiated rejection* refers to individuals' beliefs that their parents do not really care about them or love them, even though there might not be clear behavioural indicators that the parents are neglecting, unaffectionate, or aggressive toward them (Rohner, 2004).

Rohner's (2004) concept of parental acceptance-rejection syndrome strongly support the conclusion that children and adults who perceive themselves to be rejected tend to display several psychological maladjustments: hostility, aggression, emotional unresponsiveness; immature dependence, impaired self-esteem, impaired self-adequacy, emotional instability, ever-increasing anger, resentment and negative worldview. Additionally, these children also appear to be predisposed toward depressed affect, behavioural problems including conduct disorders, externalizing behaviours, delinquency and substance abuse (Rohner & Britner, 2002). Parental rejection makes the child hesitant, aggressive, and hostile toward others because of the chance of rejection. It also causes the child to feel unworthy of love, resulting in impaired self-esteem; depressive feelings, a negative world view, and so on (Rohner 2004).On the other hand, individuals who perceive themselves to be accepted by parents tend to develop little hostility or aggression, independence, positive self-esteem, positive self-adequacy, emotional stability, emotional responsiveness, and positive worldview (Rohner, 2004). In short, a meta-analysis of 43 studies drawn from 7,563 respondents in 15 countries (Khaleque & Rohner, 2002) confirmed that perceived parental acceptance is universally associated with psychological adjustment and perceived parental rejection is associated with psychological maladjustment.

In a recent cross-cultural meta-analysis based on 220 studies from 23 nations across five continents, it was found that both paternal and maternal acceptance correlate significantly with the psychological adjustment of both children and adults across all cultures. The study also showed that there are no gender differences in the relation between *children's* perception of parental acceptance and their psychological adjustment. However, remembrances of *maternal* acceptance in childhood showed significantly stronger relations with adult sons' current psychological adjustment than that of adult daughters. Moreover, remembrances of *paternal* acceptance in childhood were found to

have significantly stronger relations with adult daughters' psychological adjustment than did daughters' remembrances of *maternal* acceptance (Ali, Khaleque & Rohner, 2015)

Gender differences in perceived parental acceptance–rejection from the existing literature are mixed and inconsistent. For example, some researchers claim that mothers tend to be more accepting than fathers (Forehand & Nousiainen, 1993; Gamble, Ramakumar, & Diaz, 2007; Gerlsma & Emmelkamp, 1994; Winsler, Madigan, & Aquilino, 2005). Putnick *et al.* (2012), for instance, found in nine nations that mothers tended to be warmer and more accepting than fathers. Other researchers, however, have found either no significant differences between offspring's perceptions of mothers' and fathers' acceptance, or occasionally, fathers are perceived by offspring to be more accepting than mothers (Chen, Liu, & Li, 2000; R. P. Rohner & Britner, 2002; R. P. Rohner & Veneziano, 2001; Russell & Russell, 1989). Studies regarding males' versus females' perceptions of parental acceptance have also been mixed. Some studies, for example, report that girls perceive their parents to be more accepting than do boys (Chung, Zappulla, & Kaspar, 2008). Other studies report that boys perceive their parents to be more accepting than do girls. Still other studies have found no differences in males' versus females' perceptions of parental acceptance (Lila, Garcia, & Gracia, 2007).

Numerous studies suggest that parental rejection is causally connected with both drug abuse and alcohol abuse (Hundleby & Mercer, 1987; Rosenberg, 1971; Emmelkamp & Heeres, 1988). Parental rejection also appears to be correlated with almost all forms of behaviour problems, including conduct disorders, externalizing behaviour, and delinquency (Maughan, Pickles, & Quinton, 1995; Saxena, 1992). A number of longitudinal studies in the U.S. (Ge, Best, Conger, & Simon, 1996; Loeber & Stouthamer-Loeber, 1986; Simons, Robertson, & Downs, 1989), and globally (Chen, Dong & Zhou, 1997) show that parental rejection tends to precede the development of behaviour problems.

Rejecting parenting (characterized by a lack of emotional warmth) has been significantly associated with a lack of self-acceptance, low self-esteem, and an inability to be self-directed. Moreover, poor parental bonds have been linked to internalizing problems, stress, depression (Burstein, Stanger, Kamon, & Dumenci, 2006; Nada Raja, McGee, & Stanton, 1992); problems with alcohol (Barnow, 2002); problem behaviour (Windle & Miller- Tutzauer, 1992); and higher levels of aggression in female offspring (Brook, Whiteman, & Finch, 1993). On the other hand, those that perceive themselves to be accepted tend to feel good about themselves, feel competent, have less problems with the management of hostility and aggression, have adequate emotional responsiveness and emotional stability, have less dependence and have a positive worldview (Kim & Rohner, 2002, 2003; Rohner, 2004). Perceiving love, care, affection, and warmth from parents is related to higher self-esteem, social competence, and lower rates of depression and behavioural problems (Rohner & Britner, 2002).

In a study of the relationship between parental acceptance and rejection with self esteem among adolescents, it was found that parentally accepted adolescents have positive self esteem and parental rejection was found to be associated with negative self esteem (Ansari & Qureshi, 2013). In a 3-year longitudinal study of 1,247 families in nine nations, Putnick *et al.* (2014) found that children's perceptions of maternal and paternal acceptance–rejection have nearly universal effects on multiple aspects of children's adjustment and development. Specifically, higher perceived parental rejection predicted increases in internalizing and externalizing behaviour problems as well as decreases in school performance, and pro-social behaviour.

Rasmi (2008) examined the relationship between parental rejection in childhood and three types of adjustment in youth adulthood: Positive (life satisfaction), negative (risky behaviour), and acculturative (sociocultural difficulties). Subjects were university

students from three ethno-cultural groups: European Canadians, Arab Canadians, and Arabs in Egypt and Lebanon. Results showed that individuals who were rejected in childhood were consistently less likely to enjoy a higher level of psychological well-being, more likely to engage in risky behaviour, less likely to be satisfied with their lives, and more likely to encounter socio-cultural difficulties in young adulthood. Moreover, psychological well-being mediated the relationships between parental rejection and both risky behaviour and life satisfaction.

In a study among Serbian adolescents, it was found that adolescent with conduct disorder perceive their parents as more rejecting and less warm and supportive compared to adolescents without conduct disorder. The perception of significant and severe parental rejection was associated with a significantly higher averaged score on the subscale of externalizing symptoms in the group of adolescents with conduct disorder compared to those with no such disorder (Kostic, Nesic, Stankovic & Zikic, 2014).

Baron and MacGillivray (1989) who investigated relationship between perceived rejection from parents and depressive symptoms in adolescents found father's rejection as the most powerful predictors of depressive symptoms in these adolescents. Similarly, Hammen (2005) reported childhood parental rejection as the strongest predictor of depression in adults and adolescents. Some researchers noted relationship between parental rejection and depression as well as with maladjusted behaviour in adolescents. Najam and Kausar (2012) found that father’s rejection had significant positive relationship with hostility, depression and conduct problems in adolescents. The researchers also found that fathers’ involvement had inverse correlation with the depression, hostility, dependency, negative self esteem, negative self adequacy, emotional unresponsiveness and negative world view in adolescents in Pakistan. Some researchers (Greenberger & Chen, 1996) suggest that depression as a result of parental rejection is more common in female adolescents in comparison with the male adolescents. Researches also show high

associations between adolescents' emotional, behavioural internalizing problems, depression, maladjustment and rejection from parents (Fotti, Katz, Afifi, & Cox, 2006).

Negative parenting and rejection are major variables that influence the development of children and their mental and psychological health during adolescence and adulthood (Yoshizumi, Murase, Murakami, & Takai, 2007). Shedler and Block (1990; as cited in Rohner *et al*., 2007) argued that parental rejection has an association and predict personality problems and behavioural problems in children. These problems include poor interpersonal communication with peer, emotional distress, depression and insecurity feelings in children. Rothbaum and Weiz's (1994) meta-analysis of forty-seven researches revealed robust associations between parental rejection and children's externalizing behaviour i.e., hostility, aggression and non-compliance behaviour.

According to Rohner (1998), father's love explain as much or more in children's and adult's outcomes as mother's love. Father's love is specifically associated with specific aspects of offspring's development and adjustment. Both father and mother's involvements were related to offspring's happiness but father's involvement proved to be a significant contributor to the well being of adolescents. Additionally, it was also found that father's involvement has no discriminatory impacts on sons and daughters (Flouri & Buchanan, 2003). Veneziano (2000) also found that perceived paternal acceptance was significantly associated with self reported psychological adjustment of European American youths wherein African American families both perceived paternal and maternal acceptance was related to their self reported psychological adjustment. Mark (2006) found that high level of a child's well-being was related to higher levels of father-child relationships quality and paternal warmth. Kuterovac-Jagodic, and Kerestes, (1997) found that total aggression score of young adults was predicted by their father's undifferentiated rejection, whereas their extroversion was associated with father's warmth and affection and their verbal aggression was related with father's hostility and aggression. Difference in

aggression and perceived parental rearing factors were observed between delinquent and non-delinquent adolescents. Aggression in both groups was related to rejecting rearing practices (Ruchkin, Eisemann, & Hagglof, 1998).

Imam and Shaik (2005) examined the effect of the presence and absence of father's love on personality development of the male and female child. Results indicate that the difference on personality assessment questionnaire was insignificant for girls but was significant for boys. It was suggested that those male children who experienced father's love have good psychological adjustment as compared to those male children who did not experience father's love. Furthermore there was a significant relationship between perceived parental acceptance-rejection and psychological adjustment of both genders. In another study father's over protection was positively related with the high level of anxiety. Additionally high parental rejection group has high level of anxiety as compared to low parental rejection group (Shafi & Bhutto, 2006). Munaf and Sardar (2010) found that childhood parental rejection has significant positive correlation with depressive state in adulthood and parental emotional warmth during childhood has significant negative correlation with depressive symptoms in adulthood.

The quality of children's relationship with their father or mother moderated or reduced the potential negative effect of acute and chronic stressors. According to Barnes and Farrell (1992), parental support and monitoring are strong predictors of adolescent problem outcomes even after controlling for socio-economic status, age, gender, race, family history of alcohol abuse, and family structure. Adolescents who reported having more house rules or the highest levels of parental monitoring showed the lowest levels of behavioural problems(i.e., drinking, illicit drug use, deviance, or misconduct at school).Family cohesion and expressiveness are predictors of higher social competence and lower psychological distress (Moos, 2004). Lack of parental interest creates feelings of rejection which is related to adjustment problems. On the other hand, too much parental

interest or over involvement also causes adjustment problems (Hale, 1998; Jones, Sears & Milburn, 1990). Parental support is associated with high self esteem and happiness (Lempers & Clark-Lempers, 1990), and lower rates of delinquency (Hoffman, 1993). Strong parental support and monitoring has been found to be associated with less substance use among youths (Sumnall *et al.,* 2006).

Parental support and communication are found to have a wide impact on other variables that are related to adolescent substance use, including adolescents' self control, competence and peer affiliations (Wills, Gibbons, Gerrard, Murry & Brody, 2003).Children's perceptions of parents' differential treatment are associated with children's poorer socio-emotional well-being (McGuire, Dunn, & Plomin, 1995; Stocker, 1995).Research has consistently shown that receiving less favourable parental treatment than one's sibling was positively associated with children's behaviour problems, depressed mood, anxiety, and low self-esteem (Dunn, Stocker, & Plomin, 1990; McHale, Crouter, McGuire, & Updegraff, 1995; McHale, Updegraff, Jackson-Newson, Tucker, & Crouter, 2000). Longitudinal research has found similar results for children's externalizing problems from middle childhood to adolescence (Conger & Conger, 1994; McGuire, Dunn, & Plomin, 1995).Poor parental monitoring is related to higher levels of externalizing behaviours, such as delinquency, aggression and antisocial behaviour, and violence (Patterson & Stouthamer-Loeber, 1984; Peterson, Ewigman, & Kivlahan, 1993; Singer, Miller, Guo, Flannery, Frierson, & Slovak, 1999). Low parental monitoring is related to earlier initiation of substance use (Chilcoat, Dishion, & Anthony, 1995; Steinberg, Fletcher, & Darling, 1994) and to drug use and drug trafficking among low-income African American children and adolescents (Li, Stanton, & Feigelman, 2000).

An important factor that seems to determine healthy psychological adjustment is ***personality*** (Barnard, 2005). Personality traits are enduring patterns of thoughts, feelings

and behaviours, which are rather consistent during lifetime and can be described according to five broad dimensions, also known as the Big Five personality domains: neuroticism, extraversion, openness, agreeableness and conscientiousness. ***Neurotic*** persons are nervous, touchy, anxious, depressed, and insecure. It is the tendency to experience negative emotions, such as anger, anxiety, or depression. It is sometimes called emotional instability. Emotional stability is the opposite of neuroticism. As such, emotionally stable individuals are calm, unemotional, and self-satisfied. ***Extraversion*** reflects the frequency and quality of interpersonal contact, capacity for joy, activity level, and stimulation-seeking behaviour. It is marked by marked engagement with the external world. Extroverts enjoy being with people, and are often perceived as full of energy. They tend to be enthusiastic, action-oriented individuals. In groups they like to talk, assert themselves, and draw attention to themselves. The opposite of extroverts, introverts tend to seem quiet, low-key, deliberate, and less involved in the social world. Introverts simply need less stimulation than extroverts and more time alone. ***Openness*** comprises characteristics such as curiousness, versatility, creativity, and originality. It is a general appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity, and variety of experience. People who are open to experience are intellectually curious, appreciative of art, and sensitive to beauty. They are more likely to hold unconventional beliefs. Low openness people are often described as pragmatic, dogmatic and closed-minded. ***Agreeable*** individuals are compassionate, good-natured, complying, and trusting. Agreeableness is a tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. Agreeable individual's value is getting along with others. They are generally considerate, friendly, generous, helpful, and willing to compromise their interests with others. Agreeable people also have an optimistic view of human nature. They believe people are basically honest, decent, and trustworthy. In fact, agreeableness refers to a compliant, trusting, empathic, sympathetic, friendly and cooperative nature.

Low agreeable people are often seen as antagonistic and suspicious towards others. ***Conscientious*** persons are best described as dutiful, scrupulous, perseverant, punctual, and organized. Conscientiousness is a tendency to show self discipline, act dutifully, and aim for achievement. The trait shows a preference for planned rather than spontaneous behaviour. It influences the way in which we control, regulate, and direct our impulses. Low conscientious people are flexible and spontaneous and can be perceived as sloppy or unreliable(Costa & McCrae, 1992; Eysenck & Eysenck, 1969; McCrae & Costa, 2008).

Although some theorists have argued that adolescent personality is unformed and unstable, a considerable body of research supports the view that personality shows substantial continuity from at least age three through the adolescent years and beyond (Caspi, 1998). Young children who are shy and inhibited are more likely to be anxious and inhibited in adolescence (Kagan and Snidman, 1991; Gest, 1997).Infants who are insecurely attached at 12 to 24 months of age are more likely than their securely attached peers to have interpersonal difficulties in childhood (Jacobsen and Hofmann, 1997) and to have lower ratings of emotional health, self-esteem, ego resiliency, and peer competence as adolescents (Sroufe, Carlson, and Shulman, 1993). Boys who are aggressive in childhood are more likely to be antisocial or otherwise dysfunctional adults (Caspi, Elder, and Herbener, 1990). Boys who are under-controlled and impulsive, and girls who are over-controlled and constricted, are more likely to be depressive in late adolescence and early adulthood (Block and Gjerde, 1991). Childhood axis I symptoms (e.g., conduct disorder, major depression) are highly predictive of later adolescent personality pathology as assessed using axis II criteria (Bernstein et al., 1996). All these studies suggest considerable continuity over time between childhood and adolescent personality, just as Offer *et al*.'s (1998) data showed continuity into adulthood.

Other relevant data come from research on the Five Factor Model of personality (FFM), which shows that the same dimensions that capture many important aspects of personality in adulthood across several cultures (McCrae and Costa, 1997)—neuroticism (negative affect), extroversion, conscientiousness, agreeableness, and openness to experience—appear to capture important individual differences in adolescents (John *et al*., 1994). Although the Five Factor Model of Personality makes no statement about the nature and direction of the relationship between personality and psychopathology, an extensive amount of research has been done to study the association between personality characteristics and psychopathology, including substance abuse.

Although most FFM studies of adults have relied exclusively on self-reports, John and colleagues (1994) studied the links between adolescent personality and psychopathology using an FFM measure, personality ratings by mothers, and reports of behaviour problems by teachers. John *et al.*'s (1994) findings support the view that the FFM can be used in adolescents to predict relevant criterion variables. For example, boys who had committed severe delinquent acts (e.g., shoplifting, vandalism, drug dealing, and gang fighting) were substantially lower on Agreeableness and Conscientiousness than non-delinquent boys. Boys with externalizing pathology more generally (e.g., stealing, lying, inattention, impulsivity, hyperactivity, aggression) showed a similar pattern. Internalizing boys were higher on Neuroticism and lower on Conscientiousness than non-internalizing boys. FFM data were also able to predict school performance: Conscientiousness and Openness both predicted higher teacher ratings for adolescent boys' achievement in reading, writing, spelling, and math. Since Hippocrates, who described four types of temperament and related them to both physical and mental health, many theories have been developed to reflect on the association between personality characteristics and psychopathology.

In terms of the Five Factor Model of personality, substance abusers have been characterized by low extraversion (Kornor and Nordvik, 2007; Trull & Sher, 1994; Walton & Roberts, 2004). Dubey, Arora, Gupta and Kumar (2010), however, found that substance-abusing group scored higher on Extraversion. Substance abusers are also characterized by low agreeableness (Boogar, Tabatabaee and Tosi, 2014; Coeffec, 2011; Dubey, Arora, Gupta and Kumar, 2010; Flory, Lynam, Milich, Leukefeld, & Clayton, 2002; Martin & Sher, 1994; Trull & Sher, 1994; Walton & Roberts, 2004), and low conscientiousness (Boogar, Tabatabaee and Tosi, 2014; Dubey, Arora, Gupta and Kumar, 2010; Flory *et al*., 2002; Kornor and Nordvik, 2007; Martin & Sher, 1994; Trull & Sher, 1994; Tucker *et al*., 1995;Walton & Roberts, 2004), as well as low agreeableness (Boogar *et al*., 2014; Coeffec, 2011; Flory *et al*., 2002; Martin & Sher, 1994; Trull & Sher, 1994; Walton & Roberts, 2004). High neuroticism has also been found to predispose individuals to substance abuse (Boogar *et al*., 2014; Dubey *et al*., 2010; Fridberg, Vollmer, O'Donnell & Skosnik, 2011; Jornet-Gibert, Gallardo-Pujol, Suso & Andres-Pueyo, 2013; Sher, Bartholow, & Wood,, 2000; Solomon, Kiang, Halkitis, Moeller & Pappas, 2010).

Models of personality such as the Big Three (Eysenck, 1947, 1990) or the Five Factor Model of Personality (Costa & McCrae, 1992) have been used to profile personality characteristics of substance abusers. Big three models have characterised heavy users to score high on measures of Psychoticism and Neuroticism (Barnes, 1983; Kannappan & Cherian, 1989; Rankin, Stockwell, & Hodgson, 1982; Sher *et al*., 2000). On the Extraversion dimension, however, findings have been discrepant. While some researchers found abusers to be extraverted (Jackson and Matthews, 1988; Kannappan & Cherian, 1989; Shanmugam, 1979), others have also found them to be more introverted (Ebile and Pela, 1981; Rankin *et al*., 1982) and still others found that they do not differ from non abusers (Barnes, 1983; Eysenck & Eysenck, 1976).

Personality characteristics are associated with internalizing as well as externalizing forms of psychopathology. Among the most studied of these are associations with depression. Malouff *et al.* (2005) found in their meta-analysis that mood disorders were associated with a typical pattern of personality traits. They were generally associated with higher levels of Neuroticism, and lower levels of Extraversion, Conscientiousness and Agreeableness, whereas no significant association was found with Openness. Another meta-analysis (Kotov *et al*., 2010) also showed an association between depressive disorders and both high levels of Neuroticism and low levels of Conscientiousness. There is also a body of research examining the relationship between personality characteristics and Post-Traumatic Stress Syndrome (PTSD). Personality trait of neuroticism has been consistently linked with PTSD symptoms. In a cross sectional study conducted on holocaust survivors, Brodaty *et al*. (2004) found that only higher neuroticism was associated with significant PTSD. The same was shown in a cross-sectional study on Chinese students after a snowstorm disaster (Wu *et al*. 2011). Similarly, this finding was confirmed in two longitudinal studies of young adults (Parslow *et al*., 2006) and women after miscarriage or stillbirth. On the other hand, both neuroticism and psychoticism were linked to PTSD in one cross-sectional study conducted on war veterans (Casella & Motta 1990). In their post-trauma prospective study on victims of traffic accidents, Holeva & Tarrier (2001) showed that both neuroticism and psychoticism were significantly correlated with posttraumatic symptoms.

The relationship between the Big Five personality traits and anxiety has also often been investigated in research. For example, a meta-analysis of 175 studies showed that individuals diagnosed with social phobia, agoraphobia, panic disorder, generalized anxiety disorder, or post-traumatic stress disorder had significantly higher mean neuroticism scores than average control samples, but significantly lower extraversion and conscientiousness scores than average control samples (Kotov *et al*., 2010). Sharma (2003)

also found that neuroticism correlated significantly with GAD. Neuroticism was also found to be high among patients with GAD (Gul, Simsek & Inanir, 2014). A considerable amount of research has also linked personality with suicide or suicidal ideation. Among undergraduate students, high neuroticism is positively related to greater incidence of suicidal ideation (Velting, 1996 b). More recently, Devi and Prakash (2015) found that among college students, high neuroticism, low extraversion and low conscientiousness have positive relation with suicidal ideation. Further, it was also revealed that openness to experience and agreeableness have insignificant relation with suicidal ideation.

Other internalizing disorders associated with personality include self concept, eating disorders and interpersonal relationships. In a study among subjects who were visually impaired and those who were not, negative relations were found between neuroticism and self concept (Garaigordobil & Bernaras, 2009). Similar findings were reported by Sushma, Kumar & Batra (2015) and Boyes (2014), who also found strong correlations between neuroticism and self esteem. Self esteem was found to be positively correlated with extraversion (Kenneth, 2014; Sushma *et al*., 2015) agreeableness (Barnhart & Hindman, 2014; Kuppens, 2005) and conscientiousness (Sushma *et al*., 2015). Another related area of research is the relationship between personality and eating disorders. Dysfunctional eating patterns are linked with personality trait of neuroticism (Elfhag & Morey, 2008; Provenchet, Begin, Gagnon-Girouard, Tremblay, Boivin & Lemieux, 2008). Abnormal weight has also been associated with trait Neuroticism. Individuals who are underweight tend to score higher in proneness to negative affect than those who are in the normal weight range (Kakizaki *et al.*, 2008; Terracciano *et al*., 2009). In a study of obesity, it was found that higher scores on openness were associated with being heavier (Sutin Ferrucci, onderman & Terraciano, 2011). Conscientiousness has been consistently linked with healthy food intake (Bogg & Roberts, 2004; Goldberg & Strycker, 2002;

Vainik, Dagher, Dub & Fellows, 2013). High conscientiousness is also related to low BMI (Sutin *et al*., 2011).

Several researches also focus on personality characteristics and social relationships or more specifically interpersonal relationships. Neuroticism was found to negatively influence the interpersonal relationship between lecturers and students (Ayodele, 2013). Individuals high in neuroticism often express anger, moodiness, and insecurity and are not central in their friendship networks (Klein, Lim, Saltz & Mayer, 2004). Kalish and Robins (2006) provide evidence that extraverted workers tend to construct broad, dense, heterogeneous social networks. Extraverts not only have a higher quantity of interpersonal relationships, but they also perceive those relationships to be of higher quality. Extraverted individuals feel closer to their friends and value those relationships more highly (Berry, Willingham & Thayer, 2000).Agreeable people have been described as likeable, pleasant, and responsive to the needs of others (Graziano & Tobin, 2009). Tobin, Graziano, Vannman, and Tassinary (2000) described agreeable people as concerned with maintaining positive relationships with others.

Externalizing disorders associated with personality includes various forms of anti social behaviours and academic performance. Oppositional Defiant Disorder (ODD) is reflective of the personality traits "low agreeableness" and "high negative emotionality" (Lahey and Waldman 2003). Neuroticism is found to be a significant predictor of anger and hostility (Hofmans, Kuppens, & Allik, 2008; Ode *et al*., 2008; Sharpe & Desai, 2001; Tremblay & Ewart, 2005). These observations support the fact that trait anger is often considered to be a facet of neuroticism (Costa & McCrae, 1992). High neuroticism was linked with enhanced expression of anger and aggression (Pease & Lewis, 2015). Neuroticism was also found to be directly and indirectly (through aggressive emotions) related to physical aggression (Barlett & Anderson, 2012).Martin and colleagues (1999) found an inverse relationship between inwardly-expressed anger and extraversion, with the

facet of excitement seeking having a significant relationship to reactive aggression (r = .31). Low extraversion also predicted inwardly-expressed anger (Pease & Lewis, 2015). Sharpe and Desai (2001) found that the correlation between self-reported physical aggression and Extraversion was negative. Low agreeableness is also found to be associated with oppositional defiant disorder (Lahey & Waldman, 2003). Costa and McCrae (1995) have hypothesized that agreeableness is inversely related to antisocial behaviour. Agreeableness shows a consistent inverse relationship with anger (Egan & Campbell, 2009; Graziano & Tobin, 2002; Hofmans, Kuppens & Allik, 2008; Meier & Robinson, 2004). Conscientiousness is inversely correlated with delinquent behaviour (Costa & McCrae, 1995; Digman & Inouye, 1986; Graziano, 1994). Several studies have demonstrated an inverse relationship between conscientiousness and both anger and aggression (Burton, Hafetz, & Henninger, 2007; Lee & Dow, 2011; Miller, Zeichner & Wilson, 2012; Tremblay & Ewart, 2005).

Personality traits positively associated with academic success are openness (Farsides & Woodfield, 2003) and conscientiousness (Noftle & Robins, 2007). Neuroticism has been negatively linked with academic achievement (Entwistle & Cunningham,1968), while extraversion and agreeableness have been found to be either non significant or poorly negatively correlated(Kuncel, Hezlet, Ones,Crede, Vannelli & Thomas, 2005; Noftle & Robins, 2007). Other studies have also found that personality traits such as Conscientiousness and agreeableness have been found to significantly related to students' performance in a course. This means students who are high in conscientiousness and agreeableness performed better than those low in conscientiousness and agreeableness (Chowdory and Amin, 2006). Similarly in a longitudinal study conducted by Furnham, Chamorro-Premuzic and McDougall (2003), the relationship between the Big Five personality traits, cognitive ability, and beliefs about intelligence was explored. It was found that university students who are more conscientious were more

likely to think that intelligence can be increased throughout the life span whilst low conscientious individuals were more likely to believe that intelligence is stable. In addition, personality trait such as conscientiousness was found to be positively correlated with academic performance, while the extraversion trait was found to be negatively correlated with academic performance.

Specific temperament characteristics have been linked to alcohol use and substance abuse (Colder & Chassin, 1997; Cloninger, Sigvardsson, & Bohman,1988) and are also predictive of behavioural outcomes during adolescence and young adulthood (Newman, Caspi, Moffitt, & Silva, 1997). Substance problems and antisocial behaviour have been correlated with impulsivity, ego control, constraint, problem behaviour syndrome, sensation seeking and novelty seeking (Tellegen, 1985; Whiteside & Lynam, 2001; Zuckerman & Kuhlman, 2000). Similarly, robust evidence documents significant correlations between personality traits and externalizing forms of psychopathology, the most relevant specific traits being aggression and impulsivity (Acton, 2003; Casillas & Clark,2002; Lynam, Leukefeld, & Clayton, 2003; Sher, Bartholow, &Wood, 2000; Slutske, 2002). In the higher order structure of personality, these specific traits fall in the domains of Disagreeableness and Unconscientiousness at the five-factor level, and these five-factor-level domains combine to form the broader domain of disinhibition, or lack of constraint (Markon, Krueger, & Watson, 2005). Miller and Linam (2003) reported a relationship between lower scores of conscientiousness and agreeableness and anti-social behaviour.

Callous/unemotional traits are at least as important as impulsive traits in differentiating a subgroup of adolescents with severe and chronic conduct problems (Frick *et al.,* 2005). Thus, adolescents who, for example, tend to act without thinking and have trouble delaying gratification or tend not to feel bad or guilty and are not concerned about

others' feelings engage in more delinquent behaviour than adolescents without these characteristics. Among children, personality dispositions such as high emotionality, high distress, anger, low self esteem and low empathy are more easily affected by stressors, whereas active, sociable, self confidence and sense of mastery are more stress resistant (Jones, Sears & Milburn, 1990; Moos, 2004; Pincus & Friedman, 2004).Neuroticism is associated with less adaptive coping strategies, while extraversion is related to task oriented and avoidance coping strategies (Cosway, Endler, Sadler & Deary, 2000; McWilliams, Cox & Enns, 2003; Saklofske & Kelly, 1995; Uehara, Salado, Sato & Taldzawa, 1999).

Explicit personality assessments (self-report) consistently document that women report higher levels of extraversion, neuroticism, agreeableness and conscientiousness on the Big Five personality dimensions (Costa, Terracciano, & McCrae, 2001; Feingold, 1994; McCrae, 2002; McCrae, Terracciano, & 78 Members of the Personality Profiles of Cultures Project, 2005). These differences are robust across methods (Feingold, 1994; McCrae *et al*., 2005) and vary slightly across countries (Schmitt, Realo, Voracek, & Allik, 2008). In western countries, gender differences are moderate for neuroticism and small for extraversion, agreeableness and conscientiousness. Prior studies on gender differences in implicit personality traits measured by the Implicit Association Test(IAT, Greenwald, McGhee, & Schwartz, 1998; Nosek, Hawkins, & Frazier, 2011) have reported mixed findings. On the one hand, Egloff and Schmukle (2004), Frost, Ko, and James (2007) and Vianello, Robusto, and Anselmi (2010) found that sex differences for anxiety, hostility and conscientiousness were small or near zero when employing implicit measures, and higher for self-reported traits.

Research on ***coping styles*** have suggested that the way a person responds to a problem (or stress) is related to subsequent psychological adjustment. Coping is "process

oriented, contextually influenced by personal situation," and "a person's efforts to manage demand without a prior assumption about what constitutes good or bad coping" (Folkman, *et al*., 1986).Coping is also conceptualized as a multidimensional process, which includes cognitive and behavioral efforts (Ptacek, Pierce, & Ptacek, 2002). Although there are a variety of ways of coping, such as confrontive coping, distancing, seeking social support, accepting responsibility, avoidance, and religious coping (Fox, Blanton, & Morris, 1999; Lazarus & Folkman, 1984; Vitaliano, Russo, Carr, Maiuro, & Becker, 1985), researchers often divide these coping strategies as active vs. passive, or emotion-focused vs. problem-focused, especially when they examine the impact of coping on psychological health. For example, Lazarus and Folkman (1984) divide coping into two dimensions: emotion-focused coping, which "regulates stressful emotions," and problem-focused coping, which "modifies the circumstance creating the harm, threat, or challenge". Finn (1985) categorizes "observable, behavioural efforts" as active strategies and "unobservable, cognitive or emotional efforts" as passive strategies (Yoshihama, 2002). Kemp *et a*l. (1995) classify coping as engagement, which refers to problem-focused behaviours, versus disengagement, which includes problem avoidance, self-criticism, and social withdrawal.

Based on the situation or the person, an individual may use different styles or strategies of coping. Coping style means a characteristic or typical manner of confronting a stressful situation and dealing with it (Folkman & Lazarus, 1985). According to Lazarus & Folkman (1984), coping strategies can be differentiated into three categories, namely task - oriented coping, emotion– oriented coping and avoidance. ***Task – oriented coping*** refers to purposeful task oriented efforts aimed at solving the problem, cognitively restructuring the problem, or attempts to alter the situation. ***Emotion – oriented coping*** refers to emotional reactions that are self oriented. ***Avoidance – oriented coping*** refers to activities and cognitive changes aimed at avoiding the stressful situation. While task – oriented coping and emotion – oriented coping are proactive coping strategies, *avoidance*

strategy is the absence of any attempt to alter the problem situation (Causey & Dubow, 1993).

Coping measures have been shown to be related to mental health and substance use over various parts of the life span: in childhood (e.g. Sandier, Tein, & West, 1994), during young adulthood (e.g., Blechman, Lowell, & Garrett, 1999; Fromme & Rivet, 1994), and at older ages (Moos, Brennan, Fondacaro, & Moos, 1990). Early adolescence is an important period for studying the role of coping processes in substance use because this is when the majority of onset and escalation occurs (Compas, Malcarne, & Banez, 1992; Johnston, O'Malley, & Bachman, 1995). It has been widely accepted that some may rely on alcohol or drug use as a coping strategy. Windle and Windle (1996) found that task-oriented coping was inversely related to alcohol use and depressed affect. Emotion-focused coping was unrelated to alcohol use but positively related to depression, and avoidant coping was positively related to alcohol problems and depressed affect. Kassel, Jackson, & Unrod (2000) found that some people drink alcohol (or use drugs) to relieve their negative affect or to enhance positive affect.

Impact of coping on psychological health has also been examined. Task-oriented coping is generally associated with positive outcomes. For example, less PTSD (Strelau, Zawadzki, Oniszczenkow, Sobolewski & Pawlowski, 2004) are reported, more self-efficacy, positive self esteem and competence in multiple domains (Causey & Dubow, 1992; Lewin-sohn, Rohde, & Seeley, 1994; Wills & Hirky, 1996) and reduction in suicidal ideation among males (Khurana & Romer, 2012) are also reported. Emotion-oriented coping is found to be associated with more psychological problems, such as PTSD (Strelau *et al.*,2004; Gil, 2005), depression (Endler & Parker, 2011), eating disorders (Garcia-Grau, Fuste, Miro, Saldan & Bados (2004), academic achievement (MacCann, Fogerty& Roberts, 2011), poorer self-esteem (McMahon *et. al*., 2013), suicide ideation (Asghari,

Sadeghi, Aslani, Saadat & Khodayari, 2013) and life dissatisfaction (Ryan, 2013). Avoidance-oriented coping is also associated with a host of psychological problems, including, interpersonal problems (Joybari, 2013), antisocial behaviour problems (Ayers, 1999), suicide ideation (Horwitz, Hill & King, 2011), academic problems (Moneta, Spada & Rost, 2007), eating disturbances (Ball & Lee, 2000).

Research on child coping indicates that children and adolescents develop more than one strategy in response to stress (Forsythe & Compos, 1987; Frydenberg & Lewis, 1994). School aged children have been found to use wishful thinking in response to problems in school or with siblings (Wertlieb, Wiegel, & Feldstein, 1987). Young adults utilize more distancing/denial strategies in response to interpersonal conflict situations (Roecker, Dubow, & Donaldson, 1996). Adolescents coping with a boy/girlfriend problem use cognitive restructuring, self-blame, and emotional regulation, and those coping with a school problem use self-criticism (Stark, Spirito, Williams, & Guevremont, 1989).

It has been observed that siblings of substance abusers tend to use more of avoidant- coping strategies to deal with the pain and stress (Jewell, 1996). Younger children also are found to rely more on problem-focussed coping while older children use more emotion-focused coping (Brotman, Band & Weisz, 1988; Pincus & Friedman, 2004). The use of multiple coping responses is a predictor of positive psychological adjustment. Children who are able to use both emotion-focused and problem-focused coping strategies when they are appropriate have more favourable emotional and behavioural adjustment than children who rely solely on one type of strategy (Pincus & Friedman, 2004). Youth who rely on avoidance coping are more likely to experience depression, anxiety and behavioural problems, and to engage in alcohol and drug use (Moos, 2004). Some evidence suggests that greater use of emotion focused or avoidant strategies are associated with higher levels of physical and psychological symptomatology (Commerford, Gular,

Orr, Reznikof & O'Dowd, 1994; Dunkell-Schetter, Feinstein, Taylor & Falke, 1992; Gass & Chang, 1989). Problem-focused coping has been found to be associated with lower emotional distress (Dunkell-Schetter *et al*., 1992; Folkman & Lazarus, 1985).

Patterson-Sterling (2004) described five coping roles frequently employed by loved ones of addicts: (i) *The Warden/Investigator* is constantly on the lookout for evidence of substance use in hopes of either proving that help is needed or in attempt to protect their loved one. (ii) *The Rescuer* engages in all that is necessary to "save" the addict from themselves. This can include bailing their loved one out of jail, lending money, and tirelessly searching for treatment opportunities (iii) *The Loner* is most often an individual who has tired of being a Warden or Rescuer. (iv) *The Bonder in Misery* engages in similar patterns of negative thinking employed by the addict as a mean to connect with the addict in some way (v) *The Bonder in Using/Drinking* engages in substance use as a way to connect with their addicted loved one. According to Orford *et al.* (1998), family members of substance abusers employ three main patterns of coping: tolerant-inactive coping, engaged coping, and withdrawal coping. *Tolerant-inactive coping* is characterized by acceptance of the addictive behaviour and a reluctance to do anything to change it. *Engaged coping* is distinguished by intentional involvement in intervening with the behaviour. *Withdrawal coping* is typified by intentional avoidance of the substance abuser and his or her associated problems.

Research regarding gender differences in coping remains unclear; however, a number of studies suggest that women use more support-seeking coping than men, and men use more problem-focused coping than women (e.g., Endler & Parker, 1990; Leong *et al*., 1997). Studies generally show that men are more likely to report using problem – focused coping strategies than women (Miller & Kirsch, 1988), while women were more likely to use emotion – focused coping (Billings & Moss, 1984; Dekker & Ormel, 1999;

Lam, Smith, Scuck & Farmer, 2003). Renk & Creasey (2003) also found that females used emotion– focused coping significantly more than did males. However, in a study by Pantell (2005), females used both problem – focused coping and emotion – focused coping, while males used more emotion – focused coping. Romano (1997) found boys more likely to use acting out/ anger as a coping device, while girls talked more with others to reduce stress. Other studies found no gender differences (Ravindran, Griffiths, Waddell, Anisman, 1995; Schouws, Dekker, Kwakman & Jonghe, 2001; Yamada, Nagayama, Tsutiama, Kitamura & Furukawa, 2003).

Research has reported mixed findings concerning gender differences in the use of coping strategies among children and adolescents (Byrne, 2000; Compas *et al.*, 2001).Byrne (2000) found that by the age of 12 years boys and girls were using different coping strategies. Boys were also more successful in reducing both anxiety and fear. In terms of the types of coping strategies the most consistent results were found for gender differences within the three coping strategies: seeking social support (females > males), problem solving (females > males), and avoidant coping (tendency: males > females), respectively (Eschenbeck *et al*., 2007). Studies have also found that adolescent females reported using a broader range of coping strategies more frequently than did males (Kausara & Munir, 2004; Patterson & McCubbin, 1987). In addition, female adolescents have typically reported a higher use of seeking social support as a coping strategy than males (Eschenbeck *et al*., 2007; Hampel & Petermann, 2005). Several studies have found that boys consistently use more avoidance coping strategies, and girls use significantly more approach coping strategies (Causey & Dubow, 1992; Hamid *et al*., 2003; Herman-Stahl, Stemmler & Petersen, 1995). Boys tended to use blaming self/others and avoidance strategies more often whilst girls tended to rely on social resources more often when encountering problems (Hamid *et al*., 2003). Chapman and Mullis (1999) found that

female adolescents scored higher than males in terms of the coping strategies of self-reliance, social support, seeking spiritual support, and engaging in demanding activities.

The effectiveness of a certain type of coping may depend on whether the stressor faced is controllable or incontrollable (Dressler, 1985; Forsythe & Compas, 1987; Littrell & Beck, 2001). Forsythe and Compas (1987) argue that for controllable stressors, active or problem-focused coping may be helpful, while for uncontrollable stressors, active coping mechanism may be less effective. Research suggests that task-focused coping strategies are generally more adaptive than emotion-focused or avoidance strategies (Cosway, Endler, Sadler, & Deary, 2000; Endler & Parker, 1990b; Pearlin & Schooler, 1978). Emotion-focused strategies are often associated with increased distress (Alexander, Feeney, Hohaus & Noller, 2001; Cosway *et al*., 2000; Endler & Parker, 1990b; Penley, Tomaka, & Wiebe, 2002). Many studies (Endler & Parker, 1990a; Tamres *et al.*, 2002) measure the negative, rather than positive, aspects of emotion-focused coping which may explain their association with measures of distress. Avoidance coping has similar negative associations (Bolger & Zuckerman, 1995; Eaton & Bradley, 2008; Endler & Parker, 1990b; Menaghan, 1982; Penley *et al.*, 2002). However, some stressful events may best be served by emotion-focused coping behaviours (Folkman & Lazarus, 1980; Lazarus, 1993). When facing stressors impervious to change, placing energy into task-focused strategies in a fruitless attempt to change them may cause more distress than utilizing emotion-focused strategies to manage the effects of the stressors. Thus, appropriate styles vary according to the nature of the stressor, and most individuals utilize a variety of coping styles (Folkman & Lazarus, 1980).

A major social problem in Mizoram is the prevalence of drug and alcohol use, especially among adolescents. Like other parts of the world, there seems to be an increasing amount of substance abuse by youth. Also, age on initiation seems to be younger (Mizoram Social Defence and Rehabilitation Board, 2015). The impact of substance abuse on the substance abusing person himself, on his or her family, on the community, and on other aspects of social, economic and political spheres is evident. Almost the whole state is involved in advocating against substance use. However, this joint effort seems to have only a little impact, contrary to the findings by Hawkins Catalano & Miller (1992) that negative societal attitude towards substance abuse produce less abusers.

According to a report of the MSD & RB (2014), alcohol remains the most commonly used and perceived recreational drug despite the enforcement of total prohibition of liquor in the state. The use of cannabis is popular amongst youths because of its availability and affordability, and also because it is less stigmatised and perceived as highly fashionable. Recently, of growing concern, is the use of drugs like heroin, Amphetamine Type Stimulants (ATS), cocaine and pharmaceutical compounds. Among the various causal factors reported (e.g., peer pressure, curiosity, to relieve stress etc), a significant causal factor highlighted was the presence of substance abuse among family members. In 2004, MSD & RB in collaboration with the Young Mizo Association (YMA) branches and Village Councils conducted People Using Drugs (PUD) population mapping, and reported that there were approximately 25,500 PUD in the state (Lallianzuala, (Ed). 2007).With such figures for drug use alone, one can only imagine the prevalence of substance abuse in the state.

The severity of the substance abuse problem is reflected in the responses of the communities in general, the church and the families of the Mizos. However, it has been observed that documentation regarding health and social consequences of drug use are difficult to obtain prior to 15 years ago (Bajpal, 2002; Mishra, 2000). Although there have

been observations and speculations on the causes, the effects and the implications of substance abuse among the Mizos (Halliday, 2009; Lalchhuana, 2013; Panda, 2006;Sailo, 2003; Tochhawng, 1995, etc), they are hardly sufficient to throw light on the patterns of substance use. Literature has also been lacking with regards to the effects of substance abusers on the family. It is still commonly and mistakenly conceptualised that only the addicted member of the family needs help. The needs and problems faced by other family members have received little attention. No known study on the effects of sibling's substance abuse to adolescent mental health has been reported in the state. It would be fair to surmise that siblings of a substance abuser have received the least attention of all in terms of research and service provision. This could be attributable to the reality that the impact on siblings seems less direct (Barnard, 2007).

The effects of substance abuse on the Mizo families do not appear to be so different from those experienced by families in various parts of the world. Family members can often be blind to the warning signs. They can also be either oblivious or even be in denial. Often small but significant changes in appearance, behaviour, and mood are frequently suggestive of a drug problem in a family member (Usher, Jackson, & O'Brien, 2005). Families affected by addiction indicated some of the early warning signs of addiction in a member, including withdrawal, secrecy, defiance, irritability, slurred speech and "funny eyes," disappearing without explanation, and missing money and other valuables. Once the involvement of drugs or alcohol was confirmed, families characteristically would react with panic attributable to lack of knowledge and experience with the issue. It is also common for parents to think that they can easily solve the problem and also that the abuser is also willing and able to easily overcome the problem. The shame that accompanies the discovery of the problem also makes them hesitate or unwilling to seek professional help, which often results in isolating the family (Barnard, 2005). Families often cope in secrecy which further

contributes to feelings of strain and distress. Behaviours commonly associated with addiction such as violence, stealing, relational conflict, and unpredictability also contribute to the difficulties. Loved ones of addicts struggle to understand the power of addiction and often feel betrayed that their family member has "chosen" alcohol or drugs over their relationships (Patterson-Sterling, 2004).

There is little doubt that living with someone with an addiction will create an unstable family environment. Families often have to confront difficulties in trying to respond to, cope with and live with the changes that accompany substance abuse. They have to deal with problems that seem to present themselves in all areas of life: psychological, occupational, social and family relationships. Household tend to be unstable and unpredictable, and each member tries to find ways of adapting his or her behaviour in order to cope. Although factors such as intra-personal factors, peer influence, larger environmental factors including community factors and even availability of substance all affect substance use, the way the family adapts to the addiction either promote resilience or further induce risk. If there is maladaptive coping, then it is possible that a vicious cycle of family dysfunction will follow. In other words, the action of each of the family member is likely to affect not just one, but the whole family (Gregg & Tombourou, 2003).

Parents have to deal with several stresses associated with the problem of having a son or daughter who is a substance abuser, and they are assaulted with this emotional and psychological pain twice: once for the child and once for themselves. But the siblings are assaulted with this pain on three fronts**: they hurt for their sibling, they hurt for their grieving parents and they hurt for themselves.** Sibling relationships tend to be the most enduring of relationships and as such siblings share not just genetics but also social similarities. Since it is a relationship that is earned by birth, they tend to persist throughout life although the degree of intimacy could vary. And it is often that this intimacy between

siblings that suffers and changes, usually for the worse. As a consequence, new and unexpected roles have to be taken on by these siblings. Family systems theory, thus, proposes that siblings of substance abusers either become enmeshed, disengaged, parentified or very successful (Hooper, 2007).

According to Goetting (1986), there are three stages in the developmental tasks of siblingship. The first stage is childhood through adolescence, during which sibling relationships are more intimate and intense in comparison to later stages as they are often in closer proximity and are in competition for the same resources. Siblings may form coalitions to manage relationships with parents, compensate for parental inefficacy, to teach one another skills, or provide protection. Relationship patterns of companionship, emotional support, and caretaking are formed during this stage. The second stage is early and middle adulthood, and is marked by decreased intimacy. Relationships are often mediated by marriage, parenthood, geographical distance and other lifestyle choices. The third stage is old age, and sibling closeness tends to increase.

Siblings of substance abusers are often overlooked or neglected by their parents. This adds on to the already accumulated stress of having to deal with a sibling's substance abuse (Velleman *et al*., 1993). They are found to be present with a whole lot of psychological problems, such as low self esteem, self blame, helplessness, hopelessness, expectations of rejection and loss, overestimation of the amount of danger in the world, and/or expectation of maltreatment or abandonment from others. Psychological symptoms such as anorexia, depression, panic attacks, 'nervous breakdown', somatoform disorders, sleep disorders, increased oppositional behaviour, difficulty regulating emotion, poor impulse control, aggression, self destructive behaviour, dissociation, compulsive sexual behaviour, bingeing, purging and, sometimes, thoughts of wanting to die are reported (Barnard, 2005; Coffey *et al.*, 2002; Dorn *et al*., 1994; Davies *et al*., 2005; Greenblatt, 2000;

Orford *et al*., 2005; Sayer-Jones, 2006; Snyder *et al.*, 2005; Velleman *et al*., 1993). Siblings also have to deal with the stigma of having an addicted sibling. They often have to lead dual lives and take on dual roles which can become very confusing (Jewell, 1996).

The needs of siblings of substance abusers are frequently marginalized by a family's fixation on addressing the problems created by the abusing sibling. The influence that a substance abuser can have on the behaviour, learning, and development a sibling can be direct, indirect, long term or short term (Cicirelli, 1995). Interventions and research focus mainly on the abusing individual and not on the needs of other family members. The health and mental well-being of other siblings are often not recognised. Their needs were usually acknowledged only when the sibling was considered a possible resource in assisting the substance abuser. Non-abusing siblings tended to side themselves with their mothers, taking on defensive roles as a means to protect their mothers from the undeserved and burdensome problems arising from their sibling's substance use. A frequent side effect of such an alliance was the over-involvement of non-using siblings in family conflict, with the unfortunate outcome of intensifying relational problems within the family (Barnard, 2007).

Adolescence has often been referred to as a period of “storm and stress” (Hall, 1904). Even without the added stress of having an abusing sibling, adolescents have to deal with a lot of emotional confusion. Most adolescents are able to deal and cope with these challenges without major psychological problems and harmful outcomes. They are able to function in most areas and developmental tasks are not impacted negatively. Several studies have identified that psychopathological problems occur co-morbidly, especially posttraumatic stress disorder, anxiety disorders, antisocial behaviour, alcohol abuse, and academic underachievement (Linning & Kearney, 2004; Mazza & Reynolds, 1999; Russo, 1994; Waldman & Slutske, 2000). These studies have also highlighted the differences in the expression of externalizing and of internalizing disorders according to gender, boys being

more prone to express externalized symptomatology, such as antisocial behaviour, and girls showing a higher tendency to manifest internalized psychological problems (Jennifer, 2010).

Externalizing disorders of childhood and adolescence are characterized by overt behavioural excess or disturbance. Disorders such as Conduct Disorder and Oppositional Defiant Disorder are externalising disorders. Problem behaviours including aggression, excessive anger, stealing, lying, harassment, damaging property violence proneness and delinquency are also included. Internalizing behaviours are characterized by actions that are taken out toward the self. A person may hurt him or herself and not lash out on others. Internalizing disorders and behaviours include a spectrum of behaviours such as depression, withdrawal, substance abuse, eating disturbance, anxiety and loneliness, poor self esteem, suicidal behaviours and decreased academic progress (Perle, Levine, Odland, Ketterer, Cannon, & Marker, 2013). Internalizing behaviour also include somatic complaints such as headaches, nausea with possible vomiting or abdominal pain (Chen *et al.*, 2011). Internalizing and externalizing disorders have been known to have significant symptom overlap. Thus, children with internalizing symptoms may show externalizing behaviour in certain cases (Perle *et al*., 2013). Without treatment and intervention, both types of behaviours may result in undesirable outcomes.

Research indicates that siblings of substance abusers are at greater risk of developing drug problem or alcohol dependence of their own, besides other problem behaviour like conduct disorder and anti social personality disorder (Barnard, 2005; Hicks, Krueger, Iacono, McGue & Patrick, 2004; Luthar, Merikangas, & Rounsaville, 1993). It has, however, also been noted that while most of the siblings of substance abusers are negatively affected, there have been instances where a few of the siblings do not show maladjustments (Luthar *et al*., 2000). Some parents have also noted this variability in their children's adjustment, questioning why some developed mental health problems while others adapt

reasonably well, showing greater competencies and strengths (Hannah & Midlarsky, 1985; Labay & Walco, 2004). Barnard (2005) reasoned that other factors such as family background, connectedness or not to the family and involvement in conventional activities with non-deviant peers must have an important part to play in the process by which one sibling but not another, even within the same family, becomes drawn into the problematic use of drugs. At the same time, it was also highlighted that lesser ability of the parents to monitor and supervise their other children might have a detrimental influence on their behaviour. Adolescents' perception of a warm and accepting quality in the relationship with their parents is remarkably important to maintaining their healthy psychological adjustment because their security and other emotional and psychosocial states are dependent on it (Rohner *et al.*, 2007).

Culture and society influences parenting in various ways. Although most parenting styles and their effects are found to be mostly universal, there are cultural variations that have to be accounted for. Within the context of the Mizo culture, being a patrilineal society, fathers are less involved in parenting compared to mothers (Fente & Singh, 2008; Singh & Fente, 1998). Mothers are expected to fulfil their roles as nurturers and take care of their children while the fathers are usually expected to go out of their homes to make a living. Even though society is undergoing tremendous change, parental roles still seem to remain the same. Fathers are usually called upon to exercise their parental duties only when efforts by the mothers in disciplining their children seem to fail. As such, researchers suggest that because of different societal expectations of gender roles, mothers typically spend more time with adolescents, are involved in a wider range of activities with them, and are more likely than fathers to provide care-giving. Conversely, fathers tend to spend more time engaged in leisure and instrumental activities with adolescents (Holmbeck, Paikoff & Brooks-Gunn, 1995). These interactions generally result in more mutuality, closeness, and

support within the mother-child as opposed to the father-child relationship during the adolescent period (Collins & Russell, 1991).Although the importance of paternal involvement within the family dynamics is understood, fathers are still much less involved when it comes to taking care of their children.

As in found in other societies, there also seems to exist differential parenting over Mizo boys and girls (Fente and Chawnghmingliana, 2011). Larson and Richards (1994) also argue that mothers and fathers may interact differently with their children depending on the gender of the child. This could, in part, be explained by cultural role differentiation between boys and girls. Therefore, anecdotal reports from olden times indicate that while Mizo parents tend to be more permissive over boys, they are more restrictive over girls. Gender roles seem to be inculcated from very young ages, and both sexes seem to grasp what is expected of them even when they are very young. As such, girls are given responsibility at homes much earlier than boys, who do not seem to share as much responsibility. Uba (1994) also stated that generally, females are expected to attend to the emotional and housekeeping duties of family life, while males are expected to enact instrumental roles and pass them on to their children. This perhaps contributes to the reason why males seem to be more dependent and less mature than their female counterparts, contrary to findings by Ralte (2013) that females are more destructively overdependent than men. However, by the time they reach adolescence, both boys and girls seem to be faced with the same problems and challenges.

Rohner (2004), among others, stressed the role of parenting in children's psychological adjustment in his conceptualization of the warmth dimension of parenting. This is a dimension or continuum on which all humans can be placed because everyone has experienced in childhood more or less love at the hands of major caregivers. One end of the continuum is marked by parental acceptance, which refers to the "warmth, affection, care,

comfort, concern, nurturance, support, or simply love" that children can experience from their parents and other caregivers. The other end of the continuum is marked by **parental rejection**, which refers to the "absence or significant withdrawal of these feelings and behaviours and by the presence of a variety of physically and psychologically hurtful behaviours and affects". Parental rejection can be experienced by any combination of four principal expressions: (1) cold and unaffectionate, the opposite of being warm and affectionate, (2) hostile and aggressive, (3) indifferent and neglecting, and (4) undifferentiated rejecting.

Rohner's (2004) concept of parental acceptance-rejection syndrome strongly support the conclusion that children and adults who perceive themselves to be rejected tend to display several psychological maladjustments: hostility, aggression, emotional unresponsiveness; immature dependence, impaired self-esteem, impaired self-adequacy, emotional instability, ever-increasing anger, resentment and negative worldview. On the other hand, individuals who perceive themselves to be accepted by parents tend to develop little hostility or aggression, independence, positive self-esteem, positive self-adequacy, emotional stability, emotional responsiveness, and positive worldview.

In a recent cross-cultural meta-analysis based on 220 studies from 23 nations across five continents, it was found that both paternal and maternal acceptance correlate significantly with the psychological adjustment of both children and adults across all cultures. The study also showed that there are no gender differences in the relation between *children's* perception of parental acceptance and their psychological adjustment. However, remembrances of *maternal* acceptance in childhood showed significantly stronger relations with adult sons' current psychological adjustment than that of adult daughters. Moreover, remembrances of *paternal* acceptance in childhood were found to have significantly

stronger relations with adult daughters' psychological adjustment than did daughters' remembrances of *maternal* acceptance (Ali, Khaleque & Rohner, 2015).

Few studies have been reported regarding parenting in relation to drug addiction among Mizo adolescents. Rai (2008) found that rejection and favouring subject from father and mother leads to drug addiction among Mizo male adolescents, while emotional warmth from father prevents drug addiction; Over-protection and favouring subject from parents have significant effect on drug use among adolescents. In a study of parental Hostility/Aggression among Mizo adolescents (Fente & Lalropuii, 2012), it was found that boys scored higher than girls on hostility and aggression. Results also revealed that for, girls, perceived hostility and aggression both from fathers and mothers had almost an equal impact on their level of hostility and aggression; whereas for boys, mother's hostility and aggression was a more important predictor of their level of hostility and aggression.

An important factor that seems to determine healthy psychological adjustment is ***personality*** (Barnard, 2005). Personality traits are enduring patterns of thoughts, feelings and behaviours, which are rather consistent during lifetime and can be described according to five broad dimensions, also known as the Big Five personality domains: neuroticism, extraversion, openness, agreeableness and conscientiousness. Personality has been linked with a variety of concepts, and has also been used to explain behaviours. **In adolescence, personality may even be a key mediator of individual differences** in the course and treatment responses of youth with mental disorders that emerge at this period in development (Costello, Copeland, Angold, 2011).

While some (e.g., McCrae *et al*., 2002) are of the view that personality traits are still unstable during adolescence, others argue that personality shows substantial continuity from at least age three through the adolescent years and beyond (Caspi, 1998). For example, young children who are shy and inhibited are more likely to be anxious and inhibited in

adolescence (Kagan and Snidman, 1991; Gest, 1997). Boys who are aggressive in childhood are more likely to be antisocial or otherwise dysfunctional adults (Caspi, Elder, and Herbener, 1990). However, developmental changes that take place during this time should be considered when measuring personality. Sneed *et al.,* (2002) also highlighted the importance of understanding behaviours that are relevant to the cultural environment of adolescents when assessing their personalities.

Extensive amount of research have studied the relationship between personality and psychopathology, especially along the lines of internalizing and externalizing disorders. For example, personality trait of neuroticism has been consistently linked with depression, PTSD, GAD (Kotov *et al*., 2010; Malouff *et al*., 2005), enhanced expression of anger and aggression (Pease & Lewis, 2015) and suicidal ideation (Devi and Prakash, 2015). Extraversion has been positively linked with self-esteem and interpersonal relationships (Kalish and Robins, 2006; Kenneth, 2014; Sushma, Kumar & Batra, 2015). Openness is associated with being heavier (Sutin *et al*., 2011) and academic success (Farsides & Woodfield, 2003). Agreeableness is also linked with academic success (Chowdory & Amin, 2006), self-esteem (Barnhart & Hindman, 2014; Kuppens, 2005) and interpersonal relationships (Graziano & Tobin, 2009). Conscientiousness has been positively linked with self-esteem (Sushma *et al*., 2015) and healthy food intake (Bogg & Roberts, 2004; Goldberg & Strycker, 2002; Vainik, Dagher, Dub & Fellows, 2013).

Research on ***coping styles*** have suggested that the way a person responds to a problem (or stress) is related to subsequent psychological adjustment. Coping is "process oriented," contextually influenced by personal situation," and "a person's efforts to manage demand without a prior assumption about what constitutes good or bad coping" (Folkman, *et al*., 1986). Coping is also conceptualized as a multidimensional process, which includes cognitive and behavioral efforts (Ptacek, Pierce, & Ptacek, 2002).Researchers often divide

coping strategies as active vs. passive, or emotion-focused vs. problem-focused, especially when they examine the impact of coping on psychological health.

Orford *et al*., (2005) stressed the relationship between coping behaviours and mental health outcomes, which suggests that certain ways of coping may be more effective than others. Other researchers also agree that the effectiveness of a certain type of coping may depend on whether the stressor faced is controllable or incontrollable (Dressler, 1985; Forsythe & Compas, 1987; Littrell & Beck, 2001). It has been generally found that task-oriented coping is the most adaptive, while emotion-oriented and avoidance-oriented coping are less adaptive (Cosway, Endler, Sadler, & Deary, 2000; Eaton & Bradley, 2008; Penley, Tomaka, & Wiebe, 2002). However, it has been found that when facing stressors impervious to change, placing energy into task-focused strategies in a fruitless attempt to change them may cause more distress than utilizing emotion-focused strategies to manage the effects of the stressors (Folkman & Lazarus, 1980).

Impact of coping on psychological health has also been examined. Task-oriented coping is generally associated with positive outcomes. For example, less PTSD (Strelau, Zawadzki, Oniszczenkow, Sobolewski & Pawlowski, 2004) are reported, more self-efficacy, positive self esteem and competence in multiple domains (Causey & Dubow, 1992; Lewin-sohn, Rohde, & Seeley, 1994; Wills & Hirky, 1996) and reduction in suicidal ideation among males (Khurana & Romer, 2012) are also reported. Emotion-oriented coping is found to be associated with more psychological problems, such as PTSD (Strelau *et al.*,2004; Gil, 2005), depression (Endler & Parker, 2011), eating disorders (Garcia-Grau, Fuste, Miro, Saldan & Bados (2004), academic achievement (MacCann, Fogerty & Roberts, 2011), poorer self-esteem (McMahon *et al*., 2013), suicide ideation (Asghari, Sadeghi, Aslani, Saadat & Khodayari, 2013) and life dissatisfaction (Ryan, 2013). Avoidance-oriented coping is also associated with a host of psychological problems, for example, interpersonal

problems (Joybari, 2013), antisocial behaviour problems (Ayers, 1999), suicide ideation (Horwitz, Hill & King, 2011), academic problems (Moneta, Spada & Rost, 2007), eating disturbances (Ball & Lee, 2000).

The present study will first try to highlight the psychological health status of adolescent siblings of substance abusers and non-abusers. Secondly, perceived parenting, personality and coping styles of healthy and unhealthy adolescents affected by their siblings' substance abuse will be studied in order to pinpoint the factors of perceived parenting, personality traits and coping strategies that alleviate or aggravate mental health problems of such adolescents with such siblings. It is hoped that such information will highlight or educate the population about the consequences and needs of other family members, especially adolescent siblings, in the wake of substance abuse problems within the family.

OBJECTIVES: Given the theoretical and methodological foundations pertaining to substance abuse and the importance of providing a better understanding of its effects on family members, specifically adolescent siblings of substance abusers, the present study is concerned with the following objectives:

1. To examine the effects of 'Sibling's Substance-Abuse–Status' and 'gender' on the psychological health status of the adolescents.
2. To examine the moderating effect of parental acceptance-rejection, personality traits and coping strategies on the relationship between sibling's substance abuse and the psychological health status of male and female adolescents.

HYPOTHESES: Following the review of literature pertaining to the effects of sibling substance abuse on other adolescent family members, perceived parenting, personality, and coping styles, it is hypothesized that:-

1. Significant independent effect of 'Sibling's Substance-Abuse–Status' on psychological health status of adolescents is expected to reveal more psychopathological symptoms in adolescents having a substance-abusing-sibling (both siblings of alcohol and multiple drug users) as compared to adolescents with normal siblings. Independent 'Gender' effect is not expected.
2. The expectations with regard to the two-factor interactions of 'Gender x Sibling's Substance-Abuse–Status' on measure of the dependent variable will be in conformity to the independent effects of the main variables on measure of the dependent variable.
3. It is expected that the effects of 'Sibling's Substance-Abuse–Status' on adolescent psychological health status will be moderated by parental acceptance-rejection, personality traits, and coping strategies.

