COPING, SOCIAL SUPPORT AND QUALITY OF LIFE AMONG PERSONS WITH DIABETES IN MIZORAM

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

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DEPARTMENT OF SOCIAL WORK
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COPING, SOCIAL SUPPORT AND QUALITY OF LIFE AMONG PERSONS WITH DIABETES IN MIZORAM

BY

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Submitted

In partial fulfillment of the requirement of the Degree of Doctor of Philosophy in Social Work of Mizoram University, Aizawl.

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MIZORAM UNIVERSITY

JUNE 2023

CERTIFICATE

This is to certify that the thesis *Coping, Social Support and Quality of Life among Persons with Diabetes in Mizoram* submitted by *Lalchhuansangi Khiangte*, for the award of Doctor of Philosophy in Social Work is carried out under my guidance and incorporates the student's bonafide research and this has not been submitted for award of any degree in this or any other university or institute of learning.

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DECLARATION

I, Lalchhuansangi Khiangte, 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 of the award of any previous degree to me or to do 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/Institute.

This is being submitted to the Mizoram University for the Degree of **Doctor of Philosophy** in **Social Work.**

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LIST OF ABBREVIATIONS

ADA	: American Diabetes Association
AIDS	: Acquired Immuno Deficiency Syndrome
DM	: Diabetes Mellitus
FDA	: Food and Drug Administration
FGD	: Focus Group Discussion
FY	: Financial Year
GDM	: Gestational Diabetes Mellitus
GDC	: Global Diabetes Community
ICMR	: Indian Council of Medical Research
ID	: Insulin Dependent
INDIAB	: India Diabetes
IDF	: International Diabetes Federation
IGT	: Impaired Glucose Tolerance
IFG	: Impaired Fasting Glucose
KII	: Key Informant Interview
MHIP	: MizoHmeichheInsuihkhawm Pawl
MDS	: Mizoram Diabetic Society
MUP	: Mizoram Upa Pawl
NDCS	: National Diabetes Control Society
NCDs	: Non Communicable Diseases

NID : Non Insulin Dependent

SPSS : Statistical Package for Social Sciences

US : United States

WMA : World Medical Association

YMA : Young Mizo Association

Coping, Social Support and Quality of Life among Persons with Diabetes in Mizoram

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Interview Schedule
(Confidential and For Research Purpose Only)

Schedule No._____

I. Demographic Profile of the Respondent: Please (√) in the box.

1.Age (in years) : _____
2.Gender : (1)Male ☐ (2) Female ☐
3.Marital Status: (1)Unmarried ☐ (2)Married ☐ (3)Divorced ☐
(4)Widow/Widower ☐ (5)Remarried☐ (6)Others(Specify)_____
4.Educational Qualification: _____
5.Religion: (1) Christian ☐(2)Hindu ☐
(3)Muslim ☐ (4)Others(Specify)_____
6.Denomination: (1)Presbyterian ☐ (2)Baptist ☐ (3)UPC(NE) ☐
(4)UPC(Miz) ☐ (5)Catholic ☐ (6)Salvation ☐
(7)Adventist ☐ (8)Others(Specify)_____
7.Sub-Tribe: (1)Lusei ☐ (2)Ralte ☐
(3)Hmar☐
(4)Lai☐ (5)Paite☐ (6)Mara ☐
(7)Others(Specify)_____
8.District: (1)Aizawl ☐ (2)Lunglei ☐ (3)Champhai ☐
(4)Serchhip ☐ (5)Kolasib☐ (6)Mamit☐
(7)Lawngtlai ☐ (8)Siaha☐
9.Domicile : (1)Rural ☐ (2)Urban ☐
10.Occupation: (1)Govt.Employed ☐ (2)Private employed ☐ (3)Laborer☐
(4)Business ☐ (5) Dependent ☐(5)Others(Specify)_____
11.No. of children: _____
12.Diabetes Type: (1)Insulin dependent ☐ (2)Non-Insulin dependent ☐

II.Family Details:.**Kindly furnish the details and please tick (√) wherever necessary.**

13.Size of family: _____
14.Type of family: (1)Nuclear ☐ (2)Joint ☐
(3)Extended ☐ (4)Reconstituted☐
15.No.of earners in the family:_____
16.Monthly family income :Rs._____
17.a)History of diabetes in the family: (1) Yes ☐ (2)No ☐
b)If yes,who? (1)Parent ☐ (2)Sibling☐ (3)Spouse ☐

(4)Child☐ (5)Others(Specify)_____

III.Coping

18.Please circle on the numbers below that gives the best answer for you for each question.