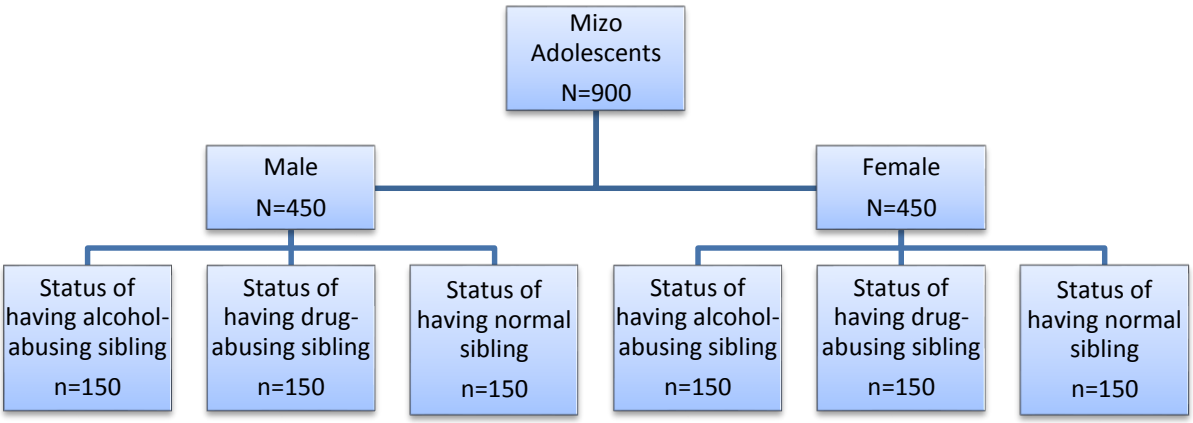
Sample

In order to achieve the objectives of the study, a sample consisting of 300 (150 Males and 150 Females) adolescents having alcohol-abusing sibling, 300 (150 Males and 150 Females) having drug-abusing sibling and 300 (150 Males and 150 Females) having normal siblings, making a total of 900 Mizo adolescents with their age ranging from 14 to 19 years (mean age = 17.32) were randomly selected from various schools (secondary and higher secondary) situated in and around Aizawl, the capital city of Mizoram. In order to maintain homogeneity of the samples, so that the groups more or less differ only in the status of having a substance abusing sibling or not, background information of the families were also accounted for. Majority of the participants were studying in Class 12 (53.8 %), followed by those in Class 11 (46.0 %), and a few studying in Class 10 (0.2 %). All the participants have siblings, with number of siblings ranging from 2 to 11 (Mean number of siblings = 4.02). Though all participants were presently residing in different localities of Aizawl, the capital city of Mizoram, 42.7 % originally hailed from rural areas and the rest of 57.3 % hailed from urban Aizawl area. All participants had their parents and most of the fathers were employed (99 %) and literate (97.89 %), while 45.22 % of mothers were employed and literate (97.33 %). Most participants came from nuclear families (72.2 %), and the rest were from joint families (27.8 %). The three groups were found not to differ significantly except in the status of having substance-abusing sibling.

Design of the Study

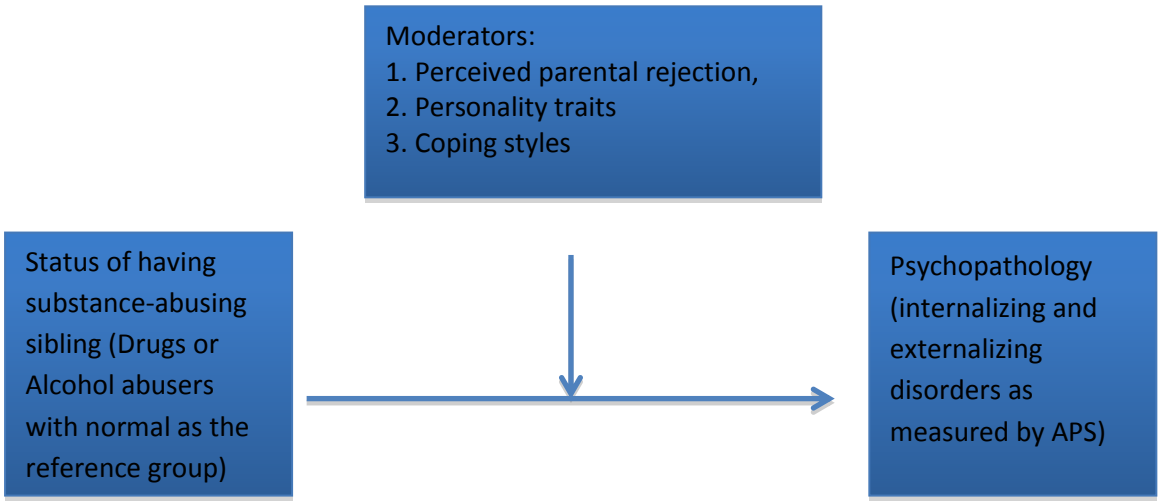
To achieve the objectives, the study first incorporated between-groups design to illustrate the effects of 'gender' and 'status' (of having substance-abusing sibling) on the psychological health status of the adolescents. That is, a 2 x 3 factorial design (2 gender x 3 status of having substance-abusing sibling) as depicted below:

Figure - 1 : 2 x 3 factorial design (2 gender x 3 sibling's substance abuse status)



The moderating role of perceived parental rejection, personality traits and coping styles in the relationship between the status of having substance-abusing sibling and psychological health status will be further addressed by testing several hierarchical regression models as envisaged below:-

Figure - 2 : Moderation model



Test Materials

Adolescent Psychopathology Scale – Short Form (APS-SF), Reynolds, W.M (2004).

The APS-SF is a 115-item self-report screening instrument for symptoms of a variety of adolescent psychiatric disorders based on DSM-IV-TR, broadly categorised into

internalizing and externalizing disorders. Externalizing disorders are *Conduct Disorder* (items evaluate antisocial behaviours including, stealing, fighting, destruction of property, fire setting, trouble with police or school authorities, non compliance with rules, etc), *Oppositional Defiant Disorder* (items evaluate hostility, negative-contrary behaviour and defiant behaviour including loss of temper, arguing with adults, anger, disregard for rules etc), *Substance Abuse Disorder* (evaluated as to frequency of usage of specific substances including alcohol, amphetamines, cannabis, cocaine, hallucinogens, inhalants etc), *Anger/ Violence Proneness*(items deal with generalized anger and violence against others including loss of temper, excessive anger at home or at school, lack of control over one's anger and behaviour, destruction of others' property etc) and *Academic Problems* (items evaluate problems associated with academic difficulties in school, including getting into trouble and breaking the rules in school, distractibility and inattention in the classroom etc.). Internalizing disorders are *Generalized Anxiety Disorder* (items evaluate feelings of excessive worry or anxiety, including symptoms of restlessness, fatigue, body aches etc.), *Posttraumatic Stress Disorder* (items assess the experience of a negative or traumatic event and the symptoms associated with such an event including recurrent recollections of the traumatic event, feelings of detachment etc), *Major Depression* (items assess depressed mood, irritable mood, decreased appetite, feelings of worthlessness etc.), *Eating Disturbance* (evaluates symptoms of anorexia nervosa and bulimia nervosa including cognitive fear, worry and perceptions of being fat), *Suicide* (items deal with suicidal ideation and suicidal behaviours), *Self-Concept* (items are keyed in a negative direction so that high score indicates poor sense of self-worth and self-concept, including feelings of worthlessness and self-denigration, poor physical and social self-concept etc.) and *Interpersonal Problems* (items evaluate interpersonal problems in the form of social isolation, social withdrawal, friendship problems, loneliness etc.).

NEO – Five Factor Inventory-3 (NEO-FFI-3; Costa, P.T. Jr. & McCrae, R.R, 2010).

The NEO-FFI-3, a shortened version of the NEO Personality Inventory (NEO PI-3) is a 60-item self-report personality inventory (descriptions of behaviour), answered on a five point scale, ranging from "strongly agree" to "strongly disagree". It is designed to assess five domains of personality – *neuroticism* (High score indicates maladjustment or emotional instability including the general tendency to experience negative affects such as fear, sadness, embarrassment, anger, guilt and disgust. Low score indicates emotional stability), *extraversion* (extraverts are sociable, assertive, active and talkative. They are upbeat, energetic, optimistic, and cheerful in disposition and like excitement and stimulation. Introverts are reserved, independent, even-paced and prefer to be alone), *openness* (openness to experience includes elements of active imagination, aesthetic sensitivity, attentiveness to inner feelings, preference for variety, intellectual curiosity and independence of judgement. Low scorers or closed people tend to be conventional in behaviour and conservative in outlook), *agreeableness* (agreeable persons are fundamentally altruistic, and are sympathetic to others and eager to help them. Low scorers, disagreeable or antagonistic people are egocentric, sceptical of others' intentions and competitive rather than cooperative), and *conscientiousness* (high scorers are scrupulous, punctual, reliable, purposeful, strong willed and determined. Low scorers are less exacting in applying moral principles and are more laid back in working toward their goal).

Parental Acceptance – Rejection questionnaire (PARQ), Rohner, R.P & Khaleque, A (2005).

The Parental Acceptance Rejection Questionnaire (PARQ-Short Form- Child version) is a 24 item, self report instrument (4 – point Likert - type scale) designed to measure individuals' perception of acceptance-rejection with separate forms for father and mother. Parental acceptance-rejection is a bipolar dimension, with acceptance defining one end of the continuum and parental rejection defining the other. The PARQ consists of four subscales:

warmth/affection (the opposite of cold and unaffectionate, shown physically by kissing, hugging etc., and verbally by praising and complimenting), *hostility/aggression* (anger, resentment, hitting, pushing, punching, sarcastic, mocking, etc.), *indifference/neglect* (pertains to parents' failure to attend appropriately to children's social and emotional needs), *undifferentiated rejection* (individuals' beliefs that their parents do not really care about them or love them, even though there might not be clear behavioural indicators that the parents are neglecting, unaffectionate, or aggressive toward them), and totally, an overall acceptance-rejection score. High score indicates parental rejection and low score indicates parental acceptance/warmth.

Coping Inventory For Stressful Situations (CISS), Endler & Parker (1999).

The CISS is a 48 item, self report measure of coping. There is both an adult form and an adolescent form. Each item is rated on a 5 – point frequency scale ranging from (1) "not at all" to (5) "very much". It assesses three coping styles: *task-oriented* (purposeful task-oriented efforts aimed at solving the problem, cognitively restructuring the problem or attempts to alter the situation), *emotion-oriented* (emotional reactions that are self oriented, including emotional responses, self-preoccupation and fantasizing), and *avoidance-oriented* (activities and cognitive changes aimed at avoiding the stressful situation). There are two subscales for the Avoidance-Oriented scale; Distraction and Social Diversion. However, only the three main scales will be used in the present study.

WHO-The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST), Henry-Edwards, S., Humenuik, R., Ali, R., Poznyak, V., & Monteiro, M. (2000).

The ASSIST is an 8 item questionnaire developed in 2000 by an international group of substance abuse researchers (Henry – Edwards, Sue; Humeniuk, Rachel; Ali, Robert; Poznyak, Vladimir; Monteiro, Maristela) for the WHO. Its purpose is to detect psychoactive substance use and related problems. Substances addressed include tobacco, alcohol, cannabis,

cocaine, amphetamine type stimulants, sedatives, hallucinogens, inhalants, opioids, and other drugs. Tobacco and cannabis were not considered in this study. This questionnaire was incorporated in the demographic data sheet given to the participants for their siblings. It is designed for use with adults and older adolescents. Risk levels are low (low risk of health and other problems), moderate (risk of health and other problems) and high (high risk of severe problems in health, social, financial, legal and relationships and likely to be dependent).

Procedure

After obtaining necessary consents, students from randomly selected schools from the different zones (North, South, East, West, and Central) of Aizawl, the capital city of Mizoram, in more or less equal proportions of approximately 40 participants in each group were administered booklets which contained the demographic data sheet and measures of psychopathology, parental acceptance-rejection, personality traits, and coping strategies. Demographic sheet also incorporated the tool to determine the substance of abuse, duration, age, method and frequency of usage of the participants' substance-abusing siblings. A specimen copy of the booklet is given in the Appendix- 1.

From the first phase of data collection, data accumulated were screened for inclusion in the three groups and continued until the number of subjects in each group was attained. In this way approximately 4000 questionnaires were administered, and only those adolescents whose siblings abuse the drugs of interest (alcohol only and multiple drugs) at moderate to high risk levels (substance abusers norm) served as subjects in the 'siblings of alcohol abusers' group and 'siblings of multiple-drug abusers' group. The control subjects (adolescents with normal siblings) were those adolescents whose siblings or other family members did not have substance-abuse problems or other mental disorders as were reflected in the demographic data sheet.

Psychometric Properties of the Behavioural Measures

In order to achieve the objectives of highlighting the effects of having a substance abusing sibling on the psychological health status of male and female adolescents, and to examine the moderating effects of parental acceptance-rejection, personality traits and coping strategies on the relationships between status of having substance abusing sibling and the psychological health status of male and female adolescents, subject-wise scores on the specific items of the following behavioural measures: 1) Parental Acceptance-Rejection Questionnaire – Short Form – Child separately for Mother and Father (PARQ-Father and PARQ-Mother-SF- CHILD; Rohner & Khaleque, 2005) that measured the participants' perceived paternal and maternal acceptance-rejection, 2) Coping Inventory For Stressful Situations – Adolescent (CISS; Endler & Parker, 1999) that measured the coping styles of the participants, 3) NEO Five Factor Inventory-3 (NEO-FFI-3; Costa & McCrae, 2010) that measured the personality of the participants, and 4) Adolescent Psychopathology Scale-Short Form (APS-SF; Reynolds, 2004) that measured the psychological health status of the participants, were separately prepared and analysed to check their psychometric adequacy for measurement purposes among Mizo adolescent boys and girls. The psychometric adequacy of the behavioural measures was analyzed by employing SPSS in a step-wise manner for the 3 (three) groups of participants: "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling", in an effort to evolve consistency in results. Data screening was done and 10 participants with extreme outlier scores were deleted, which yielded a total sample of 890 (N= 890). Therefore, final participants (unequal N) comprised of 296 "adolescents having alcohol-abusing sibling" (149 boys and 147 girls), 296 "adolescents having drug-abusing sibling" (147 boys and 149 girls), and 298 "adolescents having normal sibling"(149 boys and 149 girls).

The psychometric checks of the behavioural measures included (i) item-total coefficients of correlation (and the relationships between the specific items of the sub-scales as an index of internal consistency), (ii) reliability coefficients (Cronbach's alpha of sub-scales and full scales), (iii) relationships between the scales to relate the constructs in the target population.

1. ***Psychometric adequacy of Parental Acceptance-Rejection Questionnaire – Father (PARQ-Father- short form for child;*** **Rohner, R.P. & Khaleque, A., 2005).**

The results of Item-total coefficients of correlation (and the relationships between the specific items as an index of internal consistency), reliability coefficients (Cronbach's alpha), relationships between the scales on PARQ-Father sub-scales (WAF-Warmth/Affection, HAF-Hostility/Aggression, INF-Indifference/Neglect, URF-Undifferentiated Rejection and TTRF-Total Rejection) over the levels of analyses: : "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling" are given together in Table 1.1. Results generally revealed adequate item-total coefficients of correlation (r = > .30, Nunnally, 1975) ranging from .325 to .745 except for item 1 (*r =.260, .261, .288*) of the WAF subscale across the three levels of analyses, that is, : "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling". The Cronbach's Alpha reliabilities ranged from .76 to .80 for WAF subscale, .65 to .72 for HAF subscale, a less than perfect .57 to .64 for INF subscale and .52 to .59 for URF subscale, to a robust .78 to .80 Cronbach's alpha for full scale (TTRF) over the levels of analyses: "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling". The present study yielded acceptable but generally lower alphas than reported in other studies. For example, Kim (2008) reported

Cronbach's alphas ranging from 0.61 to 0.93; Kuterovac-Jagodić & Keresteš (1996) reported alphas ranging from 0.77 to 0.87; Luft (1989) reported alphas ranging from 0.87 to 0.97, and Varan (2005) reported alphas ranging from 0.85 to 0.96. Inter-scale coefficients of correlation emerged to be significantly positive between all the scales of PARQ-Father for: "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling", conforming to the results found in various studies on the PARQ-Father scale (e.g. Felner, Brand, DuBois, Adan & Evans, 1995; Fente, 2012; Veneziano & Rohner, 1998 etc.) and as reported in the meta-analytic study by Rohner & Khaleque (2005).

Table – 1.1: Item-total coefficients of correlation, interscale relationships, Cronbach's Alphas, for subscales and full scale of PARQ-Father for adolescents having alcohol abusing siblings (n=296), adolescents having drug abusing siblings (n=296) and adolescents having normal siblings (n=298).

PARQ-F	ALCOHOL (MALE + FEMALE) N=296					DRUGS (MALE + FEMALE) N=296					NORMAL (MALE + FEMALE) N=298				
ITEMS	WAF	HAF	INF	URF	TTRF	WAF	HAF	INF	URF	TTRF	WAF	HAF	INF	URF	TTRF
WAF	1					1					1				
HAF	.123*	1				.244**	1				.197**	1			
INF	.430**	.433**	1			.470**	.534**	1			.471**	.507**	1		
URF	.209**	.589**	.591**	1		.310**	.642**	.582**	1		.235**	.615**	.589**	1	
TTRF	.711**	.669**	.815**	.724**	1	.745**	.742**	.826**	.750**	1	.731**	.714**	.838**	.720**	1
alpha *r*	0.79	0.67	0.57	0.59	0.78	0.8	0.72	0.62	0.58	0.8	0.76	0.65	0.64	0.52	0.79

** Correlation is significant at the 0.01 level (2-tailed).* Correlation is significant at the 0.05 level (2-tailed)

2. ***Psychometric adequacy of Parental Acceptance-Rejection Questionnaire – Mother (PARQ-Mother- short form for child;* Rohner, R.P. & Khaleque, A., 2005).**

The results of Item-total coefficients of correlation, reliability coefficients (Cronbach alpha), relationship between the scales, on PARQ-Mother sub-scales (WAM-Warmth/Affection, HAM-Hostility/Aggression, INM-Indifference/Neglect, URM-Undifferentiated Rejection and TTRM-Total Rejection) over the levels of analyses:

"adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling" are given together in Table 1.2. Results revealed substantial item-total coefficients of correlation (r = > .30, Nunnally, 1975) ranging from .318 to .755 for the sub-scales (WAM, HAM, INM, URM and TTRM), and Cronbach's Alpha reliabilities ranging from .81 to .82 for WAM subscale, a less than perfect alpha of .59 to .76 for HAM subscale,.56 to .65 for INM subscale,.51 to .64 for URM subscale, to a robust .78 to .80Cronbach's alpha for full scale (TTRM) over the levels of analyses. The present study, yielded lower alphas in the subscales than reported in the study by Rohner (1974), that is, between .86 to .95. Kim (2008) reported Cronbach's alphas ranging from 0.70 to 0.90; Kuterovac-Jagodić & Keresteš (1996) reported alphas ranging from 0.59 to 0.74; Luft (1989) reported alphas ranging from 0.81 to 0.97, Salama (1986) reported alphas ranging from 0.52 to 0.58, and Varan (2005) reported alphas ranging from 0.86 to 0.95.Inter-scale coefficient of correlation emerged to be significantly positive between all the scales of PARQ-Mother for "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling" as also found in various studies on the PARQ-Mother scale, e.g. Demetrious & Christodoulides, 2000; Erdem, 1990; Rohner & Khaleque, 2005 to name a few.

Table – 1.2: Item-total coefficients of correlation, interscale relationships, Cronbach's Alphas, for subscales and full scale of PARQ-Mother for adolescents having alcohol abusing siblings (n=296), adolescents having drug abusing siblings (n=296) and adolescents having normal siblings (n=298).

PARQ-M	ALCOHOL (MALE & FEMALE) N=296					DRUGS (MALE & FEMALE) N=296					NORMAL (MALE & FEMALE) N=298				
ITEMS	WAF	HAF	INF	URF	TTRF	WAF	HAF	INF	URF	TTRF	WAF	HAF	INF	URF	TTRF
WAM	1					1					1				
HAM	.193**	1				.311**	1				.160**	1			
INM	.424**	.555**	1			.472**	.579**	1			.383**	.509**	1		
URM	.226**	.598**	.612**	1		.280**	.665**	.545**	1		.149*	.578**	.548**	1	
TTRM	.721**	.724**	.836**	.715**	1	.749**	.788**	.823**	.728**	1	.716**	.699**	.806**	.666**	1
alpha *r*	0.82	0.68	0.65	0.58	0.79	0.82	0.76	0.63	0.64	0.8	0.81	0.59	0.56	0.51	0.78

** Correlation is significant at the 0.01 level (2-tailed).* Correlation is significant at the 0.05 level (2-tailed)

3. Psychometric adequacy of Coping Inventory for Stressful Situations (CISS – Adolescents; Endler & Parker, 1990).

The results of Item-total coefficients of correlation (and the relationship between the specific items as an index of internal consistency), reliability coefficients (Cronbach alpha), relationships between the scales, on CISS sub-scales (TOC-Task-Oriented Coping, EOC-Emotion-Oriented Coping and AOC-Avoidance-Oriented Coping) over the levels of analyses: "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling" are given together in Table 1.3.Results revealed generally adequate item-total coefficients of correlation(r = > .30, Nunnally, 1975) ranging from .311 to .728 except for item 16 (r =*.276, .198*) of the EOC subscale for "adolescents having drug-abusing sibling" and "adolescents having normal sibling"; item 3 (r =*.217, .271, .236*) of the AOC subscale across the three levels of analyses, that is,: "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling"; and item 4 (r =*.283, .291*) of the AOC subscale for "adolescents having alcohol-abusing sibling", and "adolescents having drug-abusing sibling". These inadequate loadings of item to their total subscales does not seem to have lowered the reliability, which ranged from a robust Cronbach's Alpha of .86 to .87 for TOC subscale, .75 to .78 for EOC subscale to .73 to .77 for AOC subscale over the levels of analyses. The present study also yielded alphas almost similar to the original studies by Endler & Parker (1994), who reported alphas generally ranging from .76 to .92.Mundia (2010) reported alphas for task-oriented .86; emotion-oriented .79; and avoidance .79. Rafnsson, Smari, Windle, Mears, & Endler (2006) also reported alphas for task-oriented .92; emotion-oriented .89; and avoidance .87.Aycock (2011) also reported alphas .91 for Task-Oriented Coping, .90 for Emotion-Oriented Coping, and .83 for Avoidance-Oriented Coping. Good internal consistency coefficients have been found for

the task-oriented (α= .78–.87), emotional (α= .78–.87), and avoidant (α= .70–.80) subscales (Endler & Parker, 1994, 1999; Endler, Speer, Johnson, & Flett, 2000).Inter-scale coefficients of correlation emerged to be generally significantly positive between all the scales of CISS for "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling", conforming to the results found in various studies on the CISS scale (e.g. Cook & Heppner, 1997; Endler & Parker, 1994; Mc Williams, Cox & Evans, 2003).

Table – 1.3: Item-total coefficients of correlation, interscale relationships, Cronbach's Alphas, for subscales of CISS for adolescents having alcohol abusing siblings (n=296), adolescents having drug abusing siblings (n=296) and adolescents having normal siblings (n=298).

CISS	ALCOHOL M & F (N=296)			DRUGS M & F (N=296)			NORMAL M & F (N=298)		
Items	T	E	A	T	E	A	T	E	A
T	1			1			1		
E	.232**	1		.216**	1		.180**	1	
A	0.059	.378**	1	.130*	.337**	1	.183**	.359**	1
alpha *r*	0.86	0.75	0.73	0.87	0.78	0.77	0.87	0.78	0.76

** Correlation is significant at the 0.01 level (2-tailed).* Correlation is significant at the 0.05 level (2-tailed)

4. Psychometric adequacy of NEO-FFI-3-Adolescents (Costa & McCrae, 2010).

The results of Item-total coefficients of correlation (and the relationships between the specific items as an index of internal consistency), reliability coefficients (Cronbach alpha), relationships between the scales, on NEO-FFI-3 sub-scales (N-Neuroticism, E-Extraversion, O-Openness, A-Agreeableness and C-Conscientiousness) over the levels of analyses: "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling", are given together in Table 1.4. Results revealed generally adequate item-total coefficients of correlation (r = > .30, Nunnally, 1975) ranging from .300 to .680except for item 1(*r =.272, .214, .235*) of the N subscale for "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling; item 12 (*r =.297, .285, .227*) of the E

subscale across the three levels of analyses, that is, : "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling"; item 47 (*r =.294, .121, .297*) of the E subscale across the three levels of analyses, that is, : "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling"; item 18 (*r =.003, .126, .048*) of the O subscale across the three levels of analyses, that is, : "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling"; item 28 (*r =.275, .241, .257*) of the O subscale across the three levels of analyses, that is, : "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling"; item 24 (*r =.249, .188*) of the A subscale for "adolescents having drug-abusing sibling" and "adolescents having normal sibling"; item 34 (*r =.246, .194*) of the A subscale for "adolescents having alcohol-abusing sibling" and "adolescents having normal sibling"; and item 15 (*r =.220, .282, .192*) of the C subscale across the three levels of analyses, that is, : "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling". Other studies have also found consistently poor loadings for items on E, O and A (Borkenau & Ostendorf, 1993; Egan, Deary & Austin, 2000; Holden & Fekken, 1994; Hrebickova, Urbanek, Cermak, Szarota, Fickova & Orlicka, 2002; Parker & Stumpf, 1998). Spence, Owens and Goodyer (2012) reasoned that in comparison to adult research, studies with adolescents have found more cross loadings, and items that do not load sufficiently on any factor. These inadequate loadings of item to their total subscales seem to have lowered the alpha reliability, which ranged from .69 to .73 for N subscale, .55 to .59 for E subscale, .42 to .51 for O subscale, .47 to .54 for A subscale, to .63 to .68 for C subscale over the levels of analyses: "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling".

However, deletion of these inadequately loading items did not increase the reliability coefficients. Therefore, in this study too, the scales will be used in toto and interpreted with caution. Although Costa & McCrae (1992) found internal consistency ranging from .68 for Agreeableness to .86 for Neuroticism, other studies demonstrate that items from the Neuroticism and conscientiousness scales perform better, whereas Extraversion, Agreeableness and Openness have less reliability (Aluja, Garcia, Rossier & Garcia, 2005; Parker & Stumpf, 1998; Sneed, Gullone & Moore, 2002; Olesen, 2011), which seem similar to the alpha reliabilities found in the present study. Costa & McCrae (2003) reasoned that the five constructs measured by the NEO-FFI are extremely broad, and the necessary diversity of item content is likely to reduce internal consistency and make the recovery of item factors more difficult. Costa and McCrae (2004) suggested changes to certain items of the original NEO-FFI items. However, they have concluded that improvements found in the subsequent NEO-FFI-R and NEO-FFI-3 were only modest (Costa & McCrae, 2007).

Inter-scale coefficients of correlation emerged to be significantly positive between most of the scales of NEO-FFI-3, except a few significantly negative correlations between some of the scales, such as Neuroticism and Extraversion, and Neuroticism and Conscientiousness ("adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling"), and Neuroticism and Agreeableness (for adolescents having "Normal" sibling). Borkenau and Ostendorf (1991) found that N and C were negatively correlated (r = -.38) and so were N and E (r = -.24). O and C were negatively correlated too. Egan *et al.,* (2000) also found negative correlations between N and E (r = -.40), N and C (r = -.36) and N and A (r = -.22). Similar findings were also reported by Bjornsdottir *et al*., (2014) for both addiction sample and population

sample, that is, significant negative correlations between N and E (r = -.34; r = -.45), N and C (r = -.26; r = -.51) and N and A (r = -.29; r =-.39).

Table – 1.4: Item-total coefficients of correlation, interscale relationships, Cronbach's Alphas for subscales of NEO-FFI-3 for adolescents having alcohol abusing siblings (n=296), adolescents having drug abusing siblings (n=296) and adolescents having normal siblings (n=298).

NEO-FFI	ALCOHOL MALE + FEMALE (N=296)					DRUGS MALE + FEMALE (N=296)					NORMAL MALE + FEMALE (N=298)				
Items	N	E	O	A	C	N	E	O	A	C	N	E	O	A	C
N	1					1					1				
E	-.138*	1				-.270**	1				-.151**	1			
O	.143*	.191**	1			.210**	.227**	1			0.044	.215**	1		
A	0.016	0.042	.184**	1		-0.111	.205**	.141*	1		-.215**	.257**	.186**	1	
C	-.230**	.221**	.146*	.206**	1	-.232**	.219**	.262**	.296**	1	-.293**	.197**	.232**	.358**	1
alpha *r*	0.72	0.55	0.51	0.47	0.68	0.73	0.58	0.5	0.54	0.66	0.69	0.59	0.42	0.49	0.63

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

4. Psychometric adequacy of Adolescent Psychopathology Scale-Short Form (APS-SF; Reynolds, 2004).

The results of Item-total coefficients of correlation(and the relationships between the specific items as an index of internal consistency), reliability coefficients (Cronbach alpha), relationship between the scales, on APS-SF sub-scales (CND-Conduct Disorder, PTS-Posttraumatic Stress Disorder, DEP-Major Depression, EAT-Eating Disturbance, ADP-Academic Problems, SCP-Self-Concept, OPD-Oppositional Defiant Disorder, GAD-Generalized Anxiety Disorder, SUB-Substance Abuse, SUI-Suicide, AVP-Anger/Violence Proneness and IPP-Interpersonal Problems) over the levels of analyses: "adolescents having alcohol-abusing sibling", "adolescents having drug-abusing sibling" and "adolescents having normal sibling", are given together in Table 1.5. Results revealed generally adequate item-total coefficients of correlation (r = > .30, Nunnally, 1975) ranging from .134 to .696 for (CND subscale),.296 to .607 for (PTS subscale),.428 to .677 for (DEP subscale),.168 to .858 for(EAT subscale), .264 to .663 for (ADP subscale),.424 to .669 for (SCP subscale), .462 to .650 for (OPD subscale), .399 to .649 for (GAD subscale), .131 to .766 for (SUB subscale), .582 to .813 for (SUI subscale), .187 to .701

for (AVP subscale) to .271 to .689 for (IPP subscale) over the levels of analyses. The Cronbach's alpha reliabilities ranged from.51 to .70 for (CND subscale), .69 to .76 for (PTS subscale), .83 to .88 for (DEP subscale), .70 to .74 for (EAT subscale), .64 to .73 for (ADP subscale), .69 to .75 for(SCP subscale), .71 to .78 for (OPD subscale), .71 to .79 for (GAD subscale), .62 to .65 for (SUB subscale), .75 to .79 for (SUI subscale), .69 to .77 for (AVP subscale) to .73 to .78 for (IPP subscale) over the levels of analyses. The present study yielded lower alphas than reported by Reynolds (2000), who found reliability coefficients ranging from .80 to .91, and Lemos, Faiske & Teodosio (2010) who reported reliability coefficients ranging from .70 to .89, but almost similar to Drew (2009), who reported reliability coefficients ranging from .67 to .90.Response validity is determined by two scales: Defensiveness Scale (DEF) and Consistency Response Scale (CNR). As recommended by the APS-SF manual, T-scores above 80 for Defensiveness Scale (DEF) and T-scores above 90 for Consistency Response Scales (CNR) are reported as indicative of invalid protocol. The DEF scale has a mean T-score of 50.29 for "adolescents having alcohol-abusing sibling", mean T-score of 51.91 for "adolescents having drug-abusing sibling" and mean T-score of 50.40 for "adolescents having normal sibling". The CNR has a mean T-score of 54.10 for "adolescents having alcohol-abusing sibling", mean T-score 54.46 for "adolescents having drug-abusing sibling" and mean T-score 53.69 for "adolescents having normal sibling". The APS-SF developers reported that the DEF scale mean was 50.74 and the CNR scale mean was 50.59. The individual T-scores for all the participants ranged from 40 to 80 for Defensiveness Scale (DEF) and 45 to 89 for Consistency Response Scale (CNR).

Inter-scale coefficients of correlation emerged to be significantly positive between most of the scales of APS-SF, except for non-significant correlations between a few scales such as Eating Disturbance and Academic Problems, Eating Disturbance and Substance Abuse Problems and Self concept and Substance Abuse Problems for "adolescents having

alcohol-abusing sibling"; Conduct Disorder and Self concept, Eating Disturbance and Substance Abuse Problems, Self concept and Substance Abuse Problems for "adolescents having alcohol-abusing sibling"; Conduct Disorder and Eating Disturbance, Eating Disturbance and Self concept, Eating Disturbance and Substance Abuse Problems and Eating Disturbance and Suicide for "adolescents having normal sibling", conforming to the results found in various studies on the APS-SF scale (Drew, 2009; Lemos, Faiske & Teodosio, 2010).

Table – 1.5: Item-total coefficients of correlation, interscale relationships, Cronbach's Alphas, subscales of APS-SF for adolescents having alcohol-abusing siblings (n=296), adolescents having drug abusing siblings (n=296) and adolescents having normal siblings (n=298).

	SUBSCALES	CND	PTS	DEP	EAT	ADP	SCP	OPD	GAD	SUB	SUI	AVP	IPP
ALCOHOL MALE & FEMALE (N=296)	CND	1											
	PTS	.382**	1										
	DEP	.339**	.732**	1									
	EAT	.133*	.415**	.356**	1								
	ADP	.353**	.295**	.244**	.040	1							
	SCP	.228**	.402**	.601**	.340**	.127*	1						
	OPD	.518**	.535**	.536**	.299**	.352**	.342**	1					
	GAD	.341**	.782**	.732**	.373**	.298**	.463**	.573**	1				
	SUB	.285**	.175**	.154**	-.050	.232**	-.006	.288**	.177**	1			
	SUI	.246**	.541**	.658**	.288**	.160**	.546**	.491**	.536**	.301**	1		
	AVP	.501**	.625**	.666**	.385**	.313**	.469**	.774**	.591**	.280**	.587**	1	
	IPP	.281**	.668**	.641**	.406**	.249**	.479**	.599**	.665**	.164**	.601**	.689**	1
	MEAN	1.46	6.46	7.95	2.98	7.17	7.30	4.81	8.14	0.86	2.02	4.69	7.00
	SD	1.59	3.28	4.99	2.79	2.94	3.33	2.98	3.93	1.84	2.25	3.18	3.83
	alpha *r*	.59	.71	.87	.72	.68	.75	.76	.79	.63	.77	.75	.76
DRUGS MALE & FEMALE (N=296)	CND	1											
	PTS	.316**	1										
	DEP	.249**	.793**	1									
	EAT	.177**	.393**	.409**	1								
	ADP	.465**	.596**	.563**	.368**	1							
	SCP	0.108	.503**	.603**	.268**	.330**	1						
	OPD	.539**	.570**	.514**	.357**	.608**	.234**	1					
	GAD	.289**	.793**	.748**	.447**	.641**	.468**	.527**	1				
	SUB	.364**	.289**	.289**	0.077	.298**	0.097	.360**	.297**	1			
	SUI	.269**	.593**	.680**	.360**	.465**	.536**	.440**	.543**	.283**	1		
	AVP	.555**	.624**	.631**	.324**	.543**	.388**	.800**	.564**	.335**	.518**	1	
	IPP	.228**	.725**	.739**	.394**	.527**	.541**	.570**	.640**	.217**	.582**	.694**	1
	MEAN	1.41	6.43	8.4	3.59	6.85	7.68	5.05	8.31	0.86	2.21	5.19	7.44
	SD	1.8	3.59	5.37	3.01	3.09	3.23	3.12	3.93	1.95	2.4	3.48	4.15
	alpha *r*	0.7	0.76	0.88	0.74	0.73	0.71	0.78	0.77	0.62	0.79	0.77	0.78
NORMAL MALE & FEMALE (N=298)	CND	1											
	PTS	.412**	1										
	DEP	.401**	.713**	1									
	EAT	0.047	.186**	.210**	1								
	ADP	.478**	.555**	.534**	.219**	1							
	SCP	.307**	.424**	.535**	0.082	.342**	1						
	OPD	.524**	.449**	.435**	.298**	.613**	.307**	1					
	GAD	.387**	.743**	.749**	.280**	.588**	.429**	.498**	1				
	SUB	.338**	.327**	.272**	-0.009	.327**	.179**	.228**	.261**	1			
	SUI	.405**	.491**	.644**	0.048	.322**	.494**	.375**	.482**	.317**	1		
	AVP	.561**	.518**	.560**	.243**	.556**	.416**	.778**	.560**	.240**	.499**	1	
	IPP	.405**	.656**	.640**	.215**	.564**	.428**	.600**	.617**	.227**	.520**	.668**	1
	MEAN	1.27	5.86	7.55	3.06	6.69	7.05	4.51	7.37	0.57	1.73	4.68	6.31
	SD	1.38	3.12	4.52	2.71	2.69	3.02	2.68	3.38	1.71	2	2.85	3.48
	alpha *r*	0.51	0.69	0.83	0.71	0.64	0.69	0.71	0.71	0.65	0.75	0.69	0.73

** Correlation is significant at the 0.01 level (2-tailed).* Correlation is significant at the 0.05 level (2-tailed).

Effects of Gender (Male and Female) And Status (Alcohol, Drugs and Normal) on paternal and maternal acceptance-rejection, coping, personality and psychopathology

To study the independent and interaction effects of "gender" (male and female) and "status" (the status of having 'Alcohol' abusing sibling, 'Drug' abusing sibling and 'Normal' sibling) on parental acceptance-rejection, coping, personality and psychopathology; as well as the moderating roles of parental acceptance-rejection, coping and personality in the relationships between the status of having substance-abusing sibling and psychological health status among adolescent boys and girls, 2 x 3 (2 gender x 3 status) factorial ANOVA and several hierarchical multiple linear regression models were envisaged.

Before embarking upon the actual moderation analysis and factorial ANOVA, diagnostic tests of assumptions that underlie the application of parametric tests were first checked: linearity, normality (skewness / kurtosis below 1.96, Kolmogorov-Smirnov test and Shapiro-Wilk test), homogeneity of variance (Levene's test and Hartley's *Fmax*) and independence of errors (Durbin Watson test). Levene's statistics indicated that the assumption of homogeneity of variance was violated in quite a few instances, namely in the measures of parental rejection from father (HAF, URF and TTRF) parental rejection from mother (HAM), Agreeableness subscale of personality measure and all subscales of measure of Psychopathology except self-concept (SCP). For those instances where normality was a problem, logarithmic transformations of scores as suggested by tests of normality was done which solved the problem of non-normality for the subscales of psychopathology (ADP, OPD, AVP, IPP) and subscales of parental rejection (TTRF, HAF, URF, HAM).

Given the large sample size, and in order to check the non-normal distribution still in some subscales of psychopathology (PTS, DEP, EAT, GAD, SUI,) and Agreeableness subscale of personality measure, equal sample size was randomly generated using SPSS from each cell of the design, yielding 145 participants in each cell of the design. Hartley's Maximum *F* Ratio Test for Homogeneity of Variances (Joglekar, 2003) was then applied on these scale scores that yielded variance ratio (Hartley's *F*max) ranging from 1.14 to 1.41, values that did not significantly deviate from the critical value of 1 for infinite number of subjects and groups, indicating that the assumption of homogeneity of variance was no more violated. For scales that derived ordinal dependent variable data (CND and SUB) non-parametric Mann-Whitney U Test for 'Gender' and Kruskal-Wallis One-way ANOVA for 'Status' will be resorted to. For moderation analysis in CND and SUB, logistic regression will be computed.

The relationships between the major variables of parenting, coping, personality, and psychopathology along the lines of gender (adolescent boys and girls) and status (status of having alcohol-abusing, drug-abusing and normal siblings) were analyzed separately**.** As the subscales of paternal and maternal rejection (Warmth/Affection, Hostility/Aggression, Indifference/Neglect and Undifferentiated/Rejection) were already found to be strongly positively correlated with one another (Table 1.1 and Table1.2) and with the total scale scores, and because of poorer reliability of these parental rejection subscales, only the total rejection scores for fathers and mothers will be further considered for analyses as the total scores are sufficient measures of the parenting variable of interest i.e., parental rejection. The results of relationships between the variables are given in Table 2.1 for adolescents having alcohol-abusing sibling, in Table 2.2 for those having drug-abusing sibling, and in Table 2.3 for those having normal siblings.

Table-2.1: Relationship Between the Scales for Adolescents having Alcohol Abusing Sibling

INTER-SCALE CORRELATIONS AMONG ADOLESCENTS HAVING ALCOHOL ABUSING SIBLINGS(BOYS (ABOVE) N=145; GIRLS (BELOW) N=145)

SCALES	TTRF	TTRM	TOC	EOC	AOC	N	E	O	A	C	CND	PTS	DEP	EAT	ADP	SCP	OPD	GAD	SUB	SUI	AVP	IPP
TTRF	1	.640**	-.167*	-.059	.109	.158	-.071	-.062	-.016	-.124	.116	.239**	.351**	.080	.185*	.127	.163*	.244**	.225**	.266**	.187*	.263**
TTRM	.492**	1	-.182*	.121	.128	.227**	-.205*	-.109	-.054	-.145	.166*	.281**	.405**	.041	.178*	.290**	.136	.298**	.127	.240**	.204*	.232**
TOC	-.119	-.005	1	.204*	.097	-.045	.086	.266**	.171*	.369**	-.014	-.017	-.031	.020	-.093	-.097	.006	-.032	-.214**	-.049	-.007	-.032
EOC	.033	.097	.241**	1	.414**	.478**	-.101	.035	-.133	-.066	.247**	.495**	.418**	.204*	.251**	.332**	.300**	.409**	.019	.306**	.421**	.486**
AOC	.001	.089	.020	.352**	1	.242**	.015	-.008	-.112	-.056	.352**	.364**	.267**	.286**	.225**	.044	.359**	.292**	.225**	.237**	.364**	.297**
N	.003	.099	-.190*	.324**	.129	1	-.109	.108	-.163*	-.174*	.163*	.537**	.649**	.223**	.351**	.533**	.380**	.552**	.101	.559**	.483**	.616**
E	-.125	-.202*	.008	-.115	.087	-.151	1	.331**	.081	.224**	-.073	-.213**	-.236**	-.102	-.074	-.337**	-.213**	-.196*	.047	-.341**	-.256**	-.253**
O	-.074	.092	.236**	.041	.036	.180*	.048	1	.219**	.245**	-.201*	-.009	.058	-.015	.004	-.136	-.051	.027	-.002	-.062	-.100	-.069
A	-.201*	-.137	.090	-.067	.005	-.116	.054	.178*	1	.295**	-.262**	-.132	-.093	.049	-.164*	-.094	-.241**	-.174*	-.190*	-.108	-.246**	-.117
C	-.117	-.168*	.417**	-.077	.000	-.354**	.225**	.041	.142	1	-.336**	-.293**	-.264**	-.163*	-.430**	-.392**	-.391**	-.284**	-.232**	-.198*	-.354**	-.241**
CND	.005	-.057	.080	-.091	-.061	-.183*	.219**	.089	.013	.264**	1	.524**	.397**	.217**	.534**	.237**	.578**	.407**	.310**	.268**	.568**	.313**
PTS	.020	.074	.026	.094	-.102	.092	-.053	.127	-.010	.058	.336**	1	.762**	.376**	.602**	.415**	.583**	.775**	.234**	.573**	.649**	.746**
DEP	.004	.053	-.071	.033	-.088	.085	-.018	.129	-.010	.036	.325**	.715**	1	.333**	.524**	.581**	.525**	.696**	.164*	.704**	.653**	.710**
EAT	-.023	.047	-.195*	-.043	-.013	.071	-.018	-.150	-.169*	-.114	.134	.178*	.157	1	.156	.335**	.220**	.397**	-.014	.375**	.344**	.398**
ADP	.055	.099	.124	-.074	-.154	-.010	.027	.098	-.073	.090	.491**	.462**	.434**	.175*	1	.278**	.618**	.641**	.351**	.332**	.526**	.505**
SCP	-.088	-.008	.097	.021	-.089	-.137	-.079	.071	-.002	.092	.242**	.438**	.489**	.122	.328**	1	.306**	.459**	.005	.578**	.449**	.460**
OPD	.032	-.049	.126	-.008	-.079	.001	.064	.070	-.012	.110	.506**	.349**	.342**	.315**	.587**	.257**	1	.598**	.295**	.464**	.792**	.545**
GAD	-.048	.048	.014	-.054	-.150	.044	-.031	.222**	.030	.089	.330**	.689**	.713**	.233**	.438**	.411**	.438**	1	.214**	.556**	.596**	.727**
SUB	-.001	.062	-.091	-.011	-.015	.129	-.008	.021	-.105	-.127	-.053	.002	-.065	-.036	.084	-.113	-.022	-.106	1	.176*	.263**	.154
SUI	.014	-.014	-.095	.054	-.121	.011	-.026	.165*	.074	-.037	.311**	.468**	.519**	.087	.240**	.372**	.310**	.455**	-.051	1	.587**	.626**
AVP	.060	-.023	.054	.025	-.064	-.074	.062	.054	-.066	.189*	.523**	.491**	.502**	.297**	.531**	.368**	.750**	.569**	.000	.479**	1	.658**
IPP	-.030	-.095	.100	.070	-.050	-.021	.021	.111	.069	.106	.357**	.591**	.531**	.199*	.480**	.415**	.616**	.537**	-.089	.495**	.702**	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed)

Note: coefficients above the diagonal pertain to male; coefficients below the diagonal pertain to females.

Results of the relationships between the constructs among adolescents with alcohol-abusing sibling are given in Table - 2.1. For relationships between the subscales within the same constructs, Table numbers (1.1, 1.2, 1.3, 1.4 and 1.5) may be referred to respectively for parental rejection, coping styles, personality and psychopathology. Results vide Table - 2.1 revealed that for **boys having alcohol-abusing sibling, Paternal Rejection** (TTRF) was significantly positively correlated with Maternal Rejection (TTRM), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Academic Problems (ADP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP), and was significantly negatively correlated with Task-oriented Coping (TOC). **Maternal Rejection** (TTRM) was significantly positively correlated with Neuroticism (N), Conduct Disorder (CND), Posttraumatic Stress Disorder

(PTS), Major Depression (DEP), Academic Problems (ADP), Self-Concept (SCP), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP), and was significantly negatively correlated with Task-oriented Coping (TOC) and Extraversion (E). **Task-oriented Coping** (TOC) was significantly positively correlated with Openness (O), Agreeableness (A) and Conscientiousness (C), and was significantly negatively correlated with Substance Abuse Disorder (SUB). **Emotion-oriented Coping** (EOC) was significantly positively correlated with Neuroticism (N), Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Avoidance-oriented Coping** (AOC) was significantly positively correlated with Neuroticism (N), Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Neuroticism** (N) was significantly positively correlated with Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP).**Extraversion** (E) was significantly was significantly negatively correlated with Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Openness (O)** was significantly negatively

correlated with Conduct Disorder (CND). **Agreeableness** (A) was significantly negatively correlated with Conduct Disorder (CND), Academic Problems (ADP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB) and Anger/Violence Proneness (AVP). **Conscientiousness** (C) significantly negatively correlated with Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP).

For **girls having alcohol-abusing sibling, Paternal Rejection** was significantly positively correlated with Maternal Rejection (TTRM), and was significantly negatively correlated with Agreeableness (A). **Maternal Rejection** (TTRM) was significantly negatively correlated with Extraversion (E) and conscientiousness (C). **Task-oriented Coping** (TOC) was significantly positively correlated with Openness (O) and Conscientiousness (C), and was significantly negatively correlated with Neuroticism (N) and Eating Disturbance (EAT). **Emotion-oriented Coping** (EOC) was significantly positively correlated with Neuroticism (N). **Avoidance-oriented Coping** (AOC) was not significantly correlated with other constructs. **Neuroticism (N)** was significantly negatively correlated with Conduct Disorder (CND). **Extraversion (E)** was significantly positively correlated with Conduct Disorder (CND). **Openness (O)** was significantly positively correlated with Generalized Anxiety Disorder (GAD) and Suicide (SUI). **Agreeableness (A)** was significantly negatively correlated with Eating Disturbance (EAT).**Conscientiousness (C)** was significantly positively correlated with Conduct Disorder (CND) and Anger/Violence Proneness (AVP).

Table- 2.2: Relationship Between the Scales for Adolescents having Drug-Abusing Sibling

INTERSCALE CORRELATIONS AMONG ADOLESCENTS HAVING DRUG ABUSING SIBLINGS (BOYS(ABOVE) N=145; GIRLS (BELOW) N=145)																							
SCALES	**TTRF**	**TTRM**	**TOC**	**EOC**	**AOC**	**N**	**E**	**O**	**A**	**C**	**CND**	**PTS**	**DEP**	**EAT**	**ADP**	**SCP**	**OPD**	**GAD**	**SUB**	**SUI**	**AVP**	**IPP**
TTRF	1	.439**	-.095	.111	.008	.216**	-.150	-.023	-.069	-.183*	.201*	.356**	.300**	.144	.371**	.280**	.254**	.300**	.033	.237**	.248**	.295**
TTRM	.572**	1	-.152	-.014	-.011	.075	-.065	-.141	-.162*	-.143	.095	.201*	.128	.040	.272**	.198*	.201*	.139	.023	.195*	.166*	.174*
TOC	-.129	-.160	1	.223**	.214**	-.149	.057	.023	.145	.313**	-.219**	-.093	-.131	-.074	-.172*	-.195*	-.162*	-.104	-.184*	-.152	-.127	-.069
EOC	.223**	.199*	.209*	1	.345**	.419**	-.030	.140	-.179*	-.206*	.155	.459**	.448**	.354**	.474**	.215**	.366**	.486**	.167*	.374**	.422**	.486**
AOC	.160	.140	.043	.331**	1	.047	.205*	.049	-.186*	-.072	.242**	.052	.070	.061	.287**	-.057	.205*	.063	.296**	.140	.147	.091
N	.220**	.054	-.121	.388**	.192*	1	-.284**	.195*	-.141	-.291**	.090	.579**	.596**	.273**	.408**	.509**	.336**	.526**	.179*	.514**	.417**	.565**
E	-.142	-.198*	.166*	-.212**	.090	-.244**	1	.223**	.180*	.260**	.081	-.264**	-.314**	-.202*	-.030	-.402**	.000	-.209*	-.002	-.287**	-.017	-.266**
O	-.060	-.088	.221**	-.015	.015	.233**	.233**	1	.141	.249**	-.046	.100	.068	.040	.009	.047	.094	.073	-.024	.037	.047	.154
A	-.300**	-.315**	.307**	-.062	-.148	-.148	.265**	.146	1	.251**	-.301**	-.207*	-.284**	-.115	-.276**	-.177*	-.435**	-.234**	-.253**	-.309**	-.413**	-.230**
C	-.235**	-.301**	.311**	-.174*	-.171*	-.166*	.177*	.275**	.375**	1	-.175*	-.268**	-.297**	-.159	-.363**	-.270**	-.213**	-.253**	-.251**	-.253**	-.210*	-.180*
CND	.374**	.264**	-.124	.037	.135	.009	.092	-.015	-.381**	-.299**	1	.386**	.356**	.250**	.526**	.147	.580**	.370**	.428**	.337**	.630**	.311**
PTS	.288**	.130	-.180*	.369**	.120	.502**	-.360**	.016	-.240**	-.342**	.218**	1	.851**	.465**	.666**	.604**	.597**	.826**	.363**	.651**	.657**	.763**
DEP	.247**	.132	-.137	.493**	.153	.559**	-.353**	-.045	-.112	-.363**	.111	.710**	1	.498**	.649**	.637**	.567**	.790**	.380**	.738**	.658**	.776**
EAT	.034	-.007	-.122	.127	.000	.180*	.105	.094	-.111	-.174*	.119	.330**	.318**	1	.420**	.364**	.406**	.505**	.164*	.497**	.358**	.491**
ADP	.346**	.212**	-.175*	.304**	.288**	.283**	-.070	-.111	-.277**	-.537**	.408**	.518**	.455**	.315**	1	.422**	.619**	.694**	.424**	.547**	.584**	.558**
SCP	.215**	.138	-.131	.307**	-.030	.449**	-.284**	-.024	-.071	-.299**	.083	.390**	.561**	.169*	.222**	1	.247**	.589**	.187*	.596**	.382**	.572**
OPD	.360**	.257**	-.206*	.274**	.170*	.316**	-.200*	-.049	-.488**	-.391**	.473**	.532**	.451**	.331**	.619**	.247**	1	.530**	.429**	.491**	.838**	.580**
GAD	.270**	.129	-.167*	.336**	.199*	.456**	-.202*	.026	-.174*	-.364**	.181*	.745**	.682**	.394**	.578**	.315**	.536**	1	.402**	.621**	.608**	.718**
SUB	.037	.064	-.168*	-.018	.014	.172*	-.048	.114	-.177*	-.106	.235**	.154	.160	-.001	.153	.020	.199*	.120	1	.322**	.391**	.269**
SUI	.447**	.264**	-.245**	.349**	.089	.480**	-.290**	-.123	-.140	-.215**	.183*	.511**	.597**	.221**	.364**	.467**	.376**	.427**	.255**	1	.549**	.640**
AVP	.270**	.261**	-.155	.355**	.176*	.433**	-.312**	-.003	-.436**	-.325**	.441**	.573**	.599**	.308**	.507**	.422**	.739**	.499**	.208*	.475**	1	.709**
IPP	.258**	.204*	-.296**	.364**	.149	.516**	-.353**	-.016	-.272**	-.358**	.126	.685**	.710**	.318**	.505**	.529**	.559**	.554**	.128	.520**	.684**	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed)

Note: coefficients above the diagonal pertain to male; coefficients below the diagonal pertain to females.

Results of the relationships between the constructs among adolescents having DRUG-abusing sibling given in Table –2.2 revealed that for b**oys having drug-abusing sibling, Paternal Rejection (TTRF)** was significantly positively correlated with Maternal Rejection (TTRM), Neuroticism (N), Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP), and was significantly negatively correlated with Conscientiousness (C). **Maternal Rejection (TTRM)** was significantly positively correlated with Posttraumatic Stress Disorder (PTS), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP), and

was significantly negatively correlated with Agreeableness (A). **Task-oriented Coping (TOC)** was significantly positively correlated with Conscientiousness (C), and was significantly negatively correlated with Conduct Disorder (CND), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD) and Substance Abuse Disorder (SUB). **Emotion-oriented Coping (EOC)** was significantly positively correlated with Avoidance-oriented Coping (AOC), Neuroticism (N), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder(SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP), and was significantly negatively correlated with Agreeableness (A) and Conscientiousness (C). **Avoidance-oriented Coping (AOC)** was significantly positively correlated with Extraversion (E), Conduct Disorder (CND), Academic Problems (ADP), Oppositional Defiant Disorder (OPD) and Substance Abuse Disorder (SUB), and was significantly negatively correlated with Agreeableness (A). Neuroticism (N) was significantly positively correlated with Openness (O), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder(SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP), and was significantly negatively correlated with Extraversion (E) and Conscientiousness (C). **Extraversion (E)** was significantly negatively correlated with Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Self-Concept (SCP), Generalized Anxiety Disorder (GAD), Suicide (SUI) and Interpersonal Problems (IPP). **Openness (O)** was not significantly correlated with other constructs. Agreeableness (A) was significantly negatively correlated with Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS),

Major Depression (DEP), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder(SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Conscientiousness (C)** was significantly negatively correlated with Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP).

For **girls having drug-abusing sibling, Paternal Rejection (TTRF)** was significantly positively correlated with Maternal Rejection (TTRM), Emotion-oriented Coping (EOC), Neuroticism (N), Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP), and was significantly negatively correlated with Agreeableness (A) and Conscientiousness (C). **Maternal Rejection (TTRM)** was significantly positively correlated with Emotion-oriented Coping (EOC), Conduct Disorder (CND), Academic Problems (ADP), Oppositional Defiant Disorder (OPD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP), and was significantly negatively correlated with Extraversion (E), Agreeableness (A) and Conscientiousness (C). **Task-oriented Coping (TOC)** was significantly positively correlated with Extraversion (E), Openness (O), Agreeableness (A) and Conscientiousness (C) and was significantly negatively correlated with Posttraumatic Stress Disorder (PTS), Academic Problems (ADP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal

Problems (IPP). **Emotion-oriented Coping (EOC)** was significantly positively correlated with Neuroticism (N), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP) and was significantly negatively correlated with Extraversion (E) and Conscientiousness (C). **Avoidance-oriented Coping (AOC)** was significantly positively correlated with Neuroticism (N), Academic Problems (ADP, Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD) and Anger/Violence Proneness (AVP), and was significantly negatively correlated with Conscientiousness (C). **Neuroticism (N)** was significantly positively correlated with Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Extraversion (E)** was significantly negatively correlated with Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Openness (O)** was significantly negatively correlated with Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Academic Problems (ADP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Conscientiousness (C)** was significantly negatively correlated with Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional

Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP).

Table- 2.3: Relationship Between the Scales for Adolescents having Normal Sibling

INTERSCALE CORRELATIONS AMONG ADOLESCENTS HAVING NORMAL SIBLINGS (BOYS(ABOVE) N=145; GIRLS (BELOW) N=145)

SCALES	TTRF	TTRM	TOC	EOC	AOC	N	E	O	A	C	CND	PTS	DEP	EAT	ADP	SCP	OPD	GAD	SUB	SUI	AVP	IPP
TTRF	1	.523**	-.136	.102	.067	.172*	-.031	-.045	-.168*	-.223**	.257**	.177*	.231**	.080	.145	.293**	.130	.160	.130	.234**	.094	.194*
TTRM	.626**	1	-.206*	.148	.031	.136	-.083	-.178*	-.219**	-.206*	.178*	.072	.084	-.074	.112	.176*	.087	.145	-.022	.073	.112	.199*
TOC	-.159	-.233**	1	.112	.189*	-.134	.023	.121	.169*	.269**	-.226**	.010	-.035	.118	-.088	-.202*	-.059	-.078	-.131	-.076	-.053	-.022
EOC	-.043	.063	.257**	1	.447**	.394**	-.214**	-.152	-.281**	-.256**	.293**	.465**	.428**	.100	.318**	.338**	.351**	.445**	.185*	.432**	.394**	.485**
AOC	-.011	.017	.175*	.286**	1	.254**	-.177*	-.107	-.322**	-.170*	.284**	.320**	.280**	.177*	.256**	.174*	.369**	.279**	.311**	.303**	.364**	.340**
N	.049	.060	-.029	.451**	.139	1	-.230**	.091	-.398**	-.372**	.513**	.488**	.593**	.044	.387**	.477**	.441**	.545**	.219**	.469**	.505**	.536**
E	-.150	-.140	.225**	-.066	.236**	-.127	1	.188*	.271**	.167*	-.151	-.257**	-.309**	-.031	-.160	-.254**	-.211**	-.193*	-.204*	-.306**	-.243**	-.373**
O	.008	.027	.161	.026	.049	-.008	.254**	1	.196*	.183*	.104	.136	.123	.043	.102	.026	-.016	.101	.119	.103	-.020	.068
A	-.178*	-.184*	.243**	-.059	-.130	-.163*	.155	.192*	1	.407**	-.429**	-.309**	-.335**	-.160	-.406**	-.295**	-.466**	-.309**	-.243**	-.350**	-.491**	-.374**
C	-.201*	-.231**	.392**	-.073	-.087	-.223**	.230**	.290**	.312**	1	-.375**	-.254**	-.310**	-.125	-.412**	-.420**	-.329**	-.319**	-.266**	-.269**	-.276**	-.263**
CND	.259**	.239**	-.227**	.115	.049	.252**	-.042	-.114	-.372**	-.324**	1	.479**	.502**	.101	.515**	.364**	.562**	.485**	.421**	.434**	.600**	.460**
PTS	.168*	.145	-.011	.419**	.086	.507**	-.156	-.002	-.082	-.234**	.330**	1	.714**	.218**	.614**	.412**	.526**	.786**	.455**	.517**	.538**	.705**
DEP	.061	.082	.004	.436**	.138	.576**	-.234**	-.216**	-.143	-.331**	.323**	.719**	1	.219**	.590**	.566**	.509**	.764**	.448**	.763**	.612**	.724**
EAT	.026	-.041	-.111	.178*	.136	.112	.010	.014	-.167*	-.156	.122	.167*	.149	1	.228**	.027	.312**	.270**	.143	.116	.241**	.253**
ADP	.109	.175*	-.107	.263**	.173*	.245**	-.096	-.114	-.206*	-.448**	.488**	.478**	.452**	.175*	1	.335**	.635**	.680**	.490**	.399**	.571**	.613**
SCP	.153	.130	-.115	.231**	-.151	.447**	-.256**	-.164*	-.047	-.306**	.249**	.444**	.502**	.128	.350**	1	.342**	.442**	.298**	.587**	.440**	.414**
OPD	.184*	.244**	-.173*	.240**	.214**	.358**	-.127	-.130	-.429**	-.399**	.510**	.350**	.343**	.299**	.586**	.266**	1	.544**	.356**	.433**	.805**	.600**
GAD	.099	.118	-.102	.393**	.096	.523**	-.163*	-.095	-.088	-.264**	.330**	.695**	.718**	.222**	.454**	.422**	.442**	1	.449**	.547**	.567**	.685**
SUB	-.169*	-.127	-.014	-.060	.058	-.022	-.054	-.016	-.030	-.056	-.059	-.002	-.069	-.038	.078	-.115	-.028	-.110	1	.378**	.342**	.360**
SUI	.158	.202*	-.153	.249**	.034	.375**	-.203*	-.097	-.175*	-.177*	.316**	.470**	.522**	.082	.248**	.377**	.317**	.460**	-.055	1	.520**	.561**
AVP	.222**	.208*	-.169*	.391**	.190*	.535**	-.234**	-.178*	-.451**	-.380**	.522**	.491**	.506**	.284**	.544**	.388**	.748**	.573**	-.007	.486**	1	.638**
IPP	.301**	.292**	-.084	.396**	.061	.537**	-.252**	-.092	-.346**	-.292**	.351**	.593**	.544**	.198*	.508**	.444**	.601**	.545**	-.091	.489**	.705**	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed)
Note: Coefficients above the diagonal pertain to male; Coefficients below the diagonal pertain to females.

Results of the relationships between the constructs among adolescents having normal sibling given in Table – 2.3 revealed that **for boys having normal sibling, Paternal Rejection (TTRF)** was significantly positively correlated with Maternal Rejection (TTRM), Neuroticism (N), Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Self-Concept (SCP), Substance Abuse Disorder (SUB), Suicide (SUI) and Interpersonal Problems (IPP), and was significantly negatively correlated with Agreeableness (A) and Conscientiousness (C). **Maternal Rejection (TTRM)** was significantly positively correlated with Conduct Disorder (CND), Self-

Concept (SCP), Interpersonal Problems (IPP), and was significantly negatively correlated with Task-oriented Coping (TOC), Openness (O), Agreeableness (A) and Conscientiousness (C). **Task-oriented Coping (TOC)** was significantly positively correlated with Agreeableness (A) and Conscientiousness (C), and was significantly negatively correlated Conduct Disorder (CND) and Self-Concept (SCP). **Emotion-oriented Coping (EOC)** was significantly positively correlated with Neuroticism (N),Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder(SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP), and was significantly negatively correlated with Extraversion (E), Agreeableness (A) and Conscientiousness (C). **Avoidance-oriented Coping (AOC)** was significantly positively correlated with Neuroticism (N), Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder(SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP), and was significantly negatively correlated with Extraversion (E), Agreeableness (A) and Conscientiousness (C). **Neuroticism (N)** was significantly positively correlated with Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Extraversion (E)** was significantly negatively correlated with Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder

(GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Openness (O)** was significantly negatively correlated with Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Conscientiousness (C)** was significantly positively correlated with Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP).

For **girls having normal sibling, Paternal Rejection (TTRF),** was significantly positively correlated with Maternal Rejection (TTRM), Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Oppositional Defiant Disorder (OPD), Anger/Violence Proneness (AVP)and Interpersonal Problems (IPP), and was significantly negatively correlated with Agreeableness (A), Conscientiousness (C) and Substance Abuse Disorder (SUB). **Maternal Rejection (TTRM)** was significantly positively correlated with Conduct Disorder (CND), Academic Problems (ADP), Oppositional Defiant Disorder (OPD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP), and was significantly negatively correlated with Task-oriented Coping (TOC), Agreeableness (A) and Conscientiousness (C). **Task-oriented Coping (TOC)** was significantly positively correlated with Extraversion (E), Agreeableness (A) and Conscientiousness (C), and was significantly negatively correlated Conduct Disorder (CND), Oppositional Defiant Disorder (OPD) and Anger/Violence Proneness (AVP). **Emotion-oriented Coping (EOC)** was significantly positively

correlated with Neuroticism (N), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Avoidance-oriented Coping (AOC)** was significantly positively correlated with Extraversion (E), Academic Problems (ADP), Oppositional Defiant Disorder (OPD), and Anger/Violence Proneness (AVP). **Neuroticism (N)** was significantly positively correlated with Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Extraversion (E)** was significantly negatively correlated with Major Depression (DEP), Self-Concept (SCP), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). **Openness (O)** was significantly negatively correlated with Major Depression (DEP), Self-Concept (SCP), and Anger/Violence Proneness (AVP). **Conscientiousness (C)** was significantly positively correlated with Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP).

Effects of Gender (Male and Female) And Status (Alcohol, Drugs and Normal) on Parental Rejection, Coping Styles, Personality and Psychopathology

To determine differences in perceived parental rejection, coping styles, personality and psychopathology between male and female participants according to the three statuses of having alcohol-abusing, drug-abusing and normal siblings, a 2 x 3 (2 gender x 3 status)factorial ANOVA was computed on parental rejection for fathers and mothers separately in terms of Warmth/Affection (WAF and WAM), Hostility/Aggression (HAF and HAM), Indifference/Neglect (INF and INM), and Undifferentiated Rejection (URF and URM); coping styles in terms of Task-oriented coping (TOC), Emotion-oriented coping (EOC) and Avoidance-oriented coping (AOC); personality in terms of Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A) and C Conscientiousness (C); and psychopathology to reflect the mental health status of the participants in terms of Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). The results are given in the following sections:-

1. Effects of 'gender' and 'status' on paternal and maternal rejection:

Results of the Levene's test of equality of error variances (Table 3.1.b) for all the subscales and total scale of PARQ-Father and PARQ-Mother (Parental Acceptance-Rejection Questionnaire) indicated non-significant Levene's statistics on WAF, HAFlg (lg indicates logarithmic transformation of scores), INF, URFlg, TTRFlg, WAM, HAMlg, INM, URM and TTRM, suggesting that the variance in all of the subscales and total rejection scales were equal across the various combinations of 'Gender' and 'Status'.

The results of Factorial ANOVA (2 gender X 3 status) given in Table No. 3.1.c revealed significant main effect of 'gender' on HAFlg, URFlg, TTRFlg and HAMlg. Mean comparisons (Table 3.1.a) indicated that ignoring status, males scored higher than females in HAFlg (*M* = 9.55 for males; *M* = 8.56 for females), in URFlg (*M* = 6.33 for males; *M* = 6.01 for females), and in TTRF (*M* = 40.36 for males; *M* = 38.61 for females). Therefore, compared to females, males generally perceived significantly more hostility/aggression, undifferentiated rejection and total rejection from Fathers. This finds support from literature where male participants tended to perceive higher rejection during childhood from their father than did female participants (Hussain, Alvi, Zeeshan &Nadeem, 2013). Male Khasi students were also found to perceive significantly more rejection from fathers as compared to the female, while female Khasi students perceived better emotional warmth from fathers in comparison to male Khasi students (Rai, Pandey & Kumar, 2009). Ibrahim (1988) reported that Egyptian college men perceived their fathers to be less accepting than their mothers. In a sample of deaf male and female intermediate and secondary school students in Egypt, males perceived their parents to be significantly less accepting, more aggressive, more neglecting, and more rejecting than did females (Helewa, 1997). Similar results have been found by Abdalla (2001) in Egypt. A study of University students in Karachi also revealed that on the dimensions of aggression and hostility, there were significant gender differences which were more for males (Hussain & Munaf, 2012).

Significant 'gender' effect on HAMlg (Table 3.1.c) indicated that males scored higher than females on HAMlg (*M* = 8.60 for males; *M* = 8.12 for females), suggesting that males also perceived significantly more hostility/aggression from mothers compared to females. Apparently with boys typically engaging in more 'high-power' activities, it does not come as a surprise that they should perceive their major caregivers (most likely

their mother) as more impatient, scolding them more often and expressing frustration and irritation over their behavior in other ways - more so than in the case of girls of the same age (Demetriou & Christodoulides, 2006).

Significant main effect of 'status' (Alcohol, Drugs and Normal) were found on HAFlg, INF, URFlg and TTRFlg. Post hoc mean comparisons (Tukey hsd) given in Table 3.1.d indicated that adolescents having drug-abusing sibling (*M* = 9.36) scored significantly higher than adolescents having normal sibling (*M* = 8.67) on paternal hostility/aggression (HAFlg); adolescents having drug-abusing sibling (*M* = 10.51) scored significantly higher than adolescents having normal sibling(*M* = 9.76) on paternal indifference/neglect INF; adolescents having drug abusing sibling (*M* = 6.39) scored significantly higher than adolescents having normal sibling (*M* = 5.89) on paternal undifferentiated/rejection (URF), and adolescents having drug abusing sibling (*M* = 40.51) also scored significantly higher than adolescents having normal siblings (*M* =38.24) on TTRFlg, suggesting that adolescents having drug abusing sibling perceived significantly more rejection from fathers compared to adolescents having normal siblings. A study siblings of drug abusers by Barnard (2005) revealed that siblings of drug abusers reported that they had become 'estranged, sidelined, and that they were missing out on their parents' attention. Barnard (2005) also reported that fathers tend to withdraw from the family situation (son's addiction), and this in turn could be perceived as rejection by the non-abusing sibling. According to Cicirelli (1995), parents may become preoccupied with the ill child, giving little attention to the other children. The healthy children may be required to take on additional household responsibilities that allows less time for engaging in their own preferred activities. Parents can easily become overwhelmed when one of their children has high needs whether resulting from chronic disability, disease, or

addiction (Lamorey, 1999). However, significant main effect of "status" was not found on any of the PARQ-Mother subscales or total scale.

Significant interaction effect of "gender X status" were also found on URFlg and TTRFlg. Significant interaction of "gender x status" on paternal undifferentiated rejection (URF) revealed that among boys, siblings of drug-abusers (*M* = 6.65) scored significantly higher than boys having normal siblings (*M* = 6.19) and siblings of alcohol-abusers (*M* = 6.16); whereas among girls, siblings of alcohol-abusers (*M*=6.29) perceived significantly more paternal undifferentiated rejection than those having drug-abusing siblings (*M* = 6.13) and those having normal siblings (*M* =5.60). The same pattern of interaction effects is also seen on total rejection from father where in among boys, siblings of drug-abusers (*M* = 41.67) scored significantly higher on paternal total rejection than those having normal sibling (*M* = 39.92) and siblings of alcohol-abusers (*M* = 39.48); whereas among girls, siblings of alcohol-abusers (*M* = 39.91) scored significantly higher than siblings of drug-abusers (*M* = 39.36) and those having normal sibling (*M* =36.56). Results indicate that male and female siblings of substance abusers generally perceive more rejection from fathers than male and female adolescents having normal siblings. Various studies have reported that when one sibling has a severe physical, mental or emotional illness, other siblings receive little attention from parents or caretakers. Their needs are often un-addressed and burden often increases accompanied by role confusion because of their parents' preoccupation with the ill sibling (Barnard, 2005; Kilmer, Cook, Taylor, Kane, & Clark, 2008; Lukens, Thorning & Lohrer, 2004). Significant interaction effect was not found on any of the PARQ-Mother subscales or total rejection scale.

Table 3.1.a: Descriptive statistics depicting Mean, SD, Skewness, Kurtosis and Standard Errors for the six groups (2 gender x 3 status) on paternal and maternal rejection (PARQ subscales and full scale)

	GENDER	STATUS	N	Mean	SD	Skewness	SE	Kurtosis	SE
WAF (warmth/affection from father)	1 (Male)	1 (Alcohol sib.)	145	13.76	4.02	1.206	.201	2.125	.400
		2 (Drug sibling)	145	14.39	4.28	.860	.201	.706	.400
		3 (Normal sib.)	145	14.39	4.03	.333	.201	-.404	.400
		Total	435	14.18	4.12	.798	.117	.690	.234
	2 (Female)	1(Alcohol sib.)	145	14.46	4.62	.726	.201	-.022	.400
		2 (Drug sibling)	145	14.12	4.44	.854	.201	.578	.400
		3 (Normal sib.)	145	13.46	3.87	.745	.201	.018	.400
		Total	435	14.01	4.33	.807	.117	.293	.234
	Total	1(Alcohol sib.)	290	14.11	4.34	.943	.143	.775	.285
		2 (Drug sibling)	290	14.26	4.36	.848	.143	.604	.285
		3 (Normal sib.)	290	13.92	3.97	.527	.143	-.296	.285
		Total	870	14.10	4.22	.799	.083	.465	.166
HAF (hostility/aggression from father)	1(Male)	1(Alcohol sib.)	145	9.34	3.00	.998	.201	.536	.400
		2 (Drug sibling)	145	9.92	3.00	.668	.201	.413	.400
		3 (Normal sib.)	145	9.37	3.14	1.048	.201	.921	.400
		Total	435	9.55	3.05	.891	.117	.530	.234
	2(Female)	1(Alcohol sib.)	145	8.93	2.86	1.017	.201	.906	.400
		2 (Drug sibling)	145	8.80	3.14	1.389	.201	1.367	.400
		3 (Normal sib.)	145	7.96	2.13	1.042	.201	.400	.400
		Total	435	8.56	2.77	1.307	.117	1.584	.234
	Total	1(Alcohol sib.)	290	9.14	2.93	1.005	.143	.689	.285
		2 (Drug sibling)	290	9.36	3.12	.974	.143	.547	.285
		3 (Normal sib.)	290	8.67	2.77	1.255	.143	1.679	.285
		Total	870	9.06	2.95	1.073	.083	.893	.166
INF (indifference/neglect from father)	1(Male)	1(Alcohol sib.)	145	10.22	2.98	.695	.201	.355	.400
		2 (Drug sibling)	145	10.70	2.82	.476	.201	-.450	.400
		3 (Normal sib.)	145	9.97	3.02	1.063	.201	1.390	.400
		Total	435	10.30	2.95	.730	.117	.354	.234
	2(Female)	1(Alcohol sib.)	145	10.23	2.88	.445	.201	-.301	.400
		2 (Drug sibling)	145	10.31	3.29	1.206	.201	1.832	.400
		3 (Normal sib.)	145	9.54	2.64	.838	.201	.541	.400
		Total	435	10.03	2.96	.924	.117	1.106	.234
	Total	1(Alcohol sib.)	290	10.22	2.93	.574	.143	.031	.285
		2 (Drug sibling)	290	10.51	3.07	.892	.143	.933	.285
		3 (Normal sib.)	290	9.76	2.84	.996	.143	1.187	.285
		Total	870	10.16	2.96	.823	.083	.700	.166
URF (undifferentiated/rejection from father)	1(Male)	1(Alcohol sib.)	145	6.16	2.18	1.263	.201	1.506	.400
		2 (Drug sibling)	145	6.65	1.98	.553	.201	.082	.400
		3 (Normal sib.)	145	6.19	2.14	1.004	.201	.642	.400
		Total	435	6.33	2.11	.929	.117	.627	.234
	2(Female)	1(Alcohol sib.)	145	6.29	2.10	1.047	.201	1.367	.400
		2 (Drug sibling)	145	6.13	2.24	1.266	.201	1.557	.400
		3 (Normal sib.)	145	5.60	1.59	1.193	.201	1.768	.400
		Total	435	6.01	2.02	1.258	.117	1.872	.234
	Total	1(Alcohol sib.)	290	6.22	2.14	1.150	.143	1.378	.285
		2 (Drug sibling)	290	6.39	2.13	.909	.143	.734	.285
		3 (Normal sib.)	290	5.89	1.90	1.178	.143	1.358	.285
		Total	870	6.17	2.07	1.082	.083	1.145	.166
TTRF (total rejection from father)	1(Male)	1(Alcohol sib.)	145	39.48	8.76	.887	.201	.740	.400
		2 (Drug sibling)	145	41.67	9.14	.691	.201	.281	.400
		3 (Normal sib.)	145	39.92	9.23	.872	.201	1.754	.400
		Total	435	40.36	9.07	.804	.117	.860	.234
	2(Female)	1(Alcohol sib.)	145	39.91	9.24	.354	.201	-.341	.400
		2 (Drug sibling)	145	39.36	10.47	1.142	.201	1.712	.400
		3 (Normal sib.)	145	36.56	7.71	.806	.201	.469	.400
		Total	435	38.61	9.30	.885	.117	1.069	.234
	Total	1(Alcohol sib.)	290	39.70	8.99	.600	.143	.107	.285
		2 (Drug sibling)	290	40.51	9.88	.896	.143	.998	.285
		3 (Normal sib.)	290	38.24	8.65	.906	.143	1.510	.285
		Total	870	39.48	9.22	.826	.083	.915	.166

WAM (warmth/affection from mother)	1(Male)	1(Alcohol sib.)	145	12.83	4.05	1.411	.201	2.714	.400
		2 (Drug sibling)	145	12.31	3.81	1.084	.201	.735	.400
		3 (Normal sib.)	145	12.86	3.98	.585	.201	-.525	.400
		Total	435	12.67	3.95	1.027	.117	.984	.234
	2(Female)	1(Alcohol sib.)	145	12.54	4.11	1.066	.201	.491	.400
		2 (Drug sibling)	145	12.59	3.98	1.030	.201	.697	.400
		3 (Normal sib.)	145	12.08	3.52	1.234	.201	1.430	.400
		Total	435	12.40	3.87	1.110	.117	.813	.234
	Total	1(Alcohol sib.)	290	12.69	4.07	1.225	.143	1.541	.285
		2 (Drug sibling)	290	12.45	3.89	1.053	.143	.694	.285
		3 (Normal sib.)	290	12.47	3.77	.875	.143	.168	.285
		Total	870	12.53	3.91	1.066	.083	.887	.166
HAM (hostility/aggression from mother)	1(Male)	1(Alcohol sib.)	145	8.56	2.77	1.115	.201	.723	.400
		2 (Drug sibling)	145	8.57	2.91	1.218	.201	1.131	.400
		3 (Normal sib.)	145	8.68	2.44	.483	.201	-.842	.400
		Total	435	8.60	2.71	.998	.117	.561	.234
	2(Female)	1(Alcohol sib.)	145	8.43	2.84	1.153	.201	.688	.400
		2 (Drug sibling)	145	8.20	2.81	1.249	.201	.741	.400
		3 (Normal sib.)	145	7.74	2.24	1.388	.201	1.279	.400
		Total	435	8.12	2.66	1.288	.117	1.001	.234
	Total	1(Alcohol sib.)	290	8.50	2.80	1.126	.143	.668	.285
		2 (Drug sibling)	290	8.39	2.86	1.226	.143	.920	.285
		3 (Normal sib.)	290	8.21	2.38	.874	.143	-.216	.285
		Total	870	8.36	2.69	1.129	.083	.711	.166
INM (indifference/neglect from mother)	1(Male)	1(Alcohol sib.)	145	8.92	2.66	1.259	.201	1.840	.400
		2 (Drug sibling)	145	9.19	2.49	.904	.201	.978	.400
		3 (Normal sib.)	145	9.10	2.49	.666	.201	.073	.400
		Total	435	9.07	2.54	.949	.117	.955	.234
	2(Female)	1(Alcohol sib.)	145	9.47	2.98	1.168	.201	1.133	.400
		2 (Drug sibling)	145	9.46	2.81	1.300	.201	2.533	.400
		3 (Normal sib.)	145	8.64	2.27	.977	.201	.892	.400
		Total	435	9.19	2.73	1.244	.117	1.924	.234
	Total	1(Alcohol sib.)	290	9.20	2.83	1.222	.143	1.456	.285
		2 (Drug sibling)	290	9.32	2.66	1.151	.143	2.024	.285
		3 (Normal sib.)	290	8.87	2.39	.814	.143	.386	.285
		Total	870	9.13	2.64	1.115	.083	1.534	.166
URM (undifferentiated/rejection from mother)	1(Male)	1(Alcohol sib.)	145	5.46	1.93	1.470	.201	1.623	.400
		2 (Drug sibling)	145	5.72	1.75	1.124	.201	1.062	.400
		3 (Normal sib.)	145	5.58	1.68	.997	.201	.489	.400
		Total	435	5.59	1.79	1.210	.117	1.089	.234
	2(Female)	1(Alcohol sib.)	145	5.84	1.85	1.309	.201	2.749	.400
		2 (Drug sibling)	145	5.76	2.11	1.409	.201	1.799	.400
		3 (Normal sib.)	145	5.55	1.61	1.046	.201	1.022	.400
		Total	435	5.72	1.87	1.334	.117	2.188	.234
	Total	1(Alcohol sib.)	290	5.65	1.90	1.355	.143	1.979	.285
		2 (Drug sibling)	290	5.74	1.93	1.322	.143	1.694	.285
		3 (Normal sib.)	290	5.57	1.64	1.016	.143	.707	.285
		Total	870	5.65	1.83	1.277	.083	1.693	.166
TTRM (total rejection from mother)	1(Male)	1(Alcohol sib.)	145	35.77	8.41	1.096	.201	1.233	.400
		2 (Drug sibling)	145	35.79	8.20	1.118	.201	1.954	.400
		3 (Normal sib.)	145	36.21	7.58	.497	.201	-.287	.400
		Total	435	35.92	8.06	.928	.117	1.034	.234
	2(Female)	1(Alcohol sib.)	145	36.29	9.04	1.253	.201	1.907	.400
		2 (Drug sibling)	145	36.00	9.34	1.282	.201	1.729	.400
		3 (Normal sib.)	145	34.01	7.07	1.139	.201	2.223	.400
		Total	435	35.43	8.58	1.309	.117	2.175	.234
	Total	1(Alcohol sib.)	290	36.03	8.72	1.184	.143	1.615	.285
		2 (Drug sibling)	290	35.89	8.77	1.221	.143	1.856	.285
		3 (Normal sib.)	290	35.11	7.40	.786	.143	.607	.285
		Total	870	35.68	8.32	1.129	.083	1.641	.166

Table 3.1.b - Levene's Test of Equality of Error Variancesa on the Full Scale and Subscales of PARQ-Father and PARQ-Mother

	F	df1	df2	Sig.
WAF	1.096	5	864	.361
INF	.894	5	864	.484
HAFlg	1.783	5	864	.114
URFlg	1.769	5	864	.117
TTRFlg	2.117	5	864	.061
WAM	1.150	5	864	.332
HAMlg	2.113	5	864	.062
INM	1.751	5	864	.121
URM	1.764	5	864	.118
TTRM	2.059	5	864	.068

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + GENDER + STATUS + GENDER *

Table 3.1.c - 2 X 3 (2 GENDER X 3 STATUS) ANOVA ON FULL SCALE AND SUBSCALES OF PARQ-FATHER AND PARQ-MOTHER

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
GENDER	WAF	6.125	1	6.125	.344	.558
	INF	16.005	1	16.005	1.842	.175
	HAFlg	.464	1	.464	27.863	.000
	URFlg	.105	1	.105	5.740	.017
	TTRFlg	.092	1	.092	9.793	.002
	WAM	15.201	1	15.201	.993	.319
	HAMlg	.137	1	.137	8.508	.004
	INM	3.108	1	3.108	.450	.502
	URM	3.734	1	3.734	1.118	.291
	TTRM	52.639	1	52.639	.762	.383
STATUS	WAF	16.320	2	8.160	.458	.632
	INF	82.802	2	41.401	4.765	.009
	HAFlg	.148	2	.074	4.445	.012
	URFlg	.159	2	.079	4.350	.013
	TTRFlg	.083	2	.042	4.410	.012
	WAM	10.076	2	5.038	.329	.720
	HAMlg	.018	2	.009	.553	.576
	INM	31.589	2	15.794	2.288	.102
	URM	4.310	2	2.155	.645	.525
	TTRM	143.009	2	71.505	1.035	.356
GENDER * STATUS	WAF	98.113	2	49.056	2.756	.064
	INF	8.457	2	4.229	.487	.615
	HAFlg	.078	2	.039	2.346	.096
	URFlg	.116	2	.058	3.184	.042
	TTRFlg	.063	2	.031	3.322	.037
	WAM	40.926	2	20.463	1.337	.263
	HAMlg	.063	2	.032	1.961	.141
	INM	38.678	2	19.339	2.802	.061
	URM	6.876	2	3.438	1.029	.358
	TTRM	323.175	2	161.587	2.340	.097

Table 3.1.d - Multiple Comparisons: Tukey HSD for Significant Interaction Effects of Gender X Status on URF and TTRF

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	Interval Lower Bound	Interval Upper Bound
URFlg	1	2	-.0118	.01122	.544	-.0382	.0145
		3	.0209	.01122	.151	-.0055	.0472
	2	1	.0118	.01122	.544	-.0145	.0382
		3	.0327*	.01122	.010	.0063	.0590
	3	1	-.0209	.01122	.151	-.0472	.0055
		2	-.0327*	.01122	.010	-.0590	-.0063
TTRFlg	1	2	-.0076	.00807	.616	-.0265	.0114
		3	.0159	.00807	.120	-.0030	.0348
	2	1	.0076	.00807	.616	-.0114	.0265
		3	.0235*	.00807	.010	.0045	.0424
	3	1	-.0159	.00807	.120	-.0348	.0030
		2	-.0235*	.00807	.010	-.0424	-.0045

2. **Effects of 'gender' and 'status' on Coping:**

Results of the Levene's test of equality of error variances (Table 3.2.b) for all the subscales of CISS (Coping Inventory for Stressful Situations) indicated non-significant Levene's statistics in Task-oriented coping (TOC), Emotion-oriented coping (EOC) and Avoidance-oriented coping (AOC), suggesting that the variance in all of the CISS subscales were equal across the various combinations of 'gender' and 'status'.

The results of factorial ANOVA (2 gender X 3 status) given in Table No. 3.2.c revealed significant main effect of 'gender' in EOC. Mean comparisons (Table 3.2.a) indicated that ignoring status, females (M = 49.79) scored higher in EOC than males (M = 47.47). Cohan, Jang & Stein (2006) also found that women scored significantly lower on the task-oriented scale and significantly higher on the emotional, treat one self, and contact a friend subscales. In Endler and Parker (1990), mean differences between gender groups in coping strategies were indicated where women scored higher on emotion-and, avoidance-oriented coping, whereas college men scored higher on task-oriented coping. Similar findings were reported in other research (Cosway *et al*., 2000; Endler & Parker, 1994). There is a preponderance of data suggesting that females employ emotion-focused and avoidant styles more frequently than males (Brougham *et al*., 2009; Cohan, Jang & Stein, 2006; Eaton & Bradley, 2008; Endler & Parker, 1990b; Matud, 2004). Eaton and Bradley (2008) also found that women used emotion-focused coping strategies more than men. Consistent with previous findings (Cosway *et al*., 2000; Endler & Parker, 1990, 1994, 1999), women also scored significantly higher than men on emotion- and avoidance-oriented coping styles (Rafnsson, ,Smari, ,Windle, Mears, & Endler,2006).

Significant main effects of 'status' and interaction effect of 'gender X status' were not found on any of the subscales, indicating that Mizo adolescents having alcohol-abusing, drug-abusing and normal siblings did not differ significantly in their coping

styles; and the coping patterns of the adolescent boys and girls were also not different according to their status of having alcohol-abusing or drug-abusing sibling, with those having normal sibling as the reference group.

Table 3.2.a - Descriptive statistics depicting Mean, SD, Skewness, Kurtosis and Standard Errors for the six groups (2 gender x 3 status) on Coping

	GENDER	STATUS	N	Mean	SD	Skewness	SE	Kurtosis	SE
TOC (Task-oriented Coping)	1(Male)	1(Alcohol sib.)	145	54.84	10.21	-.307	.201	.472	.400
		2 (Drug sibling)	145	54.16	10.78	-.186	.201	-.513	.400
		3 (Normal sib.)	145	55.10	10.13	-.195	.201	.019	.400
		Total	435	54.70	10.36	-.232	.117	-.063	.234
	2(Female)	1(Alcohol sib.)	145	56.28	10.53	-.072	.201	.090	.400
		2 (Drug sibling)	145	53.52	10.60	-.375	.201	.199	.400
		3 (Normal sib.)	145	54.30	10.10	-.441	.201	-.007	.400
		Total	435	54.70	10.45	-.281	.117	.140	.234
	Total	1(Alcohol sib.)	290	55.49	10.45	-.171	0.143	.270	0.285
		2 (Drug sibling)	290	53.90	10.69	-.278	0.143	-.143	0.285
		3 (Normal sib.)	290	54.71	10.13	-.310	0.143	-.003	0.285
		Total	870	54.70	10.43	-.256	.083	.033	.166
EOC (Emotion-oriented Coping)	1(Male)	1(Alcohol sib.)	145	46.94	9.33	-.329	.201	-.272	.400
		2 (Drug sibling)	145	48.37	9.79	-.285	.201	.183	.400
		3 (Normal sib.)	145	47.12	8.96	.137	.201	.155	.400
		Total	435	47.48	9.37	-.162	.117	-.006	.234
	2(Female)	1(Alcohol sib.)	145	51.07	8.67	-.002	.201	-.591	.400
		2 (Drug sibling)	145	48.81	9.22	.188	.201	-.314	.400
		3 (Normal sib.)	145	49.47	9.74	-.010	.201	-.493	.400
		Total	435	49.78	9.25	.037	.117	-.474	.234
	Total	1(Alcohol sib.)	290	49.04	9.23	-.230	0.143	-.194	0.285
		2 (Drug sibling)	290	48.64	9.52	-.074	0.143	-.055	0.285
		3 (Normal sib.)	290	48.27	9.46	.074	0.143	-.263	0.285
		Total	870	48.65	9.40	-.068	.083	-.184	.166
AOC (Avoidance-oriented Coping)	1(Male)	1(Alcohol sib.)	145	41.25	8.99	.075	.201	-.214	.400
		2 (Drug sibling)	145	41.71	10.00	.644	.201	.178	.400
		3 (Normal sib.)	145	40.83	9.56	.261	.201	-.452	.400
		Total	435	41.26	9.51	.359	.117	-.107	.234
	2(Female)	1(Alcohol sib.)	145	41.60	9.29	.165	.201	-.026	.400
		2 (Drug sibling)	145	40.79	10.03	.341	.201	-.014	.400
		3 (Normal sib.)	145	40.67	9.08	.280	.201	-.088	.400
		Total	435	41.02	9.46	.264	.117	-.056	.234
	Total	1(Alcohol sib.)	290	41.27	9.13	.114	0.143	-.168	0.285
		2 (Drug sibling)	290	41.31	9.98	.492	0.143	.157	0.285
		3 (Normal sib.)	290	40.72	9.30	.268	0.143	-.307	0.285
		Total	870	41.10	9.47	.311	.083	-.086	.166

Table 3.2.b - Levene's Test of Equality of Error Variancesa on the Subscales of CISS

	F	df1	df2	Sig.
TOC	.358	5	864	.877
EOC	.587	5	864	.710
AOC	.533	5	864	.751

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + GENDER + STATUS + GENDER * STATUS

Table 3.2.c - 2 X 3 (2 GENDER X 3 STATUS) ANOVA ON SUBSCALES OF COPING (CISS)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
GENDER	TOC	0.000	1	0.000	0.000	1.000
	EOC	1154.028	1	1154.028	13.366	.000
	AOC	12.915	1	12.915	.143	.705
STATUS	TOC	431.037	2	215.518	1.994	.137
	EOC	73.161	2	36.580	.424	.655
	AOC	70.747	2	35.374	.392	.676
GENDER * STATUS	TOC	226.848	2	113.424	1.049	.351
	EOC	495.524	2	247.762	2.870	.057
	AOC	59.037	2	29.518	.327	.721

3. **Effects of 'gender' and 'status' on personality:**

Results of the Levene's test of equality of error variances (Table 3.3.b) for all the subscales of NEO-FFI-3 (Costa & McCrae, 1992) indicated non-significant Levene's statistics in Neuroticism (N), Extraversion (E), Openness (O) and Conscientiousness (C), whereas, it was non-significant for Agreeableness (A) suggesting that the variance in most of the NEO-FFI-3 subscales are roughly equal across the various combinations of 'gender' and 'status'. Regarding Agreeableness too, where the Levene's statistic was significant (that is, unequal variance), the results of the ANOVA may be interpreted considering the equality of the number of subjects in each cell of the design, the large sample size, and the acceptable variance ratio (Hartley's Fmax) of 1.16.

The results of factorial ANOVA (2 Gender X 3 Status) given in Table No. 3.3.c revealed significant main effects of 'gender' in Neuroticism and Agreeableness. Mean comparisons (Table 3.3. a) indicated that ignoring status, females (M = 28.54) scored higher on Neuroticism than males (M = 25.75), and females (M = 30.19) also scored higher on Agreeableness than males (M = 27.37). Explicit personality assessments consistently document that women report higher levels of extraversion, neuroticism, agreeableness and conscientiousness on the Big Five personality dimensions (Costa,

Terracciano, & McCrae, 2001; Feingold, 1994; McCrae, 2002; McCrae, Terracciano, & 78 Members of the Personality Profiles of Cultures Project, 2005). Lynn and Martin (1997) examined gender differences in Neuroticism, Extraversion and Psychoticism (Eysenck, 1978) in 37 countries. They found that men were consistently lower than women in N and generally higher on Psychoticism and Extraversion. A study of sex differences in the Big Five Personality Factors also revealed that females showed, on average, significantly higher scores on the Agreeableness and low Emotional Stability factor than did males (Budaev, 1999).

Further, significant main effect of 'status' was also found in Agreeableness. Post hoc mean comparisons (Table 3.3.d) indicated that adolescents having drug-abusing siblings (*M* = 27.31) scored significantly higher on Agreeableness than adolescents having alcohol-abusing siblings (*M* = 28.17). Agreeableness is a healthy personality trait and as such higher scores would indicate that it positively affect the health tendencies for engagement in healthy behaviors. Those who are high in Agreeableness tend to be rule followers and are more likely to conform to social norms than their more antagonistic peers (Van Schoor *et al*., 2008). Chassin, Flora & King (2004) examined the effects of familial alcoholism and personality and found that COAs (Children of Alcoholics / group with at least one alcoholic biological custodial parent) had lower agreeableness than non-COAs.

Significant interaction effects of "Gender X Status" were found in Neuroticism and Extraversion. Mean comparisons (Table 3.3.d) indicated that among boys, those having drug-abusing siblings (*M* = 26.81) scored higher in neuroticism than those having normal siblings (*M* = 25.63) and those having alcohol-abusing siblings (*M* = 24.83), whereas among girls, those having alcohol-abusing siblings (*M* = 29.24) scored higher in neuroticism than those having drug- abusing siblings (*M* = 28.68) and those having

normal-siblings (*M* = 27.69). Further, mean comparisons in significant 'Gender X Status' effect on Extraversion indicated that among adolescent boys, those having drug-abusing siblings (*M* = 28.97) scored higher than those having alcohol-abusing siblings (*M* = 28.96) and those having normal siblings (*M* = 28.12), whereas among girls, those having normal siblings (*M* = 29.71) scored higher in extraversion than those having drugs-abusing siblings (*M* = 28.53) and those having alcohol-abusing siblings (*M* = 28.53).

It may be noteworthy to find that in literature, siblings of substance abusers were found to have higher scores on personality traits consistently associated with substance abusers. Feinberg, Reiss, Neiderhiser, and Hetherington (2005) found that shared environmental influences indicate greater sibling similarity in personality. A study from Sweden showed greater similarity among reared-together monozygotic (MZ) twins, when compared with reared-apart MZ twins (Pedersen, Plomin, McClearn, & Friberg, 1988)—a pattern of findings that suggests assimilation on the part of the twins reared together. However, another study showed the resemblance of MZ twins reared apart and together to be similar for personality traits (Tellegen *et al*., 1988). After reviewing the literature, Bouchard and Loehlin (2001) concluded that, in adults on whom most of the studies have been based, genetic effects accounted for almost half of the variation in each of the Big Five domains. Shared environmental effects accounted for essentially no variation, so that the remaining variation was accounted for by non-shared environmental effects. The pattern is also generally similar across sexes, such that heritabilities are similar for both men and women (Bouchard & Loehlin, 2001).

Table 3.3.a - Descriptive statistics depicting Mean, SD, Skewness, Kurtosis and Standard Errors for the six groups (2 gender x 3 status) on Personality

	GENDER	STATUS	N	Mean	SD	Skewness	SE	Kurtosis	SE
NEUROTICISM	1(Male)	1(Alcohol sib.)	145	24.74	5.90	-.034	.201	.006	.400
		2 (Drug sibling)	145	26.71	7.15	-.349	.201	.503	.400
		3 (Normal sib.)	145	25.70	6.15	.108	.201	.243	.400
		Total	435	25.72	6.46	-.074	.117	.281	.234
	2(Female)	1(Alcohol sib.)	145	29.16	6.35	-.365	.201	.556	.400
		2 (Drug sibling)	145	28.77	6.07	-.085	.201	.381	.400
		3 (Normal sib.)	145	27.72	5.88	-.448	.201	.276	.400
		Total	435	28.55	6.12	-.275	.117	.401	.234
	Total	1(Alcohol sib.)	290	26.95	6.51	-.114	.143	.008	.285
		2 (Drug sibling)	290	27.74	6.70	-.315	.143	.610	.285
		3 (Normal sib.)	290	26.71	6.09	-.166	.143	.055	.285
		Total	870	27.13	6.45	-.188	.083	.229	.166
EXTRAVERSION	1(Male)	1(Alcohol sib.)	145	28.97	4.90	-.405	.201	.526	.400
		2 (Drug sibling)	145	28.97	5.30	-.330	.201	.419	.400
		3 (Normal sib.)	145	28.09	5.23	-.246	.201	-.424	.400
		Total	435	28.67	5.15	-.323	.117	.117	.234
	2(Female)	1(Alcohol sib.)	145	28.48	4.75	-.126	.201	.217	.400
		2 (Drug sibling)	145	28.53	4.76	-.100	.201	-.227	.400
		3 (Normal sib.)	145	29.70	4.45	-.365	.201	.538	.400
		Total	435	28.91	4.68	-.202	.117	.075	.234
	Total	1(Alcohol sib.)	290	28.72	4.82	-.265	.143	.325	.285
		2 (Drug sibling)	290	28.75	5.03	-.219	.143	.152	.285
		3 (Normal sib.)	290	28.90	4.92	-.358	.143	-.027	.285
		Total	870	28.79	4.92	-.279	.083	.131	.166
OPENNESS	1(Male)	1(Alcohol sib.)	145	29.41	4.49	-.073	.201	.238	.400
		2 (Drug sibling)	145	29.90	4.50	.145	.201	-.256	.400
		3 (Normal sib.)	145	29.52	4.13	.069	.201	-.012	.400
		Total	435	29.61	4.37	.049	.117	-.003	.234
	2(Female)	1(Alcohol sib.)	145	29.72	4.52	-.133	.201	-.113	.400
		2 (Drug sibling)	145	29.97	4.42	-.184	.201	.735	.400
		3 (Normal sib.)	145	29.55	3.98	.460	.201	.467	.400
		Total	435	29.74	4.31	.012	.117	.302	.234
	Total	1(Alcohol sib.)	290	29.56	4.50	-.102	.143	.034	.285
		2 (Drug sibling)	290	29.93	4.46	-.015	.143	.192	.285
		3 (Normal sib.)	290	29.53	4.05	.251	.143	.192	.285
		Total	870	29.68	4.34	.030	.083	.137	.166
AGREEABLENESS	1(Male)	1(Alcohol sib.)	145	26.41	3.45	-.113	.201	-.039	.400
		2 (Drug sibling)	145	28.31	5.16	-.050	.201	.119	.400
		3 (Normal sib.)	145	27.36	4.55	-.233	.201	-.168	.400
		Total	435	27.36	4.50	.033	.117	.232	.234
	2(Female)	1(Alcohol sib.)	145	29.99	5.05	.355	.201	.047	.400
		2 (Drug sibling)	145	30.34	4.51	-.133	.201	-.012	.400
		3 (Normal sib.)	145	30.28	4.18	-.135	.201	.516	.400
		Total	435	30.20	4.59	.067	.117	.145	.234
	Total	1(Alcohol sib.)	290	28.20	4.68	.557	.143	.640	.285
		2 (Drug sibling)	290	29.32	4.95	-.158	.143	.075	.285
		3 (Normal sib.)	290	28.82	4.60	-.235	.143	.156	.285
		Total	870	28.78	4.76	.059	.083	.153	.166
CONSCIENTIOUSNESS	1(Male)	1(Alcohol sib.)	145	26.52	5.41	-.013	.201	.579	.400
		2 (Drug sibling)	145	27.50	4.75	.404	.201	.555	.400
		3 (Normal sib.)	145	26.74	4.94	.012	.201	-.075	.400
		Total	435	26.92	5.05	.086	.117	.424	.234
	2(Female)	1(Alcohol sib.)	145	27.08	5.20	.183	.201	1.239	.400
		2 (Drug sibling)	145	27.14	5.21	.103	.201	.280	.400
		3 (Normal sib.)	145	27.18	4.34	-.082	.201	1.131	.400
		Total	435	27.13	4.92	.089	.117	.876	.234
	Total	1(Alcohol sib.)	290	26.80	5.30	.072	.143	.868	.285
		2 (Drug sibling)	290	27.32	4.98	.221	.143	.410	.285
		3 (Normal sib.)	290	26.96	4.65	-.044	.143	.394	.285
		Total	870	27.03	4.98	.086	.083	.630	.166

Table 3.3.b - Levene's Test of Equality of Error Variancesa on the Subscales of NEO-FFI-3

	F	df1	df2	Sig.
N	.787	5	864	.559
E	1.044	5	864	.390
O	.659	5	864	.654
A	4.449	5	864	.000 (Hartley's $Fmax$ = 1.16)
C	1.043	5	864	.391

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + GENDER + STATUS + GENDER * STATUS

Table 3.2.c - 2 X 3 (2 GENDER X 3 STATUS) ANOVA ON SUBSCALES OF PERSONALITY (NEO-FFI-3)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
GENDER	N	1741.79	1	1741.79	44.36	.000
	E	11.73	1	11.73	0.49	.485
	O	4.14	1	4.14	0.22	.640
	A	1755.97	1	1755.97	85.93	.000
	C	9.52	1	9.52	0.38	.536
STATUS	N	168.67	2	84.33	2.15	.117
	E	5.06	2	2.53	0.10	.900
	O	28.43	2	14.22	0.75	.471
	A	184.99	2	92.49	4.53	.011
	C	40.60	2	20.30	0.82	.443
GENDER * STATUS	N	272.91	2	136.46	3.48	.031
	E	207.67	2	103.84	4.31	.014
	O	3.28	2	1.64	0.09	.917
	A	87.91	2	43.96	2.15	.117
	C	35.56	2	17.78	0.71	.490

Table 3.1.d - Multiple Comparisons: Tukey HSD for Significant Interaction Effects of Gender X Status on Neuroticism and Extraversion

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	Interval Lower Bound	Interval Upper Bound
NEUROTICISM	1	2	-.7897	.52037	.283	-2.0114	.4320
		3	.2414	.52037	.888	-.9803	1.4631
	2	1	.7897	.52037	.283	-.4320	2.0114
		3	1.0310	.52037	.117	-.1907	2.2527
	3	1	-.2414	.52037	.888	-1.4631	.9803
		2	-1.0310	.52037	.117	-2.2527	.1907
EXTRAVERSION	1	2	-.0241	.40751	.998	-.9809	.9326
		3	-.1724	.40751	.906	-1.1291	.7843
	2	1	.0241	.40751	.998	-.9326	.9809
		3	-.1483	.40751	.930	-1.1050	.8084
	3	1	.1724	.40751	.906	-.7843	1.1291
		2	.1483	.40751	.930	-.8084	1.1050

Based on observed means.
The error term is Mean Square(Error) = 24.874.

*. The mean difference is significant at the .05 level.

Table 3.3.d - Multiple Comparisons (Tukey hsd)

Dependent Variable	(I) STATUS	(J) STATUS	Mean Difference (I-	Std. Error	Sig.
NEUROTICISM	1(Alcohol sib.)	2 (Drug sibling)	-0.755	0.521	0.316
		3 (Normal sib.)	0.272	0.521	0.860
	2 (Drug sibling)	1(Alcohol sib.)	0.755	0.521	0.316
		3 (Normal sib.)	1.028	0.521	0.119
	3 (Normal sib.)	1(Alcohol sib.)	-0.272	0.521	0.860
		2 (Drug sibling)	-1.028	0.521	0.119
EXTRAVERSION	1(Alcohol sib.)	2 (Drug sibling)	-0.048	0.407	0.992
		3 (Normal sib.)	-0.162	0.407	0.916
	2 (Drug sibling)	1(Alcohol sib.)	0.048	0.407	0.992
		3 (Normal sib.)	-0.114	0.407	0.958
	3 (Normal sib.)	1(Alcohol sib.)	0.162	0.407	0.916
		2 (Drug sibling)	0.114	0.407	0.958
AGREEABLENESS	1(Alcohol sib.)	2 (Drug sibling)	-1.152	0.375	0.006
		3 (Normal sib.)	-0.652	0.375	0.191
	2 (Drug sibling)	1(Alcohol sib.)	1.152	0.375	0.006
		3 (Normal sib.)	0.500	0.375	0.377
	3 (Normal sib.)	1(Alcohol sib.)	0.652	0.375	0.191
		2 (Drug sibling)	-0.500	0.375	0.377

4. **Effects of 'gender' and 'status' on Psychopathology:**

Results of the Levene's test of equality of error variances (Table 3.4.b) for all the subscales of APS-SF (Adolescent Psychopathology Scale - Short Form; Reynolds, 2000) indicated significant Levene's statistics in PTS, DEP, EAT, GAD and SUI whereas, it was non-significant for ADPlg, SCP, OPDlg, AVPlg and IPPlg, suggesting that the variance in half of the APS-SF subscales were roughly equal across the various combinations of gender and status. Regarding the instances (PTS, DEP, EAT, GAD and SUI), where the results were significant (that is, unequal variance), the results of the ANOVA are interpreted here considering the equality of the number of subjects in each cell of the design, the large sample and the acceptable variance ratio (Hartley's Fmax) ranging from of 1.14 to 1.41 rendering homogeneity of variance.

The results of factorial ANOVA (2 Gender X 3 Status) given in Table – 3.4.c revealed significant main effect of 'gender' in DEP, EAT, SCP and GAD. Mean comparisons (Table 3.4.a) indicated that ignoring status, females (M = 8.68) scored higher

in depression than males (*M* = 7.21). This was also found in several studies. For example, Hankin, Abramson, Moffitt, Silva, McGee & Angell (1998) found that by mid-adolescence, there was a dramatic spike in the prevalence rate of major depression in women. By late adolescence, girls are twice as likely as boys to be depressed, and this gender ratio remains more or less the same throughout adulthood (Nolen-Hoeksema, 2001). Portuguese adolescent girls also reported higher levels of depression (Lemos, Faisca &Valadas, 2011). Kessler (2003) also found that in the general population, women are twice as likely to suffer from depression compared to men. A critical review of gender differences in depression also revealed that the prevalence, incidence and morbidity risk of depressive disorders are higher in females than in males (Piccinelli & Wilkinson, 2000).

Significant 'gender' effect on EAT revealed that females (*M* = 3.91) scored higher than males (*M* = 2.49) in eating disturbance. According to a report of the WHO (2004), Eating disorders occur mainly in adolescent and adult females, especially in female athletes, ballet students, fashion models and culinary students. Gender differences in eating disorders also reveal higher incidence and prevalence of eating disorders among adolescent girls (Steinberg, 1996). Lemos, Faisca &Valadas (2011) also found that Portuguese adolescent girls reported higher levels of symptoms related with Eating Disturbance.

In self-concept (SCP), females (*M* = 7.75) scored significantly higher as compared to males (*M* = 6.88). Since items of self-concept on APS-SF are keyed in the negative direction, higher scores reflect negative or poorer self concept. In other words, females have poorer or lower self concepts as compared to males. Similar findings were reported by Orenstien (1994), Marsh and Hattie (1996) and Oliva, (1999) who found that young women scored lower than young men, especially from 12 years on when their self-confidence and acceptance of physical self-image decreases. Rothemburg (1997) also

found that women scored higher on personal identity, physical and family and social self-concept and men scored higher on self-satisfaction and moral self-concept. Al-Zyoudi (2010) also found that female students scored lower on social self-concept, family self-behavior, and moral self-behavior dimensions than male students, but higher on physical self-concept. Some researchers find that gifted girls have general self concept than gifted boys do (Bartell & Reynolds, 1986; Coleman & Fults, 1982).

Significant 'gender' effect in GAD indicated that females (M = 8.46) also scored higher than males (M = 7.42) in Generalized Anxiety Disorder. Women were reported to be significantly more likely than men to develop GAD (6.6% vs. 3.6%), and were at least twice as likely as men to suffer from generalized anxiety disorder (Regier, Narrow & Rae *et al*., 1993; Kessler, McGonagle, Zhao, Nelson, Hughes, Eshleman, Wittchen & Kendler, 1994). Research evidence also shows that by adolescence there is a clear preponderance of GAD in girls, with reported gender ratios of about 3:1 (Cohen, Cohen, Kasen, Velez, Hartmark, Johnson, Rojas, Brook & Streuning, 1993; Simonoff, Pickles, Meyer, Silberg, Maes, Loeber, Rutter, Hewitt & Eaves, 1997; Whitaker, Johnson, Shaffer, Rapoport, Kalikow, Walsh, Davies, Braiman & Dolinsky, 1990). Women have been found to score significantly higher than men on the GAD-7 (a recently developed brief self-report scale for GAD) (Spitzer, Kroenke, Williams, & Lowe, 2006). In Australia, the NSMHWB (National Survey of Mental Health and Well Being) found that the 12 month prevalence of GAD was approximately 1.5 times greater for women (3.7%) than it was for men (2.4%) (Australia Bureau of Statistics, ABS, 1997). Likewise, the NCS (National Comorbidity Survey, 1990-92) found that the 12 month and lifetime prevalence of GAD were approximately twice as high for women (4.3%; 10.3%) than they were for men (2.0%; 3.6%) (Kessler, 2000). Results from the ECA (Epidemiologic Catchment Area, USA)

studies similarly show that the 12 month prevalence for women (5.0%) is twice that of men (2.4%) (Blazer, Hughes, George, Sawrtz & Boyer, 1991).

Further, significant main effects of 'status' (status of having Alcohol-abusing sibling, Drugs-abusing sibling and Normal sibling) were found in EAT, GAD, SUI and IPP. Post hoc mean comparisons (Table 3.4.d) indicated that in Eating Disturbance, adolescents having Drug-abusing sibling (M = 3.59) scored significantly higher than those having Normal sibling (M = 3.02) or Alcohol-abusing sibling (M = 2.98). On GAD (Generalized Anxiety Disorder), adolescents having Drug-abusing sibling (M = 8.33) scored significantly higher than those having Normal sibling (M = 7.39). On SUI (suicidal ideas and behavior) adolescents having Drug-abusing siblings (M = 2.19) scored significantly higher than adolescents having Normal siblings (M = 1.74). Siblings of Drug-abusers (M = 7.47) also scored significantly higher than those having Normal siblings (M = 6.35) on IPP (Interpersonal Problems). Results indicated that Adolescents having Drug-abusing siblings generally scored significantly higher than those having Normal siblings on various psychopathology scales. Considerable amount of literature suggests that siblings of other children with special needs may experience a range of negative consequences, including anxiety or depressive symptoms (Sharpe & Rossiter, 2002), and increased emotional problems (Hannah & Midlarsky, 1985; Lobato, 1983; Summers *et al*., 1994). Also reported by siblings of such children are embarrassment, fear, neglect, resentment, guilt and conflict with peers (e.g., Lobato, Kao & Plante, 2005). Summers *et al*.'s (1994) review concluded that siblings of children with disability or chronic illness have greater tendencies toward anxiety, depressive symptoms, irritability, withdrawal, and aggression. Aguilar *et al*. (2001) found that the younger sisters of male target children exhibited higher levels of multiple negative behaviors, including academic and behavior problems, associations with "deviant" peers, smoking, drug use, and arrest

records. It has also been found that siblings of drug abusers tend to report anorexia, bingeing, purging, panic attacks, social isolation, difficulty in relating to and sympathizing with others and sometimes thoughts of wanting to die (Barnard, 2005; Velleman *et al*., 1993).

Significant interaction effect of 'gender x status' was found in DEP, EAT, SCP and SUI. Mean comparisons (Table 3.4.a) indicated that among males, siblings of drug-abusers (M = 8.05) scored significantly higher on DEP (Major Depression) than siblings of alcohol-abusers (M = 7.08) and those having normal siblings (M = 6.50); whereas among girls, siblings of alcohol abusers (M = 9.22) scored significantly higher than siblings of drug-abusers (M = 8.75) and those having Normal siblings (M = 8.07). In EAT (Eating Disturbance), male siblings of drug-abusers (M = 3.36) scored significantly higher than those having normal siblings (M = 2.11) and siblings of alcohol-abusers (M = 2.00); whereas among females, siblings of alcohol-abusers (M = 3.97) scored significantly higher than those having normal siblings (M = 3.93) or drug-abusing siblings (M = 3.83). Mean comparisons also indicated that among males, siblings of drug-abusers (M = 7.25) scored significantly higher on SCP (Self-Concept) than those having normal siblings (M = 7.01) and alcohol-abusing siblings (M = 6.39); whereas among females, siblings of alcohol abusers (M = 8.13) scored significantly higher than siblings of drug-abusers (M = 8.01) and those having normal siblings (M = 7.11). On SUI (Suicide), male siblings of drug-abusers (M = 2.11) scored significantly higher than those having normal siblings (M = 2.01) and siblings of alcohol-abusers (M = 1.16); whereas among females, siblings of drug-abusers (M = 2.27) also scored significantly higher than siblings of alcohol-abusers (M = 2.24) and those having normal siblings (M = 1.48).

Table 3.4.a - Descriptive statistics depicting Mean, SD, Skewness, Kurtosis and Standard Errors for the six groups (2 gender x 3 status) on Psychopathology

	GENDER	STATUS	Mean	Std. Deviation	N	Skewness	SE	Kurtosis	SE
Posttraumatic Stress Disorder (PTS)	1 (Male)	1 (Alcohol sib.)	5.90	3.33	145	.481	.201	-.217	.400
		2 (Drug sibling)	6.44	3.96	145	.808	.201	.219	.400
		3 (Normal sib.)	5.83	3.48	145	.630	.201	.393	.400
		Total	6.06	3.60	435	.697	.117	.288	.234
	2 (Female)	1(Alcohol sib.)	6.97	3.18	145	.079	.201	-.525	.400
		2 (Drug sibling)	6.46	3.25	145	.463	.201	.200	.400
		3 (Normal sib.)	5.92	2.73	145	.364	.201	-.006	.400
		Total	6.45	3.08	435	.337	.117	-.120	.234
	Total	1(Alcohol sib.)	6.43	3.29	290	.259	0.143	-.484	0.285
		2 (Drug sibling)	6.45	3.62	290	.690	.143	.307	.285
		3 (Normal sib.)	5.87	3.12	290	.541	.143	.426	.285
		Total	6.25	3.36	870	.533	.083	.141	.166
Major Depression (DEP)	1(Male)	1(Alcohol sib.)	6.50	4.75	145	.811	.201	.275	.400
		2 (Drug sibling)	8.05	5.90	145	.808	.201	.627	.400
		3 (Normal sib.)	7.08	4.82	145	1.159	.201	2.589	.400
		Total	7.21	5.21	435	.962	.117	1.226	.234
	2(Female)	1(Alcohol sib.)	9.22	4.90	145	.152	.201	-.200	.400
		2 (Drug sibling)	8.75	4.85	145	.355	.201	-.534	.400
		3 (Normal sib.)	8.07	4.19	145	.202	.201	-.147	.400
		Total	8.68	4.67	435	.274	.117	-.278	.234
	Total	1(Alcohol sib.)	7.86	5.00	290	.437	0.143	-.305	0.285
		2 (Drug sibling)	8.40	5.40	290	.610	.143	.252	.285
		3 (Normal sib.)	7.57	4.54	290	.722	.143	1.324	.285
		Total	7.94	5.00	870	.607	.083	.384	.166
Eating Disturbance (EAT)	1(Male)	1(Alcohol sib.)	2.00	2.24	145	.705	.201	-.938	.400
		2 (Drug sibling)	3.36	2.86	145	.010	.201	-1.602	.400
		3 (Normal sib.)	2.11	2.33	145	.699	.201	-.835	.400
		Total	2.49	2.56	435	1.029	.117	.439	.234
	2(Female)	1(Alcohol sib.)	3.97	2.96	145	-.320	.201	-1.511	.400
		2 (Drug sibling)	3.83	3.16	145	-.109	.201	-1.541	.400
		3 (Normal sib.)	3.93	2.80	145	-.410	.201	-1.376	.400
		Total	3.91	2.97	435	.244	.117	-1.091	.234
	Total	1(Alcohol sib.)	2.99	2.80	290	.205	0.143	-1.550	0.285
		2 (Drug sibling)	3.60	3.02	290	-.046	.143	-1.565	.285
		3 (Normal sib.)	3.02	2.73	290	.144	.143	-1.521	.285
		Total	3.20	2.86	870	.606	.083	-.675	.166
Academic Problems (ADPlg)	1(Male)	1(Alcohol sib.)	7.40	3.33	145	-1.165	.201	2.055	.400
		2 (Drug sibling)	6.65	3.18	145	-1.098	.201	1.366	.400
		3 (Normal sib.)	6.50	2.79	145	-1.355	.201	2.783	.400
		Total	6.85	3.13	435	.538	.117	.649	.234
	2(Female)	1(Alcohol sib.)	6.90	2.52	145	-1.470	.201	3.131	.400
		2 (Drug sibling)	7.10	3.00	145	-1.386	.201	2.459	.400
		3 (Normal sib.)	7.01	2.53	145	-1.506	.201	3.510	.400
		Total	7.00	2.69	435	.156	.117	.238	.234
	Total	1(Alcohol sib.)	7.15	2.96	290	-1.266	0.143	2.471	0.285
		2 (Drug sibling)	6.87	3.09	290	-1.229	.143	1.783	.285
		3 (Normal sib.)	6.76	2.67	290	-1.441	.143	3.135	.285
		Total	6.93	2.92	870	.380	.083	.543	.166
Self-Concept (SCP)	1(Male)	1(Alcohol sib.)	6.39	3.29	145	.348	.201	.248	.400
		2 (Drug sibling)	7.25	3.25	145	.243	.201	.049	.400
		3 (Normal sib.)	7.01	3.15	145	.557	.201	.092	.400
		Total	6.88	3.24	435	.360	.117	.096	.234
	2(Female)	1(Alcohol sib.)	8.13	3.16	145	-.047	.201	-.220	.400
		2 (Drug sibling)	8.01	3.15	145	.222	.201	.094	.400
		3 (Normal sib.)	7.11	2.90	145	.416	.201	-.091	.400
		Total	7.75	3.10	435	.204	.117	-.158	.234
	Total	1(Alcohol sib.)	7.26	3.34	290	.116	0.143	-.189	0.285
		2 (Drug sibling)	7.63	3.22	290	.216	.143	.040	.285
		3 (Normal sib.)	7.06	3.02	290	.489	.143	.006	.285
		Total	7.32	3.20	870	.261	.083	-.072	.166

Oppositional Defiant Disorder (OPDlg)	1(Male)	1(Alcohol sib.)	4.46	3.15	145	-.251	.201	-.790	.400
		2 (Drug sibling)	5.31	3.45	145	-.532	.201	-.529	.400
		3 (Normal sib.)	4.47	2.60	145	-.588	.201	-.602	.400
		Total	4.75	3.15	435	.854	.117	.846	.234
	2(Female)	1(Alcohol sib.)	5.12	0.23	145	-.813	.201	-.376	.400
		2 (Drug sibling)	4.80	2.79	145	-.729	.201	-.261	.400
		3 (Normal sib.)	4.68	2.60	145	-.770	.201	-.437	.400
		Total	4.86	2.73	435	.252	.117	-.421	.234
	Total	1(Alcohol sib.)	4.79	2.99	290	-.516	0.143	-.706	0.285
		2 (Drug sibling)	5.06	3.14	290	-.604	.143	-.408	.285
		3 (Normal sib.)	4.57	2.68	290	-.674	.143	-.542	.285
		Total	4.81	2.95	870	.611	.083	.414	.166
Generalized Anxiety Disorder (GAD)	1(Male)	1(Alcohol sib.)	7.27	4.08	145	.780	.201	.887	.400
		2 (Drug sibling)	8.14	4.37	145	.530	.201	.499	.400
		3 (Normal sib.)	6.86	3.66	145	.422	.201	.537	.400
		Total	7.42	4.08	435	.628	.117	.707	.234
	2(Female)	1(Alcohol sib.)	8.93	3.62	145	-.037	.201	-.237	.400
		2 (Drug sibling)	8.52	3.46	145	.412	.201	.159	.400
		3 (Normal sib.)	7.93	3.05	145	-.145	.201	.137	.400
		Total	8.46	3.40	435	.144	.117	.035	.234
	Total	1(Alcohol sib.)	8.10	3.94	290	.342	0.143	.054	0.285
		2 (Drug sibling)	8.33	3.94	290	.464	.143	.512	.285
		3 (Normal sib.)	7.39	3.41	290	.124	.143	.270	.285
		Total	7.94	3.79	870	.369	.083	.382	.166
Suicide (SUI)	1(Male)	1(Alcohol sib.)	1.74	2.27	145	1.758	.201	3.097	.400
		2 (Drug sibling)	2.11	2.60	145	1.800	.201	3.175	.400
		3 (Normal sib.)	2.01	2.38	145	1.775	.201	3.800	.400
		Total	1.96	2.42	435	1.785	.117	3.369	.234
	2(Female)	1(Alcohol sib.)	2.24	2.18	145	1.338	.201	2.164	.400
		2 (Drug sibling)	2.27	2.19	145	1.165	.201	1.335	.400
		3 (Normal sib.)	1.48	1.55	145	1.326	.201	1.536	.400
		Total	2.00	2.03	435	1.375	.117	2.194	.234
	Total	1(Alcohol sib.)	1.99	2.24	290	1.511	0.143	2.413	0.285
		2 (Drug sibling)	2.19	2.40	290	1.552	.143	2.552	.285
		3 (Normal sib.)	1.74	2.02	290	1.887	.143	4.889	.285
		Total	1.98	2.23	870	1.645	.083	3.120	.166
Anger/Violence Proneness (AVPlg)	1(Male)	1(Alcohol sib.)	4.28	3.39	145	-.139	.201	-.867	.400
		2 (Drug sibling)	5.34	3.95	145	-.379	.201	-.819	.400
		3 (Normal sib.)	4.79	3.00	145	-.554	.201	-.463	.400
		Total	4.80	3.49	435	1.050	.117	1.197	.234
	2(Female)	1(Alcohol sib.)	5.01	2.92	145	-.799	.201	-.355	.400
		2 (Drug sibling)	5.10	2.95	145	-.801	.201	-.205	.400
		3 (Normal sib.)	4.70	2.69	145	-.746	.201	-.376	.400
		Total	4.94	2.85	435	.351	.117	-.115	.234
	Total	1(Alcohol sib.)	4.65	3.18	290	-.449	0.143	-.775	0.285
		2 (Drug sibling)	5.22	3.48	290	-.556	.143	-.565	.285
		3 (Normal sib.)	4.74	2.84	290	-.643	.143	-.433	.285
		Total	4.87	3.19	870	.801	.083	.883	.166
Interpersonal Problems (IPPlg)	1(Male)	1(Alcohol sib.)	6.68	3.94	145	-.618	.201	-.056	.400
		2 (Drug sibling)	7.61	4.21	145	-.734	.201	.359	.400
		3 (Normal sib.)	6.34	3.60	145	-.938	.201	.149	.400
		Total	6.88	3.95	435	.656	.117	.227	.234
	2(Female)	1(Alcohol sib.)	7.27	3.76	145	-1.068	.201	.931	.400
		2 (Drug sibling)	7.33	4.10	145	-1.032	.201	.269	.400
		3 (Normal sib.)	6.36	3.37	145	-1.107	.201	.785	.400
		Total	6.99	3.77	435	.364	.117	-.227	.234
	Total	1(Alcohol sib.)	6.97	3.86	290	-.829	0.143	.320	0.285
		2 (Drug sibling)	7.47	4.15	290	-.946	.143	.441	.285
		3 (Normal sib.)	6.35	3.48	290	-1.014	.143	.413	.285
		Total	6.93	3.86	870	.518	.083	.010	.166

3.4.b - Levene's Test of Equality of Error Variances[a]				
	F	df1	df2	Sig.
PTS	4.413	5	864	0.001 (Hartley's Fmax = 1.16)
DEP	3.600	5	864	0.003 (Hartley's Fmax = 1.41)
EAT	5.172	5	864	0.000 (Hartley's Fmax = 1.14)
ADPlg	2.098	5	864	.064
SCP	.558	5	864	.732
OPDlg	.745	5	864	.590
GAD	4.093	5	864	0.001 (Hartley's Fmax = 1.34)
SUI	4.225	5	864	0.001 (Hartley's Fmax = 1.41)
AVPlg	1.964	5	864	.082
IPPlg	1.304	5	864	.260

Table 3.4.c - 2 X 3 (2 GENDER X 3 STATUS) ANOVA ON SUBSCALES OF PSYCHOPATHOLOGY

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
GENDER	PTS	32.83	1	32.83	2.94	.087
	DEP	470.80	1	470.80	19.39	.000
	EAT	440.41	1	440.41	58.44	.000
	ADPlg	.11	1	0.11	2.11	.147
	SCP	165.10	1	165.10	16.60	.000
	OPDlg	.16	1	0.16	1.66	.198
	GAD	233.79	1	233.79	16.78	.000
	SUI	.33	1	0.33	0.07	.795
	AVPlg	.30	1	0.30	2.96	.086
	IPPlg	.01	1	0.01	0.15	.700
STATUS	PTS	62.61	2	31.31	2.80	.061
	DEP	102.29	2	51.14	2.11	.122
	EAT	68.18	2	34.09	4.52	.011
	ADPlg	.12	2	0.06	1.20	.303
	SCP	48.95	2	24.47	2.46	.086
	OPDlg	.24	2	0.12	1.28	.279
	GAD	138.50	2	69.25	4.97	.007
	SUI	28.82	2	14.41	2.93	.054
	AVPlg	.34	2	0.17	1.66	.190
	IPPlg	.67	2	0.34	3.72	.025
GENDER * STATUS	PTS	49.55	2	24.77	2.22	.109
	DEP	171.87	2	85.94	3.54	.029
	EAT	98.39	2	49.19	6.53	.002
	ADPlg	.16	2	0.08	1.57	.209
	SCP	98.88	2	49.44	4.97	.007
	OPDlg	.34	2	0.17	1.79	.167
	GAD	60.46	2	30.23	2.17	.115
	SUI	40.35	2	20.17	4.10	.017
	AVPlg	.39	2	0.19	1.90	.150
	IPPlg	.24	2	0.12	1.31	.271

Table 3.1.d - Multiple Comparisons: Tukey HSD for Significant Interaction Effects of Gender X Status on DEP, EAT, SCP and SUI

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
DEP	1.00	2.00	-.5379	.40921	.387	-1.4987	.4228
		3.00	.2897	.40921	.759	-.6711	1.2504
	2.00	1.00	.5379	.40921	.387	-.4228	1.4987
		3.00	.8276	.40921	.107	-.1331	1.7883
	3.00	1.00	-.2897	.40921	.759	-1.2504	.6711
		2.00	-.8276	.40921	.107	-1.7883	.1331
EAT	1.00	2.00	-.6103*	.22797	.021	-1.1456	-.0751
		3.00	-.0345	.22797	.987	-.5697	.5007
	2.00	1.00	.6103*	.22797	.021	.0751	1.1456
		3.00	.5759*	.22797	.031	.0406	1.1111
	3.00	1.00	.0345	.22797	.987	-.5007	.5697
		2.00	-.5759*	.22797	.031	-1.1111	-.0406
SCP	1.00	2.00	-.3724	.26190	.330	-.9873	.2425
		3.00	.2000	.26190	.725	-.4149	.8149
	2.00	1.00	.3724	.26190	.330	-.2425	.9873
		3.00	.5724	.26190	.074	-.0425	1.1873
	3.00	1.00	-.2000	.26190	.725	-.8149	.4149
		2.00	-.5724	.26190	.074	-1.1873	.0425
SUI	1.00	2.00	-.1966	.18429	.535	-.6292	.2361
		3.00	.2483	.18429	.369	-.1844	.6810
	2.00	1.00	.1966	.18429	.535	-.2361	.6292
		3.00	.4448*	.18429	.042	.0122	.8775
	3.00	1.00	-.2483	.18429	.369	-.6810	.1844
		2.00	-.4448*	.18429	.042	-.8775	-.0122

Based on observed means.
The error term is Mean Square(Error) = .090.
*. The mean difference is significant at the .05 level.

Scores on Conduct Disorder (CND) and Substance Abuse Disorder (SUB) subscales of APS-SF in the three groups, that is, Adolescents with Alcohol Abusing Siblings, Adolescents with Drug Abusing Siblings and Adolescents with Normal Siblings, were principally nominal as the raw scores were used in this study and not the T-scores. Therefore, non-parametric statistics (Mann-Whitney U-test for 2 groups of 'gender' (male and female) and Independent-Samples Kruskal –Wallis Test for the 3 'status' ("adolescents having alcohol-abusing siblings", "adolescents having drug-abusing siblings" and "adolescents having normal siblings") were used in the analysis of these two subscales: Conduct Disorder (CND) and Substance Abuse Disorder (SUB).