Sl No.	Statement	0.Not Used	1.Used Somewhat	2.Used Quite A Bit	3.Used A great deal
1.	Just concentrated on what I had to do next- the next step.	0	1	2	3
2.	I tried to analyze the problem in order to understand it better.	0	1	2	3
3.	Turned to work or substitute activity to take my mind off things.	0	1	2	3
4.	I felt that time would make a difference – the only thing to do was to wait.	0	1	2	3
5.	Bargained or compromised to get something positive from the situation.	0	1	2	3
6.	I did something which I didn't think would work, but at least I was doing something.	0	1	2	3
7.	Tried to get the person responsible to change his or her mind.	0	1	2	3
8.	Talked to someone to find out more about the situation.	0	1	2	3
9.	Criticized or lectured myself.	0	1	2	3
10.	Tried not to burn my bridges, but leave things open somewhat.	0	1	2	3
11.	Hoped a miracle would happen.	0	1	2	3
12.	Went along with fate; sometimes I just have bad luck.	0	1	2	3
13.	Went on as if nothing had happened.	0	1	2	3
14.	I tried to keep my feelings to myself.	0	1	2	3
15.	Looked for the silver lining, so to speak; tried to look on the bright side of things.	0	1	2	3
16.	Slept more than usual.	0	1	2	3
17.	I expressed anger to the person(s) who caused the problem.	0	1	2	3
18.	Accepted sympathy and understanding from someone.	0	1	2	3
19.	I told myself things that helped me to feel better.	0	1	2	3
20.	I was inspired to do something creative.	0	1	2	3
21.	Tried to forget the whole thing.	0	1	2	3
22.	I got professional help.	0	1	2	3
23.	Changed or grew as a person in a good way.	0	1	2	3
24.	I waited to see what would happen before doing anything.	0	1	2	3
25.	I apologized or did something to make up.	0	1	2	3
26.	I made a plan of action and followed it.	0	1	2	3
27.	I accepted the next best thing to what I wanted.	0	1	2	3
28.	I let my feelings out somehow.	0	1	2	3

29.	Realized I brought the problem on myself.	0	1	2	3
30.	I came out of the experience better than when I went in.	0	1	2	3
31.	Talked to someone who could do something concrete about the problem.	0	1	2	3
32.	Got away from it for a while; tried to rest or take a vacation.	0	1	2	3
33.	Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.	0	1	2	3
34.	Took a big chance or did something very risky.	0	1	2	3
35.	I tried not to act too hastily or follow my first hunch.	0	1	2	3
36.	Found new faith.	0	1	2	3
37.	Maintained my pride and kept a stiff upper lip.	0	1	2	3
38.	Rediscovered what is important in life.	0	1	2	3
39.	Changed something so things would turn out all right.	0	1	2	3
40.	Avoided being with people in general.	0	1	2	3
41.	Didn't let it get to me; refused to think too much about it.	0	1	2	3
42.	I asked a relative or friend I respected for advice.	0	1	2	3
43.	Kept others from knowing how bad things were.	0	1	2	3
44.	Made light of the situation; refused to get too serious about it.	0	1	2	3
45.	Talked to someone about how I was feeling.	0	1	2	3
46.	Stood my ground and fought for what I wanted.	0	1	2	3
47.	Took it out on other people.	0	1	2	3
48.	Drew on my past experiences; I was in a similar situation before.	0	1	2	3
49.	I knew what had to be done, so I doubled my efforts to make things work.	0	1	2	3
50.	Refused to believe that it had happened.	0	1	2	3
51.	I made a promise to myself that things would be different next time.	0	1	2	3
52.	Came up with a couple of different solutions to the problem.	0	1	2	3
53.	Accepted it, since nothing could be done.	0	1	2	3
54.	I tried to keep my feelings from interfering with other things too much.	0	1	2	3
55.	Wished that I could change what had happened or how I felt.	0	1	2	3
56.	I changed something about myself.	0	1	2	3
57.	I daydreamed or imagined a better time or place than the one I was in.	0	1	2	3

58.	Wished that the situation would go away or somehow be over with.	0	1	2	3
59.	Had fantasies or wishes about how things might turn out.	0	1	2	3
60.	I prayed.	0	1	2	3
61.	I prepared myself for the worst.	0	1	2	3
62.	I went over in my mind what I would say or do.	0	1	2	3
63.	I thought about how a person I admire would handle this situation and used that as a model.	0	1	2	3
64.	I tried to see things from the other person's point of view.	0	1	2	3
65.	I reminded myself how much worse things could be.	0	1	2	3
66.	I jogged or exercised.	0	1	2	3

IV.Social Support: 19.Availability of someone to help me. Please tick(√) on the numbers.

Sl. No.	Statement	3.Always	2.Sometimes	1.Rarely	0.Never
1.	Help if confined to bed.	3	2	1	0
2.	Take to doctor.	3	2	1	0
3.	Purchase of medicine.	3	2	1	0
4.	Financial help.	3	2	1	0
5	Prepare meals.	3	2	1	0
6.	Help with daily chores.	3	2	1	0
7.	Someone to share my worries.	3	2	1	0
8.	Show love and affection.	3	2	1	0
9.	Do something enjoyable with.	3	2	1	0
10.	To confide in.	3	2	1	0
11.	Understand my problem.	3	2	1	0
12.	Turn to for suggestions.	3	2	1	0

V. Quality of Life: 20.Please read and assess your feelings, and circle the number on the scale that gives the best answer for you for each question.

Sl. No	Statement					
1.	How would you rate your quality of life?	1 .Very Poor	2.Poor	3.Neither Poor nor Good	4.Good	5.Very Good
2.	How satisfied are you with your health?	1.Very Dissatisfied	2.Dissatisfied	3.Neither Satisfied nor Dissatisfied	4.Satisfied	5.Very Satisfied
3.	To what extent do you feel that physical pain prevents you from doing what you need to do?	1.Not at all	2.A little	3.A moderate amount	4.Very much	5.An extreme amount
4.	How much do you need any	1	2	3	4	5

	medical treatment to function in your daily life?					
5.	How much do you enjoy life?	1	2	3	4	5
6.	To what extent do you feel your life to be meaningful?	1	2	3	4	5
7.	How well are you able to concentrate?	1.Not at all	2.Slightly	3.A moderate amount	4.Very much	5.Extremely
8.	How safe do you feel in your daily life?	1	2	3	4	5
9.	How healthy is your physical environment?	1	2	3	4	5
10.	Do you have enough energy for everyday life?	1.Not at all	2.A little	3.Moderately	4.Mostly	5.Completely
11.	Are you able to accept your bodily appearance?	1	2	3	4	5
12.	Have you enough money to meet your needs?	1	2	3	4	5
13.	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14.	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5
15.	How well are you able to get around?	1.Very Poor	2.Poor	3.Neither poor nor well	4.Well	5.Very well
16.	How satisfied are you with your sleep?	1.Very Dissatisfied	2.Dissatisfied	3.Neither Satisfied nor Dissatisfied	4.Satisfied	5.Very Satisfied
17.	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18.	How satisfied are you with your capacity for work?	1	2	3	4	5
19.	How satisfied are you with yourself?	1	2	3	4	5
20.	How satisfied are you with your personal relationships?	1	2	3	4	5
21.	How satisfied are you with your sex life?	1	2	3	4	5
22.	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23.	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24.	How satisfied are you with your access to health services?	1	2	3	4	5
25.	How satisfied are you with your mode of transportation?	1	2	3	4	5
26.	How often do you have	1.Never	2.Seldom	3.Quite often	4.Very	5.Always

	negative feelings, such as blue mood, despair, anxiety, depression				often	

VI. Suggestions (If any):

_____-

_____

GUIDE FOR CASE STUDIES

1. Can you explain the case history of your illness?
2. What is the status of yourself and family?
3. What is the status of your health?
4. What affect does the illness contribute in your life and family ?
5. What affect does the illness have economically to you and your family?
6. What is the progress in your health condition with regard to the contribution of your family/spouse/relatives and yourself ?

GUIDE FOR FOCUS GROUP DISCUSSION

1. What are the psycho-social challenges concerning diabetes?
2. What are the issues in relation to your illness?
3. What is the level of support level from your near and dear ones ?
4. What are the common coping patterns?
5. How would you rate your QOL?
6. How do you rate your health status ?
7. What are your suggestions

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Interview Schedule

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Schedule No._____

I.Chhangtu chanchin: Khawngaiha min chhan saka, tick(√) turin ka ngen a che.