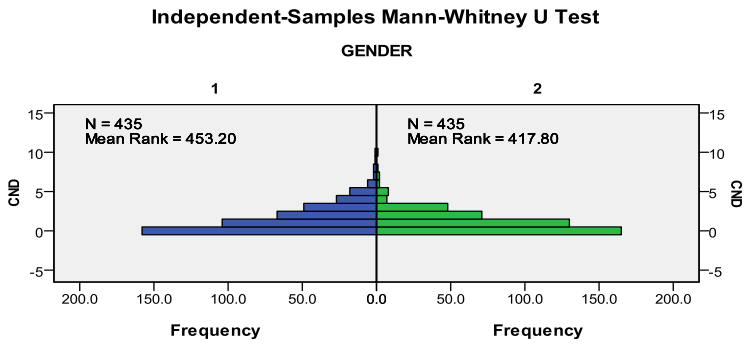
Results (Table 3.5. a) of Mann-Whitney U-test revealed significant effect of 'gender' on CND (Conduct Disorder) and SUB (Substance Abuse Disorder). In CND,

males (*M* = 1.53) scored significantly higher than females (*M* = 1.21), and in SUB, males (*M* = 1.15) also scored significantly higher than females (*M* = 0.37). Several studies indicate that conduct disorder is more common among boys than girls (Klostermann, Connell & Stormshak, 2014; Maughan, Rowe, Messer, Goodman & Meltzer, 2004; Moffit, Caspi, Rutter& Silva, 2001). Studies also found that substance abuse is more common among boys than girls (Abrahamson & Heimdahl, 2010B; Bloomfield, Wicki & Gustaffsson, 2010; Makela, Gmel, Grittner, Kuendig, Kuntsche, Bloomfield & Room, 2006).

Table 3.5.a - Hypothesis Test Summary for 'gender' on Conduct Disorder and Substance Abuse Disorder

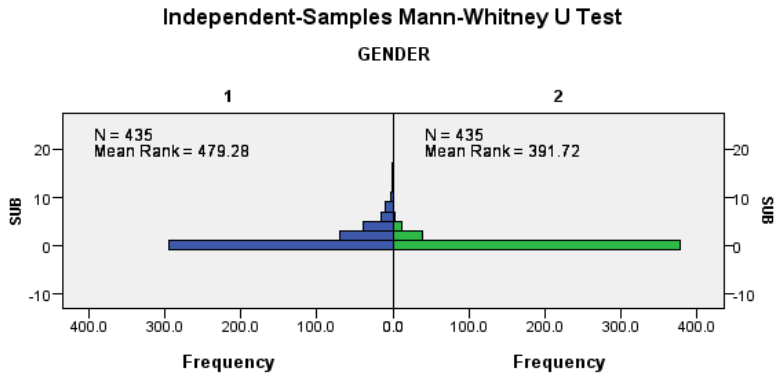
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of CND is the same across categories of GENDER.	Independent-Samples Mann-Whitney U Test	0.031	Reject the null hypothesis.
2	The distribution of SUB is the same across categories of GENDER.	Independent-Samples Mann-Whitney U Test	0.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.



Total N	870
Mann-Whitney U	86,914.500
Wilcoxon W	181,744.500
Test Statistic	86,914.500
Standard Error	3,562.226
Standardized Test Statistic	-2.161
Asymptotic Sig. (2-sided test)	.031

Figure 3: Independent –samples Mann-Whitney U Test Gender for Conduct Disorder



Total N	870
Mann-Whitney U	75,567.500
Wilcoxon W	170,397.500
Test Statistic	75,567.500
Standard Error	2,718.777
Standardized Test Statistic	-7.005
Asymptotic Sig. (2-sided test)	.000

Figure 4: Independent samples Mann-Whitney U Test Gender for Substance Abuse Disorder

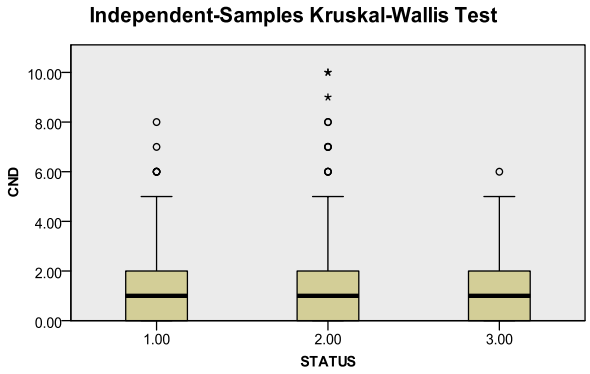
Results of independent samples Kruskal-Wallis Test (Table 3.5.b) revealed significant effect of 'status' ("adolescents having alcohol-abusing siblings", "adolescents having drug-abusing siblings" and "adolescents having normal siblings") on SUB (Substance Abuse Disorder), suggesting that siblings of alcohol-abusers, drug-abusers and those having normal siblings differ significantly on SUB. Pair-wise comparison of 'status' indicates significant rank difference between siblings of alcohol-abusers and normal. Mean comparisons also indicate that siblings of alcohol-abusers (M = 0.82) scored significantly higher than those having normal siblings (M = 0.59). Copello, Velleman and Templeton (2005) reported that siblings of substance abusers are at risk of abusing substances themselves. Conger and Reuter (1996) found evidence that a sibling's drinking

intensify an adolescent's tendency to drink. Windle (2000) found that siblings' substance use strongly predict adolescent's substance use. Rowe and Gulley (1992) found strong correlations between siblings' substance use and another sibling's use of tobacco, alcohol, marijuana and inhalants.

Table 3.5.b - Hypothesis Test Summary for 'status' on Conduct Disorder and Substance Abuse Disorder

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of CND is the same across categories of STATUS.	Independent-Samples Kruskal-Wallis Test	0.393	Retain the null hypothesis.
2	The distribution of SUB is the same across categories of STATUS.	Independent-Samples Kruskal-Wallis Test	0.045	Reject the null hypothesis.

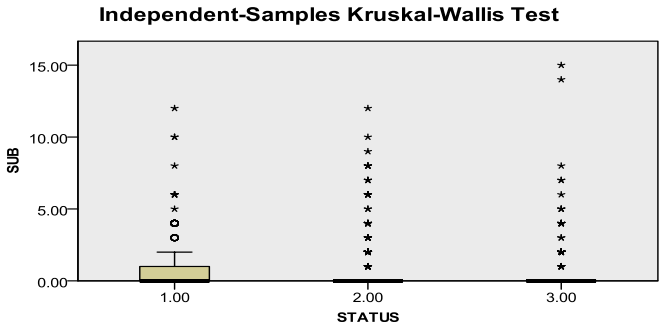
Asymptotic significances are displayed. The significance level is .05.



Total N	870
Test Statistic	1.870
Degrees of Freedom	2
Asymptotic Sig. (2-sided test)	.393

1. The test statistic is adjusted for ties.
2. Multiple comparisons are not performed because the overall test does not show significant differences across samples.

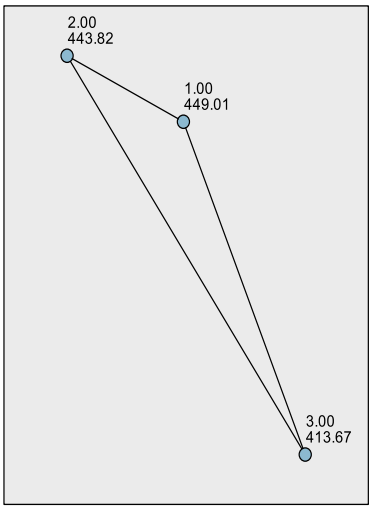
Figure 5: Independent Samples Kruskal-Wallis Test Status for Conduct Disorder



Total N	870
Test Statistic	6.212
Degrees of Freedom	2
Asymptotic Sig. (2-sided test)	.045

1. The test statistic is adjusted for ties.

Figure 6: Independent Samples Kruskal-Wallis Test Status for Substance Abuse Disorder



Each node shows the sample average rank of STATUS.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
3.00-2.00	30.145	15.309	1.969	.049	.147
3.00-1.00	35.333	15.309	2.308	.021	.063
2.00-1.00	5.188	15.309	.339	.735	1.000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

Figure 7: Showing Pair-wise comparisons of status for substance abuse disorder

Thus, results indicated that among Mizo adolescent boys and girls, those having alcohol and drug abusing siblings are presented with a whole lot of psychopathological problems than those having normal siblings. Similar findings can be seen in various literature which suggests that siblings of substance abusers are prone to experience a range of negative consequences(Barnard, 2005; Velleman *et al*.,; Sharpe & Rossiter, 2002), and increased emotional problems (Hannah & Midlarsky, 1985; Lobato, 1983; Summers *et al*., 1994).

MODERATING EFFECTS OF PARENTAL ACCEPTANCE-REJECTION, COPING STYLESAND PERSONALITY ON THE RELATIONSHIP BETWEEN STATUS OF HAVING SUBSTANCE-ABUSING SIBLING AND PSYCHOLOGICAL HEALTH STATUS AMONG MIZO ADOLESCENTS

To determine the moderating role of parental rejection, coping styles and personality in the relationship between the status of having substance abusing siblings (Alcohol, Drugs and Normal control) and psychological health status among Mizo adolescents, several hierarchical regression analyses were envisaged. The criterion variables of psychological health status were as measured by the Adolescent Psychopathology Scale (APS; Reynolds, 2000), viz., Conduct Disorder (CND), Posttraumatic Stress Disorder (PTS), Major Depression (DEP), Eating Disturbance (EAT), Academic Problems (ADP), Self-Concept (SCP), Oppositional Defiant Disorder (OPD), Generalized Anxiety Disorder (GAD), Substance Abuse Disorder (SUB), Suicide (SUI), Anger/Violence Proneness (AVP) and Interpersonal Problems (IPP). The predictor 'status' (Alcohol, Drugs and Normal) was first Dummy Coded into 'Alcodum' and 'Drugdum', with 'Normal' as the reference group. Necessary centering was done for the moderating variables of parental rejection, coping styles and personality.

The moderation analyses using hierarchical regression analyses (stepwise, enter method) were computed using SPSS 20, Interaction Software (Soper, 2013) and Hayes' PROCESS for SPSS (Fields, 2014) for Mizo adolescent boys and girls separately as gender differences were found in many of the variables of interest. The results of the moderation analyses are given in the ensuing sections as follows:-

1. The moderating role of parental (maternal and paternal) acceptance-rejection in the relationship between siblings' substance abuse and psychological health status among Mizo adolescent boys and girls.

2. The moderating role of coping styles (task-oriented, emotion-oriented and avoidance-oriented) in the relationship between siblings' substance abuse and psychological health status among Mizo adolescent boys and girls.

3. The moderating role of personality (neuroticism, extraversion, openness, agreeableness and conscientiousness in the relationship between siblings' substance abuse and psychopathology among Mizo adolescent boys and girls.

MODERATING ROLE OF PARENTAL REJECTION IN THE RELATIONSHIP BETWEEN SIBLINGS' SUBSTANCE ABUSE AND PSYCHOPATHOLOGY

MODERATING ROLE OF PATERNAL REJECTION FOR BOYS:

The first hierarchical regression analysis to determine the moderating role of paternal rejection in the relationship between the status of having substance abusing siblings (Alcohol, Drugs and Normal control) and psychological health status among Mizo adolescents boys was computed with dummy coded 'status' (Alcodum And Drugdum) as the predictor, centered scores on total rejection scores for fathers (TTRFlg) on the first criterion variable of psychopathology, i.e., Posttraumatic Stress Disorder (PTS). In Block 1, the main dummy coded variables for 'status' (Alcodum and Drugdum) were entered. The potential moderator, centred TTRFlg was entered in Block 2. The interaction terms between the predictors (Alcodum and Drugdum) and the potential moderator (TTRF) were created and entered in Block 3. The Results summarized in Table 4.1 revealed that status alone explained only 0.6 % of the variance in Posttraumatic Stress Disorder (PTS). Paternal

rejection significantly contributed 6.8 %of the variance explained. The addition of the interaction terms further added 0.8 % to the variance accounted for, bringing the total proportion of explained variance in PTS to 8.2 %. Significant main effects of paternal rejection (β = .262; *p* = .000) was found (Table 4.1), indicating that posttraumatic stress disorder (PTS) increases with increase in paternal rejection. Recent studies also reported significant effects of perceived rejection in developmental trauma disorder (DTD; van der Kolk, 2010) and in complex posttraumatic stress disorder (Complex PTSD or simply CPTSD; Courtois, 2004). These are conditions where youths experience repeated trauma—especially interpersonal trauma such as neglect/abandonment/antipathy by primary caregivers—over an extended period of time and developmental periods. Independent effect of 'status' and its interaction with the moderator variables were found to be non-significant.

Table 4.1

Coefficients of regression model for Posttraumatic stress Disorder on Status and paternal rejection for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.006	.006
Constant	5.841			
Alcodum		.003		
Drugdum		.079		
Step 2			.074	.068**
Constant	5.801			
ZTTRFlg		.262**		
Step 3			.082	.008
Constant	5.815			
Alcodum*ZTTRFlg		.032		
Drugdum*ZTTRFlg		.124		

Note. ZTTRF = total paternal rejection

*$p < .05$; **$p < .01$

In Major Depression (DEP), results (Table 4.2) revealed that 'status' alone significantly explained only 1.6 % of the variance. Paternal rejection significantly contributed 8.5 % of the variance explained. The addition of the interaction terms further added 0.4 % to the variance accounted for, bringing the total proportion of explained variance in DEP to 10.4 %. Significant main effect of paternal rejection (β = .293; *p* = .000) was found, indicating that major depression (DEP) increases with increase in paternal rejection (Table 4.2). Quach (2008) found that greater paternal warmth had a negative relationship with males' depression. Paternal rejection has also been consistently implicated in the development of psychological problems, such as depression, among others (Rohner, 1998; Rohner & Veneziano, 2001; Veneziano, 2000, 2003). Dwairy (2010) also concluded that parental rejection was found to be related with depression. Independent effect of status and its interaction with the moderator variables were found to be non-significant.

Table 4.2

Coefficients of regression model for Major Depression on Status and paternal rejection for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.016	.016*
Constant	7.124			
Alcodum		-.060		
Drugdum		.084		
Step 2			.100	.085**
Constant	7.060			
ZTTRFlg		.293**		
Step 3			.104	.004
Constant	7.078			
Alcodum*ZTTRFlg		.065		
Drugdum*ZTTRFlg		.078		

Note. ZTTRF = total paternal rejection

*$p < .05$; **$p < .01$

In Eating Disturbance (EAT), results (Table 4.3) revealed that 'status' alone significantly explained 5.8 % of the variance. Paternal rejection significantly contributed 0.9 % of the variance explained. The addition of the Interaction terms further added 0.2 % to the variance accounted for, bringing the total proportion of explained variance in EAT to 6.9 %. Significant main effect of status (Drugdum, β = .230; p = .000) was found (Table 4.3), indicating that in Eating Disturbance adolescent boys having drug-abusing sibling (M = 3.36) scored significantly higher than those having normal sibling (M = 2.11), regardless of paternal rejection. Various studies have reported that siblings of drug abusers reported psychological symptoms of anorexia such as bingeing and purging (Barnard, 2005; Velleman, Bennett, Miller, Oxford, & Tod, 1993). Significant main effect of Paternal rejection (β = .094; p = .046) was also found (Table 4.3), indicating that eating disturbance increases with increase in paternal rejection. Burns and Crisp (1990) found that strained paternal relationship predict poor outcome among eating-disordered males. Castro (2000) concluded that parental rejection is evidenced in the development of bulimia. Perry, Silvers, Neilands, Rosenvinge and Hanssen (2008) found that parental style of low care was associated with eating disturbances. Interaction effect of 'status' with the moderator variable was found to be non-significant.

Table 4.3

Coefficients of regression model for Eating Disturbance on Status and paternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.058	.058**
Constant	2.110			
Alcodum		-.020		
Drugdum		.230**		
Step 2			.067	.009*
Constant	2.100			
ZTTRFlg		.094*		

Step 3			.069	.002
Constant	2.104			
Alcodum*ZTTRFlg		.001		
Drugdum*ZTTRFlg		.059		

Note. ZTTRF = total paternal rejection

*$p < .05$; **$p < .01$

In Academic Problems (ADP), results (Table 4.4) revealed that 'status' alone explained only 1.2 % of the variance. Paternal rejection significantly contributed 4.7 % of the variance explained. The addition of the interaction terms further added 1.6 % to the variance accounted for, bringing the total proportion of explained variance in ADPlg to 7.5 %. Significant main effect of status (Alcodum, β = .108; p = .052) was found, indicating that in Academic Problems adolescent boys having alcohol-abusing sibling (M = 7.40) scored significantly higher than those having normal sibling (M = 6.50), regardless of paternal rejection. Significant main effect of Paternal rejection (β = .219; p = .000) was found (Table 4.4), indicating that academic problems (ADPlg) increases with increase in paternal rejection. Chen, Liu & Li (2000) found that paternal warmth significantly predicted academic achievement. Obayan & Jimoh-Cook (1992) found that children who perceive their fathers as rejecting had low academic achievement. Paternal acceptance has also been found to be related to children's academic competence (Forehand & Nousiainen, 1993; Musitu & García, 2004). Jones (2004) also found positive association between perceived relationship quality with father and academic achievement. According to The National Literacy Trust, UK (2001), paternal involvement at the age of 7 was strongly related to children's future educational achievement and independently predicts their higher educational attainment by age 20 regardless of genders.

Interaction effect of 'status'(Drugdum) with the moderator variable (paternal rejection) was found to be significant (DrugdumXZTTRFlg, β = .156; p = .018), indicating

that adolescent boys having normal sibling and adolescent boys having drug-abusing sibling scored significantly different in academic problems depending on different levels of paternal rejection (Table 4.4). Analysis of the significance of the simple slopes (Figure: 8) at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant only at M-1SD level, that is, low level (t = -3.129; p = .002) of the moderator (TTRF). This indicates that only at low level of paternal rejection (akin to paternal warmth), status (Drugdum) was negatively correlated with Academic Problems. That is, if an adolescent has a drug-abusing sibling (high score on Drugdum), he will have less academic problems if his father does not reject him (low score on TTRF). Adolescent boys having drug-abusing sibling scored significantly lower on Academic Problems when paternal rejection was low (high score on TTRF indicates more rejection). In other words, therefore, it could be predicted that even if boys have drug-abusing siblings, they are likely to have less academic problems if their fathers are perceived to be warm.

Table 4.4

Coefficients of regression model for Academic Problems on Status and paternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.012	.012
Constant	.839			
Alcodum		.108		
Drugdum		.001		
Step 2			.059	.047**
Constant	.837			
ZTTRFlg		.219**		
Step 3			.075	.016*
Constant	.837			
Alcodum*ZTTRFlg		-.002		
Drugdum*ZTTRFlg		.156*		

Note. ZTTRF = total paternal rejection. *p < .05; **p < .01

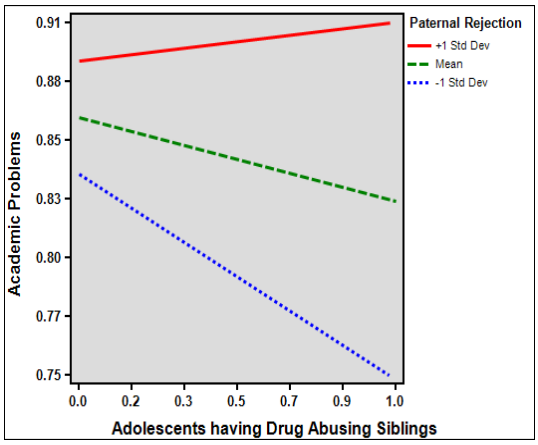


Figure: 8 – MODERATING ROLE OF PATERNAL REJECTION BETWEEN STATUS OF HAVING DRUG-ABUSING SIBLINGS AND ACADEMIC PROBLEMS

In Self-Concept (SCP), results (Table 4.5) revealed that 'status' alone explained only 1.3 % of the variance. Paternal rejection significantly contributed 6 % of the variance explained. The addition of the interaction terms further added 0.5 % to the variance accounted for, bringing the total proportion of explained variance in Self-Concept (SCP) to 7.8 %. Significant main effect of Paternal rejection (β = .247; p = .000) was also found (Table 4.5), indicating that self concept (since items of self-concept on APS-SF are keyed in the negative direction, higher scores reflect negative or poorer self concept such as feelings of worthlessness and self-denigration, poor physical and social self-concept, and negative evaluation of self by others) increases with increase in paternal rejection. Saavedra (1980) found significant correlation between perceived parental warmth and reported self-esteem. Crase *et al*., (1981) found that self concept score of boys was negatively significantly correlated with father's inconsistent discipline and control by guilt. Sally (2000) found that families providing warmth and nurture contribute positively to the development of self concept. Cournoyer *et al*. (2005) also found that the more accepting students perceived their mother and father to be, the more likely the students were to hold positive self-concepts. Kaur *et al*., (2009) found that home environment components of

social isolation, deprivation of privileges and rejection were negatively correlated with self concept. Chohan and Khan's (2010) results of their study revealed that parent's contribution has a consistent and positive effect on academic achievement and self-concept. Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 4.5

Coefficients of regression model for Self-Concept on Status and paternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.013	.013
Constant	7.048			
Alcodum		-.097		
Drugdum		.029		
Step 2			.073	.060**
Constant	7.014			
ZTTRFlg		.247**		
Step 3			.078	.005
Constant	7.006			
Alcodum*ZTTRFlg		-.090		
Drugdum*ZTTRFlg		-.013		

Note. ZTTRF = total paternal rejection

*$p < .05$; **$p < .01$

In Oppositional Defiant Disorder (OPD), results (Table 4.6) revealed that 'status' explained only 1.3 % of the variance. Paternal rejection significantly contributed 2.8 % of the variance explained. The addition of the interaction terms further added 0.3 % to the variance accounted for, bringing the total proportion of explained variance in OPDlg to 4.4 %. Significant main effect of status (Drugdum, $\beta = .109$; $p = .049$) was found, indicating that in Oppositional Defiant Disorder, adolescent boys having drug-abusing sibling (M = 5.31) scored significantly higher than those having normal sibling (M = 4.47), regardless of

paternal rejection. Significant main effect of Paternal rejection (β = .168; *p* = .000) was also found (Table 4.6), indicating that oppositional defiant disorder (OPDlg) increases with increase in paternal rejection. Research has indicated that high conflict family environments that include low warmth parent-child relations may be specifically associated with Oppositional Defiant Disorder (Katz and Gottman, 1993; Kochanska and Murray, 2000; Patterson, DeBaryshe & Ramsey, 1989). Interaction of status with the moderator variable was found to be non-significant.

Table 4.6

Coefficients of regression model for Oppositional Defiant Disorder on Status and paternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.013	.013
Constant	.665			
Alcodum		-.012		
Drugdum		.109*		
Step 2			.041	.028**
Constant	.663			
ZTTRFlg		.168**		
Step 3			.044	.003
Constant	.664			
Alcodum*ZTTRFlg		.026		
Drugdum*ZTTRFlg		.081		

Note. ZTTRF = total paternal rejection.

*$p < .05$; **$p < .01$

In Generalized Anxiety Disorder (GAD), results (Table 4.7) revealed that 'status' significantly explained 1.8 % of the variance. Paternal rejection significantly contributed 5.6 % of the variance explained. The addition of the interaction terms further added 0.5 % to the variance accounted for, bringing the total proportion of explained variance in GAD to 8 %. Significant main effect of status (Drugdum, β = .153; *p* = .006) was found,

indicating that in Generalized Anxiety Disorder (GAD) adolescent boys having drug-abusing (M = 8.14) scored significantly higher than those having normal sibling (M = 6.86). Siblings of drug abusers are reported to have panic attacks and "nervous breakdowns" (Barnard, 2005; Velleman, Bennett, Miller, Oxford, & Tod, 1993). Significant main effect of Paternal rejection (β = .239; p = .000) was also found, indicating that generalized anxiety disorder increases with increase in paternal rejection (Table 4.7). A study of (pre-) adolescents (8–12 years old) revealed significant relationships between the adolescents' perception of parental rejection and over-control behaviours and adolescent GAD symptoms (Muris and Merckelbach, 1998). Hale III, Engels & Meeus (2006) also concluded from their study that adolescent perceptions of parental alienation and rejection are strongly associated with adolescent GAD symptom scores. Several research findings agree that perceived paternal rejection is strongly correlated with anxiety (Carr, 1999; Gerlma *et al*., 1990; Harrington, 1993; Vulic-Prtoric and Macuka (2006). Interaction effect of status with the moderator variable was found to be non-significant.

Table 4.7

Coefficients of regression model for Generalized Anxiety Disorder on Status and paternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.018	.018*
Constant	6.828			
Alcodum		.045		
Drugdum		.153**		
Step 2			.075	.056**
Constant	6.786			
ZTTRFlg		.239**		
Step 3			.080	.005
Constant	6.802			
Alcodum*ZTTRFlg		.062		
Drugdum*ZTTRFlg		.101		

Note. ZTTRF = total paternal rejection
*p < .05; **p < .01

In Suicide (SUI), results (Table 4.8) revealed that 'status' explained only 0.5 % of the variance. Paternal rejection significantly explained 6.1 % of the variance. The addition of the interaction terms further added 0.1 % to the variance accounted for, bringing the total proportion of explained variance in SUI to 6.7 %. Significant main effect of paternal rejection (β = .250; p = .000) was found, indicating that suicide (suicidal ideation and suicidal behaviours) increases with increase in paternal rejection (Table 4.8). Campos, Besser & Blatt (2013) found that paternal rejection was significantly associated with suicidality. It was also found that rejecting-neglecting parenting significantly predicted suicidal attempts (Donath, Graessel, Baier, Bleich & Hillemacher, 2014). Parent-child relationships characterized by low warmth have been linked to higher rates of suicidal behavior among adolescents (Connor and Reuter, 2006). Negative or hostile parenting has also been linked to suicidal behavior (Gau, Chen, Tsai, Lee, Chiu, Soong *et al*., 2008). Also siblings who perceive less parental warmth and more parental hostility reported higher suicidal ideation than the sibling who did not report experiencing such negative parenting (Wagner and Cohen, 1994). Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 4.8
Coefficients of regression model for Suicide on Status and paternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.005	.005
Constant	2.007			
Alcodum		-.055		
Drugdum		.020		
Step 2			.066	.061**
Constant	1.981			
ZTTRFlg		.250**		
Step 3			.067	.001
Constant	1.984			
Alcodum*ZTTRFlg		.031		
Drugdum*ZTTRFlg		.023		

Note. ZTTRF = total paternal rejection. *p < .05; **p < .01

In Anger/Violence Proneness (AVP), results (Table 4.9) revealed that 'status' explained only 1.3 % of the variance. Paternal rejection significantly contributed 2.1 % of the variance explained. The addition of the interaction terms further added 0.4 % to the variance accounted for, bringing the total proportion of explained variance in AVPlg to 3.8 %. Significant main effect of Paternal rejection (β = .146; p = .002) was also found, indicating that anger/violence proneness (AVPlg) increases with increase in paternal rejection (Table 4.9). Similar findings were also reported by Hale III, VanderValk, Aske & Meeus (2008), who found that parental rejection longitudinally predicted adolescents' aggression. In the context of uninvolved, rejecting or harsh parenting, Campbell (1995) also found that children were more likely to show overactive, noncompliant, aggressive and impulsive behavior. Perceived parental rejection was also found to be strongly associated with adolescents' aggression (Heidgerken, Hughes, Cavell &Willson, 2004). Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 4.9

Coefficients of regression model for Anger/Violence Proneness on Status and paternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.013	.013
Constant	.691			
Alcodum		-.099		
Drugdum		.027		
Step 2			.034	.021**
Constant	.689			
ZTTRFlg		.146**		
Step 3			.038	.004
Constant	.690			
Alcodum*ZTTRFlg		.050		
Drugdum*ZTTRFlg		.088		

Note. ZTTRF = total paternal rejection. *p < .05; **p < .01

In Interpersonal Problems (IPP), results (Table 4.10) revealed that 'status' significantly explained 1.7 % of the variance. Paternal rejection significantly contributed 4.4 % of the variance explained. The addition of the interaction terms further added 0.3 % to the variance accounted for, bringing the total proportion of explained variance in IPPlg to 6.4 %. Significant main effect of status (Drugdum, β = .146; *p* = .008) was found (Table 4.10), indicating that in Interpersonal problems (IPP), adolescent boys having drug-abusing sibling (*M* = 7.61) scored significantly higher than those having normal sibling (*M* = 6.34). It has been found (Barnard, 2005; Velleman, Bennett, Miller, Oxford, & Tod, 1993) that siblings of drug abusers tend to expect rejection, loss, maltreatment and abandonment from others. They also tend to overestimate the amount of danger in the world. Social isolation is common and they often have difficulty relating to and empathizing with others. Significant main effect of paternal rejection (β = .211; *p* = .000) was also found, indicating that interpersonal problems increases with increase in paternal rejection (Table 4.10). Rohner's theory postulated that rejected children tended to have interpersonal problems because they also tended to have negative world views (Rohner, 1986).Interaction effect of status with the moderator variable turned out to be non-significant.

Table 4.10
Coefficients of regression model for Interpersonal Problems on Status and paternal rejection for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.017	.017*
Constant	.799			
Alcodum		.036		
Drugdum		.146**		
Step 2			.061	.044**
Constant	.797			
ZTTRFlg		.211**		
Step 3			.064	.003
Constant	.798			
Alcodum*ZTTRFlg		.020		
Drugdum*ZTTRFlg		.073		

Note. ZTTRF = total paternal rejection. *$p < .05$; **$p < .01$

MODERATING ROLE OF MATERNAL REJECTION FOR BOYS:

In Posttraumatic Stress Disorder (PTS), results (Table 4.11) revealed that 'status' explained only 0.6 % of the variance. Maternal rejection significantly contributed 3.6 % of the variance explained. The addition of the interaction terms further added 0.4 % to the variance accounted for, bringing the total proportion of explained variance in PTS to 4.6 %. Significant main effect of Maternal rejection (β = .190; *p* = .000) indicated that posttraumatic stress disorder (PTS) increases with increase in maternal rejection (Table 4.11). Recent studies find that effects of perceived rejection are found in developmental trauma disorder (DTD; van der Kolk, 2010) and in complex posttraumatic stress disorder (Complex PTSD or simply CPTSD; Courtois, 2004). As also mentioned in the interpretation for paternal rejection, these are conditions where youths experience repeated trauma—especially interpersonal trauma such as neglect/abandonment/antipathy by primary caregivers—over an extended period of time and developmental periods. Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 4.11

Coefficients of regression model for Posttraumatic Stress Disorder on Status and maternal rejection for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.006	.006
Constant	5.841			
Alcodum		.003		
Drugdum		.079		
Step 2			.042	.036**
Constant	5.828			
ZTTRM		.190**		
Step 3			.046	.004
Constant	5.835			
Alcodum*ZTTRM		.089		
Drugdum*ZTTRM		.067		

Note. ZTTRM = total maternal rejection. *$p < .05$; **$p < .01$

In Major depression (DEP), results (Table 4.12) revealed that ‘status’ explained only 1.6 % of the variance. Maternal rejection significantly contributed 4.2 % of the variance explained. The addition of the interaction terms further added 1.2 % to the variance accounted for, bringing the total proportion of explained variance in major depression (DEP) to 7 %. Significant main effect of Maternal rejection (β = .205; *p* = .000) was found, indicating that major depression (DEP) increases with increase in maternal rejection (Table 4.12). Numerous studies found positive associations between maternal rejection and depression (Gulay, 2011; Khaleque & Rohner, 2002; Majeed, 2009; Salahur, 2010; Sentse *et al*., 2009).

Interaction effect of 'status'(Alcodum) with the moderator variable (maternal rejection) was found to be significant (AlcodumXZTTRM; β = .143; *p* = .041), indicating that adolescent boys having normal sibling as compared to adolescent boys having alcohol-abusing sibling scored significantly different in major depression depending on different levels of maternal rejection (Table 4.12). Analysis of the significance of the simple slopes (Figure. 9) at three levels (M-1SD, average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant both at average level (t = -2.132; *p* = 0.033) and M-1SD level, that is, low level (t = -3.186; *p* = .002) of the moderator (TTRM). This indicates that at average and low levels of maternal rejection (akin to maternal warmth), status (Alcodum) was negatively correlated with Depression. Adolescents having alcohol-abusing siblings (high score on Alcodum) scored significantly lower on Depression when maternal rejection was at average and low levels. In other words, when mothers are perceived to be warm, adolescent boys having alcohol-abusing siblings would have less depression.

Table 4.12

Coefficients of regression model for Major Depression on Status and maternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.016	.016*
Constant	7.124			
Alcodum		-.060		
Drugdum		.084		
Step 2			.058	.042**
Constant	7.104			
ZTTRM		.205**		
Step 3			.070	.012
Constant	7.113			
Alcodum*ZTTRM		.143*		
Drugdum*ZTTRM		.010		

Note. ZTTRM = total maternal rejection

*p < .05; **p < .01

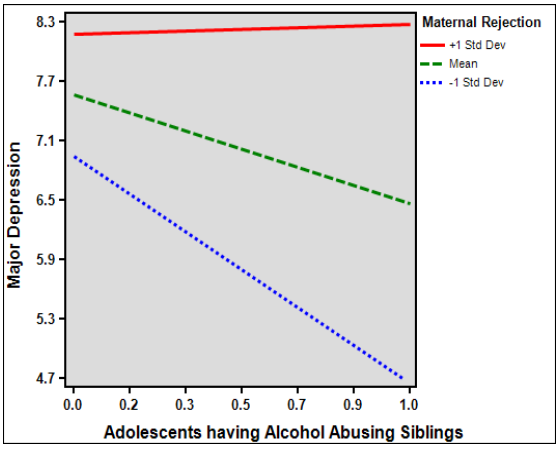


Figure 9: MODERATING ROLE OF MATERNAL REJECTION BETWEEN STATUS OF HAVING ALCOHOL ABUSING SIBLINGS AND MAJOR DEPRESSION

In Eating Disturbance (EAT), results (Table 4.13) revealed that 'status' explained 5.8 % of the variance. Maternal rejection did not contribute anything to the variance explained. The addition of the interaction terms further added 0.2 % to the variance accounted for, bringing the total proportion of explained variance in EAT to 6 %.

Significant main effect of status (Drugdum, β = .230; *p* = .000) was found (Table 4.13), indicating that in eating disturbance adolescent boys having drug-abusing siblings (*M* = 3.36) scored significantly higher than those having normal siblings (*M* = 2.11). Various studies have reported that siblings of drug abusers reported psychological symptoms of anorexia such as bingeing and purging (Barnard, 2005; Velleman, Bennett, Miller, Oxford, & Tod, 1993). Independent effect of maternal rejection and interaction of status with the moderator variable were found to be non-significant.

Table 4.13

Coefficients of regression model for Eating Disturbance on Status and maternal rejection for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.058	.058**
Constant	2.110			
Alcodum		-.020		
Drugdum		.230**		
Step 2			.058	.000
Constant	2.110			
ZTTRM		.009		
Step 3			.060	.002
Constant	2.113			
Alcodum*ZTTRM		.054		
Drugdum*ZTTRM		.064		

Note. ZTTRM = total maternal rejection
*$p < .05$; **$p < .01$

In Academic Problems (ADP), results (Table 4.14) revealed that 'status' alone explained only 1.2 % of the variance. Paternal rejection significantly contributed 4.2 % of the variance explained. The addition of the interaction terms further added 0.7 % to the variance accounted for, bringing the total proportion of explained variance in ADPlg to 6 %. Significant main effect of status (Alcodum, β = .108; *p* = .052) was found (Table 4.14), indicating that in Academic Problems, adolescent boys having alcohol-abusing siblings (*M*

= 7.40) scored significantly higher than those having normal siblings (*M* = 6.50). Significant main effect of Maternal rejection (β = .204; *p* = .000) was found (Table 4.14), indicating that academic problems (ADPlg) increases with increase in maternal rejection. Research generally supports the effects of maternal involvement in academic achievement. Mize and Pettit (1997) found that maternal warmth predicted better adjustment, especially in academic performance. A study by Zellman and Waterman (1998) confirmed that parent-school involvement in children's education is associated with positive educational outcomes. Parental involvement in children's education appeared to be associated with a range of positive outcomes, including fewer behaviour problems, lower drop-out rates, and higher student achievement (Comer, 1984; Muller, 1993; Stevenson and Baker, 1987). Lakshmi and Arora (2006) in Varanasi revealed that parents who were perceived as being more acceptant and using less control tended to have adolescents with higher academic success and competence. Coleman (1997) advocated that strong supportive families are significant in the academic success of children. Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 4.14

Coefficients of regression model for Academic Problems on Status and maternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.012	.012
Constant	.839			
Alcodum		.108*		
Drugdum		.001		
Step 2			.053	.042**
Constant	.838			
ZTTRM		.204**		
Step 3			.060	.007
Constant	.838			
Alcodum*ZTTRM		.017		
Drugdum*ZTTRM		.110		

Note. ZTTRM = total maternal rejection. *$p < .05$; **$p < .01$

In Self-Concept (SCP), results (Table 4.15) revealed that 'status' explained only 1.3 % of the variance in Self concept (SCP). Maternal rejection significantly contributed 5 % of the variance explained. The addition of the interaction terms further added 0.2 % to the variance accounted for, bringing the total proportion of explained variance in SCP to 6.6 %. Significant main effect of Maternal rejection (β = .224; p = .000) indicated that self concept (feelings of worthlessness and self-denigration, poor physical and social self-concept, and negative evaluation of self by others) increases with increase in maternal rejection (Table 4.15). Patterson and Capaldi (1989) found that warmth provides a foundation on which children develop positive views of themselves and their competence. Maccoby and Martin's (1983) review of the impact of parent behaviours on children concluded that self-esteem results from parent-child interactions characterized by parental expectations combined with parental warmth and responsiveness. Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 4.15
Coefficients of regression model for Self-Concept on Status and maternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.013	.013
Constant	7.048			
Alcodum		-.097		
Drugdum		.029		
Step 2			.064	.050**
Constant	7.034			
ZTTRM		.224**		
Step 3			.066	.002
Constant	7.036			
Alcodum*ZTTRM		.047		
Drugdum*ZTTRM		-.015		

Note. ZTTRM = total maternal rejection. *p < .05; **p < .01

In Oppositional Defiant Disorder (OPD), results (Table 4.16) revealed that 'status' explained only 1.3 % of the variance. Maternal rejection significantly contributed 3 % of

the variance explained. The addition of the interaction terms further added 0.3 % to the variance accounted for, bringing the total proportion of explained variance in OPDlg to 3.3 %. Significant main effect of 'status' (Drugdum) was found (β = .109; p = .049), indicating that in oppositional defiant disorder siblings having drug-abusing sibling (M = 5.31) and those having normal sibling (M = 4.47) scored significantly different. Barnard (2005) found that siblings of drug abusers tend to display a range of antisocial behaviour, including oppositional behaviour. Significant main effect of Maternal rejection (β = .131; p = .006) was found, indicating that oppositional defiant disorder (OPD) increases with increase in maternal rejection (Table 4.16).The finding is consistent with literature review that suggests that when children are rejected, children worldwide, regardless of their culture, age, or gender tend to report themselves to be hostile, defiant, aggressive, being emotionally unresponsive, and experiencing delinquency (Al- Falaij, 1991) from Bahrain; (Chen, Rubin, & Lee, 1997) from China; (Saxena, 1992) from India; and (Salama, 1990) from Egypt. Interaction of status with the moderator variable was found to be non-significant.

Table 4.16

Coefficients of regression model for Oppositional Defiant Disorder on Status and maternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.013	.013
Constant	.665			
Alcodum		-.012		
Drugdum		.109*		
Step 2			.030	.017**
Constant	.664			
ZTTRM		.131**		
Step 3			.033	.003
Constant	.665			
Alcodum*ZTTRM		-.017		
Drugdum*ZTTRM		.055		

Note. ZTTRM = total maternal rejection. *p < .05; **p < .01

In Generalized Anxiety Disorder (GAD), results (Tables 4.17) revealed that 'status' significantly explained 1.8 % of the variance. Maternal rejection significantly explained 3.8 % of the variance. The addition of the interaction terms further added 0.5 % to the variance accounted for, bringing the total proportion of explained variance in GAD to 6.1 %. Significant main effect of status (Drugdum, β = .201; *p* = .000) was found, indicating that in generalized anxiety disorder (GAD) adolescent boys having drug abusing siblings (*M* = 8.14) scored significantly higher than those having normal siblings (*M* = 6.86). Siblings of drug abusers tended to report feelings of anxiety, panic attacks and nervous breakdown (Barnard, 2005). Independent effect of maternal rejection was also found to be significant (β = .194; *p* = .000), indicating that generalized anxiety disorder increases with increase in maternal rejection (Table 4.17). Maternal lack of warmth is implicated in the development of anxiety as it is suggested that it may lead the child to have negative world view (Rohner & Khaleque, 2007; Bogels & Brechman-Toussaint, 2006). Interaction of status with the moderator variables was found to be non-significant.

Table 4.17

Coefficients of regression model for Generalized Anxiety Disorder on Status and maternal rejection for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.018	.018*
Constant	6.828			
Alcodum		.045		
Drugdum		.153**		
Step 2			.056	.038**
Constant	6.812			
ZTTRM		.194**		
Step 3			.061	.005
Constant	6.816			
Alcodum*ZTTRM		.084		
Drugdum*ZTTRM		-.003		

Note. ZTTRM = total maternal rejection

*$p < .05$; **$p < .01$

In Suicide (SUI), results (Table 4.18) revealed that 'status' explained 0.5 % of the variance. Maternal rejection significantly contributed 2.9 % of the variance explained. The addition of the interaction terms further added 0.3 % to the variance accounted for, bringing the total proportion of explained variance in suicide (SUI) to 3.6 %. Significant main effect of maternal rejection (β = .170; *p* = .000) was found, indicating that suicide (suicidal ideation and suicidal behaviours) increases with increase in maternal rejection (Table 4.18). Perceived maternal rejection was found to be associated with suicidal ideation (e.g., Martin & Waite, 1994; Peck, 1983; de Man, Labreche & Leduc, 1993 1987–1988; Lamborn, Mounts, Steinberg & Dornbusch, 1991). Independent effect of status and its interaction with the moderator variables were found to be non-significant.

Table 4.18

Coefficients of regression model for Suicide on Status and maternal rejection for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.005	.005
Constant	2.007			
Alcodum		-.055		
Drugdum		.020		
Step 2			.034	.029**
Constant	1.999			
ZTTRM		.170**		
Step 3			.036	.003
Constant	2.003			
Alcodum*ZTTRM		.075		
Drugdum*ZTTRM		.057		

Note. ZTTRM = total maternal rejection
*$p < .05$; **$p < .01$

In Anger/Violence Proneness (AVP), results (Table 4.19) revealed that status explained only 1.3 % of the variance. Maternal rejection significantly contributed 2.2 % of the variance explained. The addition of the interaction terms further added 0.2 % to the

variance accounted for, bringing the total proportion of explained variance in anger/violence proneness (AVPlg) to 3.8 %. Significant main effect of Maternal rejection (β = .142; *p* = .002) was also found, indicating that anger/violence proneness increases with increase in maternal rejection (Table 4.19). Adolescents who perceived high maternal rejection were more likely to experience anger than those perceiving high maternal acceptance (Dilek, 2007). Rejected children protect themselves from the hurt of further rejection by showing aggressive and hostile reactions beside other responses (Rohner, 1986). Cold and rejecting parenting have also been found to be an important predictor of violence (Farrington, 1994), and also found to discriminate between violent offenders and convicted non-violent offenders (Farrington, 1991). Independent effect of status and its interaction with the moderator variables were found to be non-significant.

Table 4.19

Coefficients of regression model for Anger Violence Proneness on Status and maternal rejection for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.013	.013
Constant	.691			
Alcodum		-.099		
Drugdum		.027		
Step 2			.036	.022**
Constant	.690			
ZTTRM		.149**		
Step 3			.038	.002
Constant	.691			
Alcodum*ZTTRM		.066		
Drugdum*ZTTRM		.022		

Note. ZTTRM = total maternal rejection
*$p < .05$; **$p < .01$

In Interpersonal Problems (IPP), results (Table 4.20) revealed that 'status' significantly explained 1.7 % of the variance. Maternal rejection significantly contributed

3.2 % of the variance explained. The addition of the interaction terms further added 0.1 % to the variance accounted for, bringing the total proportion of explained variance in IPPlg to 5 %. Significant main effect of status (Drugdum, β = .146; *p* = .008) was found (Table 4.20), indicating that in Interpersonal problems (IPP) adolescent boys having drug-abusing siblings (*M* = 7.61) scored significantly higher than those having normal siblings (*M* = 6.34). Research findings have shown that siblings of drug abusers tended to be socially isolated and to expect rejection and loss, and they often have difficulty in relating to and empathizing with others (Barnard, 2005; Velleman, Bennett, Miller, Oxford, & Tod, 1993). Significant main effect of Maternal rejection (β = .211; *p* = .000) was also found, indicating that interpersonal problems increases with increase in maternal rejection (Table 4.20). Perceived Maternal rejection was found to have a positive relationship with interpersonal problems in patients with conversion disorder (Tariq and Kausar, 2015). Rohner's theory also postulated that rejected children tended to have interpersonal problems because they also tended to have negative world views (Rohner, 1986). Interaction effect of status with the moderator variables was found to be non-significant.

Table 4.20

Coefficients of regression model for Anger Violence Proneness on Status and maternal rejection for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.017	.017*
Constant	.799			
Alcodum		.036		
Drugdum		.146**		
Step 2			.049	.032**
Constant	.799			
ZTTRM		.178**		
Step 3			.050	.001
Constant	.799			
Alcodum*ZTTRM		.008		
Drugdum*ZTTRM		-.035		

Note. ZTTRM = total maternal rejection. *$p < .05$; **$p < .01$

A logistic regression analysis was performed with Conduct Disorder (CND) as the dependent variable and paternal rejection (TTRF), maternal rejection (TTRM) and 'status' as predictor variables. A total of 435 cases were analyzed and the full model (Table 4.21.a) is a significant fit of the data (omnibus chi-square = 23.669, df = 8, p = .003). The model accounted for between 5.3 % and 23.7 % of the variance (Table 4.21.b), with 100 % of the siblings who do not have conduct disorder successfully predicted. However, only 8.3 % of predictions for the siblings who have conduct disorder were accurate. Overall, 97.5 % of predictions were accurate (Table 4.21.c). Table 4.21.d gives the coefficients, the Wald statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that none of the variables significantly predicted conduct disorder. Paternal rejection, maternal rejection and the status of having an alcohol-abusing sibling or drug-abusing sibling or a normal sibling did not significantly predict whether or not adolescent boys will have conduct disorder.

Table 4.21.a: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	23.669	8	.003
	Block	23.669	8	.003
	Model	23.669	8	.003

Table 4.21.b: Model Summary of Conduct disorder on Status and Parental and Maternal rejection

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	86.168[a]	.053	.237

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 4.21.c: Classification Table[a]

			Predicted		
			CNDDUM		
Observed			.00	1.00	Percentage Correct
Step 1	CNDDUM	.00	423	0	100.0
		1.00	11	1	8.3
	Overall Percentage				97.5

a. The cut value is .500

Table 4.21.d: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	TTRFlg	-3776.824	49496.133	.006	1	.939	0.000	0.000	
	TTRM	11.308	170.533	.004	1	.947	81451.708	.000	1.171E+150
	STATUS(1)	-4920.954	64315.979	.006	1	.939	0.000	0.000	
	STATUS(2)	-4950.084	64315.979	.006	1	.939	0.000	0.000	
	STATUS(1) by TTRFlg	3767.603	49496.133	.006	1	.939		0.000	
	STATUS(2) by TTRFlg	3786.993	49496.133	.006	1	.939		0.000	
	STATUS(1) by TTRM	-11.240	170.533	.004	1	.947	.000	.000	1.889E+140
	STATUS(2) by TTRM	-11.294	170.533	.004	1	.947	.000	.000	1.789E+140
	Constant	4929.633	64315.979	.006	1	.939			

a. Variable(s) entered on step 1: TTRFlg, TTRM, STATUS, STATUS * TTRFlg , STATUS * TTRM .

Regression analysis was performed with Substance Abuse Disorder (SUB) as the dependent variable and Paternal rejection (TTRF), Maternal rejection (TTRM) and 'status' as predictor variables revealed that a total of 435 cases were analyzed and the full model (Table 4.22.a) is a significant fit of the data (omnibus chi-square = 9.733, df = 8, p = .284). The model accounted for between 2.2 % and 5.6 % of the variance (Table 4.22.b), with 100 % of the siblings who do not have Substance Abuse successfully predicted. However, only 0 % of predictions for the siblings who have Substance Abuse were accurate. Overall, 93.1 % of predictions were accurate (Table 4.22.c). Table 4.22.d gives the coefficients, the Wald statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that none of the variables significantly predicted substance abuse disorder. Paternal rejection, maternal rejection and the 'status' of having an alcohol-abusing sibling or drug-abusing sibling or a normal sibling did not significantly predict whether or not adolescent boys will have substance abuse disorder.

Table 4.22.a:Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	9.733	8	.284
	Block	9.733	8	.284
	Model	9.733	8	.284

Table 4.22.b: Model Summary of Substance Abuse Disorder on status and Paternal and Maternal Rejection

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	208.598[a]	.022	.056

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 4.22.c: Classification Table[a]

Observed			Predicted		
			SUBDUM		
			.00	1.00	Percentage Correct
Step 1	SUBDUM	.00	405	0	100.0
		1.00	30	0	0.0
	Overall Percentage				93.1

a. The cut value is .500

Table 4.22.d: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	TTRFlg	6.779	4.499	2.270	1	.132	878.943	.130	5941078.862
	TTRM	-.068	.068	1.022	1	.312	.934	.818	1.066
	STATUS(1)	1.553	8.774	.031	1	.860	4.725	.000	138922764.1
	STATUS(2)	11.809	8.683	1.850	1	.174	134483.805	.005	3.312E+12
	STATUS(1) by TTRFlg	-2.605	6.064	.185	1	.668	.074	.000	10723.777
	STATUS(2) by TTRFlg	-8.195	5.917	1.918	1	.166	.000	.000	30.008
	STATUS(1) by TTRM	.096	.079	1.484	1	.223	1.101	.943	1.284
	STATUS(2) by TTRM	.056	.082	.468	1	.494	1.058	.901	1.242
	Constant	-11.601	6.642	3.051	1	.081	.000		

a. Variable(s) entered on step 1: TTRFlg, TTRM, STATUS, STATUS * TTRFlg , STATUS * TTRM .

MODERATING ROLE OF PATERNAL REJECTION FOR GIRLS

Similar to the Moderation Analyses for Boys, moderation analyses for Girls were computed and are given in the following.

The Results for Posttraumatic Stress Disorder (PTS) summarized in (Table 5.1) revealed that 'status' significantly explained only 1.9 % of the variance in Posttraumatic Stress Disorder (PTS). Paternal rejection significantly contributed 3.1 % of the variance explained. The addition of the interaction terms further added 0.5 % to the variance accounted for, bringing the total proportion of explained variance in PTS to 5.5 %. Significant main effect of status (Alcodum, $\beta = .161$; $p = .004$) was found (Table 5.1), indicating that in Posttraumatic Stress Disorder (PTS), adolescent girls having alcohol-abusing sibling and those having normal sibling scored significantly different, regardless of paternal rejection. Research has shown that chronic exposure to stress can result in a number of after effects, including posttraumatic stress (Courtois, 2004). Significant main effects of paternal rejection ($\beta = .177$; $p = .000$) was found, indicating that among girls,

posttraumatic stress disorder (PTS) increases with increase in paternal rejection (Table 5.1). Recent findings suggests that the effects of perceived rejection are found in developmental trauma disorder (DTD; van der Kolk, 2010) and in complex posttraumatic stress disorder (Complex PTSD or simply CPTSD; Courtois, 2004). These are conditions where youths experience repeated trauma—especially interpersonal trauma such as neglect/abandonment/antipathy by primary caregivers—over an extended period of time and developmental periods. Interaction of status with the moderator variable was found to be non-significant.

Table 5.1

Coefficients of regression model for Posttraumatic Stress Disorder on Status and paternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.019	.019*
Constant	5.197			
Alcodum		.161**		
Drugdum		.078		
Step 2			.050	.031**
Constant	6.031			
ZTTRFlg		.177**		
Step 3			.055	.005
Constant	5.997			
Alcodum*ZTTRFlg		-.005		
Drugdum*ZTTRFlg		.088		

Note. ZTTRF = total paternal rejection

*$p < .05$; **$p < .01$

In Major Depression (DEP), results (Table 5.2) revealed that 'status' explained only 1.0 % of the variance. Paternal rejection significantly contributed 2.4 % of the variance explained. The addition of the interaction terms further added 0.7 % to the variance accounted for, bringing the total proportion of explained variance in DEP to 4.1 %.

Significant main effect of paternal rejection (β = .158; *p* = .001) was found, indicating that major depression (DEP) increases with increase in paternal rejection (Table 5.2). Najam and Kausar (2012) found that father's rejection had significant positive relationship with depression. Similar findings have also been reported in a host of other studies (for eg., Fotti, Katz, Afifi & Cox, 2006; Greenberger, Chen, Tally & Dong, 2000; Khaleque and Rohner, 2002; Sentse *et al*, 2009). Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 5.2

Coefficients of regression model for Major Depression on Status and paternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.010	.010
Constant	8.069			
Alcodum		.117*		
Drugdum		.066		
Step 2			.035	.024**
Constant	8.222			
ZTTRFlg		.158**		
Step 3			.041	.007
Constant	8.090			
Alcodum*ZTTRFlg		.102		
Drugdum*ZTTRFlg		.120		

Note. ZTTRF = total paternal rejection
*$p < .05$; **$p < .01$

In Eating Disturbance (EAT), results (Table 5.3) revealed that 'status' did not explain any of the variance. Paternal rejection contributed only 0.1 % of the variance explained. The addition interaction terms further added 0.1 % to the variance accounted for, bringing the total proportion of explained variance in EAT to 0.2 %. Independent effects of 'status' and paternal rejection as well as Interaction effect of 'status' with the moderator variable were all found to be non-significant.

Table 5.3

Coefficients of regression model for Eating Disturbance on Status and paternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.000	.000
Constant	3.931			
Alcodum		.007		
Drugdum		-.015		
Step 2			.002	.001
Constant	3.953			
ZTTRFlg		.035		
Step 3			.002	.001
Constant	3.933			
Alcodum*ZTTRFlg		.040		
Drugdum*ZTTRFlg		.012		

Note. ZTTRF = total paternal rejection. *$p < .05$; **$p < .01$

In Academic Problems (ADP), results (Table 5.4) revealed that 'status' did not explain any of the variance. Paternal rejection contributed only 3.5 % of the variance explained. The addition of the interaction terms further added 1.2 % to the variance accounted for, bringing the total proportion of explained variance in ADPlg to 4.8 %. Significant main effect of paternal rejection was found ($\beta = .189$; $p = .000$), indicating that academic problems (ADPlg) increases with increase in paternal rejection (Table 5.4). Chen, Liu & Li (2000) found that paternal warmth significantly predicted academic achievement. Obayan & Jimoh-Cook (1992) found that children who perceive their fathers as rejecting had low academic achievement. Paternal acceptance has also been found to be related to children's academic competence (Forehand & Nousiainen, 1993; Musitu & García, 2004). Jones (2004) also found positive association between perceived relationship quality with father and academic achievement. Independent effect of 'status' and its interaction with the moderator variable were found to be non-significant.

Table 5.4

Coefficients of regression model for Academic Problems on Status and paternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.000	.000
Constant	.809			
Alcodum		-.018		
Drugdum		-.019		
Step 2			.035	.035**
Constant	.818			
ZTTRFlg		.189**		
Step 3			.048	.012
Constant	.815			
Alcodum*ZTTRFlg		-.025		
Drugdum*ZTTRFlg		.125		

Note. ZTTRF = total paternal rejection

*$p < .05$; **$p < .01$

In Self-Concept (SCP), results (Table 5.5) revealed that 'status' significantly explained 2.2 % of the variance. Paternal rejection significantly contributed 3.3 % of the variance explained. The addition of the interaction terms further added 0.1 % to the variance accounted for, bringing the total proportion of explained variance in SCP to 5.5 %. Significant main effect of 'status' (Alcodum, $\beta = .155$; $p = .005$; Drugdum, $\beta = .139$; $p = .012$) were found (Table 5.5), indicating that in self-concept (high score indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) adolescent girls having alcohol-abusing sibling and those having drug-abusing siblings scored significantly different from those having normal sibling, regardless of paternal rejection. Numerous research findings suggests that siblings of substance abusers reported that their self confidence and self image are badly affected by their siblings, and tended to have low esteem (Barnard, 2005; Dorn *et al*., 1995). Dailey (2010) also argued that quality of relationship among siblings is one of the most important factors for

increasing self esteem among adolescents. Significant main effect of Paternal rejection (β = .184; *p* = .000) was also found, indicating that self-concept (high score indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) increases with increase in paternal rejection (Table 5.5). Paternal rejection is also strongly correlated with negative self concept and impaired self esteem (Barnow, Lucht & Freyberger, 2001; Fuyi & Ningjian, 2008; Rohner & Khaleque, 2005; Interaction effect of status with the moderator variable was found to be non-significant.

Table 5.5

Coefficients of regression model for Self-Concept on Status and paternal rejection for girls (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.022	.022**
Constant	7.110			
Alcodum		.155*		
Drugdum		.139**		
Step 2			.055	.033**
Constant	7.229			
ZTTRFlg		.184**		
Step 3			.055	.001
Constant	7.210			
Alcodum*ZTTRFlg		.011		
Drugdum*ZTTRFlg		.037		

Note. ZTTRF = total paternal rejection

*$p < .05$; **$p < .01$

In Oppositional Defiant Disorder (OPD), results (Table 5.6) revealed that 'status' explained 0.2 % of the variance. Paternal rejection significantly contributed 8.7 % of the variance explained. The addition of the interaction terms further added 0.2 % to the variance accounted for, bringing the total proportion of explained variance in OPD to 9.1 %. Significant main effect of Paternal rejection (β = .298; *p* = .000) was also found, indicating that oppositional defiant disorder increases with increase in paternal rejection

(Table 5.6). Zhe, Li, Yong-mei, Rong, and Shi-jie (2011) explored relationship between parenting styles and antisocial personality disorder. Findings from their study explained that compared with normal adolescents, those with antisocial personality disorders had experienced less care from their parents, and did not encourage their behavioral freedom, most time controlled during their childhood. Research has indicated that high conflict family environments that include low warmth parent-child relations may be specifically associated with Oppositional Defiant Disorder (Katz and Gottman, 1993; Kochanska and Murray, 2000; Patterson, DeBaryshe & Ramsey, 1989). The finding is consistent with literature review that suggests when children are rejected , children worldwide, regardless of their culture, age, or gender tend to report themselves to be hostile, defiant, aggressive, being emotionally unresponsive, and experiencing delinquency (Al- Falaij, 1991) from Bahrain; (Chen, Rubin, & Lee, 1997) from China; (Saxena, 1992) from India; and (Salama, 1990) from Egypt. Independent effect of 'status' and its interaction with the moderator were found to be non-significant.

Table 5.6

Coefficients of regression model for Oppositional Defiant Disorder on Status and paternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.002	.002
Constant	.589			
Alcodum		.054		
Drugdum		.026		
Step 2			.089	.087**
Constant	.608			
ZTTRFlg		.298**		
Step 3			.091	.002
Constant	.603			
Alcodum*ZTTRFlg		.059		
Drugdum*ZTTRFlg		.062		

Note. ZTTRF = total paternal rejection

*$p < .05$; **$p < .01$

In Generalized Anxiety Disorder (GAD), results (Table 5.7) revealed that 'status' significantly explained 1.5 % of the variance. Paternal rejection significantly contributed 2.8 % of the variance explained. The addition of the interaction terms further added 0.3 % to the variance accounted for, bringing the total proportion of explained variance in GAD to 4.6 %. Significant main effect of status (Alcodum, β = .139; p = .012) was found, indicating that in Generalized Anxiety Disorder (GAD) adolescent girls having alcohol abusing sibling and those having normal sibling scored significantly different, regardless of paternal rejection (Table 5.8). Siblings of alcohol abusers are reported to have panic attacks and "nervous breakdowns". They also tended to feel anxious and unable to concentrate on other aspects of their lives (Barnard, 2005; Velleman, Bennett, Miller, Oxford & Tod, 1993). Significant main effect of Paternal rejection (β =. 171; p = .000) was also found, indicating that generalized anxiety disorder increases with increase in paternal rejection (Table 5.8). Adolescent girls who had high parental security feelings had lower anxiety (Naz and Kausar, 2013). Hale III *et al*., (2006) also found that mid adolescence females perceive more parental alienation in relation to their GAD symptom scores. Interaction effect of status with the moderator variable was found to be non-significant.

Table 5.7
Coefficients of regression model for Generalized Anxiety Disorder on Status and paternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.015	.015*
Constant	7.931			
Alcodum		.139**		
Drugdum		.080		
Step 2			.043	.028**
Constant	8.051			
ZTTRFlg		.171**		
Step 3			.046	.003
Constant	7.995			
Alcodum*ZTTRFlg		.045		
Drugdum*ZTTRFlg		.085		

Note. ZTTRF = total paternal rejection. *p < .05; **p < .01

In Suicide (SUI), results (Table 5.8) revealed that 'status' significantly explained 3.3 % of the variance. Paternal rejection significantly contributed 9.3 % of the variance explained. The addition of the interaction terms further added 1.7 % to the variance accounted for, bringing the total proportion of explained variance in SUI to 14.3 %. Significant main effect of 'status' (Alcodum, β = .178; *p* = .001; Drugdum, β = .183; *p* = .001) was found, indicating that in Suicide (suicidal ideation and suicidal behaviors) adolescent girls having alcohol-abusing sibling and those having drug-abusing siblings scored significantly different from those having normal sibling, regardless of paternal rejection. Siblings of substance abusers often report feeling helpless and hopeless, self destructive behavior and sometimes thoughts of wanting to die (Barnard, 2005). Significant main effect of paternal rejection (β = .171; *p* = .000) was also found, indicating that suicide (suicidal ideation and suicidal behaviors) increases with increase in paternal rejection (Table 5.8). Lai and McBride-Chang (2001) stated that lack of parental care and understanding, a non-harmonious family and conflict with parents are all related to suicidal ideation in Hong Kong adolescents.

Interaction effect of status with the moderator variable was also found (Table 5.8) to be significant (DrugdumXZTTRFlg, β = .197; *p* = .005), indicating that adolescent girls having normal sibling and those having drug-abusing siblings scored significantly different in Suicide at different levels of paternal rejection. Analysis of the significance of the simple slopes at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant only at M+1SD (High level, t = 2.91; *p* = 0.004) of the moderator (TTRF). This indicates that at high level of paternal rejection, status was positively correlated with suicide. Adolescent girls having

drug-abusing sibling scored significantly higher on suicide when paternal rejection was high.

Table 5.8

Coefficients of regression model for Suicide on Status and paternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.033	.033**
Constant	1.476			
Alcodum		.178**		
Drugdum		.083**		
Step 2			.126	.093**
Constant	1.606			
ZTTRFlg		.309**		
Step 3			.143	.017*
Constant	1.533			
Alcodum*ZTTRFlg		.085		
Drugdum*ZTTRFlg		.197**		

Note. ZTTRF = total paternal rejection
*$p < .05$; **$p < .01$

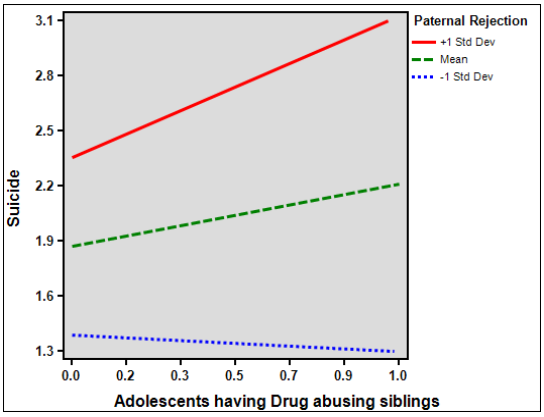


Figure 10: MODERATING ROLE OF PATERAL REJECTION BETWEEN STATUS OF HAVING DRUG ABUSING SIBLING AND SUICIDE

In Anger/Violence Proneness (AVP), results (Table 5.9) revealed that 'status' significantly explained 0.2 % of the variance. Paternal rejection significantly contributed 5.2 % of the variance explained. The interaction terms did not add anything to the variance

accounted for, bringing the total proportion of explained variance in AVPlg to 5.5 %. Significant main effect of Paternal rejection (β = .115; *p* = .000) was found, indicating that anger/violence proneness increases with increase in paternal rejection (Table 5.9). Rothbaum and Weiz (1994) in a meta analysis of forty-seven researches, found robust associations between parental rejection and children's externalizing behavior including aggression. Literature review also suggests when children are rejected, children worldwide, regardless of their culture, age, or gender tend to report themselves to be hostile, defiant, aggressive, being emotionally unresponsive, and experiencing delinquency (Al- Falaij, 1991) from Bahrain; (Chen, Rubin, & Lee, 1997) from China; (Saxena, 1992) from India; and (Salama, 1990) from Egypt. Independent effect of 'status' and its interaction with the moderator variable was found to be non-significant.