1.Kum zat (in years) : _____

2.Gender : (1)Mipa ☐ (2) Hmeichhia ☐

3.Nupui/Pasal: (1)Nei lo ☐ (2)Nei ☐ (3)Inthen ☐

(4)Nupui/pasal sun tawh ☐ (5)Nei tha leh ☐ (6)Adangte(Sawifiah)_____

4.Lehkha zir thlen: _____

5.Sakhua: (1) Christian ☐ (2)Hindu ☐

(3)Muslim ☐ (4)A dangte(Sawifiah)_____

6.Pawl : (1)Presbyterian ☐ (2)Baptist ☐ (3)UPC(NE) ☐

(4)UPC(Miz) ☐(5)Catholic ☐ (6)Salvation ☐

(7)Adventist ☐ (8)A dangte(Sawifiah)_____

7.Sub-Tribe: (1)Lusei ☐ (2)Ralte ☐ (3)Hmar ☐

(4)Lai ☐ (5)Paite☐ (6)Mara ☐

(7)A dangte(Sawifiah)_____

8.District: (1)Aizawl ☐ (2)Lunglei ☐ (3)Champhai ☐

(4)Serchhip ☐ (5)Kolasib☐ (6)Mamit ☐

(7)Lawngtlai ☐ (8)Siaha☐

9.Chenna : (1)Rural ☐ (2)Urban ☐

10.Eizawnna: (1)Sawrkar hnathawk ☐(2)Private a thawk ☐(3)Kuthnathawk ☐

(4)Sumdawng ☐ (5)Hna thawklo ☐ (5)A dangte(Sawifiah)_____

11.Fa neih zat: _____

12.Diabetes type (1) Insulin hmang ☐ (2)Insulin hmang lo ☐

II.Chhungkaw chanchin:**Khawngaiha min chhan saka, tick(√) turin ka ngen a che.**

13.Chhungkaw member zat: _____

14.Chhungkaw awm dan: (1)Nu/pa leh fate nen ☐ (2)Nu/pa,fate leh tute nen ☐

(3)Pi leh Pu te nen ☐(4)Nu hrawn/Pa hrawn/Fa hrawn te nen ☐

15.Chhungkua a hnathawk awm zat:_____

16.Thla khata chhungkaw lakluh zat :Rs._____

17.a)Chhungkua ah zunthlum vei in awm tawh em?: (1)Aw ☐ (2)Aih ☐

b)Awm chuan,tunge? (1)Nu/Pa ☐ (2)Unau☐ (3)Nupui/pasal ☐

(4)Fa ☐ (5)A dangte(Sawifiah)_____

III.Beih let dan:18.Khawngaihin a hnuaiah hian min lo tick (√) sak dawn nia.

Sl No.	**Dinhmun**	0.Dik lo	1.Dik tho	2.Dik	3.Dik lutuk
1.	A dawta ka tih leh tur chauh ka ngaihtuah.	0	1	2	3
2.	Ka natna hrethiam lehzual turin hma ka la	0	1	2	3
3.	Ka dinhmun theihnghilh turin thil dang ka ti.	0	1	2	3
4.	Hun in her zel hian thil a tihdanglam ka beisei a, ka nghak	0	1	2	3
5.	Ka dinhmun atanga thil tha zawk a lo chhuah theihna turin ka bei.	0	1	2	3
6.	Engmah tih loh ai chuan thil sawt vaklo pawh ka ti mai thin.	0	1	2	3
7.	Ka tana mi pawimawhte chu an rilru thlak ka tum thin.	0	1	2	3
8.	Ka dinhmun hrethiamtu ka sawipui.	0	1	2	3
9.	Keimah ka in fuih.	0	1	2	3
10.	A thalo lam zawngin thil tih loh ka tum.	0	1	2	3
11.	Thilmak thleng tur hian ka beisei fo thin.	0	1	2	3
12.	Khuarel ang zelin a chang chuan kan chungah harsatna a lo thleng.	0	1	2	3
13.	Engmah thleng lo angin ka ngai.	0	1	2	3
14.	Ka rilru sawichhuah loh ka tum.	0	1	2	3
15.	A eng zawngin thil thlir ka tum	0	1	2	3
16.	A hma aiin ka mu tam.	0	1	2	3
17.	Buaina min siamtu chungah thinrimna ka tilang thin	0	1	2	3
18.	Midang hnen atanga khawngaihna leh hriatthiamna ka pawm.	0	1	2	3
19.	Ka awm a nawm nan keimah ka in hnem thin.	0	1	2	3
20.	Thil tha zawk ti tura fuih ka ni.	0	1	2	3
21.	Ka harsatna theihnghilh vek ka tum.	0	1	2	3
22.	Puihna mumal tak mithiam hnen atangin ka dawng.	0	1	2	3
23.	A tha zawngin hma ka sawn.	0	1	2	3
24.	Thil ka tih hma in ka ngaihtuah hmasa thin.	0	1	2	3