Table 5.9

Coefficients of regression model for Anger/Violence Proneness on Status and paternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.002	.002
Constant	.591			
Alcodum		.037		
Drugdum		.051		
Step 2			.054	.052**
Constant	.605			
ZTTRFlg		.231**		
Step 3			.055	.000
Constant	.607			
Alcodum*ZTTRFlg		-.010		
Drugdum*ZTTRFlg		-.022		

Note. ZTTRF = total paternal rejection

*$p < .05$; **$p < .01$

In Interpersonal Problems (IPP), results (Table 5.10) revealed that 'status' significantly explained 0.7 % of the variance. Paternal rejection significantly contributed 5.9 % of the variance explained. The addition of the interaction terms further added 0.1 % to the variance accounted for, bringing the total proportion of explained variance in IPPlg to 6.7 %. Significant main effect of Paternal rejection (β = .245; p = .000) was found, indicating that interpersonal problems increases with increase in paternal rejection (Table 5.10). Rohner *et al.,* (2007) citing Shedler and Block (1990), argued that parental rejection is associated with poor interpersonal communication with peers. Independent effect of 'status' and its interaction with the moderator variable were found to be non-significant.

Table 5.10

Coefficients of regression model for Interpersonal Problems on Status and paternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.007	.007
Constant	.726			
Alcodum		.094		
Drugdum		.068		
Step 2			.066	.059**
Constant	.741			
ZTTRFlg		.245**		
Step 3			.067	.001
Constant	.745			
Alcodum*ZTTRFlg		-.044		
Drugdum*ZTTRFlg		-.044		

Note. ZTTRF = total paternal rejection

*p < .05; **p < .01

MODERATING ROLE OF MATERNAL REJECTION FOR GIRLS:

In Posttraumatic Stress Disorder (PTS), results (Table 5.11) revealed that 'status' significantly explained 1.9 % of the variance. Maternal rejection significantly contributed

2.1 % of the variance explained. The addition of the interaction terms further added 0.1 % to the variance accounted for, bringing the total proportion of explained variance in PTS to 4.1 %. Significant main effect of status (Alcodum, β = .161; *p* = .004) was found, indicating that in Posttraumatic Stress Disorder (PTS), adolescent girls having alcohol-abusing sibling and those having normal sibling scored significantly different, regardless of maternal rejection. Research has shown that chronic exposure to stress, such as a sibling's substance abuse, can result in a number of after effects, including posttraumatic stress (Courtois, 2004). Significant main effect of maternal rejection (β = .145; *p* = .002) was found, indicating that posttraumatic stress disorder increases with increase in maternal rejection (Table 5.11). Recent studies find that effects of perceived rejection are found in developmental trauma disorder (DTD; van der Kolk, 2010) and in complex posttraumatic stress disorder (Complex PTSD or simply CPTSD; Courtois, 2004). These are conditions where youths experience repeated trauma—especially interpersonal trauma such as neglect/abandonment/antipathy by primary caregivers—over an extended period of time and developmental periods. Interaction effect of 'status' with the moderator variable was found to be non-significant.

Table 5.11

Coefficients of regression model for Posttraumatic Stress Disorder on Status and maternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.019	.019*
Constant	5.917			
Alcodum		.161**		
Drugdum		.078		
Step 2			.040	.021**
Constant	5.994			
ZTTRMlg		.145**		
Step 3			.041	.001
Constant	5.986			
Alcodum*ZTTRMlg		.034		
Drugdum*ZTTRMlg		-.008		

Note. ZTTRM = total maternal rejection. *$p < .05$; **$p < .01$

In Major Depression (DEP), results (Table 5.12) revealed that 'status' explained 1.0 % of the variance. Maternal rejection significantly contributed 3.1 % of the variance explained. The addition of the interaction terms further added 1.1 % to the variance accounted for, bringing the total proportion of explained variance in DEP to 5.2 %. Significant main effect of 'status' (Alcodum, β = .117; *p* = .035) was found, indicating that in Major Depression(DEP), adolescent girls having alcohol-abusing sibling and those having normal sibling scored significantly different, regardless of maternal rejection. Feelings of hopelessness, helplessness and depression are often reported by siblings of alcohol abusers (Barnard, 2005; Velleman *et al*., 1993). Significant main effect of Maternal rejection (β = .178; *p* = .000) was found, indicating that major depression (DEP) increases with increase in maternal rejection (Table 5.12). Numerous studies found positive associations between maternal rejection and depression (Gulay, 2011; Khaleque & Rohner, 2002; Majeed, 2009; Salahur, 2010; Sentse *et al*., 2009). Interaction of 'status' with the moderating variable was found to be non-significant.

Table 5.12

Coefficients of regression model for Major Depression on Status and maternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.010	.010
Constant	8.069			
Alcodum		.117*		
Drugdum		.066		
Step 2			.042	.031**
Constant	8.212			
ZTTRMlg		.178**		
Step 3			.052	.011
Constant	8.124			
Alcodum*ZTTRMlg		.147		
Drugdum*ZTTRMlg		.030		

Note. ZTTRM = total maternal rejection

*$p < .05$; **$p < .01$

In Eating Disturbance (EAT), results (Table 5.13) revealed that 'status' did not explain any of the variance. Maternal rejection also did not contribute anything to the variance explained. The addition of the interaction terms added 0.2 % to the variance accounted for, bringing the total proportion of explained variance in EAT to 0.2 %. Independent effects of 'status' and maternal rejection, as well as interaction of 'status' with the moderating variable were all found to be non-significant.

Table 5.13

Coefficients of regression model for Eating Disturbance on Status and maternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.000	.000
Constant	3.931			
Alcodum		.007		
Drugdum		-.015		
Step 2			.000	.000
Constant	3.928			
ZTTRMlg		-.007		
Step 3			.002	.002
Constant	3.898			
Alcodum*ZTTRMlg		.068		
Drugdum*ZTTRMlg		.025		

Note. ZTTRM = total maternal rejection

*$p < .05$; **$p < .01$

In Academic Problems (ADP), results (Table 5.14) revealed that 'status' did not explain any of the variance. Maternal rejection significantly contributed 2.5 % of the variance explained. The addition of the interaction terms further added 0.1 % to the variance accounted for, bringing the total proportion of explained variance in ADPlg to 2.7 %. Significant main effect of Maternal rejection (β = .160; p = .001) was also found, indicating that academic problems (ADPlg) increases with increase in maternal rejection (Table 5.14). Research generally supports the effects of maternal involvement in academic

achievement. Mize and Pettit (1997) found that maternal warmth predicted better adjustment, especially in academic performance. A study by Zellman and Waterman (1998) confirmed that parent-school involvement in children's education is associated with positive educational outcomes. Parental involvement in children's education appeared to be associated with a range of positive outcomes, including fewer behaviour problems, lower drop-out rates, and higher student achievement (Comer, 1984; Muller, 1993; Stevenson and Baker, 1987). Independent effect of 'status' and its interaction with the moderator variable were found to be non-significant.

Table 5.14

Coefficients of regression model for Academic Problems on Status and maternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.000	.000
Constant	.809			
Alcodum		-.018		
Drugdum		-.019		
Step 2			.026	.025**
Constant	.815			
ZTTRMlg		.160**		
Step 3			.027	.001
Constant	.817			
Alcodum*ZTTRMlg		-.056		
Drugdum*ZTTRMlg		-.033		

Note. ZTTRM = total maternal rejection

*p < .05; **p < .01

In Self-Concept (SCP), results (Table 5.15) revealed that 'status' significantly explained 2.2 % of the variance. Maternal rejection significantly contributed 2.5 % of the variance explained. The addition of the interaction terms further added 0.1 % to the variance accounted for, bringing the total proportion of explained variance in SCP to 4.9 %. Significant main effect of status (Alcodum, β = .155; p = .005; Drugdum, β = .139; p =

.012) was found, indicating that in self-concept (high score indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction), adolescent girls having alcohol-abusing siblings and those having drug-abusing sibling scored significantly differently from those having normal siblings, regardless of maternal rejection. Siblings of substance abusers often report feelings of shame, poor self confidence and self image and low self esteem (Barnard, 2005; Dorn *et al*., 1994). Significant main effect of Maternal rejection (β = .160; p = .001) was found, indicating that self-concept (high score indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) increases with increase in maternal rejection (Table 5.15). Schrodt, Ledbetter & Ohrt (2007) suggested that mothers who seem unconditionally affectionate towards their children cause a reduction of stress and increase of self esteem within their children. Earlier research (Patterson and Capaldi, 1989; Maccoby and Martin, 1983) also suggested that maternal warmth and responsiveness are foundations on which children develop positive views of themselves and their competence. Interaction effect of 'status' with the moderator variable was found to be non-significant.

Table 5.15

Coefficients of regression model for Self Concept on Status and maternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.022	.022**
Constant	7.110			
Alcodum		.155**		
Drugdum		.139**		
Step 2			.047	.025**
Constant	7.196			
ZTTRMlg		.160**		
Step 3			.049	.001
Constant	7.197			
Alcodum*ZTTRMlg		.025		
Drugdum*ZTTRMlg		-.028		

Note. ZTTRM = total maternal rejection. *p < .05; **p < .01

In Oppositional Defiant Disorder (OPD), results (Table 5.16) revealed that 'status' explained 0.2 % of the variance. Maternal rejection significantly contributed 6.5 % of the variance explained. The addition of the interaction terms further added 0.2 % to the variance accounted for, bringing the total proportion of explained variance in OPDlg to 6.9 %. Significant main effect of Maternal rejection (β = .257; *p* = .000) was found, indicating that Oppositional Defiant Disorder increases with increase in maternal rejection (Table 5.16). Research reveals that adolescents are at risk of engaging in various behavioral problems when they are exposed to maternal rejection (Barnow *et al*., 2005; Ge *et al*., 1996; Hughey & Weisz, 1997; Putnick *et al*., 2014; Richter, Krecklow & Eisemann, 2002).Independent effect of 'status' and its interaction with the moderating variable were found to be non-significant.

Table 5.16

Coefficients of regression model for Oppositional Defiant Disorder on Status and maternal rejection for girls (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.002	.002
Constant	.589			
Alcodum		.054		
Drugdum		.026		
Step 2			.067	.065**
Constant	.602			
ZTTRMlg		.257**		
Step 3			.069	.002
Constant	.605			
Alcodum*ZTTRMlg		-.027		
Drugdum*ZTTRMlg		-.067		

Note. ZTTRM = total maternal rejection. *$p < .05$; **$p < .01$

In Generalized Anxiety Disorder (GAD), results (Table 5.17) revealed that 'status' significantly explained 1.5 % of the variance. Maternal rejection significantly contributed 1.9 % of the variance explained. The addition of the interaction terms further added 0.1 %

to the variance accounted for, bringing the total proportion of explained variance in GAD to 3.5 %. Significant main effect of status (Alcodum, β = .139; *p* = .012) was found, indicating that in Generalized Anxiety Disorder (GAD), adolescent girls having alcohol-abusing sibling and those having normal sibling scored significantly different, regardless of maternal rejection. Siblings of alcohol abusers tended to report feelings of anxiety, panic attacks and nervous breakdown (Barnard, 2005). Significant main effect of Maternal rejection (β = .140; *p* = .004) was found, indicating that Generalized Anxiety Disorder increases with increase in maternal rejection (Table 5.17). Maternal lack of warmth is implicated in the development of anxiety as it is suggested that it may lead the child to have negative world view (Rohner & Khaleque, 2007; Bogels & Brechman-Toussaint, 2006). Interaction of 'status' with the moderator variable was found to be non-significant.

Table 5.17

Coefficients of regression model for Generalized Anxiety Disorder on Status and maternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.015	.015*
Constant	7.931			
Alcodum		.139**		
Drugdum		.080		
Step 2			.034	.019**
Constant	8.013			
ZTTRMlg		.140**		
Step 3			.035	.001
Constant	8.004			
Alcodum*ZTTRMlg		.035		
Drugdum*ZTTRMlg		-.011		

Note. ZTTRM = total maternal rejection.

*$p < .05$; **$p < .01$

In Suicide (SUI), results (Table 5.18) revealed that 'status' significantly explained 3.3 % of the variance. Maternal rejection significantly contributed 4.8 % of the variance

explained. The addition of the interaction terms further added 0.1 % to the variance accounted for, bringing the total proportion of explained variance in SUI to 8.1 %. Significant main effect of 'status' (Alcodum, β = .178; *p* = .001; Drugdum, β = .183; *p* = .001) was found, indicating that in Suicide (suicidal ideation and suicidal behaviors), adolescent girls having alcohol-abusing sibling and those having drug-abusing sibling scored significantly differently from those having normal siblings, regardless of maternal rejection. Siblings of substance abuser often report feelings of hopelessness, helplessness and thoughts of wanting to die (Barnard, 2005) Significant main effect of Maternal rejection (β = .220; *p* = .000) was found, indicating that suicide (suicidal ideation and suicidal behaviors) increases with increase in maternal rejection (Table 5.18). Perceived maternal rejection was found to be associated with suicidal ideation (e.g., Martin & Waite, 1994; Peck, 1983; de Man, Labreche & Leduc, 1993 1987–1988; Lamborn, Mounts, Steinberg & Dornbusch, 1991). Interaction of 'status' with the moderator variable was found to be non-significant.

Table 5.18

Coefficients of regression model for Suicide on Status and maternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.033	.033**
Constant	1.476			
Alcodum		.178**		
Drugdum		.183**		
Step 2			.080	.048**
Constant	1.552			
ZTTRMlg		.220**		
Step 3			.081	.001
Constant	1.540			
Alcodum*ZTTRMlg		.011		
Drugdum*ZTTRMlg		.048		

Note. ZTTRM = total maternal rejection. *$p < .05$; **$p < .01$

In Anger/Violence Proneness (AVP), results (Table 5.19) revealed that 'status' explained 0.2 % of the variance. Maternal rejection significantly contributed 4.4 % of the variance explained. The interaction terms did not add anything to the variance accounted for, bringing the total proportion of explained variance in AVPlg to 4.6 %. Significant main effect of Maternal rejection (β = .211; p = .000) was found, indicating that Anger/Violence Proneness (AVP) increases with increase in maternal rejection (Table 5.19). Rothbaum and Weiz (1994) in a meta analysis of forty-seven researches, found robust associations between parental rejection and children's externalizing behavior including aggression. Literature review also suggests that when children are rejected, children worldwide, regardless of their culture, age, or gender tend to report themselves to be hostile, defiant, aggressive, being emotionally unresponsive, and experiencing delinquency (Al- Falaij, 1991) from Bahrain; (Chen, Rubin, & Lee, 1997) from China; (Saxena, 1992) from India; and (Salama, 1990) from Egypt. Independent effect of 'status' and its interaction with the moderator variable were found to be non-significant.

Table 5.19

Coefficients of regression model for Anger/Violence Proneness on Status and maternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.002	.002
Constant	.591			
Alcodum		.037		
Drugdum		.051		
Step 2			.046	.044**
Constant	.602			
ZTTRMlg		.211**		
Step 3			.046	.000
Constant	.602			
Alcodum*ZTTRMlg		-.001		
Drugdum*ZTTRMlg		-.015		

Note. ZTTRM = total maternal rejection

*p < .05; **p < .01

In Interpersonal Problems (IPP), results (Table 5.20) revealed that 'status' explained 0.7 % of the variance. Maternal rejection significantly contributed 4.4 % of the variance explained. The addition of the interaction terms further added 0.4 % to the variance accounted for, bringing the total proportion of explained variance in IPPlg to 5.6 %. Significant main effect of Maternal rejection (β = .212; *p* = .000) was found, indicating that Interpersonal Problems (IPP) increases with increase in maternal rejection (Table 5.20). Perceived Maternal rejection was found to have a positive relationship with interpersonal problems in patients with conversion disorder (Tariq and Kauasr, 2015). Rohner's theory also postulated that rejected children tended to have interpersonal problems because they also tended to have negative world views (Rohner, 1986). Independent effect of 'status' and its interaction with the moderator variable were found to be non-significant.

Table 5.20

Coefficients of regression model for Interpersonal Problems on Status and maternal rejection for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.007	.007
Constant	.726			
Alcodum		.094		
Drugdum		.068		
Step 2			.051	.044**
Constant	.737			
ZTTRMlg		.212**		
Step 3			.056	.004
Constant	.742			
Alcodum*ZTTRMlg		-.059		
Drugdum*ZTTRMlg		-.109		

Note. ZTTRM = total maternal rejection

*$p < .05$; **$p < .01$

A logistic regression analysis was performed with Conduct Disorder (CND) as the dependent variable and paternal rejection (TTRF), maternal rejection (TTRM) and 'status' as predictor variables. A total of 435 cases were analyzed and the full model (Table 5.21.a) is a significant fit of the data (omnibus chi-square = 16.868, df = 8, p = .032). The model accounted for between 3.8 % and 28.1 % of the variance (Table 5.21.b), with 100 % of the siblings who do not have conduct disorder successfully predicted. However, only 0 % of predictions for the siblings who have conduct disorder were accurate. Overall, 98.6 % of predictions were accurate (Table 5.21.c). Table 5.21.d gives the coefficients, the Wald statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that none of the variables significantly predicted conduct disorder. Paternal rejection, maternal rejection and the status of having an alcohol-abusing sibling or drug-abusing sibling or a normal sibling did not significantly predict whether or not adolescent boys will have conduct disorder.

Table 5.21.a: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	16.868	8	.032
	Block	16.868	8	.032
	Model	16.868	8	.032

Table 5.21.b: Model Summary of Conduct Disorder on Status and Paternal and Maternal Rejection

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	46.452[a]	.038	.281

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 5.21.c: Classification Table[a]

			Predicted		
			CNDDUM		
Observed			.00	1.00	Percentage Correct
Step 1	CNDDUM	.00	429	0	100.0
		1.00	6	0	0.0
	Overall Percentage				98.6

Table 5.21.d:Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	TTRFlg	.000	49299.023	.000	1	1.000	1.000	0.000	
	TTRM	.000	615.762	.000	1	1.000	1.000	0.000	
	STATUS(1)	15.932	65332.836	.000	1	1.000	8304489.698	0.000	
	STATUS(2)	1.484	65332.834	.000	1	1.000	4.411	0.000	
	STATUS(1) by TTRFlg	-.775	49299.024	.000	1	1.000	.461	0.000	
	STATUS(2) by TTRFlg	8.511	49299.023	.000	1	1.000	4970.226	0.000	
	STATUS(1) by TTRM	.040	615.762	.000	1	1.000	1.041	0.000	
	STATUS(2) by TTRM	.058	615.762	.000	1	1.000	1.060	0.000	
	Constant	-21.203	65332.834	.000	1	1.000	.000		

a. Variable(s) entered on step 1: TTRFlg, TTRM, STATUS, STATUS * TTRFlg , STATUS * TTRM .

Results of regression analysis performed with Substance Abuse Disorder (SUB) as the dependent variable and Paternal rejection (TTRF), Maternal rejection (TTRM) and 'status' as predictor variables revealed that a total of 435 cases were analyzed and the full model (Table 5.22.a) is a significant fit of the data (omnibus chi-square = 12.757, df = 8, *p* = .121). The model accounted for between 2.9 % and 17.2 % of the variance (Table 5.22.b), with 100 % of the siblings who do not have substance abuse disorder successfully predicted. However, only 0 % of predictions for the siblings who have substance abuse disorder were accurate. Overall, 98.2 % of predictions were accurate (Table 5.22.c). Table 5.22.d gives the coefficients, the Wald statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that none of the variables significantly predicted substance abuse disorder. Paternal rejection, maternal rejection and the 'status' of having an alcohol-abusing sibling or drug-abusing sibling or a normal sibling did not significantly predict whether or not adolescent boys will have substance abuse disorder.

Table 5.22.a: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	12.757	8	.121
	Block	12.757	8	.121
	Model	12.757	8	.121

Table 5.22.b: Model Summary of Substance Abuse Disorder on Status and Paternal and Maternal Rejection

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	67.030[a]	.029	.172

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 5.22.c: Classification Table[a]

			Predicted		
			SUBDUM		
Observed			.00	1.00	Percentage Correct
Step 1	SUBDUM	.00	427	0	100.0
		1.00	8	0	0.0
	Overall Percentage				98.2

a. The cut value is .500

Table 5.22.d: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	TTRFlg	.000	49299.832	.000	1	1.000	1.000	0.000	
	TTRM	.000	615.757	.000	1	1.000	1.000	0.000	
	STATUS(1)	12.700	65334.396	.000	1	1.000	327855.395	0.000	
	STATUS(2)	28.769	65334.395	.000	1	1.000	3.119E+12	0.000	
	STATUS(1) by TTRFlg	.477	49299.833	.000	1	1.000	1.611	0.000	
	STATUS(2) by TTRFlg	-8.475	49299.832	.000	1	1.000	.000	0.000	
	STATUS(1) by TTRM	.085	615.757	.000	1	1.000	1.089	0.000	
	STATUS(2) by TTRM	.069	615.757	.000	1	1.000	1.071	0.000	
	Constant	-21.203	65334.394	.000	1	1.000	.000		

a. Variable(s) entered on step 1: TTRFlg, TTRM, STATUS, STATUS * TTRFlg , STATUS * TTRM .

MODERATING ROLE OF COPING STYLES IN THE RELATIONSHIP BETWEEN SIBLINGS' SUBSTANCE ABUSE AND PSYCHOPATHOLOGY

MODERATING ROLE OF COPING STYLES FOR BOYS:

To determine the moderating role of coping styles - Task-Oriented Coping (TOC), Emotion-Oriented Coping (EOC), and Avoidance-Oriented Coping (AOC) - in the relationship between status of having substance-abusing siblings (alcohol, drugs and normal control) and psychopathology, moderation analyses using hierarchical regression models were also tested as in the previous section. In Block 1, the main dummy coded variables for 'status' (Alcodum and Drugdum with 'normal' as the reference group) were entered. The potential moderators, centered scores of task-oriented coping (ZTOC), emotion-oriented coping (ZEOC), and avoidance-oriented coping (ZAOC) were entered in Block 2. The interaction terms between the predictors (Alcodum and Drugdum) and moderators (ZTOC, ZEOC, ZAOC) were created and entered in Block 3. The results are summarized in Table 6.1 to Table 6.24.d.

In Posttraumatic Stress Disorder (PTS), results (Table 6.1) revealed that 'status' explained only 0.6 % of the variance. Coping significantly contributed 24.2 % of the variance explained. The addition of the interaction terms further added 1.9 % to the variance accounted for, bringing the total proportion of explained variance in PTS to 26.7 %. Significant main effect of Task-Oriented Coping (TOC) was found (β = -.130; p = .003), the negative beta (β) indicating that posttraumatic stress disorder decreases with increase in task-oriented coping (Table 6.1). Other studies have also reported more task-oriented coping or problem focused coping fostering adaptive functioning (Dirkzwager, Bramsen, & van der Ploeg, 2003). Results of studies on posttraumatic stress disorder after such traumatic events as floods or other disasters revealed that persons with task-oriented

coping usually reveal less intense symptoms (Strelau, Zawadzki, Oniszczenkow, Sobolewski & Pawlowski, 2004). Significant main effect of Emotion-Oriented Coping (EOC) was also found (β = .473; *p* = .000), indicating that posttraumatic stress disorder increases with increase in emotion-oriented coping (Table 6.1). Strelau *et al.*, (2004) also reported that persons emotions-oriented coping reveal much intense symptoms of PTSD. Similar results were found by Gil (2005), who reported that greater emotion-focused coping of pre-terrorist attack predicted subsequent diagnosis of PTSD a month later.

Interaction effect of 'status' (DRUGDUM) with the moderator variable (Avoidance-oriented coping) was also found to be significant (DRUGDUMXZAOC, β = -.160; *p* = .017), indicating that adolescent boys having drug-abusing sibling and those having normal sibling scored significantly different in posttraumatic stress disorder depending on different levels of avoidance-oriented coping (Table 6.1). Analysis of the significance of the simple slopes (Figure-11) at three levels of Task-Oriented Coping (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant only at M-1SD level, that is, low level (*t* = 3.091; *p* = 0.002) of the moderator (AOC). This indicates that at low level of avoidance-oriented coping, status was positively correlated with Posttraumatic Stress Disorder. Adolescents having drug-abusing sibling scored significantly higher than those having normal sibling on posttraumatic stress disorder at low level of avoidance-oriented coping.

Table 6.1

Coefficients of regression model for Posttraumatic Stress Disorder on Status and Coping Styles for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.006	.006
Constant	5.841			
Alcodum		.003		
Drugdum		.079		

Step 2			.248	.242**
Constant	5.942			
ZTOC		-.130**		
ZEOC		.473**		
ZAOC		.061		
Step 3			.267	.019
Constant	5.933			
Alcodum*ZTOC		-.034		
Drugdum*ZTOC		-.085		
Alcodum*ZEOC		.016		
Drugdum*ZEOC		.100		
Alcodum*ZAOC		-.005		
Drugdum*ZAOC		-.160*		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping

*p < .05; **p < .01

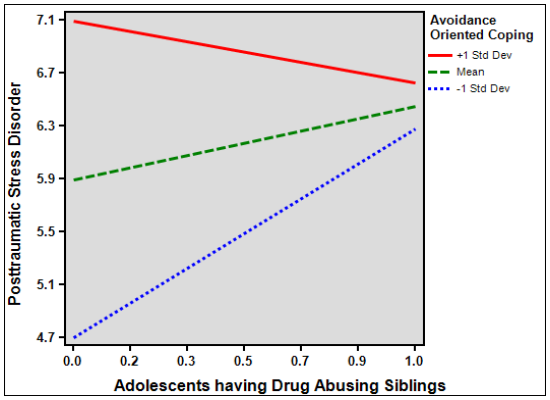


Figure 11: MODERATING ROLE OF AVOIDANCE-ORIENTED COPING BETWEEN THE STATUS OF HAVING DRUG-ABUSING SIBLING AND POSTTRAUMATIC STRESS DISORDER

In Major Depression (DEP), results (6.2) revealed that 'status' explained only 1.6 % of the variance in Major Depression (DEP). Coping significantly contributed 21.2 % of the variance explained. The addition of the interaction terms further added 1.6 % to the variance accounted for, bringing the total proportion of explained variance in PTS to 24.2 %. Significant main effect of Task-oriented coping (TOC) was found (β = -.152; p = .001), indicating that major depression decreases with increase in task-oriented coping (Table

6.2), which finds support from literature where task-oriented coping was also found to be associated with less depression (McWilliams, Cox and Enns, 2003). Significant main effect of Emotion-Oriented Coping (EOC) was also found (β = .449; *p* = .000), indicating that major depression increases with increase in emotion-oriented coping (Table 6.2). McWilliams *et al*., (2003) found that emotional-oriented coping was associated with depression. Endler & Parker (2011) also found that college students scoring high on depressive symptoms were found to use more emotion-oriented coping than those who scored low. Interactions of 'status' with the moderator variables were found to be non-significant.

Table 6.2

Coefficients of regression model for Major Depression on Status and Coping Styles for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.016	.016*
Constant	7.124			
Alcodum		-.060		
Drugdum		.084		
Step 2			.227	.212**
Constant	7.264			
ZTOC		-.152**		
ZEOC		.449**		
ZAOC		.036		
Step 3			.244	.016
Constant	7.250			
Alcodum*ZTOC		-.011		
Drugdum*ZTOC		-.097		
Alcodum*ZEOC		.016		
Drugdum*ZEOC		.130		
Alcodum*ZAOC		-.037		
Drugdum*ZAOC		-.129		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping

*$p < .05$; **$p < .01$

In Eating Disturbance (EAT), results (Table 6.3) revealed that ‘status’ significantly explained 5.8 % of the variance. Coping significantly contributed 5.8 % of the variance explained. The addition of the interaction terms further added 3.7 % to the variance accounted for, bringing the total proportion of explained variance in EAT to 15.2 %. Significant main effect of status (Drugdum, β = .230; *p* = .000) was found (Table 6.3), indicating that in eating disturbance (EAT) adolescent boys having drug-abusing sibling (*M* = 2.86) scored significantly higher than those having normal sibling (*M* = 2.11). Siblings of drug abusers have been known to manifest symptoms of anorexia, bingeing and purging (Barnard, 2005; Velleman, Bennett, Miller, Oxford, &Tod, 1993). Significant main effect of Emotion-Oriented Coping (EOC) was also found (β = .204; *p* = .000), indicating that eating disturbance increases with increase in emotion-oriented coping (Table 6.3). In a rare study of eating disorders in boys, coping non-adaptively with the emotions that the problem generates was linked with predisposition to eating disorder (Garcia-Grau, Fuste, Miro, Saldan & Bados (2004).

Interaction effect of 'status'(DRUGDUM) with the moderator variable (TOC) was found to be significant (DrugdumXZTOC, β = -.144; *p* = .031), indicating that adolescent boys having normal sibling and adolescent boys having drug-abusing sibling scored significantly different in eating disturbance depending on different levels of task-oriented coping (Table 6.3). Analysis of the significance of the simple slopes (Figure -12.a) at three levels of Avoidance-Oriented Coping (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant at all three levels, that is, M+1SD (t = 2.282; *p* = 0.022), Average (t = 4.673; *p* = 0.000) and M-1SD level (t = 4.398; *p*= .000) of the moderator (TOC). This indicates that at high, average and low levels of task-oriented coping, 'status' was positively correlated with eating

disturbance. Adolescent boys having drug-abusing sibling scored significantly higher on Eating Disturbance at any level (high, average or low levels) of task-oriented coping.

Interaction effect of 'status' (DRUGDUM) with the moderator variable (EOC) was also found to be significant (DrugdumXZEOC, β = .239; *p* = .001), indicating that adolescent boys having normal sibling and adolescent boys having drug-abusing sibling scored significantly different in eating disturbance depending on different levels of emotion-oriented coping (Table 6.3). Analysis of the significance of the simple slopes (Figure-12.b) at three levels of Emotion-Oriented Coping (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant at all three levels, that is, M+1SD (t = 4.273; *p* = 0.000), Average (t = 4.405; *p* = 0.000) and M-1SD level (t = 2.064; *p* = .039) of the moderator (EOC). This indicates that at high, average and low levels of emotion-oriented coping, 'status' was positively correlated with eating disturbance. Adolescent boys having drug-abusing sibling scored significantly higher on Eating Disturbance at any level (high, average or low levels) of emotion-oriented coping.

Table 6.3

Coefficients of regression model for Eating Disturbance on Status and Coping Styles for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.058	.058**
Constant	2.110			
Alcodum		-.020		
Drugdum		.230**		
Step 2			.116	.058**
Constant	2.144			
ZTOC		-.043		
ZEOC		.204**		
ZAOC		.078		

Step 3			.152	.037**
Constant	2.118			
Alcodum*ZTOC		-.058		
Drugdum*ZTOC		-.144*		
Alcodum*ZEOC		.038		
Drugdum*ZEOC		.239**		
Alcodum*ZAOC		.040		
Drugdum*ZAOC		-.109		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping

*$p < .05$; **$p < .01$

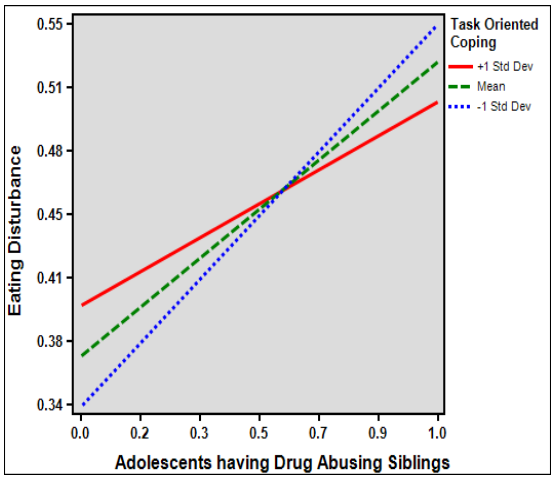


Figure 12.a: MODERATING ROLE OF TASK-ORIENTED COPING BETWEEN STATUS OF HAVING DRUG-ABUSING SIBLING AND EATING DISTURBANCE

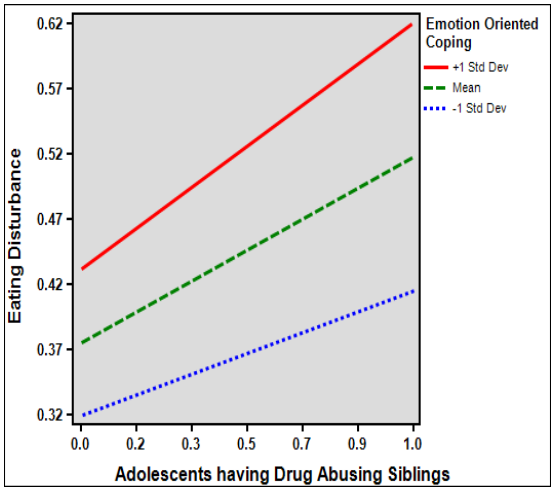


Figure 12.b: MODERATING ROLE OF EMOTION-ORIENTED COPING BETWEEN STATUS OF HAVING DRUG-ABUSING SIBLING AND EATING DISTURBANCE

In academic problems (ADP), results (Table 6.4) revealed that 'status' explained only 1.2 % of the variance. Coping significantly contributed 15.6 % of the variance

explained. The addition of the interaction terms further added 1.6 % to the variance accounted for, bringing the total proportion of explained variance in ADPlg to 18.3 %. Significant main effect of task-oriented coping was found (β = - .095; p = .048), the negative beta (β) indicating that academic problems decreases with increase in task-oriented coping (Table 6.4). Task-oriented coping has been consistently linked with better adjustment including academic achievement (Lazarus and Folkman, 1984; Causey & Dubow, 1993; Compas, Malcarne & Fondacaro, 1988; Gustems-Carnicer and Calderon, 2013). Significant main effect of emotion-oriented coping was found (β = .338; p = .000), indicating that academic problems increases with increase in emotion-oriented coping (Table 6.4). Emotion-oriented coping was found to be negatively correlated with academic achievement (MacCann, Fogerty & Roberts, 2011). Significant main effect of avoidance-oriented coping was found (β = .242; p = .000), indicating that academic problems increases with increase in avoidance-oriented coping (Table 6.4). Students using avoidance-oriented coping tend to adopt a surface approach to studying resulting in more negative outcomes (Appelhans & Schmeck, 2002; Moneta, Spada & Rost, 2007). Escape – avoidance was also found to show negative relationship with academic performance (Halamandaris & Power, 1999).

Interaction effect of 'status' (DRUGDUM) with the moderator variable (EOC) was found to be significant (DrugdumXZEOC, β = .154; p = .032), indicating that adolescent boys having normal sibling and adolescent boys having drug-abusing sibling scored significantly different in eating disturbance depending on different levels of emotion-oriented coping (Table 6.4). Analysis of the significance of the simple slopes (Figure-13) at three levels of Emotion-Oriented Coping (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant only at the M-

1SD, that is, low level (t = -2.612; p = 0.009), of the moderator (EOC). This indicates that at low level of emotion-oriented coping, status was negatively correlated with academic problems. Adolescent boys having drug-abusing sibling scored significantly lower on academic problems when emotion-oriented coping level is low.

Table 6.4

Coefficients of regression model for Academic Problems on Status and Coping Styles for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.012	.012
Constant	.839			
Alcodum		.108*		
Drugdum		.001		
Step 2			.167	.156**
Constant	.844			
ZTOC		-.174**		
ZEOC		.310**		
ZAOC		.147**		
Step 3			.183	.016
Constant	.842			
Alcodum*ZTOC		-.044		
Drugdum*ZTOC		-.102		
Alcodum*ZEOC		.006		
Drugdum*ZEOC		.154*		
Alcodum*ZAOC		.018		
Drugdum*ZAOC		-.012		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping

*p < .05; **p < .01

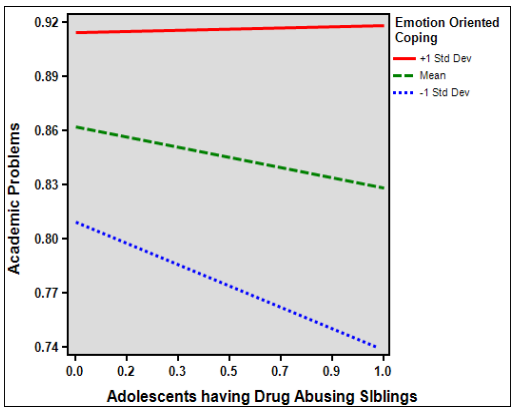


Figure 13: MODERATING ROLE OF EMOTION-ORIENTED COPING BETWEEN STATUS OF HAVING DRUG-ABUSING SIBLINGS AND ACADEMIC PROBLEMS

In self-concept (SCP), results (Table 6.5) revealed that 'status' explained only 1.3 % of the variance. Coping significantly contributed 13.6 % of the variance explained. The addition of the interaction terms further added 1.2 % to the variance accounted for, bringing the total proportion of explained variance to 16.2 %. Significant main effect of task-oriented coping was found (β = - .213; p = .000), indicating that self-concept (feelings of worthlessness and self-denigration, poor physical and social self-concept, and negative evaluation of self by others) decreases with increase in task-oriented coping. Task-oriented coping is associated with self-efficacy, positive self esteem and competence in multiple domains (Causey & Dubow, 1992; Lewin-sohn, Rohde, & Seeley, 1994; Wills & Hirky, 1996). Significant main effect of emotion-oriented coping was found (β = .357; p = .000), indicating that self concept (feelings of worthlessness and self-denigration, poor physical and social self-concept, and negative evaluation of self by others) increases with increase in emotion-oriented coping (Table 6.5). Emotion-oriented coping was associated with poorer self esteem, which is a component of self concept (McMahon *et. al*., 2013). Independent effect of 'status' and its interaction with the moderator variable were found to be non-significant.

Table 6.5

Coefficients of regression model for Academic Problems on Status and Coping Styles for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.013	.013
Constant	7.048			
Alcodum		-.097		
Drugdum		.029		
Step 2			.149	.136**
Constant	7.121			
ZTOC		-.213**		
ZEOC		.357**		
ZAOC		-.059		

Step 3			.162	.012
Constant	7.139			
Alcodum*ZTOC		.043		
Drugdum*ZTOC		.012		
Alcodum*ZEOC		.055		
Drugdum*ZEOC		-.019		
Alcodum*ZAOC		-.126		
Drugdum*ZAOC		-.122		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping

*$p < .05$; **$p < .01$

In oppositional defiant disorder (OPD), results (Table 6.6) revealed that 'status' explained 1.3 % of the variance. Coping significantly contributed 16.1 % of the variance. The addition of the interaction terms added 1.2 % to the variance accounted for, bringing the total proportion of explained variance in OPDlg to 18.6 %. Significant main effect of Task-Oriented Coping (TOC) was found (β = -.150; p = .001), indicating that oppositional defiant disorder decreases with increase in task-oriented coping (Table 6.6). Both cross-sectional and longitudinal studies with children, adolescents, and adults found that active problem-focused coping strategies were related to lower behavioural problems (Ayers, Sandler, West & Roosa, 1996; Compass, Malcarne, & Fondacaro, 1988; Ebata & Moos, 1991). Significant main effect of Emotion-Oriented Coping (EOC) was found (β = .273; p = 0), indicating that oppositional defiant disorder increases with increase in emotion-oriented coping (Table 6.6). Emotion-oriented coping is positively related to behavioral problems (Compas, Malcarne & Fondacaro, 1988). Significant main effect of Avoidance-Oriented Coping (AOC) was found (β = .208; p = .000), indicating that oppositional defiant disorder increases with increase in avoidance-oriented coping (Table 6.6). Avoidance-oriented coping has been related to more antisocial behavior problems (Ayers, 1999). Interaction of 'status' with the moderator variable was found to be non-significant.

Table 6.6

Coefficients of regression model for Oppositional Defiant Disorder on Status and Coping Styles for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.013	.013
Constant	.665			
Alcodum		-.012		
Drugdum		.109*		
Step 2			.174	.161**
Constant	.672			
ZTOC		-.150**		
ZEOC		.273**		
ZAOC		.208**		
Step 3			.186	.012
Constant	.672			
Alcodum*ZTOC		.057		
Drugdum*ZTOC		-.056		
Alcodum*ZEOC		-.032		
Drugdum*ZEOC		.065		
Alcodum*ZAOC		.029		
Drugdum*ZAOC		-.068		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping

*p < .05; **p < .01

In Generalized Anxiety Disorder (GAD), results (Table 6.7) revealed that 'status' explained 1.8 % of the variance. Coping significantly contributed 22.5 % of the variance. The addition of the interaction terms further added 1.4 % to the variance accounted for, bringing the total proportion of explained variance in Generalized Anxiety Disorder to 25.8 %. Significant main effect of status (Drugdum, β = .153; p = .006) was found (Table 6.7), indicating that in generalized anxiety disorder (GAD) adolescent boys having drug-abusing sibling (M = 8.16) and those having normal sibling (M = 6.86) scored significantly different. Siblings of drug abusers report symptoms such, as panic attacks and nervous breakdown (Barnard, 2005; Velleman, Bennett, Miller, Oxford, &Tod, 1993). Significant

main effect of Task-Oriented Coping (TOC) was found (β = -.159; p = .000), indicating that generalized anxiety disorder decreases with increase in task-oriented coping (Table 6.7). It has been found that persons who rely more on task-oriented coping reported lower levels of anxiety (Gilmore, Osho & Heads, 2013). Significant main effect of Emotion-Oriented Coping (EOC) was found (β = .464; p = .000), indicating that generalized anxiety disorder increases with increase in emotion-oriented coping (Table 6.7). Research suggest that individuals with GAD engage in more emotional coping strategies (i.e., excessive worry, emotional outbursts, emotional suppression) compared to healthy controls (Mennin, Holaway, Fresco, Moore & Heimberg, 2007). Gilmore *et al*., also found that emotion-oriented coping was positively correlated with anxiety. Interaction of 'status' with the moderator variable was found to be non-significant.

Table 6.7

Coefficients of regression model for Generalized Anxiety Disorder on Status and Coping Styles for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.018	.018*
Constant	6.828			
Alcodum		.045		
Drugdum		.153**		
Step 2			.244	.225**
Constant	6.941			
ZTOC		-.159**		
ZEOC		.464**		
ZAOC		.034		
Step 3			.258	.014
Constant	6.935			
Alcodum*ZTOC		.011		
Drugdum*ZTOC		-.047		
Alcodum*ZEOC		.007		
Drugdum*ZEOC		.123		
Alcodum*ZAOC		.003		
Drugdum*ZAOC		-.128		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping. *p < .05; **p < .01

In Suicide (SUI), results (Table 6.8) revealed that 'status' explained 0.5 % of the variance. Coping significantly contributed 17.6 % of the variance. The addition of the interaction terms further added 1 % to the variance accounted for, bringing the total proportion of explained variance in Suicide (SUI) to 19.1 %. Significant main effect of Task-Oriented Coping (TOC) was found (β = -.175; p = .000), indicating that suicide (suicidal ideation and suicidal behaviors) decreases with increase in task-oriented coping (Table 6.8). Task-oriented coping has been found to predict reduction in suicidal ideation among males (Khurana & Romer, 2012). Task-oriented coping have been shown to have a protective influence with regards to suicidal ideation (Grover, Green, Pettit, Monteith, Garza &Venta, 2009; Piquet & Wagner, 2003). Significant main effect of Emotion-Oriented Coping (EOC) was found (β = .363; p = .000), indicating that suicide (suicidal ideation and suicidal behaviors) increases with increase in emotion-oriented coping (Table 6.8). Among University students in Iran, it was found that emotion-oriented coping was significantly positively related to suicide ideation (Asghari, Sadeghi, Aslani, Saadat & Khodayari, 2013). Sadock and Sadock (2003) also reported from results of a survey that many people employ emotion-oriented coping before they commit suicide. A study by Kadivar and Zahedi (2007) showed that there is a significant relationship between counter-crisis styles and committing suicide among female students who were usually using emotion-focused style of coping. Significant main effect of Avoidance-Oriented Coping (AOC) was found (β = .109; p = .024), indicating that suicide increases (suicidal ideation and suicidal behaviors) with increase in avoidance-oriented coping (Table 6.8). A study among adolescents revealed that avoidance coping strategies are associated with suicidal ideation (Horwitz, Hill & King, 2011). Independent effect of 'status' and its interaction with the moderator variable were found to be non-significant.

Table 6.8

Coefficients of regression model for Suicide on Status and Coping Styles for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.005	.005
Constant	2.007			
Alcodum		-.055		
Drugdum		.020		
Step 2			.181	.176**
Constant	2.072			
ZTOC		-.175**		
ZEOC		.363**		
ZAOC		.109*		
Step 3			.191	.010
Constant	2.077			
Alcodum*ZTOC		.026		
Drugdum*ZTOC		-.065		
Alcodum*ZEOC		-.061		
Drugdum*ZEOC		.038		
Alcodum*ZAOC		-.031		
Drugdum*ZAOC		-.081		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping.

*p < .05; **p < .01

In Anger/Violence Proneness (AVP), results (Table 6.9) revealed that 'status' explained 1.3 % of the variance. Coping significantly contributed 19.2 % of the variance. The addition of the interaction terms further added 1.9 % to the variance accounted for, bringing the total proportion of explained variance in Anger/Violence Proneness (AVPlg) to 22.4 %. Significant main effect of Task-Oriented Coping (TOC) was found (β = -.142; p = .001), indicating that anger/violence proneness decreases with increase in task-oriented coping (Table 6.9). Both cross-sectional and longitudinal studies with children, adolescents, and adults found that active problem-focused coping strategies were related to lower behavioural problems (Ayers, Sandler, West & Roosa, 1996; Compass, Malcarne, & Fondacaro, 1988; Ebata & Moos, 1991). Significant main effect of Emotion-Oriented Coping (EOC) was found (β = .376; p = .000), indicating that anger/violence proneness

increases with increase in emotion-oriented coping (Table 6.9). Emotion-oriented coping is negatively correlated with life satisfaction, which is, at low levels, related to anti social behaviors like violent behavior (Ryan, 2013).

Interaction effect of 'status' (DRUGDUM) with the moderator variable (EOC) was found to be significant (DrugdumXZEOC, β = .175; *p* = .013), indicating that adolescent boys having normal sibling and adolescent boys having drug-abusing sibling scored significantly different in anger/violence depending on different levels of emotion-oriented coping (Table 6.9). However, a closer look at the significance of the simple slopes at three levels of Emotion-Oriented Coping (M-1SD, Average and M+1SD) indicated that the simple slopes (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) were found to be non significant.

Table 6.9

Coefficients of regression model for Anger/Violence Proneness on Status and Coping Styles for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.013	.013
Constant	.691			
Alcodum		-.099		
Drugdum		.027		
Step 2			.205	.192**
Constant	.699			
ZTOC		-.142**		
ZEOC		.376**		
ZAOC		.131**		
Step 3			.224	.019
Constant	.697			
Alcodum*ZTOC		.012		
Drugdum*ZTOC		-.071		
Alcodum*ZEOC		.097		
Drugdum*ZEOC		.175**		
Alcodum*ZAOC		-.012		
Drugdum*ZAOC		-.123		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping. *$p < .05$; **$p < .01$

In Interpersonal Problems (IPP), results (Table 6.10) revealed that 'status' significantly explained 1.7 % of the variance. Coping significantly contributed 24.5 % of the variance. The addition of the interaction terms further added 1.3 % to the variance accounted for, bringing the total proportion of explained variance in Interpersonal Problems (IPPlg) to 27.5 %. Significant main effect of status (Drugdum, β = .146; *p* = .008) was found, indicating that in interpersonal problems (IPP) adolescent boys having drug-abusing sibling (*M* = 7.61) and those having normal sibling (*M* = 6.34) scored significantly different, regardless of task-oriented coping (Table 6.10). Siblings of drug abusers often report social isolation and difficulty in empathizing and relating to others. They also reported fear of being rejected (Barnard, 2005; Velleman, Bennett, Miller, Oxford, &Tod, 1993). Significant main effect of Task-Oriented Coping (TOC) was found (β = -.137; *p* = .001), indicating that interpersonal problems decreases with increase in task-oriented coping (Table 6.10). The use of problem-focused coping is aimed toward altering or resolving the stressful situation (O'Driscoll & Brough, 2006). Zhang & Zhao (2010) also found that use of problem solving style was negatively correlated with interpersonal relationship problems. Significant main effect of Emotion-Oriented Coping (EOC) was found (β = .460; *p* = .000), indicating that interpersonal problems increases with increase in emotion-oriented coping (Table 6.10). In a study of interpersonal problems adolescents, it was found that emotion-oriented coping was positively correlated with interpersonal problems (Joybari, 2014). Significant main effect of Avoidance-Oriented Coping (AOC) was found (β = .091; *p* = .047), indicating that interpersonal problems increases with increase in avoidance-oriented coping (Table 6.10). In a study of interpersonal problems, it was found that avoidance-oriented coping was found to be highly correlated with interpersonal problems among adolescents (Joybari, 2013).

Interaction effect of 'status' (DRUGDUM) with the moderator variable (AOC) was found to be significant (DrugdumXZAOC, β = -.157; *p* = .019), indicating that adolescent boys having normal sibling and adolescent boys having drug-abusing sibling scored significantly different in interpersonal problems depending on different levels of avoidance-oriented coping (Table 6.10). Analysis of the significance of the simple slopes at three levels of Avoidance-Oriented Coping (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant both at Average level (t = 2.639; *p* = 0.008) and M-1SD level, that is, low level (t = 3.845; *p* = .000) of the moderator (AOC). This indicates that at average and low levels of avoidance-oriented coping, status was positively correlated with Interpersonal problems. Adolescents having drug-abusing siblings scored significantly lower on interpersonal problems at average and low levels of avoidance-oriented coping.

Table 6.10
Coefficients of regression model for Interpersonal Problems on Status and Coping Styles for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.017	.017*
Constant	.799			
Alcodum		.036		
Drugdum		.146**		
Step 2			.262	.245**
Constant	.807			
ZTOC		-.137**		
ZEOC		.460**		
ZAOC		.091*		
Step 3			.275	.013
Constant	.807			
Alcodum*ZTOC		.000		
Drugdum*ZTOC		-.023		
Alcodum*ZEOC		.049		
Drugdum*ZEOC		.032		
Alcodum*ZAOC		-.047		
Drugdum*ZAOC		-.157*		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping. *$p < .05$; **$p < .01$

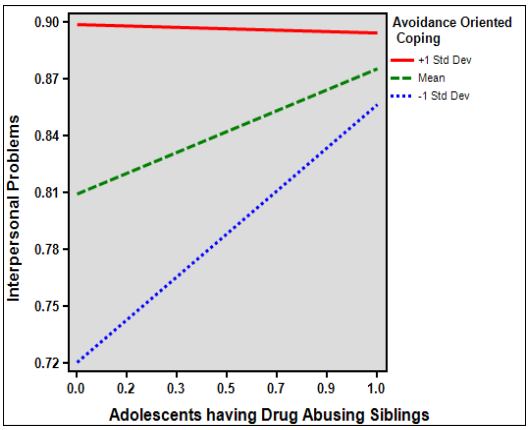


Figure 14: MODERATING ROLE OF AVOIDANCE-ORIENTED COPING BETWEEN STATUS OF HAVING DRUG-ABUSING SIBLING AND INTERPERSONAL PROBLEMS

Regression analysis was performed with Conduct Disorder (CND) as the dependent variable and Task-Oriented Coping (TOC), Emotion-Oriented Coping (EOC), Avoidance-Oriented Coping (AOC) and 'status' as predictor variables revealed that a total of 435 cases were analyzed and the full model (Table 6.11.a) is a significant fit of the data (omnibus chi-square = 28.186, df = 11, p = .003). The model accounted for between 6.3 % and 28.1 % of the variance (Table 6.11.b), with 100 % of the siblings who do not have conduct disorder successfully predicted. However, only 0 % of predictions for the siblings who have conduct disorder were accurate (Table 6.11.c). Overall, 97.2 % of predictions were accurate. Table 6.11.d gives the coefficients, the Wald statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that none of the variables significantly predicted conduct disorder. Task-oriented coping, emotion-oriented coping, avoidance-oriented coping and the 'status' of having an alcohol-abusing sibling or drug-abusing sibling or a normal sibling did not significantly predict whether or not adolescent boys will have conduct disorder.

Table 6.11.a:Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	28.186	11	.003
	Block	28.186	11	.003
	Model	28.186	11	.003

Table 6.11.b: Model Summary of Conduct Disorder on Status and Task-oriented, Emotion-oriented and Avoidance-oriented coping

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	81.650[a]	.063	.281

a. Estimation terminated at iteration number 13 because parameter estimates changed by less than .001.

Table 6.11.c: Classification Table[a]

Observed			Predicted		
			CNDDUM		
			.00	1.00	Percentage Correct
Step 1	CNDDUM	.00	423	0	100.0
		1.00	12	0	0.0
	Overall Percentage				97.2

a. The cut value is .500

Table 6.11.d: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	TOC	-.140	.253	.305	1	.581	.870	.530	1.427
	EOC	-.019	.200	.009	1	.924	.981	.663	1.452
	AOC	.599	.570	1.105	1	.293	1.821	.596	5.564
	STATUS(1)	12.534	27.893	.202	1	.653	0.000	.000	0.000
	STATUS(2)	28.311	27.384	1.069	1	.301	0.000	.000	0.000
	STATUS(1) by TOC	.239	.260	.843	1	.359	1.270	.762	2.115
	STATUS(2) by TOC	.055	.256	.046	1	.830	1.056	.639	1.745
	EOC by STATUS(1)	.038	.210	.032	1	.858	1.038	.687	1.568
	EOC by STATUS(2)	-.016	.206	.006	1	.939	.984	.658	1.473
	AOC by STATUS(1)	-.444	.574	.599	1	.439	.641	.208	1.976
	AOC by STATUS(2)	-.503	.572	.772	1	.380	.605	.197	1.856
	Constant	-29.823	27.273	1.196	1	.274	.000		

a. Variable(s) entered on step 1: TOC, EOC, AOC, STATUS, STATUS * TOC , EOC * STATUS , AOC * STATUS .

Results of regression analysis performed with Substance Abuse Disorder (SUB) as the dependent variable and Task-Oriented Coping (TOC), Emotion-Oriented Coping (EOC), Avoidance-Oriented Coping (AOC) and 'status' as predictor variables revealed that a total of 435 cases were analyzed and the full model (Table 6.12.a) is a significant fit of the data (omnibus chi-square = 28.032, df = 11, p = .003). The model accounted for between 6.2 % and 15.8 % of the variance (Table 6.12.b), with 100 % of the siblings who do not have substance abuse disorder successfully predicted. However, only 0 % of predictions for the siblings who have Substance Abuse were accurate (Table 6.12.c). Overall, 93.1 % of predictions were accurate. Table 6.12.d gives the coefficients, the Wald

statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that only avoidance-oriented coping (AOC) significantly predicted whether adolescents boys will have substance abuse disorder or not (b = .108, Wald = $\chi 2$ (1) = 3.821, p = .051). The odds ratio tells us that as avoidance-oriented coping increased by a unit, the change in the odds of having substance abuse disorder rather than not is 1.11. In short, adolescent boys are more likely to have substance abuse problems than not if they use avoidance-oriented coping. Task oriented-coping, emotion-oriented coping and the 'status' of having an alcohol-abusing sibling or drug-abusing sibling or a normal sibling did not significantly predict whether or not adolescent boys will have substance abuse disorder.

Table 6.12.a: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	28.032	11	.003
	Block	28.032	11	.003
	Model	28.032	11	.003

Table 6.12.b: Model Summary of Substance Abuse Disorder on Status and Task-oriented, Emotion-oriented and Avoidance-oriented coping

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	190.299[a]	.062	.158

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Table 6.12.c: Classification Table[a]

			Predicted		
			SUBDUM		
Observed			.00	1.00	Percentage Correct
Step 1	SUBDUM	.00	405	0	100.0
		1.00	30	0	0.0
	Overall Percentage				93.1

a. The cut value is .500

Table 6.12.d: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	TOC	-.075	.051	2.135	1	.144	.928	.839	1.026
	EOC	.055	.054	1.022	1	.312	1.057	.950	1.175
	AOC	.108	.055	3.821	1	.051	1.114	1.000	1.240
	STATUS(1)	2.570	4.069	.399	1	.528	13.067	.004	38026.701
	STATUS(2)	-.015	4.217	.000	1	.997	.985	.000	3827.733
	STATUS(1) by TOC	.026	.061	.179	1	.672	1.026	.911	1.155
	STATUS(2) by TOC	.052	.060	.748	1	.387	1.053	.936	1.184
	EOC by STATUS(1)	-.040	.065	.375	1	.540	.961	.846	1.092
	EOC by STATUS(2)	-.009	.066	.017	1	.895	.991	.870	1.129
	AOC by STATUS(1)	-.022	.066	.109	1	.741	.978	.859	1.114
	AOC by STATUS(2)	-.037	.064	.333	1	.564	.964	.850	1.093
	Constant	-6.761	3.306	4.184	1	.041	.001		

a. Variable(s) entered on step 1: TOC, EOC, AOC, STATUS, STATUS * TOC , EOC * STATUS , AOC * STATUS .

MODERATING ROLE OF COPING STYLES FOR GIRLS:

As was done for boys, the moderating roles of coping styles were examined in the same manner for girls. In Posttraumatic Stress Disorder (PTS), results (Table 6.13) revealed that 'status' significantly explained 1.9 % of the variance. Coping significantly contributed 16.5 % of the variance. The addition of the interaction terms further added 2.3 % to the variance accounted for, bringing the total proportion of explained variance in PTS to 20.7 %. Significant main effect of 'status' (Alcodum, β = .161; *p* = .004) was found, indicating that in posttraumatic stress disorder, adolescent girls having alcohol-abusing sibling and those having normal sibling scored significantly different, regardless of coping (Table 6.13). Research on the impact of a substance abuser on the family has indicated that severe and enduring stress is experienced by other family members (Orford *et al*., 1998; Velleman *et al*., 1993). Significant main effect of Task-Oriented Coping (TOC) was found (β = -.154; *p* = .001), indicating that posttraumatic stress disorder decreases with increase in task-oriented coping (Table 6.13). Several studies report that task-oriented coping or problem focused coping fosters adaptive functioning (Dirkzwager, Bramsen, & van der Ploeg, 2003). Results of studies on posttraumatic stress disorder after such traumatic events as floods or other disasters revealed that persons with task-oriented coping usually reveal less intense symptoms (Strelau, Zawadzki, Oniszczenkow, Sobolewski & Pawlowski, 2004). Significant main effect of Emotion-Oriented Coping (EOC) was found (β = .386; *p* = .000), indicating that posttraumatic stress disorder increases with increase in emotion-oriented coping (Table 6.13). Strelau *et al*., (2004) also reported that persons using emotion-oriented coping reveal much intense symptoms of PTSD. Similar results were found by Gil (2005), who reported that greater emotion focused coping pre-terrorist attack predicted subsequent diagnosis of PTSD one month later.

Interaction effect of 'status' (ALCODUM) with the moderator variable (Avoidance-oriented coping) was also found to be significant (ALCODUMXZAOC, β = .141; *p* = .033), indicating that adolescent girls having alcohol-abusing sibling and those having normal sibling scored significantly different in posttraumatic stress disorder depending on different levels of avoidance-oriented coping (Table 6.13). Analysis of the significance of the simple slopes (Figure–15) at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant at Average and M+1SD (Average level t = 2.40; *p* = 0.02; High level, t = 3.43; *p* = 0.000) of the moderator (AOC). This indicates that at average and high levels of avoidance-oriented coping, status was positively correlated with Posttraumatic Stress Disorder (PTS). Adolescent girls having alcohol-abusing siblings scored significantly higher on posttraumatic stress disorder when levels of avoidance-oriented coping was average or high.

Table 6.13
Coefficients of regression model for Posttraumatic Stress Disorder on Status and Coping Styles for girls (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.019	.019*
Constant	5.917			
Alcodum		.161**		
Drugdum		.078		
Step 2			.185	.165**
Constant	5.952			
ZTOC		-.154**		
ZEOC		.386**		
ZAOC		.073		
Step 3			.207	.023
Constant	5.945			
Alcodum*ZTOC		.071		
Drugdum*ZTOC		-.083		
Alcodum*ZEOC		-.035		
Drugdum*ZEOC		.031		
Alcodum*ZAOC		.141*		
Drugdum*ZAOC		-.002		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping.

*$p < .05$; **$p < .01$

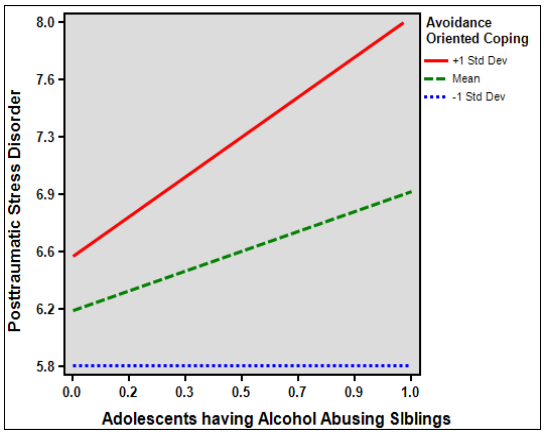


Figure 15: MODERATING ROLE OF AVOIDANCE-ORIENTED COPING BETWEEN STATUS OF HAVING ALCOHOL-ABUSING SIBLING AND POSTTRAUMATIC STRESS DISORDER

In Major Depression (DEP), results (Table 6.14) revealed that 'status' explained 1.0 % of the variance. Coping significantly explained 21.5 % of the variance explained. The addition of the interaction terms further added 0.8 % to the variance accounted for, bringing the total proportion of explained variance in DEP to 23.3. Significant main effect of 'status' (Alcodum, β = .117; p = .035) was found, indicating that in Major Depression (DEP), adolescent girls having alcohol-abusing sibling and those having normal sibling scored significantly different, regardless of coping (Table 6.14). Feelings of hopelessness, helplessness and depression are often reported by siblings of alcohol abusers (Barnard, 2005; Velleman *et al*., 1993). Significant main effect of Task-Oriented Coping (TOC) was found (β = -.200; p = .000), indicating that major depression decreases with increase in TOC (Table 6.14). Task-oriented coping was found to be associated with less depression (McWilliams, Cox and Enns, 2003). Significant main effect of Emotion-Oriented Coping (EOC) was found (β = .453; p = .000), indicating that major depression increases with increase in EOC (Table 6.14). Emotion oriented coping is linked with increased distress

(Alexander, Feeney, Hohaus, & Noller, 2001; Cosway *et al*., 2000; Endler & Parker, 1990b; Penley, Tomaka, & Wiebe, 2002). Other studies also found association between emotion oriented coping and clinically depressed adults (Billings, Cronkite, & Moos, 1983; Billings & Moos, 1984; Fondacaro & Moos, 1987; Horwitz, Hill & King, 2011). Interaction effect of 'status' with the moderator variable was found to be non-significant.

Table 6.14

Coefficients of regression model for Major Depression on Status and Coping Styles for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.010	.010
Constant	8.069			
Alcodum		.117*		
Drugdum		.066		
Step 2			.225	.215**
Constant	8.120			
ZTOC		-.200**		
ZEOC		.453**		
ZAOC		.046		
Step 3			.233	.008
Constant	8.120			
Alcodum*ZTOC		-.035		
Drugdum*ZTOC		-.073		
Alcodum*ZEOC		.003		
Drugdum*ZEOC		.099		
Alcodum*ZAOC		.044		
Drugdum*ZAOC		-.033		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping.