25.	Ka dinhmun siamtha turin hma ka la.	0	1	2	3
26.	Ruahmanna ka siam a, chumi chu ka zawm thin.	0	1	2	3
27.	Ka duhzawng chu ka pawm thlap a ni.	0	1	2	3
28.	Ka ngaihdan ka tilang ve thin.	0	1	2	3
29.	Ka harsatna hi keimah vang a ni.	0	1	2	3
30.	Ka vei tirh lai ai chuan, nasa takin atha zawngin tawn hriat ka neih phah.	0	1	2	3
31.	Ka tana tangkai thei tur bulah ka natna chungchang ka sawi thin.	0	1	2	3
32.	Hahchawlin engemaw chhung ka intithawveng.	0	1	2	3
33.	Ka awm a nawm theih nan heng ei leh in, zu leh sa, zuk leh hmuam leh ruihhlo te ka ti thin.	0	1	2	3
34.	Thil risky tak ka ti ve thin.	0	1	2	3
35.	Hmanhmawh leh dawhtheilo tak anga awm loh ka tum.	0	1	2	3
36.	Pathian ah rinna ka nghat.	0	1	2	3
37.	Induhtawk taka awm hram ka tum thin.	0	1	2	3
38.	Nun a pawimawh hi ka hmuchhuak thar.	0	1	2	3
39.	Thil tha zawk ti turin hma ka la.	0	1	2	3
40.	Mipui mimir zingah ka awm peih lo.	0	1	2	3
41.	Ka dinhmun ka ngaihtuah nasa duh lo.	0	1	2	3
42.	Chhungkhat emaw thiantha te thurawn ka la.	0	1	2	3
43.	Ka dinhmun thalo mi dangin hrelo se ka duh.	0	1	2	3
44.	Ka awmdan hi ka la urhsun lutuk duh lo.	0	1	2	3
45.	Ka rilru hrethiamtu ka sawipui	0	1	2	3
46.	Nghet taka dingin ka duhzawng chu ka ti.	0	1	2	3
47.	Midangte hnenah ka inphawrh thin.	0	1	2	3
48.	Hetiang dinhmuna anga ka lo din tawhna chu ka ngaihtuah let thin.	0	1	2	3
49.	Thil tha tur zawk atan tan ka la sauh.	0	1	2	3
50.	Zunthlum ka vei tih hi ka awih duh lo.	0	1	2	3
51.	A lehpekah chuan hma ka sawn ang tiin ka intiam.	0	1	2	3
52.	Ka harsatna sutkianna tur ka ngaihtuah chhuak nual.	0	1	2	3
53.	Tih danglam theih a nih loh avangin ka pawm mai.	0	1	2	3
54.	Thil danga in hnamhnawih tam lutuk lo turin ka rilru ka thunun.	0	1	2	3
55.	Ka dinhmun hi thlak danglam theih ila ka ti.	0	1	2	3
56.	Ka nun thin dan thenkhat ka thlak danglam.	0	1	2	3
57.	Hun nuam zawk leh tuna ka dinhmun aia tha zawk hi ka suangtuah.	0	1	2	3
58.	Ka dinhmun hi ziaawm se ka duh hle a, a nih loh chuan ka nih nih ni ila.	0	1	2	3
59.	Thil tha zawk tur ka suangtuah.	0	1	2	3
60.	Ka tawngtai thin.	0	1	2	3
61.	Dinhmun chhe ber atan ka inbuatsaih.	0	1	2	3

62.	Enge ka tih anga, ka sawi ang tih ka ngaihtuah.	0	1	2	3
63.	Ka mi ngaihsan leh entawn ten engtinnge an beihlet ve ang tiin ka ngaihtuah fo thin.	0	1	2	3
64.	Midang thlir dan turin thlir ka tum.	0	1	2	3
65.	Dinhmun chhe zawk a awm thei a ni tih ka inhrilh.	0	1	2	3
66.	Ka taksa ka sawizawi/exercise.	0	1	2	3

IV.Chhungkua leh khawtlanga tanpuina dawn dan:

19.A zawn ah hian min lo tick(√) sak dawn nia.Hetiang tur mi hi an awm em.