*$p < .05$; **$p < .01$

In Eating Disturbance (EAT), results (Table 6.15) revealed that 'status' did not explain any of the variance. Coping significantly contributed 4 % of the variance explained. The addition of the interaction terms further added 1.4 % to the variance accounted for, bringing the total proportion of explained variance in EAT to 5.5 %. Significant main effect

of Task-Oriented Coping was found (β = -.126; *p* = .011), indicating that eating disturbance decreases with increase in task-oriented coping (Table 6.15). Janzen, Keely and Saklofske (1992) studied the possible relationship between bulimic symptomatology and coping style in a college sample and found that an inverse relationship existed between bulimic symptoms and task-oriented coping. Significant main effect of Emotion-Oriented Coping (EOC) was also found (β = .150; *p* = .004), indicating that eating disturbance increases with increase in emotion-oriented coping (Table 6.15). Janzen *et al*., (1992) .found that emotion-oriented coping was positively related to bulimic symptoms. Independent effect of 'status' and its interaction with the moderator variable were found to be non-significant.

Table 6.15

Coefficients of regression model for Eating Disturbance on Status and Coping Styles for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.000	.000
Constant	3.931			
Alcodum		.007		
Drugdum		-.015		
Step 2			.041	.040**
Constant	3.941			
ZTOC		-.126**		
ZEOC		.150**		
ZAOC		.073		
Step 3			.055	.014
Constant	3.943			
Alcodum*ZTOC		.081		
Drugdum*ZTOC		-.007		
Alcodum*ZEOC		-.028		
Drugdum*ZEOC		-.015		
Alcodum*ZAOC		.038		
Drugdum*ZAOC		-.100		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping.

*$p < .05$; **$p < .01$

In Academic Problems (ADP), results (Table 6.16) revealed that 'status' did not explain any of the variance. Coping significantly contributed only 5 % of the variance explained. The addition of the interaction terms significantly added 6.8 % to the variance accounted for, bringing the total proportion of explained variance in ADPlg to 11.9 %. Significant main effect of task-oriented coping was found (β = - .125; p = .011), indicating that academic problems decreases with increase in task-oriented coping (Table 6.16). Task-oriented coping has been consistently linked with better adjustment including academic achievement (Lazarus and Folkman, 1984; Causey & Dubow, 1993; Compas, Malcarne & Fondacaro, 1988; Gustems-Carnicer and Calderon, 2013). Significant main effect of emotion-oriented coping was found (β = .208; p = .000), indicating that academic problems increases with increase in emotion-oriented coping (Table 6.16). Emotion-oriented coping was found to be negatively correlated with academic achievement (MacCann, Fogerty & Roberts, 2011).

Interaction effect of 'status' with the moderator variable was also found to be significant (AlcodumXZTOC, β = .220; p = .002), indicating that adolescents having normal siblings and those having alcohol-abusing siblings scored significantly differently in academic problems (Table 6.16). However, analysis of the significance of the simple slopes at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be non-significant at all levels (M-1SD, Average and M+1SD) of the moderator (TOC).

Interaction effect of status with the moderator variable was also found to be significant (AlcodumXZEOC, β = -.168; p = .013), indicating that adolescents having normal siblings and those having alcohol-abusing siblings scored significantly differently in academic problems (Table 6.16). Analysis of the significance of the simple slopes

(Figure-16) at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant only at M-1SD (Low level, t = 2.06; p = 0.039) of the moderator (EOC). This indicates that at low level of emotion-oriented coping, status was positively correlated with Academic Problems (ADPlg). Adolescent girls having alcohol-abusing siblings scored significantly lower on academic problems at low level of emotion-oriented coping.

Table 6.16

Coefficients of regression model for Academic Problems on Status and Coping Styles for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.000	.000
Constant	.809			
Alcodum		-.018		
Drugdum		-.019		
Step 2			.050	.050**
Constant	.810			
ZTOC		-.125**		
ZEOC		.208**		
ZAOC		.028		
Step 3			.119	.065**
Constant	.810			
Alcodum*ZTOC		.220**		
Drugdum*ZTOC		.037		
Alcodum*ZEOC		-.168**		
Drugdum*ZEOC		.039		
Alcodum*ZAOC		-.111		
Drugdum*ZAOC		.068		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping.
*p < .05; **p < .01

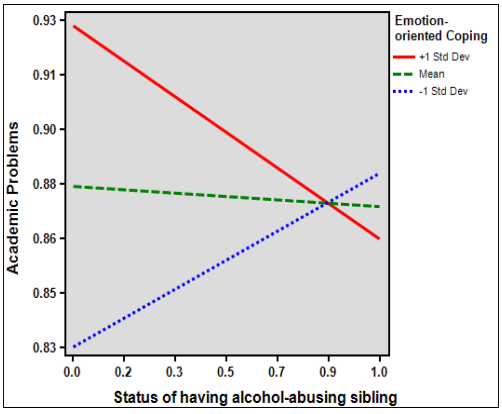


Figure 16: MODERATING ROLE OF EMOTION-ORIENTED COPING BETWEEN STATUS OF HAVING ALCOHOL-ABUSING SIBLING AND ACADEMIC PROBLEM

In Self-Concept (SCP), results (Table 6.17) revealed that 'status' significantly explained 2.2 % of the variance. Coping significantly explained 15.9 % of the variance explained. The addition of the interaction terms further added 1.2 % to the variance accounted for, bringing the total proportion of explained variance in SCP to 19.3 %. Significant main effect of 'status' (Alcodum, β = .155; *p* = .005; Drugdum, β = .139; *p* = .012) was found (Table 6.17), indicating that in self- concept (high score indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction), adolescents having alcohol-abusing siblings and those having drug-abusing siblings scored significantly differently from those having normal siblings, regardless of coping. Siblings of substance abusers often report feelings of shame, poor self confidence and self image and low self esteem (Barnard, 2005; Dorn *et al*., 1994). Significant main effect of Task-Oriented Coping (TOC) was also found (β = -.267; *p* = .000), indicating that self-concept (high score indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) decreases with increase in task-oriented coping (Table 6.17). Task-oriented coping is associated with self-efficacy, positive self esteem and competence in multiple domains (Causey & Dubow, 1992; Lewin-sohn, Rohde, & Seeley, 1994; Wills & Hirky, 1996). Significant main effect of Emotion-Oriented Coping (EOC) was found (β = .385; *p* = .000), indicating that self-concept (high score indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) increases with increase in emotion-oriented coping (Table 6.17.b). Emotion oriented coping was associated with poorer self esteem, which is a component of self concept (McMahon *et al*., 2013). Significant main effect of Avoidance-Oriented Coping (AOC) was found (β = -.135; *p* = .004), indicating that self-concept (high score indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) decreases with increase in avoidance-oriented coping (Table 6.17). In a

study of self-concept and coping skills of female early adolescents in South Korea, subjects were found to use avoidance coping (Sung, 2011). Interaction effect of 'status' with the moderator variable was found to be non-significant.

Table 6.17

Coefficients of regression model for Self-Concept on Status and Coping Styles for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.022	.022**
Constant	7.110			
Alcodum		.155**		
Drugdum		.139**		
Step 2			.180	.159**
Constant	7.107			
ZTOC		-.267**		
ZEOC		.385**		
ZAOC		-.135**		
Step 3			.193	.012
Constant	7.097			
Alcodum*ZTOC		-.092		
Drugdum*ZTOC		-.007		
Alcodum*ZEOC		.056		
Drugdum*ZEOC		.042		
Alcodum*ZAOC		.106		
Drugdum*ZAOC		.050		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping.

*p < .05; **p < .01

In Oppositional Defiant Disorder (OPD), results (Table 6.18) revealed that 'status' explained 0.2 % of the variance. Coping significantly contributed 11.6 % of the variance explained. The addition of the interaction terms further added 0.9 % to the variance accounted for, bringing the total proportion of explained variance in OPDlg to 12.8 %. Significant main effect of Task-Oriented Coping (TOC) was found (β = -.205; p = .000), indicating that oppositional defiant disorder decreases with increase in task-oriented coping

(Table 6.18). Both cross-sectional and longitudinal studies with children, adolescents, and adults found that active problem-focused coping strategies were related to lower behavioural problems (Ayers, Sandler, West & Roosa, 1996; Compass, Malcarne & Fondacaro, 1988; Ebata & Moos, 1991). Significant main effect of Emotion-Oriented Coping (EOC) was found (β = .230; p = 000), indicating that oppositional increases with increase in emotion-oriented coping (Table 6.18). Emotion oriented coping is positively related to behavioral problems (Compas, Malcarne & Fondacaro, 1988). Significant main effect of Avoidance-Oriented Coping (AOC) was also found (β = .160; p = .001), indicating that oppositional defiance increases with increase in avoidance-oriented coping (Table 6.18.b). Avoidance oriented coping has been related to more antisocial behavior problems (Ayers, 1999). Interaction of 'status' with the moderator variable was found to be non-significant.

Table 6.18

Coefficients of regression model for Oppositional Defiant Disorder on Status and Coping Styles for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.002	.002
Constant	.589			
Alcodum		.054		
Drugdum		.026		
Step 2			.119	.116**
Constant	.591			
ZTOC		-.205**		
ZEOC		.230**		
ZAOC		.160**		
Step 3			.128	.009
Constant	.591			
Alcodum*ZTOC		.109		
Drugdum*ZTOC		.016		
Alcodum*ZEOC		-.042		
Drugdum*ZEOC		.022		
Alcodum*ZAOC		.002		
Drugdum*ZAOC		-.071		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping. *p < .05; **p < .01

In Generalized Anxiety Disorder (GAD), results (Table 6.19) revealed that 'status' significantly explained 1.5 % of the variance. Coping significantly contributed 17 % of the variance explained. The addition of the interaction terms further added 1.1 % to the variance accounted for, bringing the total proportion of explained variance in GAD to 19.5 %. Significant main effect of 'status' (Alcodum, β = .139; *p* = .012) was found, indicating that in Generalized Anxiety Disorder (GAD), adolescent girls having alcohol-abusing sibling and those having normal sibling scored significantly different, regardless of Coping (Table 6.19). Siblings of drug abusers report symptoms such as panic attacks and nervous breakdown (Barnard, 2005; Velleman *et al.*, 1993).

Significant main effect of Task-Oriented Coping (TOC) was found (β = -.203; *p* = .000), indicating that Generalized Anxiety Disorder (GAD) decreases with increase in task-oriented coping (Table 6.19). Lechner, Bolman and Van Dalen (2007) found that task oriented coping was negatively associated with anxiety. Significant main effect of emotion oriented coping (EOC) was found (β = .364; *p* = .000), indicating that Generalized Anxiety Disorder (GAD) increases with increase in emotion-oriented coping (Table 6.19). Prior research suggest that individuals with GAD engage in more emotional coping strategies (i.e., excessive worry, emotional outbursts, emotional suppression) compared to healthy controls (Mennin, Holaway, Fresco, Moore & Heimberg, 2007). Gilmore *et al*. (2013) also found that emotion-oriented coping was positively correlated with anxiety. Significant main effect of avoidance oriented coping was found (β = .208; *p* = .000), indicating that generalized anxiety disorder increases with increase in avoidance-oriented coping (Table 6.19). Youth who rely on avoidance coping are more likely to experience depression, anxiety and behavioural problems, and to engage in alcohol and drug use (Moos, 2004).

Interaction effect of 'status' with the moderator variable was found to be non-significant.

Table 6.19

Coefficients of regression model for Generalized Anxiety Disorder on Status and Coping Styles for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.015	.015*
Constant	7.931			
Alcodum		.139**		
Drugdum		.080		
Step 2			.184	.170**
Constant	7.963			
ZTOC		-.203**		
ZEOC		.364**		
ZAOC		.104*		
Step 3			.195	.011
Constant	7.951			
Alcodum*ZTOC		.057		
Drugdum*ZTOC		-.019		
Alcodum*ZEOC		-.021		
Drugdum*ZEOC		-.029		
Alcodum*ZAOC		.126		
Drugdum*ZAOC		.058		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping. *p < .05; **p < .01

In Suicide (SUI), results (Table 6.20) revealed that 'status' significantly explained 3.3 % of the variance. Coping significantly contributed 14.4 % of the variance explained. The addition of the interaction terms further added 1.5 % to the variance accounted for, bringing the total proportion of explained variance in SUI to 19.1 %. Significant main effect of 'status' (Alcodum, β = .178; p = .001; Drugdum, β = .183; p = .001) was found, indicating that in Suicide (suicidal ideation and suicidal behaviors), adolescent girls having alcohol-abusing sibling (M = 2.24) and those having drug-abusing siblings (M = 2.27) scored significantly different from those having normal siblings (M = 1.48), regardless of Coping (Table 6.20). Siblings of substance abuser often report feelings of hopelessness, helplessness and thoughts of wanting to die (Barnard, 2005).

Significant main effect of Task-Oriented Coping (TOC) was found (β = -.260; *p* = .000), indicating that Suicide (suicidal ideation and suicidal behaviors) increases with decrease in task-oriented coping (Table 6.20). Task oriented coping have been shown to have a protective influence with regards to suicidal ideation (Grover, Green, Pettit, Monteith, Garza & Venta, 2009; Piquet & Wagner, 2003). Significant main effect of Emotion-Oriented Coping (EOC) was also found (β = .342; *p* = .000), indicating that Suicide (suicidal ideation and suicidal behaviors) increases with increase in emotion-oriented coping (Table 6.20). Among University students in Iran, it was found that emotion oriented coping was significantly positively related to suicide ideation (Asghari, Sadeghi, Aslani, Saadat & Khodayari, 2013). Sadock and Sadock (2003) also reported from results of a survey that many people employ emotion oriented coping before they commit suicide. A study by Kadivar and Zahedi (2007), showed that there is a significant relationship between counter-crisis styles and committing suicide among female students who were usually using emotion-focused style of coping.

Interaction effect of 'status' (DRUGDUM) with the moderator variable (emotion-oriented coping) was also found to be significant (DrugdumXZEOC, β = .138; *p* = .036), indicating that adolescents having normal siblings and those having drug-abusing siblings scored significantly different in suicide (suicidal ideation and suicidal behaviors) depending on different levels of emotion-oriented coping (Table 6.20). Analysis of the significance of the simple slopes (Figure- 17) at three levels of Emotion-Oriented Coping (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant at M+1SD, that is, high level (t = 2.663; *p* = 0.008) and Average level (t = 2.565; *p* = 0.005) of the moderating variable, that is, emotion-oriented coping on suicide. In other words, it could be predicted that adolescents having drug-

abusing siblings will have more suicidal ideation and suicidal behaviours at average and high levels of emotion-oriented coping.

Table 6.20

Coefficients of regression model for Suicide on Status and Coping Styles for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.033	.033**
Constant	1.476			
Alcodum		.178**		
Drugdum		.183**		
Step 2			.177	.144**
Constant	1.482			
ZTOC		-.260**		
ZEOC		.342**		
ZAOC		.015		
Step 3			.191	.015
Constant	1.477			
Alcodum*ZTOC		-.017		
Drugdum*ZTOC		-.103		
Alcodum*ZEOC		.059		
Drugdum*ZEOC		.138*		
Alcodum*ZAOC		.057		
Drugdum*ZAOC		-.017		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping.

*$p < .05$; **$p < .01$

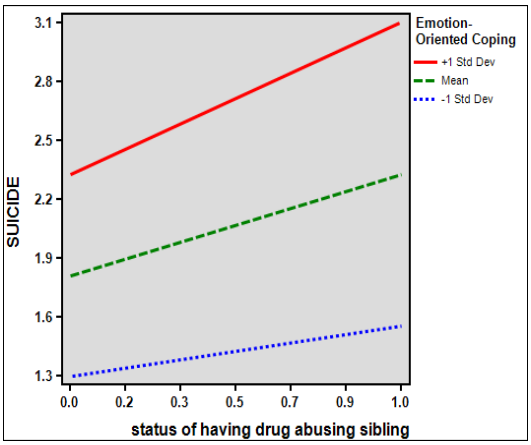


Figure 17: MODERATING ROLE OF EMOTION-ORIENTED COPING BETWEEN STATUS OF HAVING DRUG-ABUSING SIBLING AND SUICIDE (IDEATION AND BEHAVIOUR)

In Anger/Violence Proneness, results (Table 6.21) revealed that 'status' explained 0.2 % of the variance in Anger/Violence Proneness (AVP). Coping significantly explained 18.5 % of the variance explained. The addition of the interaction terms further added 0.6 % to the variance accounted for, bringing the total proportion of explained variance in AVPlg to 19.3 %. Significant main effect of Task-Oriented Coping (TOC) was found (β = -.239; *p* = .004), indicating that anger/violence proneness decreases with increase in task-oriented coping (Table 6.21). Both cross-sectional and longitudinal studies with children, adolescents, and adults found that active problem-focused coping strategies were related to lower behavioural problems (Ayers, Sandler, West & Roosa, 1996; Compass, Malcarne, & Fondacaro, 1988; Ebata & Moos, 1991). Significant main effect of Emotion-Oriented Coping (TOC) was found (β = .346; *p* = .000), indicating that anger/violence proneness increases with increase in emotion-oriented coping (Table 6.21). Emotion oriented coping is negatively correlated with life satisfaction, which is, at low levels, related to anti social behaviors like violent behavior (Ryan, 2013). Significant main effect of Avoidance-Oriented Coping (AOC) was also found (β = .145; *p* = .002), indicating that anger/violence proneness increases with increase in avoidance-oriented coping (Table 6.21). Avoidance oriented coping has been related to more antisocial behavior problems (Ayers, 1999).

Independent effect of 'status' and its interaction with the moderator variable was found to be non-significant.

Table 6.21

Coefficients of regression model for Anger/Violence Proneness on Status and Coping Styles for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.002	.002
Constant	.591			
Alcodum		.037		
Drugdum		.051		

Step 2			.187	.185**
Constant	.593			
ZTOC		-.239**		
ZEOC		.346**		
ZAOC		.145**		
Step 3			.193	.006
Constant	.593			
Alcodum*ZTOC		.075		
Drugdum*ZTOC		.050		
Alcodum*ZEOC		-.056		
Drugdum*ZEOC		-.020		
Alcodum*ZAOC		.046		
Drugdum*ZAOC		-.036		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping.

*$p < .05$; **$p < .01$

In Interpersonal Problems (IPP), results (Table 6.22) revealed that 'status' explained 0.7 % of the variance. Coping significantly contributed 16.7 % of the variance explained. The addition of the interaction terms further added 1.8 % to the variance accounted for, bringing the total proportion of explained variance in AVPlg to 19.2 %. Significant main effect of Task-Oriented Coping (TOC) was found (β = -.256; p = .000), indicating that interpersonal problems decreases with increase in task-oriented coping (Table 6.22). The use of problem-focused coping is aimed toward altering or resolving the stressful situation (O'Driscoll & Brough, 2006). Zhang & Zhao (2010) also found that use of problem solving style was negatively correlated with interpersonal relationship problems. Significant main effect of Emotion-Oriented Coping (EOC) was also found (β = .346; p = .000), indicating that interpersonal problems increases with increase in emotion-oriented coping (Table 6.22). In a study of interpersonal problems adolescents, it was found that emotion-oriented coping was positively correlated with interpersonal problems (Joybari, 2014).

Interaction effect of 'status' (ALCODUM) with the moderator variable (avoidance-oriented coping) was also found to be significant (AlcodumXZAOC, β = .141; *p* = .035), indicating that adolescents having normal siblings and those having alcohol-abusing siblings scored significantly differently in interpersonal problems (Table 6.22). Analysis of the significance of the simple slopes (Figure-18) at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant only at M+1SD (High level, t = 2.01*p* = 0.045) of the moderator (AOC). This indicates that at high level of avoidance-oriented coping, status was positively correlated with Interpersonal Problems (IPP). Adolescent girls having alcohol-abusing siblings scored significantly higher on interpersonal problems at high level of avoidance-oriented coping.

Table 6.22

Coefficients of regression model for Interpersonal Problems on Status and Coping Styles for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.007	.007
Constant	.726			
Alcodum		.094		
Drugdum		.068		
Step 2			.174	.167**
Constant	.728			
ZTOC		-.256**		
ZEOC		.346**		
ZAOC		.089		
Step 3			.192	.018
Constant	.727			
Alcodum*ZTOC		.041		
Drugdum*ZTOC		-.101		
Alcodum*ZEOC		-.044		
Drugdum*ZEOC		.013		
Alcodum*ZAOC		.141*		
Drugdum*ZAOC		.079		

Note. ZTOC = task-oriented coping, ZEOC = emotion-oriented coping, ZAOC = avoidance-oriented coping.

*$p < .05$; **$p < .01$

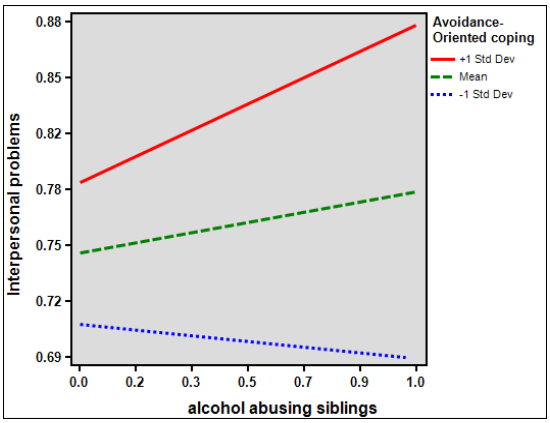


Figure 18: MODERATING ROLE OF AVOIDANCE-ORIENTED COPING BETWEEN STATUS OF HAVING ALCOHOL ABUSING SIBLINGS AND INTERPERSONAL PROBLEMS

Results of regression analysis performed with Conduct Disorder (CND) as the dependent variable and Task-Oriented Coping (TOC), Emotion-Oriented Coping (EOC), Avoidance-Oriented Coping (AOC) and 'status' as predictor variables revealed that a total of 435 cases were analyzed and the full model (Table 6.23.a) is a significant fit of the data (omnibus chi-square = 10.874, df = 11, $p = .454$). The model accounted for between 2.5 % and 18.2 % of the variance (Table 6.23.b), with 100 % of the siblings who do not have conduct disorder successfully predicted. However, only 0 % of predictions for the siblings who have conduct disorder were accurate. Overall, 98.6 % of predictions were accurate (Table 6.23.c). Table 6.23.d gives the coefficients, the Wald statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that none of the variables significantly predicted conduct disorder. Task-oriented coping, emotion-oriented coping, avoidance-oriented coping and the 'status' of having an alcohol-abusing sibling or drug-abusing sibling or a normal sibling did not significantly predict whether or not adolescent boys will have conduct disorder.

Table 6.23.a:Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	10.874	11	.454
	Block	10.874	11	.454
	Model	10.874	11	.454

Table 6.23.b: Model Summary of Conduct Disorder on Status and Task-oriented, Emotion-oriented and Avoidance-oriented coping

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	52.445[a]	.025	.182

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 6.23.c: Classification Table[a]

			Predicted		
			CNDDUM		
Observed			.00	1.00	Percentage Correct
Step 1	CNDDUM	.00	429	0	100.0
		1.00	6	0	0.0
	Overall Percentage				98.6

a. The cut value is .500

Table 6.23.d: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	TOC	.000	345.855	.000	1	1.000	1.000	.000	2.467E+294
	EOC	.000	371.319	.000	1	1.000	1.000	0.000	
	AOC	.000	389.504	.000	1	1.000	1.000	0.000	
	STATUS(1)	4.056	23983.393	.000	1	1.000	57.719	0.000	
	STATUS(2)	17.039	23983.391	.000	1	.999	25104887.95	0.000	
	EOC by STATUS(1)	.067	371.319	.000	1	1.000	1.069	0.000	
	EOC by STATUS(2)	-.032	371.319	.000	1	1.000	.969	0.000	
	AOC by STATUS(1)	.066	389.504	.000	1	1.000	1.068	0.000	
	AOC by STATUS(2)	.052	389.504	.000	1	1.000	1.054	0.000	
	STATUS(1) by TOC	.090	345.855	.000	1	1.000	1.095	.000	2.700E+294
	STATUS(2) by TOC	.002	345.855	.000	1	1.000	1.002	.000	2.472E+294
	Constant	-21.203	23983.391	.000	1	.999	.000		

a. Variable(s) entered on step 1: TOC, EOC, AOC, STATUS, EOC * STATUS , AOC * STATUS , STATUS * TOC .

Regression analysis performed with Substance Abuse Disorder (SUB) as the dependent variable and Task-Oriented Coping (TOC), Emotion-Oriented Coping (EOC), Avoidance-Oriented Coping (AOC) and 'status' as predictor variables revealed that a total of 435 cases were analyzed and the full model (Table 6.24.a) is a significant fit of the data (omnibus chi-square = 19.309, df = 11, p = .056). The model accounted for between 4.3 % and 25.9 % of the variance (Table 6.24.b), with 99.8 % of the siblings who do not have substance abuse disorder successfully predicted. However, only 0 % of predictions for the

siblings who have substance abuse disorder were accurate. Overall, 97.9 % of predictions were accurate (Table 6.24.c). Table 6.24.d gives the coefficients, the Wald statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that none of the variables significantly predicted Substance Abuse. Task-oriented coping, emotion-oriented coping, avoidance-oriented coping and the 'status' of having an alcohol-abusing sibling or drug-abusing sibling or a normal sibling did not significantly predict whether or not adolescent boys will have substance abuse disorder.

Table 6.24.a: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	19.309	11	.056
	Block	19.309	11	.056
	Model	19.309	11	.056

Table 6.24.b: Model Summary of Substance Abuse Disorder on Status and Task-oriented, Emotion-oriented and Avoidance-oriented coping

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	60.477[a]	.043	.259

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 6.24.c: Classification Table[a]

			Predicted		
			SUBDUM		Percentage
Observed			.00	1.00	Correct
Step 1	SUBDUM	.00	426	1	99.8
		1.00	8	0	0.0
	Overall Percentage				97.9

a. The cut value is .500

Table 6.24.d: Variables in the Equation

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	TOC	.000	345.855	.000	1	1.000	1.000	.000	2.467E+294
	EOC	.000	371.320	.000	1	1.000	1.000	0.000	
	AOC	.000	389.505	.000	1	1.000	1.000	0.000	
	STATUS(1)	15.017	23983.395	.000	1	1.000	3325865.911	0.000	
	STATUS(2)	21.898	23983.394	.000	1	.999	3236313552	0.000	
	STATUS(1) by TOC	-.157	345.855	.000	1	1.000	.855	.000	2.109E+294
	STATUS(2) by TOC	-.043	345.855	.000	1	1.000	.958	.000	2.363E+294
	EOC by STATUS(1)	-.027	371.320	.000	1	1.000	.974	0.000	
	EOC by STATUS(2)	-.037	371.320	.000	1	1.000	.964	0.000	
	AOC by STATUS(1)	.226	389.505	.000	1	1.000	1.253	0.000	
	AOC by STATUS(2)	.002	389.505	.000	1	1.000	1.002	0.000	
	Constant	-21.203	23983.394	.000	1	.999	.000		

a. Variable(s) entered on step 1: TOC, EOC, AOC, STATUS, STATUS * TOC , EOC * STATUS , AOC * STATUS .

MODERATING ROLE OF PERSONALITY IN THE RELATIONSHIP BETWEEN SIBLINGS' SUBSTANCE ABUSE AND PSYCHOPATHOLOGY

To examine the moderating role of personality in the relationship between the status of having substance abusing siblings (Alcohol, Drugs and Normal control) and psychological health status among Mizo adolescent boys and girls, the first hierarchical regression analysis (Stepwise, Enter method) was computed using dummy coded 'status' (Alcodum and Drugdum) as the predictor, centered scores on the five personality dimensions of NEO-FFI (Costa & McCrae, 1992) as the moderators, and Posttraumatic Stress Disorder as the first criterion variable of psychopathology measured by the APS-SF (Reynolds, 2004). In Block 1, the main dummy coded variables for 'status' (Alcodum and Drugdum) were entered. The potential moderators, centered scores on Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A) and Conscientiousness (C) were entered in Block 2. The interaction terms between the predictors (Alcodum and Drugdum) and moderators (N, E, O, A, C) were created and entered in Block 3. The results are summarised in Tables 7.1 to 7.20.b.

MODERATING ROLE OF NEUROTICISM, EXTRAVERSION, OPENNESS, AGREEABLENESS AND CONSCIENTIOUSNESS FOR BOYS:

In Posttraumatic Stress Disorder (PTS), results (Table 7.1) revealed that 'status' explained only 0.6 % of the variance. Personality significantly contributed 32.4 % of the variance explained. The addition of the interaction terms added a further 0.9 % to the variance accounted for, bringing the total proportion of explained variance in PTS to 34 %. Significant main effect of Neuroticism (N) was found ($\beta = .454$; $p = .000$), indicating that posttraumatic stress disorder (PTS) increases with increase in Neuroticism (Table 7.1). A

host of research studies reported similar findings. For example, in a post-trauma prospective study, Lawrence & Fauerbach (2003) obtained results which suggested that neuroticism was the most important personality dimension in predicting PTSD. In their cross-sectional study on persons with PTSD, Hyer, Braswell, Albrecht, Boyd & Boudewyns (1994) found that only neuroticism was significantly associated with PTSD. Chung, Berger & Rudd (2007) compared a no-PTSD group, a partial- PTSD group and a full-PTSD group of patients after myocardial infarction. Patients with full-PTSD were significantly more neurotic than those with no-PTSD and partial-PTSD. In a cross-sectional study conducted on holocaust survivors, Brodaty, Joffe, Luscombe & Thompson (2004) found that only higher neuroticism was associated with significant PTSD. The same was shown in a cross-sectional study on Chinese students after a snowstorm disaster (Wu, Yin, Xu & Zhao, 2011). Similarly, this finding was confirmed in two longitudinal studies of young adults (Parslow, Jorm & Christensen, 2006) and women after miscarriage or stillbirth. In their post-trauma prospective study on victims of traffic accidents, Holeva & Tarrier (2001) showed that neuroticism was significantly correlated with posttraumatic symptoms. In an overview of the research on the role of personality traits associated with PTSD, it was found that PTSD was positively related to neuroticism (Jaksici, Brajkovici, Ivezic, Topic & Jakovljevic, 2012).

Significant main effect of Extraversion (E) was found (β = -.130; p = .002), indicating that posttraumatic stress disorder decreases with increase in extraversion (Table 7.1). PTSD symptoms were also found to be negatively correlated with extraversion (Jaksic *et al*., 2012). Other studies established a link between low extraversion and PTSD outcomes (e.g., Dörfel, Rabe & Karl, 2008; Fauerbach, Lawrence, Schmidt & Munster, 2000). Several studies also found positive correlations between extraversion and PTSD resilience (Lauterbach & Vrana, 2001; Campbell-Sills, Cohan & Stein, 2006).

Significant main effect of Openness (Table 7.1) was found (β = .085; p = .050), indicating that posttraumatic stress disorder increases with increase in openness. In a study of Yugoslavian students exposed to air attacks, it was found that openness was significant predictor of intrusion symptom of PTSD after 1 year (Knezevic *et al*., 2005).

Significant main effect of Conscientiousness (Table 7.1) was also found (β = -.111; p = .013), indicating that posttraumatic stress disorder decreases with increase in Conscientiousness. Conscientiousness has been negatively correlated with stress and fear, and positively correlated with happiness, hope and pride (Penley and Tomaka, 2002). . Conscientiousness has been proven (e.g. Vollrath, 2001) to predict low stress exposure as it is hypothesized that conscientious individuals demonstrate a methodical approach when faced with stressful situations. Conscientiousness is considered to be more positive, optimistic and resourceful traits, as these aspects have been understood to reduce the negative outcomes of stressful events (Carver & Connor-Smith, 2007).

Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 7.1

Coefficients of regression model for Posttraumatic Stress Disorder on Status and Personality for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.006	.006
Constant	5.841			
Alcodum		.003		
Drugdum		.079		
Step 2			.330	.324**
Constant	5.792			
ZN		.454**		
ZE		-.130**		
ZO		.085*		
ZA		-.071		
ZC		-.111**		

Step 3			.340	.009
Constant	5.797			
Alcodum*ZN		.063		
Drugdum*ZN		.082		
Alcodum*ZE		.012		
Drugdum*ZE		.028		
Alcodum*ZO		-.091		
Drugdum*ZO		-.068		
Alcodum*ZA		.066		
Drugdum*ZA		.014		
Alcodum*ZC		-.064		
Drugdum*ZC		-.023		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*$p < .05$; **$p < .01$

In Major Depression (DEP), results (Table 7.2) revealed that 'status' significantly explained 1.6 % of the variance. Personality significantly contributed 41.2 % of the variance explained. The addition of the Interaction terms further added 1.3 % to the variance accounted for, bringing the total proportion of explained variance in DEP to 44 %. Significant main effect of Neuroticism was found ($\beta = .518$; $p = .000$), indicating that major depression increases with increase in neuroticism (Table 7.2). A considerable amount of research has demonstrated the relationship between neuroticism and depression (Bagby, Joffe, Parker, Kalemba, & Harkness, 1995; Duggan, Sham, Lee, Minne, & Murray, 1995; Enns & Cox, 1997). Neuroticism has also been suggested to be a predisposing factor to clinical depression (Flett, Hewitt, Endler, & Bagby, 1995; Widiger & Trull, 1992) and it has been found to be associated with depression of non-clinical severity (Hill & Kemp-Wheeler, 1986; Saklofske, Kelly, & Janzen, 1995). Depressive symptom among university students were also significantly predicted by neuroticism (Chioqueta & Stiles, 2005). Some studies even found that neuroticism increases during depressive episodes (Griens, Jonker, Spinhoven & Blom, 2002; Ormel, Oldehinke & Vollebergh, 2004). In a

quantitative review of associations between personality traits and depressive disorders, strongest association was found with neuroticism (Kotov, Gamez, Schmidt & Watson, 2010).

Significant main effect of Extraversion was found (β = - .157; *p* = .000), indicating that major depression increases with decrease in neuroticism. Studies found that extraversion decreases during depressive episode (Griens *et al*., 2002; Ormel *et al*., 2004). Presence and severity of depression was also associated with low levels of extraversion (Koorevaar *et al*., 2013). Malouff, Thorsteinsson & Schutte, 2005) found that mood disorders were associated with low levels of extraversion.

Significant main effect of Openness was found (β = .086; *p* = .033), indicating that major depression increases with increase in Openness. Carrillo, Rojo, Sanchez-Barnardos and Avia (1998) found that a facet of openness, being open to fantasy, predicted depression.

Significant main effect of Agreeableness was found (β = -.087; *p* = .031), indicating that major depression decreases with increase in Agreeableness. Malouff *et al*., (2005) also found in their meta-analysis that mood disorders were associated with lower levels of agreeableness. Canuto, Giannakopoulos, Meiler-Mititelu, Delaloye, Herrmann&Weber (2009) also found that agreeableness could enhance treatment outcome of depression.

Significant main effect of Conscientiousness was found (β = -.098; *p* = .017), indicating that major depression decreases with increase in Conscientiousness. Conscientiousness is found to be inversely correlated with depressive symptoms (Chioqueta & Stiles, 2005). In a study with university students hopelessness was negatively predicted by conscientiousness (Velting, 1999a). Conscientiousness ratings have been found to be low in a sample of depressed outpatients (Anderson, 1994) and a nonclinical sample with prior history of depression (Trull & Sher, 1994).

Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 7.2

Coefficients of regression model for Major Depression on Status and Personality for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.016	.016*
Constant	7.124			
Alcodum		-.060		
Drugdum		.084		
Step 2			.428	.412**
Constant	7.042			
ZN		.518**		
ZE		-.157**		
ZO		.086*		
ZA		-.087*		
ZC		-.098*		
Step 3			.440	.013
Constant	7.049			
Alcodum*ZN		.072		
Drugdum*ZN		.029		
Alcodum*ZE		.005		
Drugdum*ZE		.012		
Alcodum*ZO		-.050		
Drugdum*ZO		-.065		
Alcodum*ZA		.069		
Drugdum*ZA		-.063		
Alcodum*ZC		-.036		
Drugdum*ZC		-.017		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*$p < .05$; **$p < .01$

In Eating Disturbance (EAT), results (Table 7.3) revealed that 'status' significantly explained 5.8 % of the variance. Personality significantly contributed 5.2 % of the variance explained. The addition of the interaction terms further added 2.4 % to the variance accounted for, bringing the total proportion of explained variance in EAT to 13.5 %.

Significant main effect of status (Drugdum, β = .230; *p* = .000) was found, indicating that in eating disturbance, adolescent boys having drug-abusing siblings (*M* = 3.36) and those having normal siblings (*M* = 2.11) scored significantly different, regardless of neuroticism (Table 7.2). Siblings of drug abusers are found to be present with symptoms of eating disturbances such as bingeing and purging and sometimes even anorexia (Barnard, 2005; Velleman, Bennett, Miller, Oxford, &Tod, 1993).

Significant main effect of neuroticism was also found (β = .142; *p* = .006), indicating that eating disturbance increases with increase in neuroticism. Dysfunctional eating patterns are linked with personality trait of neuroticism (Elfhag & Morey, 2008; Provenchet, Begin, Gagnon-Girouard, Tremblay, Boivin & Lemieux, 2008). Abnormal weight has also been associated with trait Neuroticism. Individuals who are underweight tend to score higher in proneness to negative affect than those who are in the normal weight range (Kakizaki *et al*., 2008; Terracciano *et al*., 2009). Similarly, in clinical populations, underweight individuals and those with eating disorders tend to score higher in Neuroticism (Bulik *et al*., 2006; Cassin & Von Ranson, 2005). On the other side of the BMI continuum, overweight and obese groups tend to have a higher prevalence of psychiatric disorders (Petry, Barry, Pietrzak, & Wagner, 2008), which suggests that such groups may also score higher on Neuroticism. Using data from a longitudinal study that spanned more than 50 years, it was found that when measured concurrently participants higher on neuroticism had higher BMI, and longitudinally, high neuroticism was associated with weight fluctuations (Sutin, Ferrucci, Zonderman, Terracianno, 2011).

Interaction effect of 'status' (ALCODUM) with the moderator variable (Neuroticism) was found to be significant (AlcodumXZN, β = .144; *p* = .041), indicating that adolescent boys having normal sibling and adolescent boys having alcohol-abusing sibling scored significantly different in eating disturbance depending on different levels of

Neuroticism (Table 7.3). Analysis of the significance of the simple slopes (Figure-19.a) at three levels of Neuroticism (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant both at M-1SD level, that is, low level (t = -2.39; p = 0.017) and average level (t = -1.90; p = 0.058) of the moderator (Neuroticism). This indicates that at low and average levels of neuroticism, status was negatively correlated with Eating Disturbance. Adolescents having alcohol-abusing sibling scored significantly lower than those having normal sibling on eating disturbance at low level and average levels of neuroticism.

Interaction effect of 'status' (DRUGDUM) with the moderator variable (Neuroticism) was found to be significant (DrugdumXZN, β = .165; p = .043), indicating that adolescent boys having normal sibling and adolescent boys having drug-abusing sibling scored significantly different in eating disturbance depending on different levels of Neuroticism (Table 7.3). Analysis of the significance of the simple slopes (Figure-19.b) at three levels of Neuroticism (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant at all levels, that is, at low level, M- 1SD (t = 4.55; p = 0.000), average level (t = 4.66; p = 0.000) and high level, M+1SD (t = 2.25; p = 0.025) of the moderator (Neuroticism). This indicates that at low, average and high levels of neuroticism, status was negatively correlated with Eating Disturbance. Adolescents having drug-abusing sibling scored significantly higher than those having normal sibling on eating disturbance at all levels of neuroticism.

Interaction effect of 'status' (ALCODUM) with the moderator variable (Agreeableness) was found to be significant (AlcodumXZA, β = .141; p = .031), indicating that adolescent boys having normal sibling and adolescent boys having alcohol-abusing

sibling scored significantly different in eating disturbance depending on different levels of agreeableness (Table 7.3). Analysis of the significance of the simple slopes (Figure- 19.c) at three levels of Agreeableness (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant both at M-1SD level, that is, low level (t = -2.75; p = 0.006) and average level (t = -3.13; p = 0.001) of the moderator (Agreeableness). This indicates that at low and average levels of agreeableness, status was negatively correlated with Eating Disturbance. Adolescents having alcohol-abusing sibling scored significantly lower than those having normal sibling on eating disturbance at low and average levels of agreeableness.

Table 7.3

Coefficients of regression model for Eating Disturbance on Status and Personality for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.058	.058**
Constant	2.110			
Alcodum		-.020		
Drugdum		.230**		
Step 2			.110	.052**
Constant	2.087			
ZN		.142**		
ZE		-.068		
ZO		.053		
ZA		-.023		
ZC		-.096		
Step 3			.135	.024
Constant	2.107			
Alcodum*ZN		.144*		
Drugdum*ZN		.165*		
Alcodum*ZE		-.023		
Drugdum*ZE		-.086		
Alcodum*ZO		-.070		
Drugdum*ZO		-.022		
Alcodum*ZA		.141*		
Drugdum*ZA		.066		
Alcodum*ZC		-.009		
Drugdum*ZC		-.014		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*$p < .05$; **$p < .01$

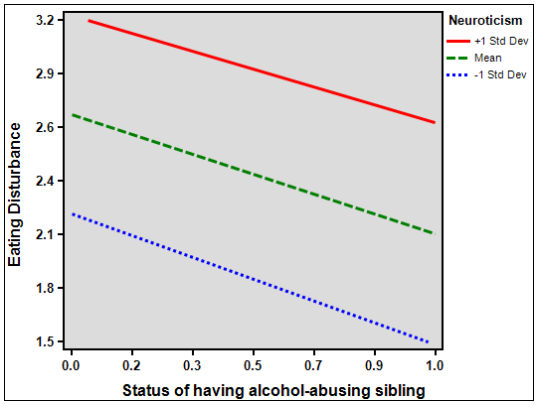


Figure 29.a: MODERATING ROLE OF NEUROTICISM BETWEEN STATUS OF HAVING ALCOHOL-ABUSING SIBLING AND EATING DISTURBANCE

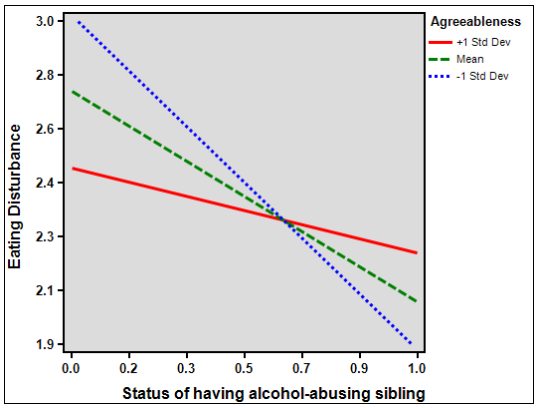


Figure 19.b: MODERATING ROLE OF AGREEABLE - NESS BETWEEN STATUS OF HAVING ALCOHOL-ABUSING SIBLING AND EATING DISTURBANCE

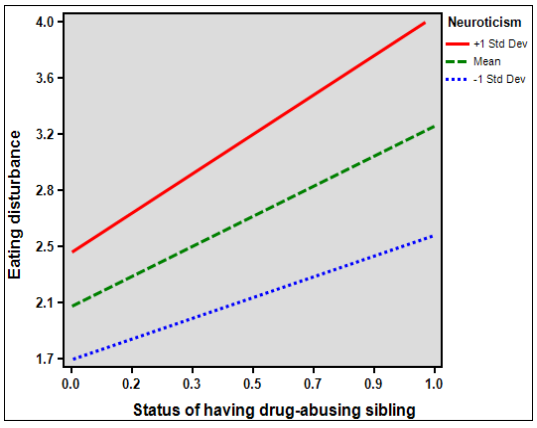


Figure 19.c: MODERATING ROLE OF NEUROTICISM BETWEEN STATUS OF HAVING DRUG-ABUSING SIBLING AND EATING DISTURBANCE

In Academic Problems (ADP), results (Table 7.4) revealed that 'status' explained 1.2 % of the variance. Personality significantly contributed 21.4 % of the variance explained. The addition of the interaction terms further added 1.8 % to the variance

accounted for, bringing the total proportion of explained variance in ADPlg to 24.3 %. Significant main effect of 'status' (Alcodum) was found (β = .108; *p* = .052), indicating that in academic problems, adolescents having alcohol-abusing sibling (*M* = 7.40) scored significantly higher than those having normal sibling (*M* = 6.50).

Significant main effect of neuroticism was found (β = .255; *p* = .000), indicating that academic problems increases with increase in neuroticism (Table 7.4). Research findings show that students who are high on neuroticism performed significantly worse than those who are low on the trait (Emmanuel Ikpi, Bassey Enya & Augustus Johnny, 2014). In a study among medical students, it was also found that students with high neuroticism react negatively to academic stress, which could account for the low academic performance of the students (Bhagat & Nayak, 2014). Chamorro-Premuzic and Furnham (2003) explored the predictability of general academic achievement in two longitudinal studies of British university students. They found neuroticism to be a negative correlate of academic achievement.

Significant main effect of Agreeableness was found (β = -.128; *p* = .006), indicating that academic problems decreases with increase in Agreeableness. De Raad and Schouwenburg (1996) argued that Agreeableness may have some positive impact on academic performance by facilitating cooperation with learning processes. This is consistent with later research that found Agreeableness was linked to compliance with teacher instructions, effort and staying focused on learning tasks (Vermetten, Lodewijks, & Vermunt, 2001).

Significant main effect of Conscientiousness was found (β = -.271; *p* = .000), indicating that academic problems decreases with increase in Conscientiousness. Students who are high in conscientiousness performed better than those who were low in conscientiousness (Chowdory & Amin, 2006). Furnham, Chamorro-Premuzic and

McDougall (2003), also found that among university students, conscientiousness was positively correlated with academic performance.

Interaction effect of 'status' (DRUGDUM) with the moderator variable (Openness) was found to be significant (DrugdumXZO, β = -.142; *p* = .039), indicating that adolescent boys having normal sibling and adolescent boys having drug-abusing sibling scored significantly different in academic problems depending on different levels of openness (Table 7.4). However, a closer look at the Analysis of the significance of the simple slopes at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be non significant.

Table 7.4
Coefficients of regression model for Academic Problems on Status and Personality for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.012	.012
Constant	.839			
Alcodum		.108*		
Drugdum		.001		
Step 2			.225	.214**
Constant	.839			
ZN		.255**		
ZE		.063		
ZO		.055		
ZA		-.128**		
ZC		-.271**		
Step 3			.243	.018
Constant	.838			
Alcodum*ZN		.074		
Drugdum*ZN		.110		
Alcodum*ZE		-.002		
Drugdum*ZE		.107		
Alcodum*ZO		-.064		
Drugdum*ZO		-.142*		
Alcodum*ZA		.079		
Drugdum*ZA		.047		
Alcodum*ZC		-.058		
Drugdum*ZC		-.002		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.
*$p < .05$; **$p < .01$

In Self-concept (SCP), results (Table 7.5) revealed that 'status' explained 1.3 % of the variance. Personality significantly contributed 33.9% of the variance explained. The addition of the interaction terms further added 2.1% to the variance accounted for, bringing the total proportion of explained variance in SCP to 37.3%. Significant main effect of Neuroticism (Table 7.4) was found (β = .399; p = .000), indicating that self-concept (high score on self-concept indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) increases with increase in neuroticism. In a study among subjects who were visually impaired and those who were not, negative relations were found between neuroticism and self-concept (Garaigordobil & Bernaras, 2009). Sushma, Kumar & Batra (2015) also found negative correlations between self – esteem and neuroticism. Boyes (2014) also found strong correlations between neuroticism and self esteem.

Significant main effect of Extraversion was found (β = -.200; p = .000), indicating that self-concept (high score on self-concept indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) decreases with increase in Extraversion. Self esteem was found to be positively correlated with extraversion (Kenneth, 2014). Sushma *et al*., (2015) also found that extraversion significantly positively predicted self esteem. A positive relation between self concept and extraversion was found by Garaigoldobil and Bernaras (2009).

Significant main effect of Conscientiousness was found (β = -.211; p = .000), indicating that self-concept (high score on self-concept indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) increases with

decrease in Conscientiousness. Self esteem correlates positively with conscientiousness among youths (Sushma *et al*., 2015).

Interaction effect of 'status' (ALCODUM) with the moderator variable (neuroticism) was also found to be significant (AlcodumXZN, β = .117; p = .053), indicating that adolescent boys having alcohol-abusing sibling and those having normal sibling scored significantly different in self-concept depending on different levels of neuroticism (Table 7.4). Analysis of the significance of the simple slopes (Figure -20) at three levels of neuroticism (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant only at M-1SD level, that is, low level (t = -2.069; p = 0.039) of the moderator (N). This indicates that at low level of Neuroticism, status was negatively correlated with self-concept. Adolescents having alcohol-abusing siblings scored significantly lower on self-concept (low score indicates positive self-concept) at low levels of Neuroticism (stability).

Table 7.5

Coefficients of regression model for Self-Concept on Status and Personality for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.013	.013
Constant	7.048			
Alcodum		-.097		
Drugdum		.029		
Step 2			.352	.339**
Constant	6.959			
ZN		.399**		
ZE		-.200**		
ZO		.015		
ZA		.001		
ZC		-.211**		
Step 3			.373	.021
Constant	6.984			
Alcodum*ZN		.117*		

Drugdum*ZN	.009
Alcodum*ZE	-.045
Drugdum*ZE	-.086
Alcodum*ZO	-.086
Drugdum*ZO	-.015
Alcodum*ZA	.072
Drugdum*ZA	-.019
Alcodum*ZC	.010
Drugdum*ZC	.094

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*$p < .05$; **$p < .01$

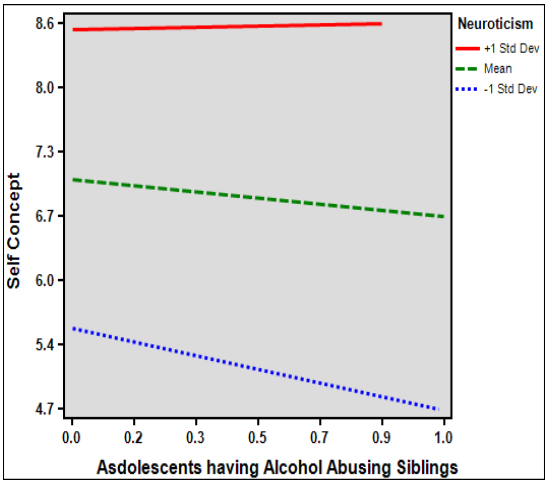


Figure 20: MODERATING ROLE OF NEUROTICISM BETWEEN STATUS OF HAVING ALCOHOL - ABUSING SIBLING

In Oppositional Defiant Disorder (OPD), results (Table 7.6) revealed that 'status' explained 1.3 % of the variance. Personality significantly contributed 23.8 % of the variance. The addition of the interaction terms further added 1.8 % to the variance accounted for, bringing the total proportion of explained variance in OPD to 27 %. Significant main effect of neuroticism was found (β = .253; *p* = .000), indicating that oppositional defiant disorder increases with increase in neuroticism (Table 7.6). Factor analyses have suggested that symptoms of Oppositional Defiant Disorder load on the dimensions "negative affect" and "oppositional behavior" (Burke, Hipwell & Loeber,

2010). Other authors have argued that Oppositional Defiant Disorder is reflective of the personality traits “low agreeableness” and “high negative emotionality” (Lahey and Waldman 2003).

Significant main effect of Agreeableness was found (β = -.232; *p* = .000), indicating that oppositional defiant disorder decreases with increase in Agreeableness. Low agreeableness is also found to be associated with oppositional defiant disorder (Lahey & Waldman, 2003). Costa and McCrae (1995) have hypothesized that agreeableness is inversely related to antisocial behavior

Significant main effect of Conscientiousness was also found (β = -.201; *p* = .000), indicating that oppositional defiant disorder decreases with increase in Conscientiousness. Conscientiousness is inversely correlated with delinquent behavior (Costa & McCrae, 1995; Digman & Inouye, 1986; Graziano, 1994).

Interaction effect of ‘status’ (DRUGDUM) with the moderator variable (extraversion) was also found to be significant (DrugdumXZE, β = .126; *p* = .052), indicating that adolescent boys having normal sibling and adolescent boys having drug-abusing siblings scored significantly different in oppositional defiant disorder depending on different levels of extraversion (Table 7.6) . Analysis of the significance of the simple slopes (Figure- 21) at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant both at M+1SD level, that is, high level (t = 3.095; *p* = 0.002) and Average level (t = 2.494; *p* = 0.012) of the moderator (E). This indicates that at both high and average levels of Extraversion, status was positively correlated with oppositional defiant disorder. That is, adolescents having drug-abusing siblings scored significantly higher on oppositional defiant disorder both at high and average levels of extraversion.

Table 7.6

Coefficients of regression model for Oppositional Defiant Disorder on Status and Personality for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.013	.013
Constant	.665			
Alcodum		-.012		
Drugdum		.109*		
Step 2			.252	.238**
Constant	.664			
ZN		.253**		
ZE		-.009		
ZO		.061		
ZA		-.232**		
ZC		-.201**		
Step 3			.270	.018
Constant	.661			
Alcodum*ZN		.040		
Drugdum*ZN		-.010		
Alcodum*ZE		-.007		
Drugdum*ZE		.126*		
Alcodum*ZO		.029		
Drugdum*ZO		.033		
Alcodum*ZA		.035		
Drugdum*ZA		-.052		
Alcodum*ZC		-.051		
Drugdum*ZC		.011		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*$p < .05$; **$p < .01$

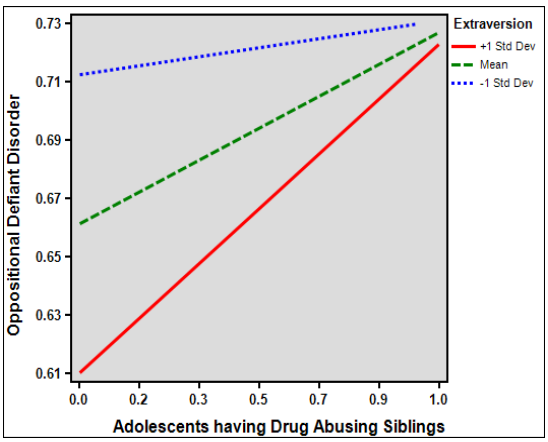


Figure 21: MODERATING ROLE OF EXTRAVERSION BETWEEN STATUS OF HAVING DRUG-ABUSING SIBLING AND OPPOSITIONAL DEFIANT DISORDER

In Generalized Anxiety Disorder (GAD), results (Table 7.7) revealed that 'status' significantly explained 1.8 % of the. Personality significantly contributed 31.8 % of the variance. The addition of the interaction terms further added 0.7 % to the variance accounted for, bringing the total proportion of explained variance in GAD to 34.3 %. Significant main effect of status (Drugdum, β = .153; *p*= .006) was found, indicating that in generalized anxiety disorder (GAD) adolescent boys having drug-abusing sibling (*M* = 8.14) and those having normal sibling (*M* = 6.86) scored significantly different, regardless of neuroticism (Table 7.7). Panic attacks and nervous breakdown are among the symptoms reported by siblings of drug abusers (Barnard, 2005; Velleman, Bennett, Miller, Oxford, &Tod, 1993).

Significant main effect of neuroticism was also found (β = .458; *p* = .000), indicating that generalized anxiety disorder increases with increase in neuroticism. Sharma (2003) found that neuroticism correlated significantly with GAD. Similar findings were also reported by Gul, Simsek & Inanir (2014) who found that neuroticism was significantly higher among GAD out patients.

Significant main effect of Agreeableness was also found (β = -.239; *p* = .000), indicating that generalized anxiety disorder increases with decrease in Agreeableness. Low trust, a facet of agreeableness, was found to be associated with social phobia and agoraphobia (Bienvenu *et al*., 2004).

Significant main effect of Conscientiousness was also found (β = -.281; *p* = .000), indicating that generalized anxiety disorder increases with decrease in Conscientiousness. In a meta-analysis of 175 studies, it was showed that individuals diagnosed with social phobia, agoraphobia, panic disorder, generalized anxiety disorder, or post-traumatic stress disorder had significantly conscientiousness scores than average control samples (Kotov,

Gamez, Schmidt, & Watson, 2010). Interaction effect of status with the moderator variable was found to be non - significant.

Table 7.7

Coefficients of regression model for Generalized Anxiety Disorder on Status and Personality for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.018	.018*
Constant	6.828			
Alcodum		.045		
Drugdum		.153**		
Step 2			.336	.318**
Constant	6.798			
ZN		.458**		
ZE		-.069		
ZO		.068		
ZA		-.092*		
ZC		-.126**		
Step 3			.343	.007
Constant	6.805			
Alcodum*ZN		.072		
Drugdum*ZN		.028		
Alcodum*ZE		-.028		
Drugdum*ZE		.015		
Alcodum*ZO		-.021		
Drugdum*ZO		-.051		
Alcodum*ZA		.011		
Drugdum*ZA		-.039		
Alcodum*ZC		-.023		
Drugdum*ZC		.016		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*$p < .05$; **$p < .01$

In Suicide (SUI), results (Table 7.8) revealed that 'status' explained 0.5 % of the variance. Personality significantly explained 32.4 % of the variance. The addition of the interaction terms further added 1.9 % to the variance accounted for, bringing the total proportion of explained variance in SUI to 34.7 %. Significant main effect of neuroticism

(β = .420; *p* = .000) was found, indicating that suicide (suicidal ideation and suicidal behaviors) increases with increase in neuroticism (Table 7.8). Neuroticism was identified as one of the risk factors for attempted suicide (Brezo, Paris and Turecki, 2006). Neeleman (2001) also suggested from his findings that adolescent neuroticism is a risk factor that makes young people almost 2.3 times more likely to die by suicide than the general population.

Significant main effect of Extraversion (β = -.195; *p* = .000) was found, indicating that suicide (suicidal ideation and suicidal behaviors) decreases with increase in extraversion (Table 2.1). Similar findings were reported in a study by Chioqueta and Stiles (2003), who found that extraversion was inversely correlated with suicide ideation. Among college students low extraversion was also found to be positively related with suicidal ideation (Devi & Prakash, 2015).

Significant main effect of Agreeableness (β = -.138; *p* = .002) was found, indicating that suicide (suicidal ideation and suicidal behaviors) decreases with increase in Agreeableness (Table 2.1). Agreeableness have a positive effect on suicide (McCann, 2010; Fazaa and Page, 2009; de Man and Gutierrez, 2004). Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 7.8

Coefficients of regression model for Suicide on Status and Personality for boys (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.005	.005
Constant	2.007			
Alcodum		-.055		
Drugdum		.020		
Step 2			.328	.324**
Constant	1.957			
ZN		.420**		
ZE		-.195**		
ZO		.050		
ZA		-.138**		
ZC		-.050		

Step 3			.347	.019
Constant	1.959			
Alcodum*ZN		.115		
Drugdum*ZN		.056		
Alcodum*ZE		-.030		
Drugdum*ZE		.043		
Alcodum*ZO		-.112		
Drugdum*ZO		-.098		
Alcodum*ZA		.087		
Drugdum*ZA		-.026		
Alcodum*ZC		.019		
Drugdum*ZC		.006		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*$p < .05$; **$p < .01$

In Anger/Violence Proneness (AVP), results (Table 7.9) revealed that 'status' explained 1.3 % of the variance. Personality significantly contributed 27.8 % of the variance. The addition of the interaction terms further added 3.5 % to the variance accounted for, bringing the total proportion of explained variance in AVPlg to 32.6 %. Significant main effect of neuroticism was found (β = .381; p = .000), indicating that anger/violence proneness increases with increase in neuroticism (Table 7.9). Neuroticism is found to be a significant predictor of anger and hostility (Hofmans, Kuppens, & Allik, 2008; Ode *et al*., 2008; Sharpe & Desai, 2001; Tremblay & Ewart, 2005). These observations support the fact that trait anger is often considered to be a facet of neuroticism (Costa & McCrae, 1992). High neuroticism was linked with enhanced expression of anger and aggression (Pease & Lewis, 2015). Neuroticism was also found to be directly and indirectly (through aggressive emotions) related to physical aggression (Barlett & Anderson, 2012).

Significant main effect of Agreeableness was found (β = -.237; p = .000), indicating that anger/violence proneness decreases with increase in Agreeableness. Low

agreeableness trait was associated with components of trait anger (Pease & Lewis, 2015). Agreeableness shows a consistent inverse relationship with anger (Egan & Campbell, 2009; Graziano & Tobin, 2002; Hofmans, Kuppens & Allik, 2008; Meier & Robinson, 2004), as well as related constructs such as aggression (Fossati *et al*., 2009; Jones, Miller & Lynam, 2011; Miller, Zeichner & Wilson, 2012; Seibert, Miller, Pryor, Reidy, & Zeichner, 2010).

Significant main effect of Conscientiousness was found (β = -.266; p = .000), indicating that anger/violence proneness decreases with increase in Conscientiousness. Several studies have demonstrated an inverse relationship between conscientiousness and both anger and aggression (Burton, Hafetz, & Henninger, 2007; Lee & Dow, 2011; Miller, Zeichner & Wilson, 2012; Tremblay & Ewart, 2005). Moreover, Martin *et al*. (1999) reported an inverse relationship between conscientiousness and both inwardly-expressed anger and outwardly-expressed anger.

Interaction effect of 'status' (DRUGDUM) with the moderator variable (extraversion) was also found to be significant (DrugdumXZE, β = .127; p = .042), indicating that adolescent boys having normal sibling and adolescent boys having drug-abusing sibling scored significantly different in anger/violence proneness depending on different levels of extraversion (Table 7.9). Analysis of the significance of the simple slopes (Figure-22) at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant only at M+1SD level, that is, High level (t = 2.732; p = 0.006) of the moderator (E). This indicates that at high level of Extraversion, status was positively correlated with anger/violence proneness. Adolescent boys having drug-abusing sibling scored significantly higher on anger/violence proneness at high level of Extraversion.

Table 7.9

Coefficients of regression model for Anger/Violence Proneness on Status and Personality for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.013	.013
Constant	.691			
Alcodum		-.099		
Drugdum		.027		
Step 2			.291	.278**
Constant	.691			
ZN		.381**		
ZE		.005		
ZO		.019		
ZA		-.237**		
ZC		-.092*		
Step 3			.326	.035*
Constant	.691			
Alcodum*ZN		.069		
Drugdum*ZN		.051		
Alcodum*ZE		-.077		
Drugdum*ZE		.127*		
Alcodum*ZO		.010		
Drugdum*ZO		.025		
Alcodum*ZA		.063		
Drugdum*ZA		-.043		
Alcodum*ZC		-.119		
Drugdum*ZC		-.047		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*$p < .05$; **$p < .01$

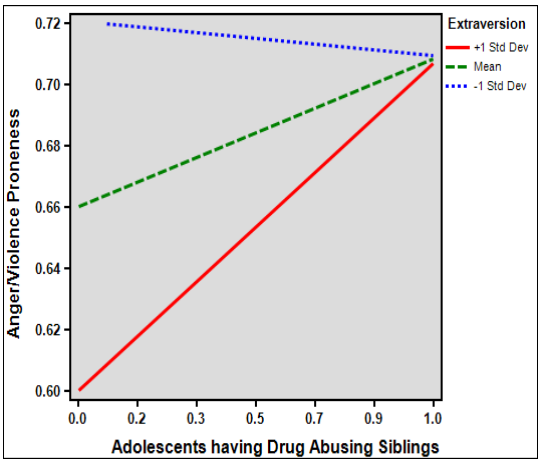


Figure 32: MODERATING ROLE OF EXTRAVERSION BETWEEN STATUS OF HAVING DRUG-ABUSING SIBLING AND ANGER/VIOLENCE PRONENESS

In Interpersonal Problems (IPP), results (Table 7.10) revealed that 'status' significantly explained 1.7 % of the variance. Personality significantly contributed 32.4 % of the variance. The addition of the interaction terms further added 2.3 % to the variance accounted for, bringing the total proportion of explained variance in IPPlg to 36.5 %. Significant main effect of status (Drugdum, β = .146; *p*= .008) was found, indicating that in interpersonal problems (IPPlg) adolescent boys having drug-abusing sibling (*M* = 7.61) and those having normal sibling (*M* = 6.34) scored significantly different, regardless of neuroticism (Table 7.10). Siblings of drug abusers are reported to be socially isolated and have difficulty in relating to and empathizing with others (Barnard, 2005; Velleman, Bennett, Miller, Oxford, & Tod, 1993).

Significant main effect of neuroticism was also found (β = .483; *p* = .000), indicating that interpersonal problems increases with increase neuroticism (Table 7.10). Neuroticism was found to negatively influence the interpersonal relationship between lecturers and students (Ayodele, 2013). Individuals high in neuroticism often express anger, moodiness, and insecurity and are not central in their friendship networks (Klein, Lim, Saltz & Mayer, 2004).

Significant main effect of Extraversion was also found (β = -.138; *p* = .001), indicating that interpersonal problems decreases with increase in Extraversion (Table 7.10). Kalish and Robins (2006) provide evidence that extraverted workers tend to construct broad, dense, heterogeneous social networks. Extraverts not only have a higher quantity of interpersonal relationships, but they also perceive those relationships to be of higher quality. Extraverted individuals feel closer to their friends and value those relationships more highly (Berry, Willingham & Thayer, 2000).

Significant main effect of Agreeableness was also found (β = -.099; *p* = .022), indicating that interpersonal problems decreases with increase in Agreeableness (Table

7.10). Agreeable individuals are generally characterized as considerate, friendly, generous, helpful, and willing to compromise their interests with others. Agreeable people also have an optimistic view of human nature. They believe people are basically honest, decent, and trustworthy. In fact, agreeableness refers to a compliant, trusting, empathic, sympathetic, friendly and cooperative nature.

Interaction effect of 'status' (ALCODUM) with the moderator variable (neuroticism) was found to be significant (AlcodumXZN, $\beta = .136$; $p = .025$), indicating that adolescent boys having normal sibling and adolescent boys having alcohol-abusing sibling scored significantly different in interpersonal problems depending on different levels of openness (Table 7.10). Analysis of the significance of the simple slopes at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be non significant. A closer look at the simple slopes did not show any significant pattern at the three levels (M-1SD, Average and M+1SD) of the moderating variable, that is, Neuroticism on Interpersonal Problems.

Interaction effect of 'status' (ALCODUM) with the moderator variable (Openness) was found to be significant (AlcodumXZO, $\beta = .134$; $p = .033$), indicating that adolescent boys having normal sibling and adolescent boys having alcohol-abusing sibling scored significantly different in interpersonal problems depending on different levels of openness (Table 7.10). Analysis of the significance of the simple slopes at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be non significant. A closer look at the simple slopes did not show any significant pattern at the three levels (M-1SD, Average and M+1SD) of the moderating variable, that is, Openness on Interpersonal Problems.

Table 7.10

Coefficients of regression model for Interpersonal Problems on Status and Personality for boys (N =445)

Predictors		β	R^2	ΔR^2
Step1			.017	.017*
Constant	.799			
Alcodum		.036		
Drugdum		.146**		
Step 2			.342	.324**
Constant	.796			
ZN		.483**		
ZE		-.138**		
ZO		.019		
ZA		-.099*		
ZC		-.023		
Step 3			.365	.023
Constant	.795			
Alcodum*ZN		.136*		
Drugdum*ZN		-.006		
Alcodum*ZE		.035		
Drugdum*ZE		.054		
Alcodum*ZO		-.134*		
Drugdum*ZO		-.057		
Alcodum*ZA		.077		
Drugdum*ZA		.044		
Alcodum*ZC		.007		
Drugdum*ZC		.046		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.
*$p < .05$; **$p < .01$

Results of regression analysis performed with Conduct Disorder (CND) as the dependent variable and Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), Conscientiousness (C) and 'status' as predictor variables revealed that a total of 435 cases were analyzed and the full model (Table 7.11.a) is a significant fit of the data (omnibus chi-square = 38.859, df = 17, $p = .002$). The model accounted for between 8.5 % and 38.3 % of the variance (Table 7.11.b), with 100 % of the siblings who do not have conduct disorder successfully predicted. However, only 25 % of predictions for the siblings

who have conduct disorder were accurate. Overall, 97 % of predictions were accurate (Table 7.11.c). Table 7.11.d gives the coefficients, the Wald statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that none of the variables significantly predicted conduct disorder. Neuroticism, extraversion, openness, agreeableness, conscientiousness and the 'status' of having an alcohol-abusing sibling or drug-abusing sibling or a normal sibling did not significantly predict whether or not adolescent boys will have conduct disorder.

Table 7.11.a: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	38.859	17	.002
	Block	38.859	17	.002
	Model	38.859	17	.002

Table 7.11.b: Model Summary of Conduct Disorder on Status and Personality

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	70.977[a]	.085	.383

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 7.11.c: Classification Table[a]

			Predicted		
			CNDDUM		
Observed			.00	1.00	Percentage Correct
Step 1	CNDDUM	.00	423	0	100.0
		1.00	9	3	25.0
	Overall Percentage				97.9

a. The cut value is .500

Table 7.11.d: Variables in the Equation

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	N	1.348	2355.540	.000	1	1.000	3.851	0.000	
	E	2.640	350.829	.000	1	.994	14.017	.000	5.929E+299
	O	6.933	519.608	.000	1	.989	1025.219	0.000	
	A	-8.832	1221.695	.000	1	.994	.000	0.000	
	C	1.958	1129.110	.000	1	.999	7.087	0.000	
	STATUS(1)	239.493	114361.187	.000	1	.998	1.024E+104	0.000	
	STATUS(2)	239.584	114361.187	.000	1	.998	1.122E+104	0.000	
	N by STATUS(1)	-1.285	2355.540	.000	1	1.000	.277	0.000	
	N by STATUS(2)	-1.382	2355.540	.000	1	1.000	.251	0.000	
	E by STATUS(1)	-2.675	350.829	.000	1	.994	.069	.000	2.916E+297
	E by STATUS(2)	-2.427	350.829	.000	1	.994	.088	.000	3.734E+297
	O by STATUS(1)	-7.292	519.608	.000	1	.989	.001	0.000	
	O by STATUS(2)	-7.037	519.608	.000	1	.989	.001	0.000	
	A by STATUS(1)	8.920	1221.695	.000	1	.994	7481.290	0.000	
	A by STATUS(2)	8.640	1221.695	.000	1	.994	5651.567	0.000	
	C by STATUS(1)	-1.965	1129.110	.000	1	.999	.140	0.000	
	C by STATUS(2)	-2.116	1129.110	.000	1	.999	.120	0.000	
	Constant	-236.170	114361.187	.000	1	.998	.000		

a. Variable(s) entered on step 1: N, E, O, A, C, STATUS, N * STATUS , E * STATUS , O * STATUS , A * STATUS , C * STATUS .

Results of regression analysis performed with Substance Abuse Disorder (SUB) as the dependent variable and Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), Conscientiousness (C) and 'status' as predictor variables revealed that a total of 435 cases were analyzed and the full model (Table 7.12.a) is a significant fit of the data (omnibus chi-square = 41.847, df = 17, p = .001). The model accounted for between 9.2 % and 23.2 % of the variance (Table 7.12.b), with 100 % of the siblings who do not have Substance Abuse successfully predicted. However, only 20 % of predictions for the siblings who have Substance Abuse were accurate. Overall, 94.5 % of predictions were accurate (Table 7.12.c). Table 7.12.d gives the coefficients, the Wald statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that openness, interaction of extraversion with the status of having an alcohol-abusing sibling, as well as interaction of openness with the status of having a drug-abusing sibling significantly predicted substance abuse disorder. Openness significantly predicted whether adolescent boys will have substance abuse disorder or not (b = .276, Wald = $\chi 2$ (1) = 4.796, p = .029). The odds ratio tells us that as openness increased by a unit, the change in the odds of having substance abuse disorder rather than not is 1.32. In short, adolescent boys are more likely to have substance abuse disorder than not if they have an openness personality. In interaction, extraversion and the 'status' of having an alcohol-abusing sibling predicted whether or not adolescent boys will have substance abuse disorder (b = .250, Wald = $\chi 2$ (1) = 5.092, p = .024). The odds ratio tells us that as 'status' changes from having a normal sibling to having an alcohol-abusing sibling in combination with extraversion increasing, the change in the odds of having substance abuse disorder than not was 1.284. In other words, as extraversion increases, adolescent boys having alcohol-abusing siblings are more likely to have substance abuse disorder than adolescent boys

having normal siblings. Adolescent boys are more likely to have substance abuse disorder when they are extraverted and have an alcohol-abusing sibling. Also in interaction, openness and the status of having a drug-abusing sibling predicted whether or not adolescent boys will have substance abuse problems (b = -.357, Wald = $\chi 2$ (1) = 5.620, p = .018). The odds ratio tells us that as status changes from having a normal sibling to having a drug-abusing sibling in combination with openness increasing, the change in the odds of having substance abuse disorder than not was .700. In other words, as openness increases, adolescent boys having drug-abusing siblings are less likely than adolescent boys having normal siblings to have substance abuse disorder. Adolescent boys are less likely to have substance abuse disorder when they are open to experience even if they have a drug-abusing sibling. Neuroticism, extraversion, agreeableness and conscientiousness did not significantly predict whether or not adolescent boys will have substance abuse disorder.

Table 7.12.a: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	41.847	17	.001
	Block	41.847	17	.001
	Model	41.847	17	.001

Table 7.12.b: Model Summary of Substance Abuse Disorder on Status and Personality

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	176.483[a]	.092	.232

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Table 7.12.c: Classification Table[a]

			Predicted		
			SUBDUM		
Observed			.00	1.00	Percentage Correct
Step 1	SUBDUM	.00	405	0	100.0
		1.00	24	6	20.0
	Overall Percentage				94.5

a. The cut value is .500

Table 7.12.d: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	N	.004	.076	.002	1	.962	1.004	.865	1.164
	E	-.154	.086	3.198	1	.074	.857	.724	1.015
	O	.276	.126	4.796	1	.029	1.318	1.029	1.688
	A	-.009	.126	.005	1	.941	.991	.775	1.267
	C	-.116	.100	1.345	1	.246	.891	.732	1.083
	STATUS(1)	2.810	6.959	.163	1	.686	16.612	.000	0.000
	STATUS(2)	6.040	6.951	.755	1	.385	420.035	.001	0.000
	N by STATUS(1)	.101	.096	1.105	1	.293	1.106	.917	1.334
	N by STATUS(2)	.106	.095	1.242	1	.265	1.112	.923	1.341
	E by STATUS(1)	.250	.111	5.092	1	.024	1.284	1.033	1.596
	E by STATUS(2)	.132	.107	1.519	1	.218	1.141	.925	1.409
	O by STATUS(1)	-.278	.149	3.471	1	.062	.757	.565	1.015
	O by STATUS(2)	-.357	.151	5.620	1	.018	.700	.521	.940
	A by STATUS(1)	-.100	.160	.388	1	.533	.905	.661	1.239
	A by STATUS(2)	-.100	.143	.491	1	.484	.905	.684	1.197
	C by STATUS(1)	-.011	.118	.009	1	.925	.989	.784	1.247
	C by STATUS(2)	.074	.129	.334	1	.563	1.077	.837	1.387
	Constant	-4.692	5.871	.639	1	.424	.009		

a. Variable(s) entered on step 1: N, E, O, A, C, STATUS, N * STATUS , E * STATUS , O * STATUS , A * STATUS , C * STATUS .

MODERATING ROLE OF PERSONALITY FOR GIRLS:

Similar to the analyses for boys above, moderation analyses for girls were also computed and summarised in the following. In Posttraumatic Stress Disorder (PTS), results (Table 7.13) revealed that 'status' explained only 1.9 % of the variance. Personality significantly contributed 26.2 % of the variance explained. The addition of the interaction terms added a further 3 % to the variance accounted for, bringing the total proportion of explained variance in PTS to 31.1 %. Significant main effect of status (Alcodum, $\beta = .161$; $p = .004$) was found, indicating that in posttraumatic stress disorder (PTS) adolescent girls having alcohol-abusing sibling ($M = 6.97$) and those having normal sibling ($M = 5.92$) scored significantly different, regardless of personality (Table 7.13).

Significant main effect of Neuroticism (N) was found ($\beta = .383$; $p = .000$), indicating that posttraumatic stress disorder (PTS) increases with increase in Neuroticism (Table 7.13). A host of research studies reported similar findings. For example, in a post-trauma prospective study, Lawrence & Fauerbach (2003) obtained results which suggested

that neuroticism was the most important personality dimension in predicting PTSD. In their cross-sectional study on persons with PTSD, Hyer, Braswell, Albrecht, Boyd & Boudewyns (1994) found that only neuroticism was significantly associated with PTSD. Chung, Berger & Rudd (2007) compared a no-PTSD group, a partial- PTSD group and a full-PTSD group of patients after myocardial infarction. Patients with full-PTSD were significantly more neurotic than those with no-PTSD and partial-PTSD. In a cross-sectional study conducted on holocaust survivors, Brodaty, Joffe, Luscombe & Thompson (2004) found that only higher neuroticism was associated with significant PTSD. The same was shown in a cross-sectional study on Chinese students after a snowstorm disaster (Wu, Yin, Xu & Zhao, 2011). Similarly, this finding was confirmed in two longitudinal studies of young adults (Parslow, Jorm & Christensen, 2006) and women after miscarriage or stillbirth. In their post-trauma prospective study on victims of traffic accidents, Holeva & Tarrier (2001) showed that neuroticism was significantly correlated with posttraumatic symptoms. In an overview of the research on the role of personality traits associated with PTSD, it was found that PTSD was positively related to neuroticism (Jaksici, Brajkovici, Ivezic, Topic & Jakovljevic, 2012).

Significant main effect of Extraversion (E) was found (β = -.164; p = .000), indicating that posttraumatic stress disorder decreases with increase in extraversion. PTSD symptoms were also found to be negatively correlated with extraversion (Jaksic *et al*., 2012). Other studies established a link between low extraversion and PTSD outcomes (e.g., Dörfel, Rabe & Karl, 2008;Fauerbach, Lawrence, Schmidt & Munster, 2000). Several studies also found positive correlations between extraversion and PTSD resilience (Lauterbach & Vrana, 2001; Campbell-Sills, Cohan & Stein, 2006).

Significant main effect of Openness was found (β = .092; p = .037), indicating that posttraumatic stress disorder increases with increase in openness. Knezevic *et al*., (2005) in

a longitudinal study of Yugoslavian students exposed to air attacks, found that openness to experience positively predicted intrusion (PSTD symptom) scores 1 year after the attacks.

Significant main effect of Conscientiousness was found (β = -.103; p = .023), indicating that posttraumatic stress disorder decreases with increase in Conscientiousness. Conscientiousness has been negatively correlated with stress and fear, and positively correlated with happiness, hope and pride (Penley and Tomaka, 2002). . Conscientiousness has been proven (e.g. Vollrath, 2001) to predict low stress exposure as it is hypothesized that conscientious individuals demonstrate a methodical approach when faced with stressful situations. Conscientiousness is considered to be more positive, optimistic and resourceful traits, as these aspects have been understood to reduce the negative outcomes of stressful events (Carver & Connor-Smith, 2007). Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 7.13

Coefficients of regression model for Posttraumatic Stress Disorder on Status and Personality for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.019	.019*
Constant	5.917			
Alcodum		.161**		
Drugdum		.078		
Step 2			.281	.262**
Constant	6.181			
ZN		.383**		
ZE		-.164**		
ZO		.092*		
ZA		-.080		
ZC		-.103*		
Step 3			.311	.030
Constant	6.144			
Alcodum*ZN		-.077		
Drugdum*ZN		-.075		
Alcodum*ZE		.055		
Drugdum*ZE		-.104		
Alcodum*ZO		.108		

Drugdum*ZO	-.021
Alcodum*ZA	-.106
Drugdum*ZA	-.007
Alcodum*ZC	-.037
Drugdum*ZC	-.063

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.
*$p < .05$; **$p < .01$

In Major Depression (DEP), results (Table 7.14) revealed that 'status' significantly explained 1 % of the variance. Personality significantly contributed 36.2 % of the variance explained. The addition of the interaction terms further added 2.3 % to the variance accounted for, bringing the total proportion of explained variance in DEP to 39.5 %. Significant main effect of 'status' (Alcodum, β = .117; p= .035) was found, indicating that in major depression (DEP) adolescent girls having alcohol-abusing sibling (M = 9.22) and those having normal sibling (M = 8.07) scored significantly different, regardless of personality (Table 7.14).

Significant main effect of Neuroticism was found (β = .495; p = .000), indicating that major depression increases with increase in neuroticism (Table 7.14). A considerable amount of research has demonstrated the relationship between neuroticism and depression (Bagby, Joffe, Parker, Kalemba, & Harkness, 1995; Duggan, Sham, Lee, Minne, & Murray, 1995; Enns & Cox, 1997). Neuroticism has also been suggested to be a predisposing factor to clinical depression (Flett, Hewitt, Endler, & Bagby, 1995; Widiger & Trull, 1992) and it has been found to be associated with depression of non-clinical severity (Hill & Kemp-Wheeler, 1986; Saklofske, Kelly, & Janzen, 1995). Depressive symptom among university students were also significantly predicted by neuroticism (Chioqueta & Stiles, 2005). Some studies even found that neuroticism increases during depressive episodes (Griens, Jonker, Spinhoven & Blom, 2002; Ormel, Oldehinke & Vollebergh, 2004). In a quantitative review of associations between personality traits and depressive

disorders, strongest association was found with neuroticism (Kotov, Gamez, Schmidt & Watson, 2010).

Significant main effect of Extraversion was found (β = - .126; *p* = .002), indicating that major depression increases with decrease in extraversion. Studies found that extraversion decreases during depressive episode (Griens *et al*., 2002; Ormel *et al*., 2004). Presence and severity of depression was also associated with low levels of extraversion (Koorevaar *et al*., 2013). Malouff, Thorsteinsson & Schutte, 2005) found that mood disorders were associated with low levels of extraversion.

Significant main effect of Conscientiousness was found (β = -.159; *p* = .000), indicating that major depression decreases with increase in Conscientiousness. Conscientiousness is found to be inversely correlated with depressive symptoms (Chioqueta& Stiles, 2005). In a study with university students hopelessness was negatively predicted by conscientiousness (Velting, 1999a). Conscientiousness ratings have been found to be low in a sample of depressed outpatients (Anderson, 1994) and a nonclinical sample with prior history of depression (Trull & Sher, 1994). Independent effect of status and its interaction with the moderator variable were found to be non-significant.

Table 7.14

Coefficients of regression model for Major Depression on Status and Personality for girls (N =445)

Predictors		*β*	R^2	ΔR^2
Step1			.010	.010
Constant	8.069			
Alcodum		.117*		
Drugdum		.066		
Step 2			.373	.362**
Constant	8.475			
ZN		.495**		
ZE		-.126**		
ZO		-.065		
ZA		-.026		
ZC		-.159**		

Step 3			.395	.023
Constant	8.433			
Alcodum*ZN		-.029		
Drugdum*ZN		-.012		
Alcodum*ZE		.082		
Drugdum*ZE		-.116		
Alcodum*ZO		.049		
Drugdum*ZO		.002		
Alcodum*ZA		-.077		
Drugdum*ZA		.050		
Alcodum*ZC		.071		
Drugdum*ZC		-.073		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness. *$p < .05$; **$p < .01$

In Eating Disturbance (EAT), results (Table 7.15) revealed that 'status' did not explain any of the variance. Personality significantly contributed 7.4 % of the variance explained. The addition of the interaction terms further added 3.8 % to the variance accounted for, bringing the total proportion of explained variance in EAT to 11.3 %.

Significant main effect of neuroticism was found ($\beta = .160$; $p = .002$), indicating that eating disturbance increases with increase neuroticism (Table 7.15). Dysfunctional eating patterns are linked with personality trait of neuroticism (Elfhag & Morey, 2008; Provenchet, Begin, Gagnon-Girouard, Tremblay, Boivin & Lemieux, 2008). Abnormal weight has also been associated with trait Neuroticism. Individuals who are underweight tend to score higher in proneness to negative affect than those who are in the normal weight range (Kakizaki *et al*., 2008; Terracciano *et al*., 2009). Similarly, in clinical populations, underweight individuals and those with eating disorders tend to score higher in Neuroticism (Bulik *et al*., 2006; Cassin & Von Ranson, 2005). On the other side of the BMI continuum, overweight and obese groups tend to have a higher prevalence of psychiatric disorders (Petry, Barry, Pietrzak, & Wagner, 2008), which suggests that such groups may also score higher on Neuroticism.

Significant main effect of Openness was also found (β = .141; *p* = .005), indicating that eating disturbance increases with increase in Openness. In a study of obesity, it was found that higher scores on openness were associated with being heavier (Sutin *et al.*, 2011).

Significant main effect of Agreeableness was found (β = -.098; *p* = .049), indicating that eating disturbance increases with increase in agreeableness.

Interaction effect of 'status' (ALCODUM) with the moderator variable (Conscientiousness) was also found to be significant (AlcodumXZC, β = .163; *p* = .041), indicating that adolescents having normal siblings and those having alcohol-abusing siblings scored significantly differently in eating disturbance (Table 7.15). However analysis of the significance of the simple slopes at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be non-significant at all levels, that is, M-1SD, Average and M+1SD.

Table 7.15

Coefficients of regression model for Eating Disturbance on Status and Personality for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.000	.000
Constant	3.931			
Alcodum		.007		
Drugdum		-.015		
Step 2			.075	.074**
Constant	4.008			
ZN		.160**		
ZE		.024		
ZO		.141**		
ZA		-.109*		
ZC		-.074		
Step 3			.113	.038
Constant	3.954			
Alcodum*ZN		.123		

Drugdum*ZN	-.113
Alcodum*ZE	.085
Drugdum*ZE	.015
Alcodum*ZO	.163*
Drugdum*ZO	.061
Alcodum*ZA	.070
Drugdum*ZA	.011
Alcodum*ZC	.041
Drugdum*ZC	-.020

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*$p < .05$; **$p < .01$

In Academic Problems (ADP), results (Table 7.16) revealed that 'status' did not explain of the variance. Personality significantly contributed 12.5 % of the variance. The addition of the interaction terms further added 10 % to the variance accounted for, bringing the total proportion of explained variance in ADPlg to 22.5 %. Significant main effect of neuroticism was found ($\beta = .148$; $p = .003$), indicating that academic problems increases with increase in neuroticism (Table 7.16). Research findings show that students who are high on neuroticism performed significantly worse than those who are low on the trait (Emmanuel Ikpi, Bassey Enya & Augustus Johnny, 2014). In a study among medical students, it was also found that students with high neuroticism react negatively to academic stress, which could account for the low academic performance of the students (Bhagat & Nayak, 2014). Chamorro-Premuzic and Furnham (2003) explored the predictability of general academic achievement in two longitudinal studies of British university students. They found neuroticism to be a negative correlate of academic achievement.

Significant main effect of Agreeableness was found ($\beta = -.105$; $p = .028$), indicating that academic problems decreases with increase in Agreeableness. De Raad and Schouwenburg (1996) argued that Agreeableness may have some positive impact on academic performance by facilitating cooperation with learning processes. This is

consistent with later research that found Agreeableness was linked to compliance with teacher instructions, effort and staying focused on learning tasks (Vermetten, Lodewijks, & Vermunt, 2001).

Significant main effect of Conscientiousness was found (β = -.245; *p* = .000), indicating that academic problems decreases with increase in Conscientiousness. Students who are high in conscientiousness performed better than those who were low in conscientiousness (Chowdory & Amin, 2006). Furnham, Chamorro-Premuzic and McDougall (2003), also found that among university students, conscientiousness was positively correlated with academic performance.

Interaction effect of 'status' (ALCODUM) with the moderator variable (Conscientiousness) was found to be significant (AlcodumXZCF, β = .307; *p* = .002), indicating that adolescent boys having normal sibling and adolescent girls having alcohol-abusing sibling scored significantly different in academic problems depending on different levels of conscientiousness (Table 7.16). Analysis of the significance of the simple slopes (Figure-23) at three levels (M-1SD, Average and M+1SD) indicated that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant at M-1SD and M+1SD levels, that is, low level (t = -4.53; *p* = 0.000) and high level (t = 4.20; *p* = 0.000)of the moderator (C). This indicates that at low level of Conscientiousness, status was negatively correlated with academic problems; but at high level, it was positively correlated with academic problems. In other words, adolescent girls having alcohol-abusing siblings will have more academic problems at high levels of conscientiousness, and the reverse at low level of conscientiousness.

Table 7.16

Coefficients of regression model for Academic Problems on Status and Personality for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.000	.000
Constant	.809			
Alcodum		-.018		
Drugdum		-.019		
Step 2			.125	.125**
Constant	.814			
ZN		.148**		
ZE		.019		
ZO		.019		
ZA		-.105*		
ZC		-.245**		
Step 3			.225	.100**
Constant	.816			
Alcodum*ZN		-.113		
Drugdum*ZN		-.007		
Alcodum*ZE		.066		
Drugdum*ZE		.000		
Alcodum*ZO		.307**		
Drugdum*ZO		.093		
Alcodum*ZA		.044		
Drugdum*ZA		-.076		
Alcodum*ZC		.021		
Drugdum*ZC		.003		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*p < .05; **p < .01

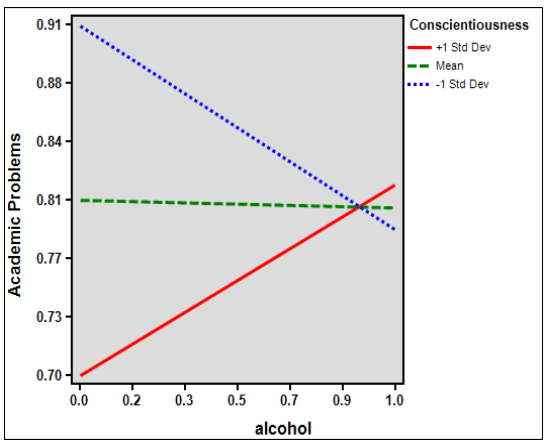


Figure 23: MODERATING ROLE OF CONSCIENTIOUSNESS BETWEEN STATUS OF HAVING ALCOHOL-ABUSING SIBLINGS AND ACADEMIC PROBLEMS

In Self-concept (SCP), results (Table 7.17) revealed that 'status' explained 2.2 % of the variance. Personality significantly contributed 30.6% of the variance explained. The addition of the interaction terms further added 1 % to the variance accounted for, bringing the total proportion of explained variance in SCP to 33.9 %. Significant main effect of 'status' (Alcodum, β = .155; *p* = .005; Drugdum, β = .139; *p* = .012) was found, indicating that in Self Concept (SCP), adolescent girls having alcohol-abusing sibling (*M*= 6.39) and those having drug-abusing sibling (*M* = 7.25) scored significantly differently from those having normal sibling (*M*= 7.01), regardless of Personality (Table 7.17). Siblings of substance abusers often report feelings of shame, poor self confidence and self image and low self esteem (Barnard, 2005; Dorn *et al*., 1994).

Significant main effect of Neuroticism was found (β = .465; *p* = .000), indicating that self-concept (high score indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) increases with increase in neuroticism. In a study among subjects who were visually impaired and those who were not, negative relations were found between neuroticism and self concept (Garaigordobil & Bernaras, 2009). Sushma, Kumar & Batra (2015) also found negative correlations between self – esteem and neuroticism. Boyes (2014) also found strong correlations between neuroticism and self esteem.

Significant main effect of Extraversion was found (β = -.142; *p* = .001), indicating that self-concept (high score on self-concept indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) decreases with increase in Extraversion. Self esteem was found to be positively correlated with extraversion (Kenneth, 2014). Sushma *et al*., (2015) also found that extraversion significantly positively predicted self esteem. A positive relation between self concept and extraversion was found by Garaigoldobil and Bernaras (2009).

Significant main effect of Conscientiousness was found (β = -.230; *p* = .000), indicating that self-concept (high score on self-concept indicates a poor sense of self-worth and self-concept since items on the scale are keyed in a negative direction) increases with decrease in Conscientiousness. Self esteem correlates positively with conscientiousness among youths (Sushma *et al.*, 2015). Interaction of status with the moderator variable was found to be non-significant.

Table 7.17

Coefficients of regression model for Self-Concept on Status and Personality for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.022	.022**
Constant	7.110			
Alcodum		.155**		
Drugdum		.139**		
Step 2			.328	.306**
Constant	7.345			
ZN		.402**		
ZE		-.142**		
ZO		-.083*		
ZA		.053		
ZC		-.230**		
Step 3			.339	.010
Constant	7.353			
Alcodum*ZN		-.016		
Drugdum*ZN		.029		
Alcodum*ZE		-.040		
Drugdum*ZE		-.091		
Alcodum*ZO		-.041		
Drugdum*ZO		.002		
Alcodum*ZA		-.005		
Drugdum*ZA		.034		
Alcodum*ZC		.003		
Drugdum*ZC		-.007		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*$p < .05$; **$p < .01$

In Oppositional Defiant Disorder (OPD), results (Table 7.18) revealed that 'status' explained 0.2 % of the variance. Personality significantly contributed 30 % of the variance. The addition of the interaction terms further added 1.1 % to the variance accounted for, bringing the total proportion of explained variance in OPDlg to 31.3 %. Significant main effect of Neuroticism was found (β = .292; p = .000), indicating that oppositional defiant disorder increases with increase in neuroticism (Table 7.18). Factor analyses have suggested that symptoms of ODD load on the dimensions "negative affect" and "oppositional behaviour" (Burke, Hipwell & Loeber, 2010). Other authors have argued that ODD is reflective of the personality traits "low agreeableness" and "high negative emotionality" (Lahey and Waldman, 2003).

Significant main effect of Agreeableness was found (β = -.354; p = .000), indicating that oppositional defiant disorder decreases with increase in Agreeableness. Low agreeableness is also found to be associated with oppositional defiant disorder (Lahey & Waldman, 2003). Costa and McCrae (1995) have hypothesized that agreeableness is inversely related to antisocial behavior.

Significant main effect of Conscientiousness was found (β = -.149; p = .001), indicating that oppositional defiant disorder decreases with increase in Conscientiousness. Conscientiousness is inversely correlated with delinquent behavior (Costa& McCrae, 1995; Digman & Inouye, 1986; Graziano, 1994). Independent effect of 'status' and its interaction with the moderator variable was found to be non-significant.

Table 7.18

Coefficients of regression model for Oppositional Defiant Disorder on Status and Personality for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.002	.002
Constant	.589			
Alcodum		.054		
Drugdum		.026		

Step 2			.302	.300**
Constant	.602			
ZN		.292**		
ZE		.047		
ZO		.033		
ZA		-.354**		
ZC		-.149**		
Step 3			.313	.011
Constant	.603			
Alcodum*ZN		.031		
Drugdum*ZN		.040		
Alcodum*ZE		.056		
Drugdum*ZE		-.009		
Alcodum*ZO		.098		
Drugdum*ZO		-.029		
Alcodum*ZA		-.003		
Drugdum*ZA		.005		
Alcodum*ZC		.016		
Drugdum*ZC		.002		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.
*$p < .05$; **$p < .01$

In Generalized Anxiety Disorder (GAD), results (Table 7.19) revealed that 'status' significantly explained 1.5 % of the. Personality significantly contributed 25.9 % of the variance. The addition of the interaction terms further added 2.1 % to the variance accounted for, bringing the total proportion of explained variance in GAD to 29.5 %. Significant main effect of status (Alcodum, $\beta = .139$; $p = .012$) was found, indicating that in Generalized Anxiety Disorder (GAD), adolescent girls having alcohol-abusing sibling ($M = 8.93$) and those having normal sibling ($M = 7.93$) scored significantly different, regardless of personality (Table 7.19). Siblings of drug abusers report symptoms such as panic attacks and nervous breakdown (Barnard, 2005; Velleman, Bennett, Miller, Oxford, & Tod, 1993).

Significant main effect of neuroticism was also found ($\beta = .415$; $p = .000$), indicating that generalized anxiety disorder increases with increase in neuroticism. Sharma (2003) found that neuroticism correlated significantly with GAD. Similar findings were

also reported by Gul, Simsek & Inanir (2014) who found that neuroticism was significantly higher among GAD out patients.

Significant main effect of Conscientiousness was also found (β = -.153; p = .001), indicating that generalized anxiety disorder increases with decrease in Conscientiousness. In a meta-analysis of 175 studies it was shown that individuals diagnosed with social phobia, agoraphobia, panic disorder, generalized anxiety disorder, or post-traumatic stress disorder had significantly lower conscientiousness scores than average control samples (Kotov, Gamez, Schmidt, & Watson, 2010). Interaction effect of 'status' with the moderator variable was found to be non-significant.

Table 7.19

Coefficients of regression model for Generalized Anxiety Disorder on Status and Personality for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.015	.015*
Constant	7.931			
Alcodum		.139**		
Drugdum		.080		
Step 2			.274	.259**
Constant	8.179			
ZN		.415**		
ZE		-.081		
ZO		.044		
ZA		-.028		
ZC		-.153**		
Step 3			.295	.021
Constant	8.168			
Alcodum*ZN		-.029		
Drugdum*ZN		-.029		
Alcodum*ZE		.109		
Drugdum*ZE		-.084		
Alcodum*ZO		.085		
Drugdum*ZO		-.039		
Alcodum*ZA		-.018		
Drugdum*ZA		.058		
Alcodum*ZC		-.022		
Drugdum*ZC		-.096		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness. *p < .05; **p < .01

In Suicide (SUI), results (Table 7.20) revealed that 'status' explained 3.3 % of the variance. Personality significantly explained 21 % of the variance. The addition of the interaction terms further added 2.2 % to the variance accounted for, bringing the total proportion of explained variance in SUI to 26.4 %. Significant main effect of 'status' (Alcodum, β = .178; *p* = .001; Drugdum, β = .183; *p* = .001) was found, indicating that in Suicide (suicidal ideation and suicidal behaviors), adolescent girls having alcohol-abusing sibling and those having drug abusing siblings scored significantly different from those having normal siblings, regardless of personality (Table 7.20). Siblings of substance abuser often report feelings of hopelessness, helplessness and thoughts of wanting to die (Barnard, 2005).

Significant main effect of Neuroticism (β = .376; *p* = .000) was found, indicating that suicide (suicidal ideation and suicidal behaviors) increases with increase in neuroticism (Table 7.20). Neuroticism was identified as one of the risk factors for attempted suicide (Brezo, Paris and Turecki, 2006). Neeleman (2001) also suggested from his findings that adolescent neuroticism is a risk factor that makes young people almost 2.3 times more likely to die by suicide than the general population.

Significant main effect of Extraversion (β = -.117; *p* = .009) was found, indicating that suicide (suicidal ideation and suicidal behaviors) decreases with increase in extraversion (Table 7.20). Similar findings were reported in a study by Chioqueta and Stiles (2003), who found that extraversion was inversely correlated with suicide ideation. Among college students low extraversion was also found to be positively related with suicidal ideation (Devi & Prakash, 2015).

Significant main effect of Openness (β = -.105; *p* = .020) was found, indicating that suicide (suicidal ideation and suicidal behaviors) decreases with increase in openness

(Table 7.20). Duberstein (1995) reported lower scores of openness to experience in elderly suicides compared to younger suicide victims and normal controls.

Significant main effect of Agreeableness (β = -.101; *p* = .024) was found, indicating that suicide (suicidal ideation and suicidal behaviors) decreases with increase in Agreeableness (Table 7.20). Agreeableness have a positive effect on suicide (McCann, 2010; Fazaa and Page, 2009; de Man and Gutierrez, 2004).

Interaction effect of status with the moderator variable (Neuroticism) was also found to be significant (DrugdumXZNF, β = .154; *p* = .018), indicating that adolescents having normal siblings and those having drug-abusing siblings scored significantly differently in suicide (suicidal ideation and suicidal behaviors) at different levels of the moderator (Table 7.20). Analysis of the significance of the simple slopes (Figure-24) at three levels (M-1SD, Average and M+1SD) that the simple slope (regression of the dependent variable on the independent variable at the level of the moderator for the current interaction line) was found to be significant at M+1SD (High level, t = 2.65; *p* = 0.008) of the moderator (Neuroticism). This indicates that at high level of neuroticism, status was positively correlated with Suicide (SUI). Adolescent girls having drug abusing siblings scored significantly higher on suicide (suicidal ideation and suicidal behaviors) when level of neuroticism was high.

Table 7.20

Coefficients of regression model for Suicide on Status and Personality for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.033	.033**
Constant	1.476			
Alcodum		.178**		
Drugdum		.183**		
Step 2			.242	.210**
Constant	1.615			
ZN		.376**		
ZE		-.117**		
ZO		-.105*		

ZA		-.101*		
ZC		-.025		
Step 3			.264	.022
Constant	1.586			
Alcodum*ZN		.048		
Drugdum*ZN		-.011		
Alcodum*ZE		-.040		
Drugdum*ZE		-.082		
Alcodum*ZO		.014		
Drugdum*ZO		.154*		
Alcodum*ZA		-.011		
Drugdum*ZA		-.104		
Alcodum*ZC		.047		
Drugdum*ZC		-.019		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*p < .05; **p < .01

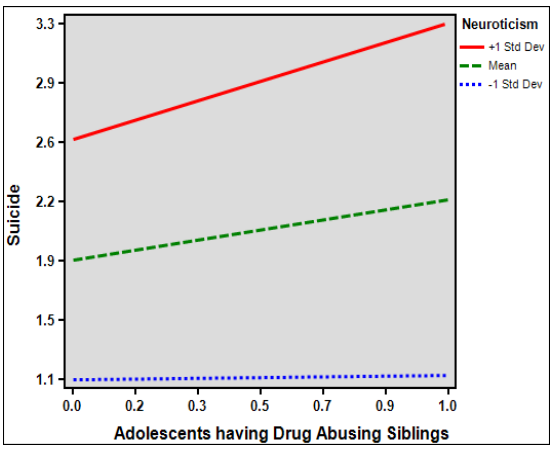


Figure 44: MODERATING ROLE OF NEUROTICISM BETWEEN STATUS OF HAVING DRUG-ABUSING SIBLING AND SUICIDE (IDEATION AND BEHAVIOUR)

In Anger/Violence Proneness (AVP), results (Table 7.21) revealed that 'status' explained 0.2% of the variance. Personality significantly contributed 39.2 % of the variance. The addition of the interaction terms further added 0.9 % to the variance accounted for, bringing the total proportion of explained variance in AVPlg to 40.3 %. Significant main effect of Neuroticism was found (β = .436; p = .000), indicating that

anger/violence proneness increases with increase in neuroticism (Table 7.21). Neuroticism is found to be a significant predictor of anger and hostility (Hofmans, Kuppens, & Allik, 2008; Ode *et al*., 2008; Sharpe & Desai, 2001; Tremblay & Ewart, 2005). These observations support the fact that trait anger is often considered to be a facet of neuroticism (Costa & McCrae, 1992). High neuroticism was linked with enhanced expression of anger and aggression (Pease & Lewis, 2015). Neuroticism was also found to be directly and indirectly (through aggressive emotions) related to physical aggression (Barlett & Anderson, 2012).

Significant main effect of Agreeableness was found (β = -.306; p = .000), indicating that anger/violence proneness decreases with increase in Agreeableness. Low agreeableness trait was associated with components of trait anger (Pease & Lewis, 2015). Agreeableness shows a consistent inverse relationship with anger (Egan & Campbell, 2009; Graziano & Tobin, 2002; Hofmans, Kuppens & Allik, 2008; Meier & Robinson, 2004), as well as related constructs such as aggression (Fossati *et al*., 2009; Jones, Miller & Lynam, 2011; Miller, Zeichner & Wilson, 2012; Seibert, Miller, Pryor, Reidy, & Zeichner, 2010).

Significant main effect of Conscientiousness was found (β = -.108; p = .009), indicating that anger/violence proneness decreases with increase in Conscientiousness. Several studies have demonstrated an inverse relationship between conscientiousness and both anger and aggression (Burton, Hafetz, & Henninger, 2007; Lee & Dow, 2011; Miller, Zeichner & Wilson, 2012; Tremblay & Ewart, 2005). Moreover, Martin *et al*. (1999) reported an inverse relationship between conscientiousness and both inwardly-expressed anger and outwardly-expressed anger.

Independent effect of ‘status’ and its interaction with the moderator variable was found to be non-significant.

Table 7.21

Coefficients of regression model for Anger/Violence Proneness on Status and Personality for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.002	.002
Constant	.591			
Alcodum		.037		
Drugdum		.051		
Step 2			.394	.392**
Constant	.614			
ZN		.436**		
ZE		-.054		
ZO		.005		
ZA		-.306**		
ZC		-.108**		
Step 3			.403	.009
Constant	.614			
Alcodum*ZN		-.023		
Drugdum*ZN		-.001		
Alcodum*ZE		.101		
Drugdum*ZE		.057		
Alcodum*ZO		.006		
Drugdum*ZO		-.069		
Alcodum*ZA		-.025		
Drugdum*ZA		.067		
Alcodum*ZC		.035		
Drugdum*ZC		-.037		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.
*p < .05; **p < .01

In Interpersonal Problems (IPP), results (Table 7.22) revealed that 'status' explained 0.7 % of the variance. Personality significantly contributed 29.6 % of the variance. The addition of the interaction terms further added 1.7 % to the variance accounted for, bringing the total proportion of explained variance in IPPlg to 32 %. Significant main effect of Neuroticism was found (β = .407; p = .000), indicating that interpersonal problems increases with increase in neuroticism (Table 7.22). Neuroticism was found to negatively influence the interpersonal relationship between lecturers and

students (Ayodele, 2013). Individuals high in neuroticism often express anger, moodiness, and insecurity and are not central in their friendship networks (Klein, Lim, Saltz & Mayer, 2004).

Significant main effect of Extraversion was also found (β = -.111; *p* = .010), indicating that interpersonal problems decreases with increase in Extraversion. Kalish and Robins (2006) provide evidence that extraverted workers tend to construct broad, dense, heterogeneous social networks. Extraverts not only have a higher quantity of interpersonal relationships, but they also perceive those relationships to be of higher quality. Extraverted individuals feel closer to their friends and value those relationships more highly (Berry, Willingham & Thayer, 2000).

Significant main effect of Agreeableness was also found (β = -.161; *p* = .000), indicating that interpersonal problems decreases with increase in Agreeableness. Agreeable people have been described as likeable, pleasant, and responsive to the needs of others (Graziano & Tobin, 2009). Tobin, Graziano, Vannman, and Tassinary (2000) described agreeable people as concerned with maintaining positive relationships with others.

Significant main effect of Conscientiousness was also found (β = -.118; *p* = .008), indicating that interpersonal problems decreases with increase in Conscientiousness.

Independent effect of 'status' and its interaction with the moderator variable was found to be non-significant.

Table 7.22

Coefficients of regression model for Interpersonal Problems on Status and Personality for girls (N =445)

Predictors		β	R^2	ΔR^2
Step1			.007	.007
Constant	.726			
Alcodum		.094		
Drugdum		.068		

Step 2			.303	.296**
Constant	.750			
ZN		.407**		
ZE		-.111**		
ZO		.036		
ZA		-.161**		
ZC		-.118**		
Step 3			.320	.017
Constant	.750			
Alcodum*ZN		-.086		
Drugdum*ZN		-.065		
Alcodum*ZE		.064		
Drugdum*ZE		.033		
Alcodum*ZO		.014		
Drugdum*ZO		.013		
Alcodum*ZA		-.009		
Drugdum*ZA		-.009		
Alcodum*ZC		.075		
Drugdum*ZC		-.100		

Note. ZN = Neuroticism, ZE = Extraversion, ZO = Openness, ZA = Agreeableness, ZC = Conscientiousness.

*$p < .05$; **$p < .01$

Regression analysis performed with Conduct Disorder (CND) as the dependent variable and Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), Conscientiousness (C) and 'status' as predictor variables revealed that a total of 435 cases were analyzed and the full model (Table 7.23.a) is a significant fit of the data (omnibus chi-square = 23.333, df = 17, $p = .139$). The model accounted for between 5.2 % and 38.6 % of the variance (Table 7.23.b), with 100 % of the siblings who do not have conduct disorder successfully predicted. However, only 25 % of predictions for the siblings who have conduct disorder were accurate. Overall, 98.6 % of predictions were accurate (Table 7.23.c). Table 7.23.d gives the coefficients, the Wald statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that none of the variables significantly predicted conduct disorder. Neuroticism, extraversion, openness,

agreeableness, conscientiousness and the 'status' of having an alcohol-abusing sibling or drug-abusing sibling or a normal sibling did not significantly predict whether or not adolescent boys will have conduct disorder.

Table 7.23.a: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	23.333	17	.139
	Block	23.333	17	.139
	Model	23.333	17	.139

Table 7.23.b: Model Summary of Conduct Disorder on Status and Personality

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	39.987[a]	.052	.386

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 7.23.c: Classification Table[a]

			Predicted		
			CNDDUM		
Observed			.00	1.00	Percentage Correct
Step 1	CNDDUM	.00	429	0	100.0
		1.00	6	0	0.0
	Overall Percentage				98.6

a. The cut value is .500

Table 7.23.d: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	N	.000	590.851	.000	1	1.000	1.000	0.000	
	E	.000	789.229	.000	1	1.000	1.000	0.000	
	O	.000	900.334	.000	1	1.000	1.000	0.000	
	A	.000	853.924	.000	1	1.000	1.000	0.000	
	C	.000	857.201	.000	1	1.000	1.000	0.000	
	STATUS(1)	19.029	42808.535	.000	1	1.000	183720650.6	0.000	
	STATUS(2)	28.755	42808.534	.000	1	.999	3.078E+12	0.000	
	N by STATUS(1)	.158	590.851	.000	1	1.000	1.171	0.000	
	N by STATUS(2)	-.115	590.851	.000	1	1.000	.892	0.000	
	E by STATUS(1)	-.113	789.229	.000	1	1.000	.893	0.000	
	E by STATUS(2)	.133	789.229	.000	1	1.000	1.142	0.000	
	O by STATUS(1)	-.140	900.334	.000	1	1.000	.870	0.000	
	O by STATUS(2)	.151	900.334	.000	1	1.000	1.163	0.000	
	A by STATUS(1)	-.064	853.924	.000	1	1.000	.938	0.000	
	A by STATUS(2)	-.382	853.924	.000	1	1.000	.683	0.000	
	C by STATUS(1)	.045	857.201	.000	1	1.000	1.046	0.000	
	C by STATUS(2)	-.234	857.201	.000	1	1.000	.792	0.000	
	Constant	-21.203	42808.533	.000	1	1.000	.000		

a. Variable(s) entered on step 1: N, E, O, A, C, STATUS, N * STATUS , E * STATUS , O * STATUS , A * STATUS , C * STATUS .

Regression analysis performed with Substance Abuse Disorder (SUB) as the dependent variable and Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), Conscientiousness (C) and 'status' as predictor variables revealed that a total of 435 cases were analyzed and the full model (Table 7.24.a) is a significant fit of the data (omnibus chi-square = 25.397, df = 17, p = .087). The model accounted for between 5.7 % and 33.8 % of the variance (Table 7.24.b), with 99.8 % of the siblings who do not have substance abuse disorder successfully predicted. However, only 12.5 % of predictions for the siblings who have substance abuse disorder were accurate. Overall, 98.2 % of predictions were accurate (Table 7.24.c). Table 7.24.d gives the coefficients, the Wald statistic, associated degrees of freedom and probability values for each of the predictor variables. This shows that none of the variables significantly predicted substance abuse disorder. Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), Conscientiousness (C) and the 'status' of having an alcohol-abusing sibling or drug-abusing sibling or a normal sibling did not significantly predict whether or not adolescent boys will have substance abuse disorder.

Table 7.24.a: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	25.397	17	.086
	Block	25.397	17	.086
	Model	25.397	17	.086

Table 7.24.b: Model Summary of Substance Abuse Disorder on status and Personality

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	54.390[a]	.057	.338

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 7.24.c: Classification Table[a]

			Predicted		
			SUBDUM		
Observed			.00	1.00	Percentage Correct
Step 1	SUBDUM	.00	426	1	99.8
		1.00	7	1	12.5
	Overall Percentage				98.2

a. The cut value is .500

Table 7.24.d: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	N	.000	590.844	.000	1	1.000	1.000	0.000	
	E	.000	789.224	.000	1	1.000	1.000	0.000	
	O	.000	900.328	.000	1	1.000	1.000	0.000	
	A	.000	853.917	.000	1	1.000	1.000	0.000	
	C	.000	857.195	.000	1	1.000	1.000	0.000	
	STATUS(1)	-62.249	42807.482	.000	1	.999	.000	0.000	
	STATUS(2)	19.801	42807.426	.000	1	1.000	397481471.5	0.000	
	N by STATUS(1)	1.659	590.845	.000	1	.998	5.252	0.000	
	N by STATUS(2)	.060	590.844	.000	1	1.000	1.062	0.000	
	E by STATUS(1)	.878	789.225	.000	1	.999	2.406	0.000	
	E by STATUS(2)	.020	789.224	.000	1	1.000	1.020	0.000	
	O by STATUS(1)	-.024	900.328	.000	1	1.000	.976	0.000	
	O by STATUS(2)	.012	900.328	.000	1	1.000	1.012	0.000	
	A by STATUS(1)	-.441	853.917	.000	1	1.000	.643	0.000	
	A by STATUS(2)	-.024	853.917	.000	1	1.000	.976	0.000	
	C by STATUS(1)	.132	857.195	.000	1	1.000	1.141	0.000	
	C by STATUS(2)	-.148	857.195	.000	1	1.000	.862	0.000	
	Constant	-21.203	42807.426	.000	1	1.000	.000		

a. Variable(s) entered on step 1: N, E, O, A, C, STATUS, N * STATUS, E * STATUS, O * STATUS, A * STATUS, C * STATUS.

Given the theoretical and empirical background and foundations pertaining to substance abuse and its impact in the family, the main concern of the study is to understand the ways in which parental acceptance-rejection, personality and coping strategies affect the relationship between the status of having substance-abusing sibling and the psychological health status of Mizo adolescents. It was hypothesized that the effects of sibling's substance abuse on adolescent psychological health status will be moderated by parental acceptance-rejection, personality traits, and coping strategies.

The study was designed with manifold objectives to delineate the research problem envisaged above. The first objective aimed to examine the effects of Sibling's Substance-Abuse–Status' (the status of having an Alcohol abusing sibling, Drug abusing sibling and Normal sibling) on the psychological health status of male and female adolescents. The second objective was to examine the moderating effect of parental acceptance-rejection (paternal acceptance-rejection and maternal acceptance-rejection separately), personality traits (neuroticism, extraversion, openness, agreeableness and conscientiousness) and coping strategies (task-oriented coping, emotion-oriented coping and avoidance-oriented coping) on the relationship between sibling's substance abuse and the psychological health status of male and female adolescents measured through the sub-scales of Adolescent Psychopathology Scale, that is, conduct disorder, posttraumatic stress disorder, major depression, eating disturbance, academic problems, self-concept, oppositional defiant disorder, generalized anxiety disorder, substance abuse disorder, suicide, anger/violence proneness and interpersonal problems.

In order to achieve the objectives of the study, a sample consisting of 300 (150 Males and 150 Females) adolescents having alcohol-abusing sibling, 300 (150 Males and 150 Females) having drug-abusing sibling and 300 (150 Males and 150 Females) having normal siblings, making a total of 900 Mizo adolescents with their age ranging from 14 to

19 years (mean age = 17.32) were collected from various schools (secondary and higher secondary) situated in and around Aizawl, the capital city of Mizoram. Majority of the participants were studying in Class 12 (53.8 %), followed by those in Class 11 (46.0 %), and a few studying in Class 10 (0.2 %). All the participants have siblings, with number of siblings ranging from 2 to 11 (Mean number of siblings = 4.02). Participants hailed from both urban (57.3 %) and rural (42.7 %), and were presently residing in different localities of Aizawl. Background information of the family included father's employment status (99 % employed), literacy (97.89 % literate), as well as mother's employment status (45.22 % employed) and literacy (97.33 % literate). Most respondents come from nuclear families (72.2 %), and the rest are from joint families (27.8 %). Data accumulated were screened for inclusion in the three groups and continued until the number of subjects in each group was attained. Only those adolescents whose siblings abuse the drugs of interest (alcohol only and multiple drugs) at moderate to high risk levels (substance abusers norm) served as subjects in the 'siblings of alcohol abusers' group and 'siblings of multiple-drug abusers' group. The control subjects (adolescents with normal siblings) are those adolescents whose siblings or other family members did not have behaviour disorders as were reflected in the demographic data sheet. Preliminary analyses revealed that all extraneous variables were more or less uniformly distributed across the three groups of samples: adolescents having alcohol abusing siblings, those having drug abusing siblings and those having normal siblings.

Subject-wise scores on the specific items of the behavioural measures of Parental Acceptance-Rejection Questionnaire – Short Form – Adult separately for Mother and Father (PARQ-Father and PARQ-Mother-SF- CHILD; Rohner & Khaleque, 2005), Coping Inventory For Stressful Situations – Adolescent (CISS; Endler & Parker, 1999), NEO Five Factor Inventory-3 (NEO-FFI-3; Costa & McCrae, 2010) and Adolescent

Psychopathology Scale-Short Form (APS-SF; Reynolds, 2004) were separately prepared and analysed to check their psychometric adequacy for measurement purposes among Mizo adolescent boys and girls. The psychometric adequacy of the behavioural measures was analyzed by employing SPSS in a step-wise manner for the 3 (three) groups of participants: Adolescents having Alcohol Abusing Sibling, Adolescents having Drug Abusing Sibling and Adolescents having Normal Sibling, in an effort to evolve consistency in results. The psychometric checks of the behavioural measures included (i) item-total coefficients of correlation (and the relationships between the specific items of the sub-scales as an index of internal consistency), (ii) reliability coefficients (Cronbach's alpha of sub-scales and full scales), (iii) relationships between the scales to relate the constructs in the target population. Results of the psychometric checks of the behavioural measures generally stood fast the test of psychometric checks for the population under study.

The results of Factorial ANOVA (2 gender X 3 status) on paternal and maternal rejection revealed that compared to females, males generally perceived significantly more hostility/aggression, undifferentiated rejection and total rejection from fathers, a finding expected of a traditional patrilineal society like the Mizo where men are less involved in the care-giving of their children (Fente, 2012; Rohner and Veneziano, 2001). This finds support from a host of literature where boys tended to perceive higher rejection during childhood from their father than did girls (Hussain *et al*., 2013; Ibrahim, 1988; Sentse *et al*., 2009; Hussain & Munaf, 2012). The present study also found that boys perceived significantly more hostility/aggression from mothers compared to girls. Apparently with boys typically engaging in more energetic activities, as in other cultures, it does not come as a surprise that Mizo boys should also perceive their major caregivers (most likely their

mother) as more impatient and reprimanding than in the case of girls of the same age (Demetriou & Christodoulides, 2006; Helewa, 1997).

Significant main effect of 'status' (status of having alcohol abusing, drug-abusing and normal siblings) indicated that adolescents having drug-abusing sibling perceived significantly more paternal hostility/aggression, indifference/neglect, undifferentiated rejection and overall rejection from fathers compared to adolescents having normal siblings. A study of siblings of drug abusers by Barnard (2005) revealed that siblings of drug abusers reported that they were 'estranged, sidelined, and that they were missing out on their parents' attention. Barnard (2005) also reported that fathers tend to withdraw from the family situation (son's addiction), and this in turn could be perceived as rejection by the non-abusing sibling. According to Cicrelli (1995), parents may become preoccupied with the ill child, giving little attention to the other children. The healthy children may be required to take on additional household responsibilities that allowed them less time for engaging in their own preferred activities. Parents can easily become overwhelmed when one of their children has high needs whether resulting from chronic disability, disease, or addiction (Lamorey, 1999). However, significant main effect of "status" was not found on any of the PARQ-Mother subscales or total scale.

The fact that the status of having drug-abusing abusing and not alcohol-abusing sibling showed significant difference in paternal rejection as compared to having normal siblings may indicate the severity with which drug abuse as compared to alcohol abuse disrupts family life among the Mizo, restricting the father, who is characteristically less involved in parenting (Fente, 2012), to give much needed attention to his other children. Further, alcohol is likely to be perceived as more of a recreational substance by Mizo males, whereas illicit drugs are viewed with more seriousness. In the Mizo context, it has also been reported (UNODC & MSJE, 2004) that the supposed scarcity of alcohol due to

MLTP (Mizoram Total Prohibition) Act, (1997) still in force during the research period leads to higher instances of drug abuse. Hence, this could perhaps explain the tolerance of alcohol-abusing siblings by males and the intolerance of drug-abusing siblings by the adolescent boys.

Significant interaction effect of "gender X status" indicated that **among boys, siblings of drug-abusers** perceived significantly more paternal hostility/aggression, undifferentiated/rejection and overall rejection than those having normal siblings and siblings of alcohol-abusers; **whereas among girls, siblings of alcohol-abusers** perceived significantly more paternal hostility/aggression, undifferentiated rejection and overall rejection than siblings of drug-abusers and those having normal siblings. Some evidence indicated that parents are generally more concerned about illicit drug use than they are about alcohol use (Hayes *et al*., 2004). It may be noted that the drugs of abuse among the drug-abusing siblings are almost all opioid derivatives, sedatives, sedatives and inhalants (85.1 %) that shows up behaviourally in apathy, sedation, disinhibition, psychomotor retardation, impaired attention, impaired judgment, lethargy, argumentativeness, lability of mood, and interference with personal function; whereas, alcohol abuse would behaviourally be reflected in aggression, disinhibition, argumentativeness, lability of mood, impaired attention and judgment and interference with personal functioning. The apathetic nature of the drug-abusing sibling may not affect female siblings as much as the aggressive nature of alcohol-abusing siblings. Thus, it is perhaps more difficult to deal with an aggressive alcohol-abusing brother or sister for a girl than a more silent drug-abusing sibling for a girl.

The results of Factorial ANOVA (2 gender X 3 status) on **Coping** revealed that compared to males, females generally used more emotion-oriented coping, a finding supported by a host of literature where women were found to employ more of emotion-

oriented coping more than any other type of coping including task-oriented and avoidance-oriented coping (Cohan *et al*., 2006; Cosway *et al*., 2000; Eaton & Bradley, 2008; Endler & Parker, 1990; Matud, 2004). Eaton and Bradley (2008) also found that women used emotion-focused coping strategies more than men. Consistent with previous findings (Cosway *et al*., 2000; Endler & Parker, 1990, 1994, 1999), women also scored significantly higher than men on emotion- and avoidance-oriented coping styles (Rafnsson, ,Smari, Windle, Mears, & Endler, 2006). Gender differences were not found in task-oriented coping and avoidance- oriented coping styles in this study.

The present study also found that Mizo adolescents having alcohol-abusing, drug-abusing and normal siblings did not differ significantly in their coping styles. The coping patterns of the adolescent boys and girls (gender) were also not different according to their "status" of having alcohol-abusing or drug-abusing sibling, with those having normal sibling as the reference group. Coping is "process oriented, contextually influenced by personal situation," (Folkman, *et al*., 1986). Based on the situation or the person, an individual may use different styles or strategies of coping. Coping style is a characteristic or typical manner of confronting a stressful situation and dealing with it (Folkman & Lazarus, 1985). It would not be necessarily expected that a group would have a characteristic style of coping or that special problems like having an alcohol-abusing or drug-abusing sibling would be dealt with in characteristic way as coping has also been conceptualized as a multidimensional process, which includes different sets of cognitive and behavioral efforts (Ptacek, Pierce, & Ptacek, 2002).

The results of Factorial ANOVA (2 gender X 3 status) on **Personality** revealed that compared to males, females were found to be more trait neurotic as well as agreeable, a finding consistent with other researches (Budaev, 1999; Costa, Terracciano, & McCrae, 2001; Feingold, 1994; McCrae, 2002; McCrae, Terracciano, & 78 Members of the

Personality Profiles of Cultures Project, 2005). Lynn and Martin (1997), examining gender differences in Neuroticism, Extraversion and Psychoticism in 37 countries, also found that men were consistently lower than women in Neuroticism and generally higher on Psychoticism and Extraversion. A study of sex differences in the Big Five Personality Factors also revealed that females showed, on average, significantly higher scores on the Agreeableness and low Emotional Stability factor than did males (Budaev, 1999).

Significant main effect of 'status' (status of having alcohol abusing, drug-abusing and normal siblings) on personality indicated that Mizo adolescents having drug-abusing siblings were significantly found to be more agreeable than those having alcohol-abusing siblings. Agreeable people are generally considerate, friendly, generous, helpful, and willing to compromise their interests with others. They also have an optimistic view of human nature, and believe people are basically honest, decent, and trustworthy. Lamorey (1999) found that siblings of children with chronic disability or disease are sometimes positively impacted and may turn out to be sensitive, altruistic, and compassionate. Other studies have also reported that they may also show greater competencies and strengths, such as greater compassion, helpfulness, maturity and empathy (Hannah & Midlarsky, 1985; Labay & Walco, 2004; Sargent, 1995). Kaufman's (1985) theory on siblings also asserts that siblings of substance abusers either also become addicted or they become "good children". Therefore, having a drug-abusing sibling probably served as a deterrent for such adolescents.

Significant interaction effect of "gender X status" personality indicated that **among boys, siblings of drug-abusers** were found to be more trait neurotic and extraverted than those having alcohol-abusing or normal siblings; **whereas among girls, siblings of alcohol-abusers** were found to be more trait neurotic but **those having normal siblings** were found to be more extraverted. It may be noteworthy to find that in literature, siblings

of substance abusers were found to have higher scores on personality traits consistently associated with substance abusers, including neuroticism (Boogar *et al*., 2014; Dubey *et al*., 2010; Fridberg, Vollmer, O'Donnell & Skosnik, 2011; Jornet-Gibert, Gallardo-Pujol, Suso & Andres-Pueyo, 2013;Sher, Bartholow, & Wood,, 2000; Solomon, Kiang, Halkitis, Moeller & Pappas, 2010) and extraversion (Dubey *et al*., 2010; Jackson and Matthews, 1988; Kannappan & Cherian, 1989; Shanmugam, 1979). Many researchers agree that shared environmental influences indicate greater sibling similarity in personality (Feinberg *et al*., 2005; Pedersen *et al*., 1988; Tellegen *et al*., 1988).

The results of Factorial ANOVA (2 gender X 3 status) on **Psychopathology** revealed that compared to males, females were found with more psychopathological symptoms of internalizing disorders including depression, eating disturbance, self-concept and generalized anxiety disorder reflecting silent sufferings, conforming to several studies addressing gender differences on various forms of psychopathology (Al-Zyoudi, 2010; Kessler, 2003; Kessler et al., 1994; Lemos, Faisca &Valadas, 2011; Nolen-Hoeksema, 2001; Regier, Narrow & Rae *et al*., 1993; Steinberg, 1996). The present study also found that compared to females, males were significantly found with more conduct disorder and substance abuse disorder, also conforming to findings of several studies (Abrahamson & Heimdahl, 2010B; Bloomfield, Wicki & Gustaffsson, 2010; Klostermann, Connell &Stormshak, 2014; Makela, Gmel, Grittner, Kuendig, Kuntsche, Bloomfield & Room, 2006; Maughan, Rowe, Messer, Goodman & Meltzer, 2004; Moffit, Caspi, Rutter& Silva, 2001).

Significant main effect of ‘status’ (status of having alcohol abusing, drug-abusing and normal siblings) on psychopathology indicated that compared to adolescents having normal siblings, adolescents having drug-abusing sibling were significantly found with more psychopathological problems of internalizing disorders including eating disturbance,

generalized anxiety disorder, suicidal ideation and suicidal behaviour and interpersonal problems and, those having alcohol-abusing siblings were found to have more substance abuse disorder. Considerable amount of literature suggests that siblings of other children with special needs may experience a range of negative consequences, including anxiety or depressive symptoms (Sharpe & Rossiter, 2002), and increased emotional problems (Hannah & Midlarsky, 1985; Lobato, 1983; Summers *et al*., 1994). Also reported by siblings of such children are embarrassment, fear, neglect, resentment, guilt and conflict with peers (e.g., Lobato, Kao &Plante, 2005). Summers *et al*.'s (1994) review concluded that siblings of children with disability or chronic illness have greater tendencies toward anxiety, depressive symptoms, irritability, withdrawal, and aggression. Aguilar *et al*. (2001) found that the younger sisters of male target children exhibited higher levels of multiple negative behaviors, including academic and behavior problems, associations with "deviant" peers, smoking, drug use, and arrest records. It has also been found that siblings of drug abusers tend to report anorexia, bingeing, purging, panic attacks, social isolation, difficulty in relating to and sympathizing with others and sometimes thoughts of wanting to die (Barnard, 2005; Velleman *et al*., 1993).

Significant interaction effect of "gender X status" on psychopathology indicated that **among boys, siblings of drug-abusers** are consistently found with more psychopathological symptoms including major depression, eating disturbance, self-concept (higher scores reflecting poor self-concept) and suicidal ideation and behaviours, **whereas among girls, siblings of alcohol-abusers** are consistently found to show the same symptoms. Therefore, among adolescent boys, having a drug abusing sibling seem to negatively impact their psychological health, whereas among girls having an alcohol-abusing sibling seem to be the impacting factor for psychological ill-health.

In general, results indicated that Mizo boys perceived more parental rejection and were more prone to conduct disorder and substance abuse disorder than girls; whereas girls used more emotion-oriented coping and were more trait neurotic and agreeable, and also reported more depression, eating disturbance, self-concept (higher scores reflecting more negative or poorer self concept) and generalized anxiety disorder than males. Results also indicated that adolescent siblings of drug-abusers generally perceived more rejection from fathers, were also generally more agreeable and found with more generalized anxiety disorder, suicide (suicidal ideation and behaviours), interpersonal problems; whereas siblings of alcohol-abusers are found with more substance abuse disorder than those having normal siblings. Finally, male siblings of substance abusers perceived more parental rejection, were more trait neurotic and extraverted and were generally more prone to eating disturbance; whereas, female siblings of substance abusers perceived more rejection and are more trait neurotic and more prone to eating disturbance.

To determine the moderating role of parental rejection, personality and coping styles in the relationship between the status of having substance abusing siblings (Alcohol, Drugs and Normal control) and psychological health status among Mizo adolescents, several hierarchical regression models were analysed. Before embarking upon the actual moderation analysis, diagnostic tests of assumptions that underlie the application of parametric tests were first checked: linearity, normality (skewness / kurtosis below 1.96, Kolmogorov-Smirnov test and Shapiro-Wilk test), homogeneity of variance (Levene's test and Hartley's *Fmax*) and independence of errors (Durbin Watson test). Because of poorer reliability of a few of the parental rejection subscales, only the total rejection scores for fathers and mothers (TTRF and TTRM only) were considered for moderation analysis since the subscales of paternal and maternal rejection (Warmth/Affection, Hostility/Aggression, Indifference/Neglect and Undifferentiated /Rejection) were already

found to be strongly positively correlated with one another and with the total scale scores, and as the total scores are sufficient measures of the parenting variable of interest. Some subscales were also found to require more refinements, especially on NEO-FFI and APS-SF. However, given the large sample size and logarithmic transformations of scores, coupled with the report of *F*max for homogeneity of variance, all subscales were deemed fit for further analyses. The moderation analyses using hierarchical regression analyses (stepwise, enter method) were run in SPSS 20, Interaction Software (Soper, 2013) and Hayes' PROCESS for SPSS (Fields, 2014) for Mizo adolescent boys and girls separately as gender differences were found in many of the variables of interest. For moderation analysis where the dependent variables scores were nominal (conduct disorder and substance abuse), logistic regressions were computed.

To summarize the results of the moderation analyses for boys and girls to delineate the **moderating role of paternal and maternal rejection in the relationship between status of having substance-abusing sibling and psychological health status**, the overall results revealed that a small but significant proportion of the variance in psychological health status were explained by the status of having substance-abusing sibling in boys (depression, eating disturbance, academic problems, generalized anxiety and interpersonal problems) and in girls (posttraumatic stress, self-concept problems, generalized anxiety disorder, suicidal and anger/violence proneness). It is especially noteworthy that in eating disturbance, a marginal proportion of the variance was significantly explained by the status of having drug-abusing sibling in boys but not in girls. Girls does not appear to have been affected in terms of eating problems perhaps because girls of this age tend to be perpetually on a slimming diet anyway and usually do not follow a healthy diet plan. There is evidence that dieting is a normative behavior for young women (Garner, Rockert, Olmsted, Johnson, & Coscina, 1985; Rodin, Silberstein, & Striegel-Moore, 1985).

However, various studies have reported that siblings of drug abusers reported psychological symptoms of anorexia such as bingeing and purging (Barnard, 2005; Velleman *et al*, 1993).

Both paternal and maternal rejection explained a considerable proportion of the variance in all the variables of psychological health status in boys (viz., conduct disorder, posttraumatic stress disorder, major depression, eating disturbance, academic problems, self-concept, oppositional defiant disorder, generalized anxiety disorder, substance abuse disorder, suicide, anger/violence proneness and interpersonal problems) and except eating disturbance in girls (viz., conduct disorder, posttraumatic stress disorder, major depression, academic problems, self-concept, oppositional defiant disorder, generalized anxiety disorder, substance abuse disorder, suicide, anger/violence proneness and interpersonal problems). Results also revealed more instances of paternal rejection that significantly explained the variances in psychopathology than maternal rejection; whereas for girls such significant instances were more or less the same for paternal and maternal rejection. Indeed, many studies have supported this finding that parental rejection is highly associated with various psychopathological symptoms, such as Baumrind (1991), Chen, Liu & Li (2000), Rohner & Khaleque (2005), Gulay (2011), Majeed (2009), Salahur (2010) Sentse *et al*. (2009), van der Kolk (2010), to name a few.

The moderating role of paternal rejection was found to be significant in explaining the relationship between status of having drug-abusing sibling and academic problems in boys. It is often observed that all siblings or family members are not equally affected by a member's drug abuse in the family. The finding in this study revealed that adolescent boys having drug-abusing sibling scored significantly lower on academic problems when paternal rejection was low (high score on TTRF indicates more rejection). In other words, therefore, it could be predicted that even if boys have drug-abusing siblings, they are

likely to have less academic problems if their fathers were perceived to be warm. That is, paternal warmth appears to have alleviated the academic problems likely to happen due to a sibling's drug-abuse.

The moderating effect of maternal acceptance-rejection was also found to significantly explain the relationships between the status of having alcohol-abusing sibling which and depression, which indicates that adolescents having alcohol abusing siblings scored significantly lower on depression when maternal rejection was at average and low levels. In other words, when mothers are perceived to be warm, adolescent boys having alcohol-abusing siblings would have less depression. That is, maternal warmth appears to have assuaged the chances of developing depression due to a sibling's alcohol abuse.

The moderating role of paternal rejection in the relationship between the status of having a drug-abusing sibling and suicidal ideas and behaviour was also found to be significant in girls, which indicated that at high level of paternal rejection, status was positively correlated with suicide. Adolescent girls having drug-abusing sibling scored significantly higher on suicide when paternal rejection was high. That is, paternal rejection seems to have aggravated the chances of having suicidal ideas and behaviour in the wake of a sibling's drug abuse.

To summarize the results of the moderation analyses for boys and girls that delineated the **moderating role of coping styles in the relationship between status of having substance-abusing sibling and psychological health status**, the overall results revealed that a small but significant proportion of the variance in psychological health status were explained by the status of having substance-abusing sibling in boys (depression, eating disturbance, academic problems, generalized anxiety and interpersonal

problems) and in girls (posttraumatic stress, self-concept problems, generalized anxiety disorder, suicidal ideas and behaviour) as already discussed elsewhere.

Coping styles explained a substantial proportion of the variance in all the variables of psychological health status in boys and girls (viz., Conduct Disorder, Posttraumatic Stress Disorder, Major Depression, Eating Disturbance, Academic Problems, Self-Concept (problems),Oppositional Defiant Disorder, Generalized Anxiety Disorder, Substance Abuse Disorder, Suicide (ideation and behavior), Anger/Violence Proneness and Interpersonal Problems). Task-oriented coping was significantly negatively correlated with all the psychopathological variables for both boys and girls indicating that psychopathological symptoms decrease with increase in task-oriented coping. This has found support in many earlier studies like the original study by Lazarus and Folkman (1984)followed by others such as Causey & Dubow (1992), Grover *et al*. (2009), Gustems-Carnicer and Calderon, 2013, Khurana & Romer, (2012), Lewin-sohn, Rohde, & Seeley (1994),Wills & Hirky (1996) etc to name a few.

A peculiar finding of the study again is that in boys, the status of having drug-abusing sibling was significantly associated with more psychopathological symptoms, whereas the status of having alcohol-abusing sibling was more significantly associated with psychopathological symptoms in girls. It may be noted that the drugs of abuse among the drug-abusing siblings are almost all opioid derivatives, sedatives and inhalants (85.1 %), the intoxication of which shows up behaviourally in apathy, sedation, disinhibition, psychomotor retardation, impaired attention, impaired judgment, lethargy, argumentativeness, lability of mood, and interference with personal function; whereas, alcohol abuse would behaviourally be reflected in aggression, disinhibition, argumentativeness, lability of mood, impaired attention and judgment and interference with personal functioning (ICD-10). The apathetic nature of the drug-abusing sibling may

not affect female siblings as much as the aggressive nature of alcohol-abusing siblings. Thus, it is perhaps more difficult to deal with an alcohol-abusing brother or sister for a girl than a more silent drug-abusing sibling for a girl.

The moderating role of coping styles were found to be significant in explaining the relationship between status of having substance-abusing (drugs, alcohol) sibling and psychopathological symptoms. It is often observed that all siblings or family members are not equally affected by a member's drug abuse in the family. The finding in this study revealed that adolescent boys having drug-abusing sibling scored significantly higher than normal on posttraumatic stress disorder at low level of **avoidance-oriented coping**. In other words, low level of avoidance-oriented coping aggravates the chances of developing posttraumatic stress disorder in adolescent boys having drug-abusing sibling. Further, avoidance-oriented coping was found to be significant moderator in the relationship between the status of having drug-abusing sibling and interpersonal problems in boys. Adolescent boys having drug-abusing siblings scored significantly lower on interpersonal problems at average and low levels of avoidance-oriented coping.

Emotion-oriented coping was also found to play a significant moderating role in the relationship between status of having drug-abusing sibling and eating disturbance. When emotion-oriented coping was used, male adolescent siblings of substance abusers tend to have eating disturbance. Emotion-oriented coping was also found to be a significant moderator in academic problems for adolescent boys having drug-abusing sibling. This indicates that at low level of emotion-oriented coping, status was negatively correlated with academic problems. Adolescent boys having drug-abusing sibling scored significantly lower on academic problems when emotion-oriented coping level is low.

In girls, avoidance-oriented coping was found to be a significant moderator in the relationship between sibling's substance abuse and posttraumatic stress disorder. Results indicated that adolescent girls having alcohol-abusing sibling and those having normal sibling scored significantly different in posttraumatic stress disorder depending on different levels of avoidance-oriented coping. At average and high levels of avoidance-oriented coping, status was positively correlated with Posttraumatic Stress Disorder (PTS) in girls. Adolescent girls having alcohol-abusing siblings scored significantly higher on posttraumatic stress disorder when levels of avoidance-oriented coping were average or high. It was also found that at high level of avoidance-oriented coping, status was positively correlated with Interpersonal Problems (IPP). Adolescent girls having alcohol-abusing siblings scored significantly higher on interpersonal problems at high level of avoidance-oriented coping.

Emotion-oriented coping was also found to be a significant moderator in the relationship between sibling's substance abuse and academic problems. Results indicated that adolescents having normal siblings and those having alcohol-abusing siblings scored significantly differently in academic problems. At low level of emotion-oriented coping, status was positively correlated with Academic Problems. Adolescent girls having alcohol-abusing siblings scored significantly lower on academic problems at low level of emotion-oriented coping. Further, emotion-oriented coping significantly moderated between status of having drug-abusing sibling and suicidal ideation and behaviour. At average and high levels of emotion-oriented coping, it could be predicted that adolescents having drug-abusing siblings will have more suicidal ideation and suicidal behaviours.

In summarizing the results of the moderation analyses for boys and girls to delineate the **moderating role of personality in the relationship between status of having substance-abusing sibling and psychological health status**, personality

(Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness) significantly explained a substantial proportion of the variance in psychological health status in boys and girls (viz., Conduct Disorder, Posttraumatic Stress Disorder, Major Depression, Eating Disturbance, Academic Problems, Self-Concept (problems),Oppositional Defiant Disorder, Generalized Anxiety Disorder, Substance Abuse Disorder, Suicide (ideation and behavior), Anger/Violence Proneness and Interpersonal Problems).

Significant main effect of Neuroticism on all the psychopathological variables indicated increased psychopathological problems in adolescent boys and girls scoring high on neuroticism trait, and openness in some instances. The other traits of personality (extraversion, agreeableness and conscientiousness) were significantly negatively related to psychopathological symptoms, indicating less psychological health problems in those adolescents high on extraversion, agreeableness, and conscientiousness. This finds support from many earlier studies like Jaksic *et al*., (2012), Penley and Tomaka (2002), Griens *et al*., (2002); Ormel *et al*., (2004), Malouff *et al*., (2005),etc to name a few.

Significant moderating role of neuroticism, openness, and extraversion for boys and conscientiousness and neuroticism for girls was found to explain the relationship between status of having substance-abusing (drugs, alcohol) sibling and psychopathological symptoms. It is often observed that all siblings or family members are not equally affected by a member's drug abuse in the family. The finding in this study revealed that adolescent boys having alcohol-abusing sibling scored significantly higher than normal on Eating Disturbance depending on different levels of **Neuroticism**. At low and average levels of neuroticism, adolescents having alcohol-abusing sibling scored significantly lower than those having normal sibling on eating disturbance. Further, at low, average and high levels of neuroticism, adolescents having drug-abusing sibling scored

significantly higher than those having normal sibling on eating disturbance. Significant moderating role of neuroticism further indicated that adolescent boys having alcohol-abusing siblings scored significantly lower on self-concept (low score indicates positive self-concept) at low levels of Neuroticism (stability). High trait on neuroticism appears to have aggravated the chances of developing psychopathological symptoms in boys having substance-abusing siblings.

Agreeableness was also found to be a significant moderator in eating disturbance of boys having alcohol-abusing sibling. The results indicated that boys having alcohol-abusing sibling and those having normal sibling scored significantly different in eating disturbance depending on the levels of agreeableness trait. At low and average levels of agreeableness, adolescents having alcohol-abusing sibling scored significantly lower than those having normal siblings in eating disturbance.

Significant moderating role of extraversion indicated that adolescent boys having normal sibling and adolescent boys having drug-abusing siblings scored significantly different in oppositional defiant disorder depending on different levels of extraversion. At both high and average levels of Extraversion, status was positively correlated with oppositional defiant disorder. That is, adolescents having drug-abusing siblings scored significantly higher on oppositional defiant disorder both at high and average levels of extraversion.

For girls, conscientiousness was found to be a significant moderator, indicating that adolescent girls having normal sibling and adolescent girls having alcohol-abusing sibling scored significantly differently in academic problems at different levels of conscientiousness. At low level of Conscientiousness, status was negatively correlated with academic problems; but at high level, it was positively correlated with academic

problems. In other words, adolescents having alcohol-abusing siblings will have more academic problems at high levels of conscientiousness, and the reverse (less academic problems) at low level of conscientiousness.

Neuroticism was also found to be a significant moderator for girls. Adolescent girls having normal siblings and those having drug-abusing siblings scored significantly differently in suicide (suicidal ideation and suicidal behaviors) depending on the levels of Neuroticism. At high level of neuroticism, status was positively correlated with Suicide (SUI). Adolescent girls having drug-abusing siblings scored significantly higher on suicide (suicidal ideation and suicidal behaviors) when level of neuroticism was high, thus indicating that neuroticism trait played an aggravating moderating role in the relationship between status of having drug-abusing sibling and psychopathology in girls.

In conclusion, it may be reiterated that the results of the study confirmed the moderation hypothesis set forth for the study that the effects of 'a Sibling's Substance-Abuse–Status' on adolescent psychological health status will be moderated by parental acceptance-rejection, personality traits, and coping strategies. This is the foremost **significance of the study** considering the relevance of such information for society, especially the Mizo society whose families are learning to deal with the burdens of such social ills as substance abuse and addiction, it being geographically located on the border of North East India, having to deal with "the ugly behemoth of narcotics trafficking intertwined with ethnic insurgencies in the neighboring *Golden Triangle*" (Goswami, 2014).

Gender differences on the effects of having alcohol-abusing sibling as compared to having drug-abusing sibling was found, although it was not hypothesized and was unexpected since it was expected that boys and girls would be equally negatively impacted

by a sibling's substance abuse, another significant point of this study. This may be due to the fact that intoxication of alcohol and the drugs of abuse in common in Mizoram (sedatives and opioids) give differential effects on the behaviour of the abusers. The apathetic nature of the drug-abusing sibling may not affect female siblings as much as the aggressive nature of alcohol-abusing siblings. Thus, it is perhaps more difficult to deal with an alcohol-abusing brother or sister for a girl than a more silent drug-abusing sibling for a girl, highlighting the vulnerability of the adolescent girls.

Different types of substances create different stresses and demands on family members. Key areas of impact on relatives are physical and psychological health, finance and employment, social life and family relationships (Barnard, 2005). Literature review suggests that there is little research specifically focussing on the siblings of substance abusers. The results of this study have highlighted the importance of considering not only that the needs of the other brothers and sisters of the substance abusers but specifically that the parenting styles, their coping styles and their personality may alleviate or aggravate the impact of such sibling's substance abuse, as not everybody is equally affected and develop psychopathological symptoms. Resilience research suggests that while a large proportion of siblings show maladjustment, a certain proportion will also show positive adaptation in spite of their challenging circumstances (Luthar, Cicchetti, & Becker, 2000). Thus, while literature shows that siblings experience a range of negative consequences, some studies have reported that they may also show greater competencies and strengths, such as greater compassion, helpfulness, maturity and empathy (Hannah & Midlarsky, 1985; Labay & Walco, 2004; Sargent, 1995).

The findings of this study also support Rohner's (2004) concept of parental acceptance-rejection syndrome, which concludes that children and adults who perceive themselves to be rejected tend to display several psychological maladjustments. The

results also support the literature that the way a person responds to a problem (or stress) is related to subsequent psychological adjustment, and also that task-focused coping strategies are generally more adaptive than emotion-focused or avoidance strategies (Cosway, Endler, Sadler, & Deary, 2000; Endler & Parker, 1990b; Folkman & Lazarus, 1980; Pearlin & Schooler, 1978). Finally, it was also highlighted that personality seems to determine healthy psychological adjustment (Barnard, 2005), some traits being more adaptive than others (Boogar, Tabatabaee and Tosi, 2014; Coeffec, 2011; Devi & Prakash, 2015; Dubey, Arora, Gupta and Kumar, 2010; Kotov *et al*., 2010).It is hoped that such information will highlight or educate the Mizo population about the consequences and needs of other family members, especially adolescent siblings, in the wake of substance abuse problems within the family.

A pressing **limitation** of the study was that the already large size of the research constricted the number of parenting variables that could be looked into as potential moderators of the relationship between having a substance-abusing sibling and psychopathological variables taken in this study. socio-cultural and religious factors could also throw light upon the support that such siblings could avail in his environment to ease the pain of having to deal with such substance-abusing siblings. It is **suggested for future research** that more parenting variables like permissiveness, restrictiveness, authoritarian, authoritative, and democratic parenting, overprotection and parental control be taken into consideration as well as the societal factors and spiritual well-being that may play aggravating or alleviating moderating roles in the siblings of substance abusers. An interesting objective would also be to understand co-dependency in families burdened with substance abuse problems particularly in the context of Mizo family as such literature is still scarce. It is hoped that such information will highlight or further educate the Mizo

population about the consequences and needs of other family members, especially adolescent siblings, in the wake of substance abuse problems within the family.

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APPENDIX – 1

PARENTAL ACCEPTANCE REJECTION QUESTIONNAIRE – SHORT FORM- CHILD VERSIONS FOR FATHER

(PARQ-SF-CHILD; *Rohner, R.P & Khaleque, A., 2005)*.

PARQ: CF (SF)

Hetah hian, Pa-in a fa chunga a tih \hin dan chi hrang hrang a inziak a. I Pa-in I chunga a tih \hin dan nen a inang em tih lo ngaihtuah chungin sentence tin hi I chhang dawn nia.

A hnuaia example dah ang hian, sentence pakhat tan chhanna awm thei pali (boxes) dah zel ani a. Sentence chu I Pa-in a tih \hin dan che nen **a tlangpuiin a inan chuan**, **"A dik deuh ziah"** nge **"A chang changin a dik"** tih inzawt la, a ni zawk zawk hnuaia box ah khan I tick dawn nia. Thu chu nangma chungchangah a diklo tlangpui ni a I hriat chuan **"A dik khat khawp"** nge **"A dik lo deuh ziah"** tih inzawt la, a ni ✓ k zawk hnuaia box ah khan I tick dawn nia. **A chhanna pali awm thei a\ang hian, pakhat chauh thlan tur tihna a nih chu.**

Chhanna dik leh dik lo a awm lova, chuvangin ni a I hriat dan ang chiahin I chhang dawn nia. Engkim hi chhang vek la, tha ni a I hriat ang nilovin nangma hmuh dan dik takin chhang ang che.

Entirnan: I fel changin a pawmin a fawp deuh reng \hin che anih chuan hetiangin chhang ang che.

MY FATHER **Ka pa chuan**	**TRUE OF MY FATHER** **(Ka pa ah chuan a dik)**		**NOT TRUE OF MY FATHER** **(Ka pa ah chuan a dik lo)**	
	Almost Always True ***(A dik deuh ziah)***	***Sometimes True*** ***(A chang changin a dik)***	***Rarely True*** ***(A dik khat khawp)***	***Almost Never True*** ***(A dik lo deuh ziah)***
Hugs and kisses me when I am good (Ka fel chuan min kuahin min fawp \hin)	✓	☐	☐	☐

CHHAN ZAWM RAWH LE. I PA A BORAL TAWH A NIH CHUAN, I PA ANGA I EN/ I PAHRAWN CHUNGCHANG MILIN I CHHANG DAWN NIA.

KA PA CHUAN **(MY FATHER)**		**KA PA AH A DIK** **(TRUE OF MY FATHER)**		**KA PA AH A DIK LO** **(NOT TRUE OF MY FATHER)**	
		A dik deuh ziah (Almost Always True)	***A chang chang in a dik (Sometimes True)***	***A dik khat khawp mai (Rarely True)***	***A dik lo deuh ziah (Almost Never True)***
1.	Ka chanchin a \ha zawngin a sawi \hin. (Says nice things about me)	☐	☐	☐	☐
2.	Min ngaihsak ngai lo. (Pays no attention to me)	☐	☐	☐	☐
3.	Ka thil ngaih pawimawh zawng te awlsam taka ka hrilh theih turin a awm thiam. (Makes it easy for me to tell him things that are important to me)	☐	☐	☐	☐
4.	Ka phu miah lovah pawh min vua/ beng. (Hits me, even when I do not deserve it)	☐	☐	☐	☐
5.	Mi ninawm leh hnawksak takah min ngai. (Sees me as a big nuisance)	☐	☐	☐	☐

6.	A thinrim chuan nasa takin min hrem \hin. (Punishes me severely when he is angry)	☐	☐	☐	☐
7.	Ka zawhna chhang hman lo khawpin a buai. (Is too busy to answer my questions)	☐	☐	☐	☐
8.	Min ngainat loh hmel. (Seems to dislike me)	☐	☐	☐	☐
9.	Ka thil tih ah mi tuipui hle \hin. (Is really interested in what I do)	☐	☐	☐	☐
10.	Deuhsawh deuhin min be \hin (Says many unkind things to me)	☐	☐	☐	☐
11.	A \anpuina ka ngen pawhin min ngaihsak ngai lo. (Pays no attention when I ask for help)	☐	☐	☐	☐
12.	Min mamawhin min duh a ni tih a lantir. (Makes me feel wanted and needed)	☐	☐	☐	☐
13.	Min ngaihsak lutuk (Pays a lot of attention to me)	☐	☐	☐	☐
14.	Ka rilru ti na tur kherin a khawsa \hin. (Goes out of his way to hurt my feelings)	☐	☐	☐	☐
15.	Thil pawimawh a hriat reng tur a ka ngaih te hi a lo theihnghilh daih zel. (Forgets important things I think he should remember)	☐	☐	☐	☐
16.	Ka awm \hat loh chuan min hmangaih lovin ka hre \hin. (Makes me feel unloved if I misbehave)	☐	☐	☐	☐
17.	Ka thil tih hi a pawimawh ve ni a ngaihna rilru min siam \hin. (Makes me feel what I do is important)	☐	☐	☐	☐
18.	Thil dik lo ka tihin min vau nek \hin (Frightens or threatens me when I do something wrong)	☐	☐	☐	☐
19.	Ka ngaihdan te a ngai pawimawhin sawi chhuak \hin turin min duh (Cares about what I think, and likes me to talk about it))	☐	☐	☐	☐
20.	Engpawh ti ila, kei aiin naupang dangte an \ha zawkah a ngai hrim hrim. (Feels other children are better than I am no matter what I do)	☐	☐	☐	☐
21.	Min duh lo/ min ning a ni tih min hriattir \hin. (Lets me know I am not wanted)	☐	☐	☐	☐
22.	Min hmangaih a ni tih min hriat tir \hin. (Lets me know he loves me)	☐	☐	☐	☐

23.	Ka tibuai lo anih phawt chuan min ngaihsak ngai lo. (Pays no attention to me as long as I do nothing to bother him)	☐	☐	☐	☐
24.	Dim tak leh duat takin min enkawl (Treats me gently and with kindness)	☐	☐	☐	☐

APPENDIX - 2

PARQ: CM (SF)

Hetah hian, Pa-in a fa chunga a tih \hin dan chi hrang hrang a inziak a. I Pa-in I chunga a tih \hin dan nen a inang em tih lo ngaihtuah chungin sentence tin hi I chhang dawn nia.

A hnuaia example dah ang hian, sentence pakhat tan chhanna awm thei pali (boxes) dah zel ani a. Sentence chu I Pa-in a tih \hin dan che nen **a tlangpuiin a inan chuan**, **"A dik deuh ziah"** nge **"A chang changin a dik"** tih inzawt la, a ni zawk zawk hnuaia box ah khan I tick dawn nia. Thu chu nangma chungchangah a diklo tlangpui ni a I hriat chuan **"A dik khat khawp"** nge **"A dik lo deuh ziah"** tih inzawt la, a ni ✓ k zawk hnuaia box ah khan I tick dawn nia. **A chhanna pali awm thei a\ang hian, pakhat chauh thlan tur tihna a nih chu.**

Chhanna dik leh dik lo a awm lova, chuvangin ni a I hriat dan ang chiahin I chhang dawn nia. Engkim hi chhang vek la, tha ni a I hriat ang nilovin nangma hmuh dan dik takin chhang ang che.

Entirnan: I fel changin a pawmin a fawp deuh reng \hin che anih chuan hetiangin chhang ang che.

	MY FATHER **Ka pa chuan**	**TRUE OF MY FATHER** **(Ka pa ah chuan a dik)**		**NOT TRUE OF MY FATHER** **(Ka pa ah chuan a dik lo)**	
		Almost Always True (A dik deuh ziah)	*Sometimes True (A chang changin a dik)*	*Rarely True (A dik khat khawp)*	*Almost Never True (A dik lo deuh ziah)*
	Hugs and kisses me when I am good (Ka fel chuan min kuahin min fawp \hin)	✓	☐	☐	☐

CHHAN ZAWM RAWH LE. I PA A BORAL TAWH A NIH CHUAN, I PA ANGA I EN/ I PAHRAWN CHUNGCHANG MILIN I CHHANG DAWN NIA.

	KA PA CHUAN **(MY FATHER)**	**KA PA AH A DIK** **(TRUE OF MY FATHER)**		**KA PA AH A DIK LO** **(NOT TRUE OF MY FATHER)**	
		A dik deuh ziah (Almost Always True)	*A chang chang in a dik (Sometimes True)*	*A dik khat khawp mai (Rarely True)*	*A dik lo deuh ziah (Almost Never True)*
1.	Ka chanchin a \ha zawngin a sawi \hin. (Says nice things about me)	☐	☐	☐	☐
2.	Min ngaihsak ngai lo. (Pays no attention to me)	☐	☐	☐	☐

3.	Ka thil ngaih pawimawh zawng te awlsam taka ka hrilh theih turin a awm thiam. (Makes it easy for me to tell him things that are important to me)	☐	☐	☐	☐
4.	Ka phu miah lovah pawh min vua/ beng. (Hits me, even when I do not deserve it)	☐	☐	☐	☐
5.	Mi ninawm leh hnawksak takah min ngai. (Sees me as a big nuisance)	☐	☐	☐	☐
6.	A thinrim chuan nasa takin min hrem \hin. (Punishes me severely when he is angry)	☐	☐	☐	☐
7.	Ka zawhna chhang hman lo khawpin a buai. (Is too busy to answer my questions)	☐	☐	☐	☐
8.	Min ngainat loh hmel. (Seems to dislike me)	☐	☐	☐	☐
9.	Ka thil tih ah mi tuipui hle \hin. (Is really interested in what I do)	☐	☐	☐	☐
10.	Deuhsawh deuhin min be \hin (Says many unkind things to me)	☐	☐	☐	☐
11.	A \anpuina ka ngen pawhin min ngaihsak ngai lo. (Pays no attention when I ask for help)	☐	☐	☐	☐
12.	Min mamawhin min duh a ni tih a lantir. (Makes me feel wanted and needed)	☐	☐	☐	☐
13.	Min ngaihsak lutuk (Pays a lot of attention to me)	☐	☐	☐	☐
14.	Ka rilru ti na tur kherin a khawsa \hin. (Goes out of his way to hurt my feelings)	☐	☐	☐	☐
15.	Thil pawimawh a hriat reng tur a ka ngaih te hi a lo theihnghilh daih zel. (Forgets important things I think he should remember)	☐	☐	☐	☐
16.	Ka awm \hat loh chuan min hmangaih lovin ka hre \hin. (Makes me feel unloved if I misbehave)	☐	☐	☐	☐
17.	Ka thil tih hi a pawimawh ve ni a ngaihna rilru min siam \hin. (Makes me feel what I do is important)	☐	☐	☐	☐
18.	Thil dik lo ka tihin min vau nek \hin (Frightens or threatens me when I do something wrong)	☐	☐	☐	☐
19.	Ka ngaihdan te a ngai pawimawhin sawi chhuak \hin turin min duh (Cares about what I think, and likes me to talk about it))	☐	☐	☐	☐
20.	Engpawh ti ila, kei aiin naupang dangte an \ha zawkah a ngai hrim hrim.	☐	☐	☐	☐

	(Feels other children are better than I am no matter what I do)				
21.	Min duh lo/ min ning a ni tih min hriattir \hin. (Lets me know I am not wanted)	☐	☐	☐	☐
22.	Min hmangaih a ni tih min hriat tir \hin. (Lets me know he loves me)	☐	☐	☐	☐
23.	Ka tibuai lo anih phawt chuan min ngaihsak ngai lo. (Pays no attention to me as long as I do nothing to bother him)	☐	☐	☐	☐
24.	Dim tak leh duat takin min enkawl (Treats me gently and with kindness)	☐	☐	☐	☐

APPENDIX – 3

CISS-A

Heng a hnuaia thu te hi miin dinhmun harsa, hrehawm leh tawhkhirh awm an hmachhawn changte a an awm dan a ni a. Nangman hetiang dinhmun harsa, hrehawm leh tawhkhirh awm I hmachhawn ve changa I awm dan a nasat/zin zawng number 1 leh 5 inkarah hian han thai bial teh le.

Not at all much (ngai lo) takin)			**Very (nasa**	**Dinhmun harsa, hrehawm leh tawhkhirh ka tawn changin…**
1 5	2	3	4	1. Hun ka vawng \ha sawt \hin. (Schedule my time better)
1 5	2	3	4	2. Buaina chu zir chiangin, a chinfel dan tur ka ngaihtuah \hin (Focus on the problem and see how I can solve it)
1 5	2	3	4	3. Hun \ha ka lo tawn tawh te ka ngaihtuah \hin (Think about the good times I've had)
1 5	2	3	4	4. Midang bula awm ka tum \hin (Try to be with other people)
1 5	2	3	4	5. Tih tur ka tih nghal \hin loh avangin mahni ka in dem (Blame myself for putting things off)
1 5	2	3	4	6. |ha ber tur a ka rin ka ti mai \hin (Do what I think is best)
1 5	2	3	4	7. Pangkham leh na te'n ka rilru an luahkhat \hin (Become preoccupied with aches and pains)
1 5	2	3	4	8. Hetiang dinhmun ka thleng hi ka in dem (Blame myself for getting into this position)
1 5	2	3	4	9. Engmah lei tum tak tak lova dawr vela tei vel mai mai (Window shop)
1 5	2	3	4	10. Ka tih hmasak tur te ka riruang (Outline my priorities)

1 5	2	3	4	11. Muthilh san daih ka tum (Try to go to sleep)
1 5	2	3	4	12. Eitur ka duh ber ber chi ei na hunah ka hmang (Treat myself to a favorite food or snack)
1 5	2	3	4	13. Tihngaihna hriat loh hlauvin enghelh nei runin ka awm \hin. (Feel anxious about not being able to cope)
1 5	2	3	4	14. Thin tawt/phawklek deuhin ka awm (Become very tense)
1 5	2	3	4	15. Hetiang ang buaina ka lo pumpelh tawh \hin dan ka ngaihtuah (Think about how I solved similar problems)
1 5	2	3	4	16. He thil hi ka chungah a thleng tak tak lo tiin ka inhrilh \hin (Tell myself that it is really not happening to me)
1 5	2	3	4	17. He thil lo thleng avanga ka rilru buai nasa lutuk hi ka inthiam lo (Blame myself for being too emotional about the situation)
1 5	2	3	4	18. Thil eitur in ka chhuak daih (Go out for a snack or meal)
1 5	2	3	4	19. Mangang/hreawm deuhin ka awm (Become very upset)
1 5	2	3	4	20. Thil ka in leisak (Buy myself something)
1 5	2	3	4	21. Tih dan tur kawng ngaihtuah a, hma lak. (Determine a course of action and follow it)
1 5	2	3	4	22. Hmalak dan tur ka hriat loh avangin ka inthiamlo (Blame myself for not knowing what to do)
1 5	2	3	4	23. Party/intih hlimna vel a kal (Go to a party)
1 5	2	3	4	24. Ka dinhmun hrethiam tur a hmalak (Work to understand the situation)
1 5	2	3	4	25. Hmalak dan tur hre lo a, engmah ti hlei thei lova awm ("Freeze" and not know what to do)
1 5	2	3	4	26. Ka dinhmun siam\ha tur a hmalak nghal (Take corrective action immediately)
1 5	2	3	4	27. Ka dinhmun ngaihtuah chungin, ka tihsual a\anga inzir (Think about the event and learn from my mistakes)
1 5	2	3	4	28. Thil lo thleng leh keimaha a tlaknat dan tidanglam thei ila aw ka ti vawng vawng \hin (Wish that I could change what had happened or how I felt)
1 5	2	3	4	29. |hian te tlawh daih (Visit a friend)
1 5	2	3	4	30. Ka hmalak dan tur vei buai (Worry about what I am going to do)
1 5	2	3	4	31. Ka tana mi bik bula hun hman daih (Spend time with a special person)
1 5	2	3	4	32. Mahni a tei kual (Go for a walk)
1 5	2	3	4	33. A thleng leh tawh ngai loving tia mahni inhrilh (Tell myself that it will never happen again)
1 5	2	3	4	34. Ka tlin lohna te ngaihtuah (Focus on my general inadequacies)
1 5	2	3	4	35. Ka mi rin/ngaihhlut hnen a\anga thurawn lak (Talk to someone whose advice I value)
1 5	2	3	4	36. Hmalak hma a ka buaina chu zir chian (Analyze my problem before reacting)
1 5	2	3	4	37. Phone hmanga ka \hian biak (Phone a friend)
1 5	2	3	4	38. Thinrim taka awm (Get angry)

1 5	2	3	4	39. Ka thil ngaih pawimawh indawt dan rem \hat (Adjust my priorities)
1 5	2	3	4	40. Lemchan (film) en (See a movie)
1 5	2	3	4	41. Ka dinhmun control tlat (Get control of the situation)
1 5	2	3	4	42. A hma aia nasa zawka in chinfel tum (Make an extra effort to get things done)
1 5	2	3	4	43. Ka buaina chinfel dan tur kawng tam tak ngaihtuah chhuah (Come up with several different solutions to the problem)
1 5	2	3	4	44. Hun awl insiam a buaina tlanbo san daih (Take some time off and get away from the situation)
1 5	2	3	4	45. Midang chunga in hrik thlak (Take it out on other people)
1 5	2	3	4	46. Ka dinhmun chu ka ti fel thei ani tih infiah nan a hman jeih (Use the situation to prove that I can do it)
1 5	2	3	4	47. Ka buaina hneh theih nan a mahni in chinfel (Try to be organized so that I can be on top of the situation)
1 5	2	3	4	48. TV en daih (Watch TV)
Not at all much (ngai lo)			**Very (nasa takin)**	

APPENDIX – 4

APS-SF(A)

Heng thu te hi miin buaina an neihna \hin a ni a. Miin amah te, midang te leh a khawvel bul hnai a ngaih dan te a ni a. Hun bithliah nei a chhan ngai te an ni a. Entirnan, tun thla 6 kal ta chhung emaw tun kar 2 chhung khan tih te. Chuvang chuan I chhan tur apiangah a hun milin I chhang dawn nia.

Chhanna dik emaw dik lo pawh a awm chuang lova. Rinawm takin I ngaihdan dik tak milin I chhang dawn nia.

Thu \henkhat hi a mak deuh mai thei a. Mi \henkhat buaina nei leh neilo te tan a ni a. Nangmah nena inmil ber ang khan I chhang mai dawn nia. Fimkhur deuhin chhang kim vek la. Pakhat mah hmaih lovin, a indawt te tein I chhang dawn nia.

A hnuaia entirna ang hian I chhang dawn nia. Tun thla 6 kal ta chhung khan TV en nuam I tih deuh reng chuan tihian I chhang dawn nia:

"Tun thla 6 kal ta chhung khan…." Ngai lo/Ngai lo ang tluk Zeuh zeuh Ni deuh ziah

TV en nuam ka ti. ○ ○ ✓

Thlaruk kalta chhung khan …. ("In the past 6 months…..") Dik (True) Diklo (False)

1	Thlakhat ah vawi hnih/khat school ka tlanbo \hin. (I skipped or cut school a couple times a month)	○	○
2	Midang ka sual buai \hin (I started fights with others)	○	○
3	Mi chenna/lirthei/ inah ka lut ru (I broke into a house, car, or building)	○	○
4	Vawi hnih aia tam in a\angin ka tlanbo (I ran away from home two or more times)	○	○
5	Buaina neuh neuh ka nei (There have been a few hassles in my life)	○	○
6	Ramsa ka nghaisa \hin (I hurt animals)	○	○
7	Insualna ah hriamhrei ka lek (I used a weapon in a fight)	○	○
8	Mi chungah kut ka thlak (I physically hurt someone)	○	○
9	Mi dawr a thil zawrh ka ru zeuh zeuh (A couple of times or more I stole things from a store)	○	○
10	In lamah te school-ah te dan ka bawhchhe fo (I often broke the rules at home or at school)	○	○
11	Car emaw, tukverh emaw, in ami thil ka ti chhe lui (On purpose, I damaged a car, or broke windows or things in a building)	○	○
12	Tihsual ka neih apiangin ka inpuan ziah (I always admitted it when I made a mistake)	○	○
13	Midang tihnat chak khawpin ka thinrim (I felt mad enough to hurt people)	○	○
14	Keimah emaw kan chhungkaw chungah thil \ha lo tak a thleng (Something very bad happened to me or my family)	○	○
15	Ka nu leh pa te lakah lawm loh chang ka nei (I was sometimes upset with my parents)	○	○
16	Dawt ka sawi zing em em (I lied a lot)	○	○
17	Ka hal loh tawp tur ka hal (I set something on fire that I shouldn't have)	○	○
18	School a\anga hnawhchhuah/chawlh tir ka ni (I was suspended or expelled from school)	○	○
19	Thau ka hlau em em (I was very afraid of getting fat)	○	○
20	Ka ta ni miah lo thil ka ru (I stole something that did not belong to me)	○	○
21	Ka nu leh pa te chungah lungawilohna ka nei ngai lo (I never got upset with my parents)	○	○
22	Midang thil ka tihchhiat sak (I broke or destroyed things belonging to others)	○	○
23	Miin min tihnat theihna turin thil an ti (Someone did something to hurt me)	○	○
24	Thil \ha/dik hlir ka ti (I always did the right thing)	○	○
25	Thinrim chang ka nei ve zeuh zeuh (I sometimes got angry)	○	○
26	Min ti thinrim tu chungah thil \ha lo deuh ka ti (I did something bad to someone who got me mad)	○	○

Thlaruk kalta chhung khan …… ("In the past 6 months……..") Ngai lo / Ni deuh Ngai mang lo Zeuh zeuh ziah

27	Ka nu leh pa/zirtirtu te ka inhnial pui (I argued with my teachers or parents)	○	○	○
28	School-ah /hnathawna ah thil dangin ka rilru a la peng zing hle (I was distracted a lot in school or work)	○	○	○
29	Mi in ti tura min tih kalh zawng zelin thil ka ti (If someone told me to do something I did the opposite)	○	○	○
30	Ka hna in hmachawp tih zawh har ka ti em em (I had a hard time finishing assignments)	○	○	○
31	Ka rih belh ang tih ka hlau (I worried about gaining weight)	○	○	○
32	Class-ah emaw mahni inah pawh \hut hle hle har ka ti (It was hard for me to sit still in class or at home)	○	○	○

33	Ka thinrim ka insum zo lo (I lost my temper)	◯	◯	◯
34	Keimah ah ka lungawi tawk em em (I felt good about myself)	◯	◯	◯
35	Puitling zawkte hnial ka ching (I argued with adults)	◯	◯	◯
36	Midang tibuai thei tur thil ka ti (I did things to bother people)	◯	◯	◯
37	Class-ah rilru pek harsa ka ti (I had trouble paying attention in class)	◯	◯	◯
38	Midang ka ning (Other people bothered me)	◯	◯	◯
39	Ka thin a ur em em (I felt very angry)	◯	◯	◯
40	Thil ka ei tawh vek vek chuan ka tawp thei loving tih ka hlau (I worried that if I started eating I wouldn't be able to stop)	◯	◯	◯
41	Midang te han tih let ve ka chak (I felt like getting back at others)	◯	◯	◯
42	School-ah emaw inah dan ka bawhchhia (I broke the rules at school or at home)	◯	◯	◯
43	Inah emaw school-ah ka thinrim lutuk vangin thil ka paih \huai thuai (I got so mad that I threw things at home or at school)	◯	◯	◯
44	Mal ka inti ngawih ngawih (I was very lonely)	◯	◯	◯
45	Mi zinga awm harsa ka ti (It was hard for me to be with people)	◯	◯	◯
46	Thlamuang lo deuhin ka awm (I felt very tense)	◯	◯	◯
47	School-ah emaw hnathawhna hmunah buaina ka tawk (I got into trouble at school or at work)	◯	◯	◯
48	Ka chunga thil \ha lo thleng te ka ngaihtuah nawn chhen (I kept thinking about the bad thing(s) that happened)	◯	◯	◯
49	Hlauthawng deuhin ka awm (I felt nervous)	◯	◯	◯
50	Hlim lo/lawm lo deuhin ka awm (I felt depressed or sad)	◯	◯	◯
51	Mi zawng zawng deuhthaw hian ka thin an ti rim (I felt mad or angry with nearly everyone)	◯	◯	◯
52	Ka hah hma em em (I got tired easily)	◯	◯	◯
53	Thau ka hlau (I was afraid of getting fat)	◯	◯	◯
54	Thil tam tak vei ngut ngut ka nei (I worried about a lot of things)	◯	◯	◯
	Thlaruk kalta chhung khan …… ("In the past 6 months……..")	**Ngai lo/ Ngai mang lo**	**Zeuh zeuh**	**Ni deuh ziah**
55	Naupang dang emaw puitling dang emaw in min ngaihdan turah ka buai (I worried what other kids or adults think about me)	◯	◯	◯
56	Keimah emaw ka hmelhriat \ha te chungah thil \ha lo tak lo thleng dawn tlatin ka hria (I felt that something bad would happen to me or people I know)	◯	◯	◯
57	Ka taksa ah na chi hrang hrang ka nei (I had pains or aches in my body)	◯	◯	◯
58	Ka awm hle hle thei lo (I felt restless)	◯	◯	◯
59	Lehkha ka zir ngai loh bakah homework pawh ka ti ngai lo (I did not study or turn in my homework)	◯	◯	◯
60	Ka lu a a hai (I felt dizzy)	◯	◯	◯
61	School ah emaw hnathawhna hmunah thil kalhmang ka hrethiam lo (I could not understand what was going on in school or at work)	◯	◯	◯
62	Muthilh ka harsat (I had trouble falling asleep)	◯	◯	◯
63	Phut zawk zawk ka ching (I felt real jumpy)	◯	◯	◯
64	Eng ang pawhin ka rihna tla hniam mahse thau riau a inhriat na ka nei tlat (I felt fat no matter how much weight I lost)	◯	◯	◯
65	Chik taka thil ngaihtuah ka harsat (I had trouble concentrating)	◯	◯	◯
66	Ka nun a thil zawng zawng hi a kalsual vekin ka hria (I felt that everything was going wrong in my life)	◯	◯	◯
67	Ka lungawi lo (I felt upset)	◯	◯	◯

	A tlangpuiin …….. ("In general.....")	**Ngai lo / Ngai mang lo**	**Ni deuh Zeuh zeuh**	**ziah**
68	Ka lan danah ka lungawi tawk (I like the way I look)	◯	◯	◯
69	Midang hian awlsam tein ka thin an ti rim (People make me mad real easily)	◯	◯	◯
70	|hian nei lo ang mai in ka in hria (I feel like I don't have any friends)	◯	◯	◯
71	Mi zinga awm nuam ka ti lo (I feel uncomfortable around people)	◯	◯	◯
72	Han ti ti pui theih tur hi an awmin ka hre lo (I feel there is no one that I can talk to)	◯	◯	◯
73	Lo piang lo law law ila ka ti \hin (I wish I had never been born)	◯	◯	◯
74	Mi hian min hriat chian hian min ngaina lo in ka hria (It seems that once people get to know me they don't like me)	◯	◯	◯

75	Ka thinrim lutuk ka in sum hman lo \hin (I get so angry that I can't control my behavior)	◯	◯	◯
76	Mi tam zawk hian min ngaina in ka hria (I think that most people like me)	◯	◯	◯
77	Mahni intihhlum te ka ngaihtuah (I think about killing myself)	◯	◯	◯
78	Thil reng reng hi pawh lo riauin ka inhria (I feel out of touch with things)	◯	◯	◯
79	Hlutna nei lovin ka inhria (I feel that I am a worthless person)	◯	◯	◯
80	Keimah leh keimah ka in tina lui tawh (I have hurt myself on purpose)	◯	◯	◯
81	Mi \ha tak niin ka inhria (I feel that I am a good person)	◯	◯	◯
82	|hian ka nei lo ang tih ka hlau (I worry that I will not have any friends)	◯	◯	◯
83	Midang ang bawka \ha ah ka in ngai (I feel that I am as good as most people)	◯	◯	◯
84	Ka awmdan ka control zo lo (I can't control my behavior)	◯	◯	◯

Thlathum kalta chhung khan ……. ("In the past 3 months…") **Ngai lo** **Kar khatah** **Kar khatah**

\um khat/hnih **\um thum**

aia zing

85	Chaw ka ei \euh hnuah ka in ti luak lui (I threw-up on purpose after eating a large meal)	◯	◯	◯
86	Chaw ka hmuh hian ka luak a chhuak (The sight of food made me feel sick)	◯	◯	◯
87	Mi hmuh lohna turah mahni in thil ka ei \euh (I ate large amounts of food in private so no one would see)	◯	◯	◯

Thlakhat kalta chhung khan ….. ("In the past month…") **Ngai lo** **Kar khatah** **Kar khatah**

\um khat/hnih **\um thum**

aia zing

88	Zanah muthilh harsa ka ti I(It was hard for me to get to sleep at night)	◯	◯	◯
89	Ka muthilh ve pawhin ka \hangharh zing khawp mai (Once I got to sleep, I seemed to wake up a lot at night)	◯	◯	◯
90	Ka mumangah thil \ha lo deuh ka chhunga thleng angin ka hmu (I dreamt that something bad happened to me)	◯	◯	◯

Karhnih kalta chhung khan ….. ("In the past 2 weeks…") **Ngai mang lo** **Zeuh zeuh** **Nitin deuh**

thaw

91	Ka hlim lo em em (I have felt very depressed)	◯	◯	◯
92	Ka che vel te hi muang riauvin ka hria (I felt slowed down)	◯	◯	◯
93	Mahni intihhlum te ka ngaihtuah (I thought about killing myself_	◯	◯	◯
94	Muthilh harsa ka ti (I had trouble falling asleep)	◯	◯	◯
95	Hlutna nei lovin ka inhria (I felt that I was worthless)	◯	◯	◯
96	Chak lo riauvin ka inhia (I felt like I had no energy)	◯	◯	◯
97	Ding taka ngaihtuah ka harsat (I had trouble concentrating or thinking)	◯	◯	◯
98	Thil reng rengah mahni inthiam lohna ka nei (I felt guilty about things)	◯	◯	◯
99	Ka thil ei tha a tho lo (I did not feel like eating)	◯	◯	◯
	Karhnih kalta chhung khan ….. ("In the past 2 weeks…")	**Ngai mang lo**	**Zeuh zeuh**	**Nitin deuh thaw**
100	Thil reng reng hian min ti hreawm em em (I felt very upset about things)	◯	◯	◯
101	Ka \ap anih loh pawhin ka \ah a chhuak em em (I cried or felt like crying)	◯	◯	◯
102	Thil tih nuam ka tih \hin te kha tih an nuam tawh lovin ka hria (I felt like the things I used to like to do were no longer fun)	◯	◯	◯
103	Ka chau viau rengin ka inhria (I felt tired most of the time)	◯	◯	◯

104	Nun tlak pawh a niin ka hrelo (I felt that life was not worth living)	◯	◯	
105	Mahni intihhlum hi a tum tak takin ka tum (I tried, or seriously thought about killing myself)	◯	◯	◯
106	Keima chungah ka thinrim (I felt angry with myself)	◯	◯	◯

Tun thla 6 kal ta chhung khan heng ruihtheih thil te hi I hmang a nih chuan I lo hman nasat zawng han thai leh rawh le.

	("In the past 6 months, I have used…")	Ngai lo	Thla khatah tam tak	Kar khatah vawikhat	Kar khatah Nitin deuh tam tak	thaw
107	Marijuana (\ip/bis/ganza)	◯	◯	◯	◯	◯
108	Beer	◯	◯	◯	◯	◯
109	Hard liquor (rum, vodka, etc.)	◯	◯	◯	◯	◯
110	Cocaine	◯	◯	◯	◯	◯
111	LSD, DMT, or Mescaline	◯	◯	◯	◯	◯
112	Speed, amphetamines, bennies	◯	◯	◯	◯	◯
113	Sniff paint, glue, white-out, spray-cans (dendrite, CF)	◯	◯	◯	◯	◯
114	Sleeping pills (alprazolam, DJ, Nai, etc)	◯	◯	◯	◯	◯
115	Other drugs or alcohol (cool, proxyvon, tramadol, No 4, etc)	◯	◯	◯	◯	◯

APPENDIX – 5

NEO-FFI

A hnuaiah hian thu chi hrang hrang 60 a awm a. Fimkhur deuhin chhiar la, I ngaihdan nena inhnaih berah hian thai ang che.

SD (Strongly Disagree) - Pawmlo hul hual/dik lo hul hual
D (Disagree) - Pawm lo/dik lo
N (Neutral) - I rilru I siamfel thei lo/a dik leh diklohna intluk
A (Agree) - Pawm/dik
SA (Strongly Agree) - Pawm hlawmhlak/dik hlawmhlak

Thu pakhat zelah pakhat chauh thai la. A vaia chhang vekin, a indawt te tein I chhang dawn nia.
Entirnan, thu pakhat I tan a dik lo hul hual a nih chuan, SD tih hi I thai dawn nia.

EXAMPLE	(SD)	D	N	A	SA

		Pawmlo hulhual	**Pawm lo**	**Hrelo**	**Pawm**	**Pawm hlawm hlak**
1	Thil vei ngut ngut chi ka ni lo (I am not a worrier)	SD	D	N	A	SA
2	Mi tam tak ka bula an awm hian nuam ka ti (I like to have a lot of people around me)	SD	D	N	A	SA
3	Ding taka ngaihtuahna hmanga suangtuahna nena duhthusam kual vel chiam hi nuam ka ti (I enjoy concentrating on a fantasy or daydream and exploring all its possibilities, letting it grow and develop)	SD	D	N	A	SA
4	Mi chungah reng reng zah derna/hawihhawmna lantir ka tum (I try to be courteous to everyone I meet)	SD	D	N	A	SA
5	Ka thil neih te thianghlim tak leh fel takin ka vawng (I keep my belongings clean and neat)	SD	D	N	A	SA
6	A chang hi chuan huatna leh thinrimna in ka khat (At times I have felt bitter and resentful)	SD	D	N	A	SA
7	Nuih ka awlsam (I laugh easily)	SD	D	N	A	SA
8	Mahni tuina lam thil thar zir hi nuam ka tih zawng tak a ni (I think its interesting to learn and develop new hobbies)	SD	D	N	A	SA
9	Ka duh zawng an tih theih nan, midang han vau emaw fakder chang ka nei (At times I bully or flatter people	SD	D	N	A	SA

	into doing what I want them to)					
10	A hun taka thil ka tih theih nan ka in vawng thiam hle (I'm pretty good about pacing myself so as to get things done on time)	SD	D	N	A	SA
11	Harsatna nasa tak hnuaia ka awm chang hian ka kehdarh vek dawnin ka hre \hin (When I'm under a great deal of stress, sometimes I feel like I'm going to pieces)	SD	D	N	A	SA
12	Midang zar buai lohva, mahni chauhva thawh chi hna hi ka duh ber(I prefer jobs that let me work alone without being bothered by other people)	SD	D	N	A	SA
13	Leilung zia leh mihring themthiamna mawi tak tak te hian ka mit an la em em. (I am intrigued by the patterns I find in art and nature)	SD	D	N	A	SA
14	Mi \henkhat chuan mahni hmasial leh chapo ah min ngai (Some people think I'm selfish and egotistical)	SD	D	N	A	SA
15	Inpuahchahna mumal nei hman lova thil tih ngai dinhmunah ka ding fo mai(I often come into situations without being fully prepared)	SD	D	N	A	SA
16	Khawhar/lunglen hi ka nei khat em em (I rarely feel lonely or blue)	SD	D	N	A	SA
17	Midang nena titi hi nuam ka ti (I really enjoy talking to people)	SD	D	N	A	SA
18	Thu inkalh zawnga sawi \hin te hian zirlaite rilru a tibuai in a hruai diklo thei in ka hria (I believe letting students hear controversial speakers can only confuse and mislead them)	SD	D	N	A	SA
19	Miin min tihbuai hmasak phawt chuan, tih let ka in ring reng e (If someone starts a fight, I'm ready to fight back)	SD	D	N	A	SA
20	Mi in hna min tuksak reng reng \hahnemngai taka thawh ka tum \hin (I try to perform all the tasks assigned to me conscientiously)	SD	D	N	A	SA
21	Phawklek leh thintawt deuha awm chang ka nei fo (I often feel tense and jittery)	SD	D	N	A	SA
22	Thil pawimawh leh phur awm thlenna hmun laili a awm nuam ka ti (I like to be where the action is)	SD	D	N	A	SA
23	Thu leh hla lam hian keimahah tlem te tal paw'n nghawng a nei lo (Poetry has little or no effect on me)	SD	D	N	A	SA
24	Mi tam zawk ai hi chuan ka \ha a ni tih hi ka chiang (I'm better than most people, and I know it)	SD	D	N	A	SA
25	Ka thil tih tumah ka chiangin chumi tin zawn chuan felfai takin hma ka la \hin (I have a clear set of goals and work toward them in an orderly fashion)	SD	D	N	A	SA
26	A chang hi chuan hlutna reng reng nei lo hian ka in hre \hin (Sometimes I feel completely worthless)	SD	D	N	A	SA
27	Mipui punkhawmna ang chi ah ka inkiltawih (I shy away from crowds of people)	SD	D	N	A	SA
28	Thununna emaw kaihhruaina nen lova mahni rilru han vah kual tir vel ngawt hi harsa ka ti ang (I would have difficulty just letting my mind wander without control or guidance)	SD	D	N	A	SA
29	Miin hmusit leh diriam taka min tih pawhin, ngaihdama theihnghilh mai ka tum \hin (When I've been insulted, I just try to forgive and forget)	SD	D	N	A	SA
30	Hna ka thawh tak tak hma hian hun ka khawhral nasa thei hle (I waste a lot of time before settling down to work)	SD	D	N	A	SA
3	Hlauthawng emaw thlabar deuhin ka awm khat hle (I	SD	D	N	A	SA

1	rarely feel fearful or anxious)					
32	Rilru leh taksa nasa taka chak leh zangkhai riaua inhriatna ka nei fo (I often feel as if I'm bursting with energy)	SD	D	N	A	SA
33	Kan chhehvela thil in rilru put hmang emaw thinlung a nghawng dan hi ka hre ve vak lo (I seldom notice the moods or feelings that different environments produce)	SD	D	N	A	SA
34	Midang reng reng hi tha tur ah ka ngai ngawt thin (I tend to assume the best about people)	SD	D	N	A	SA
35	Ka tum tih hlawhtlin tumin ka thawk ngawrh hle (I work hard to accomplish my goals)	SD	D	N	A	SA
36	Ka chunga mi chet danin ka thin a ti rim fo (I often get angry at the way people treat me)	SD	D	N	A	SA
37	Mi hlim thei tak leh thatho tak ka ni (I am a cheerful, high-spirited person)	SD	D	N	A	SA
38	Rilru leh thinlung a awm dan chi hrang hrang (eg., nui, tap, thinur etc) ka tawng hnem tawh mai (I experience a wide range of emotions or feelings)	SD	D	N	A	SA
39	Mi \henkhat chuan nelawm lo leh mi phakar takah min ngai (Some people think of me as cold and calculating)	SD	D	N	A	SA
40	Ka intiam tawhna ah chuan hlen ngei tura rin ka ni (When I make a commitment, I can always be counted on to follow through)	SD	D	N	A	SA
41	Tum anga thil a kal loh hian ka tui lovin ka beidawng hma mah mah (Too often, when things go wrong, I get discouraged and feel like giving up)	SD	D	N	A	SA
42	Midang nena han ti ti vel hi nuam pawh ka ti vak lo (I don't get much pleasure from chatting with people)	SD	D	N	A	SA
43	Thu leh hla ka chhiar emaw mi kutchhuak mawi tak ka hmuh te hian phur hlut chang ka nei (Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement)	SD	D	N	A	SA
44	Kutdawh te chungah hian lainatna ka nei lo (I have no sympathy for beggars)	SD	D	N	A	SA
45	A chang hi chuan ka rintlak tur ang ai hian ka rintlak loh (Sometimes I'm not as dependable or reliable as I should be)	SD	D	N	A	SA
46	Hlimlohna emaw lunghnurna hi ka nei khat hle (I am seldom sad or depressed)	SD	D	N	A	SA
47	Ka khawvel nun hi a kal chak (My life is fast paced)	SD	D	N	A	SA
48	Van boruak leh mihring nihna suangtuah kual vel hi ka tuina lam a ni lo (I have little interest in speculating on the nature of the universe or human condition)	SD	D	N	A	SA
49	Midang ngaihtuah leh mi hmangai thei tak nih ka tum tlangpui (I generally try to be thoughtful and considerate)	SD	D	N	A	SA
50	Hna reng reng ti hlawhtlinga ti hlawktu ka ni fo (I am a productive person who always gets the job done)	SD	D	N	A	SA
51	Mahni in\anpui thei lova ka in hriat fo bakah midangin ka buaina te hi min chinfel sak se ka ti \hin (I often feel helpless and want someone else to solve my problems)	SD	D	N	A	SA
52	Mi \uan\ha tak ka ni (I am a very active person)	SD	D	N	A	SA
5	Finna thil lama mi dilchhut tak ka ni (I have a lot of	SD	D	N	A	SA

3	intellectual curiosity)					
54	Ka ngainat loh zawng mite chu ka hriat tir fo (If I don't like people, I let them know it)	SD	D	N	A	SA
55	Ka invawng fel thei ngai dawn pawhin ka inhre lo (I never seem to be able to get organized)	SD	D	N	A	SA
56	A chang hi chuan ka zak lutuk hi ka biru daih duh \hin (At times I have been so ashamed I just wanted to hide)	SD	D	N	A	SA
57	Midang hruaitu nih ai chuan a mala kal ka thlang zawk (I would rather go my own way tha be a leader of others)	SD	D	N	A	SA
58	Thu leh ngaihruata hisapna lam thu khel vel hi nuam ka ti (I often enjoy playing with theories or abstract ideas)	SD	D	N	A	SA
59	Ka duh neih theih na a nih dawn phawt chuan midang bum kual ka pawisa lo (If necessary, I am willing to manipulate people to get what I want)	SD	D	N	A	SA
60	Ka thil tih apiangah a ber nih ka tum (I strive for excellence in everything I do)	SD	D	N	A	SA

I chhang kim vek em? _____Aw _____Aih
I thai tur dik takah I thai em? _____Aw _____Aih
Dik tak leh rinawm takin I chhang vek em? _____Aw _____Aih

APPENDIX – 6

Mizorama chhungkaw tin deuhthaw ina harsatna kan tawh chu ruihtheih thil lakah a ni a. Chuvang chuanin eng ang chiahin nge ruihtheih thil hian chhungkua leh a member-te a nghawng dan hi zirchian a hun ta hle mai a. He booklet pawh hi chumi lam zirchian nana buatsaih a ni a.

A chhunga awm zawhna chi hrang hrang te hi zep awm miah lova min chhan sak turin ka ngen che a. Research atan chauha hman tur anih avangin, mimal chhanna hi a **CONFIDENTIAL** vek a ni tih hre reng chungin thil I hmuhdan dik takin I chhang dawn nia.

DEMOGRAPHIC INFORMATION FORM:

1. Kum zat: _____ 2. Pawl zat: _____ 3. Sex: Mipa ☐ Hmeichhia ☐

4. Unau engzat nge in nih?_____5. A englai nge I nih? _____

6. Pa hnathawh: _____

7. Nu hnathawh: _____

8. Pa lehkha zir chin: _____

9. Nu lehkha zir chin: _____

10. Tuna awmna veng: _____

11. Mahni khua:_____

12. Family:

(i) Nuclear family ☐ OR (ii) Joint family ☐

13. Parents:

(i) Nu leh pate inthen ☐ (ii) Nu emaw pa emaw boral tawh ☐

14. In chhungkuaah rilru lam buaina (mental disorder) nei an awm em?: (i) ☐ (ii)Awm ☐

15. Unaunu/unaupa zu/drugs tih chungchang

(a)I unau te zingah zu/drugs ti an awm chuan an tih ber thai rawh:

(i) Zu chauh ti ☐ (ii) drugs chikhat chauh ti ☐

(iii) Drugs chi hrang hrang ti ☐ (iv) zu leh drugs ti ve ve ☐

(b) I unaupa/unaunu chu kum engzat nge?: _____

(c) Kum engzat vel nge ruihtheih thil a hman tawh ang?

(i) Kum 1 vel ☐ (ii) Kum 2 vel ☐ (iii) kum 3 aia rei ☐

(d) Drugs a inchiu chi a hmang ve ngai em? : (i) Aw ☐ (ii) Aih ☐

(e) Tun thla thum kalta ngaihtuahin, engtia zingin nge a ruih \hin?

(i) Vawi hnih/khat ☐ (ii) Thlatin ☐

(iii) Kartin ☐ (iv) Nitin deuh thaw ☐

(f) I unaunu/unaupa in zu/drugs a tih \hin nia I hriat te thai rawh:

(i) Zu lampang (beer, wine, zu etc)

(ii) Cocaine(coke, crack,etc)

(iii) Amphetamine (speed, diet pills, ecstasy, etc)

(iv) Inhalants (dendrite, CF, paint thinner, etc)

(v) Sedatives or sleeping pills (valium, DJ, Nai, Alprazolam, etc)

(vi) Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc)

(vii) Opioids (heroin, No.4, awmna damdawi, cool, proxyvon, tramadol,brown sugar, etc)

(viii) A dang hming I hriat te _____