Sl. No	**Dinhmun**	3.Englai pawhin	2.A chang changin	1.A chang zeuhin	0.Awm ngai lo
1.	Khum beta natin min puitu tur.	3	2	1	0
2.	Doctor hnena min hruaitu tur.	3	2	1	0
3.	Damdawi min leisak tu tur.	3	2	1	0
4.	Sum lama tanpuitu tur.	3	2	1	0
5	Ei leh in siamsak tu tur	3	2	1	0
6.	In chhung chet pui tur	3	2	1	0
7.	Ka rilru hahna te sawipui tur	3	2	1	0
8.	Hmangaih leh lainattu tur	3	2	1	0
9.	Hun nuam tak hmanpui tur	3	2	1	0
10.	Manganna sawipui tur	3	2	1	0
11.	Harsatna min hriatthiam pui tu tur	3	2	1	0
12.	Thurawn ka mamawh em em min petu tur	3	2	1	0

V. Nun dan tehna:

20.A hnuaiah hian khawngaihin min lo tick (√) sak dawn nia.

Sl. No	**Dinhmun**					
1.	I nun dan quality eng ang a tha nge?	1 .Tha lo ltk	2.Tha lo	3.Ngaihdan nei lo	4.Tha	5.Tha ltk
2.	I hriselna dinhmun ah i lungawi em?	1.Lungawi lo lutuk	2.Lungawi lo	3.Ngaihdan nei lo	4.Lungawi	5.Lungawi lutuk
3.	Taksa natna in i tih tur ti thei lovin a siam che em?	1.Siam lo	2.Siam ve zeuh	3.Siam zeuh zeuh	4.Siam thin	5.Lutuk
4.	I nitin nunah damdawi a inenkawlna engzatnge i mamawh?	1.Mamawh lo	2.Ve zeuh	3.Mamawh zeuh zeuh	4. Fo thin	5.Lutuk
5.	I nun a hlim em?	1.Hlim lo	2.Hlim ve deuh	3.Hlim pangngai	4.Hlim	5.Lutuk
6.	Eng ang chiahin nge i nun hian awmzia neia i hriat?	1.Hre lo	2.Hre deuh	3.Hre pangngai	4.Hria	5.Lutuk
7.	I concentrate (rilru sawrbing) tha thei em?	1.Tha lo	2.Tlem te in	3.Tha ve deuh	4.Tha thei	5.Tha lutuk
8.	I nun a him tawkin i hria	1.Him lo	2.Him	3.Him	4.Him	5.Lutuk

	em?		trawk	pangngai		
9.	I awmna leh a chhehvel a hriselin i hria em?	1.Aih	2.Hrisel trawk	3.Hrisel pangnngai	4Hrisel	5.Lutuk
10.	I nitin hun hmanah i chak tha tawk em?	1.Aih	2.Ve deuh	3.Pangngai	4.Tha tawk	5.Lutuk
11.	I taksa pianphungah i lungawi em?	1.Aih	2.Ve deuh	3 Pangngai	4. lungawi	5.Lutuk
12.	I mamawh zat pawisa i nei em?	1.Nei lo	2.Tlem	3 Pangngai	4 Nei	5 Lutuk
13.	Nitin a hriat tur pawimawh te i hre thei em?	1.Aih	2. Hre deuh	3 Pangngai	4 Hria	5 Lutuk
14.	Hun awl i nei tha em?	1.Aih	2 Nei zeuh zeuh	3 Pangngai	4 Nei	5 Lutuk
15.	I veivak zung zung thei em?	1.Aih	2. Ve deuh	3.Pangngai	4.Theie	5.Lutuk
16.	I mu tha em?	1.Tha lo ltk	2.Tha lo	3.Ngaihdan neilo	4.Tha	5.Tha ltk
17.	Nitin a i tih tur i ti tha thei em?	1.Tha lo ltk	2.Tha lo	3.Ngaihdan neilo	4.Tha	5.Tha ltk
18.	Hna i thawk tha thei em?	1.Tha lo ltk	2. Tha lo	3.Ngaihdan neilo	4.Tha	5.Tha ltk
19.	Nangmahah i lungawi em?	1.Lungawi lo ltk	2.Lunga wi lo	3.Ngaihdan neilo	4.Lungawi	5.Lutuk
20.	Midang nena inlaichinna ah i lungawi em?	1.Lungawi lo ltk	2.Lunga wi lo	3.Ngaihdan nei lo	4.Lungawi	5.Lutuk
21.	Nupa nunah i lungawi em?	1.Lungawi lo ltk	2.Lunga wi lo	3. Pangngai	4 Lunga wi	5.Lutuk
22.	I thiante tanpuina i dawng tha em?	1.Tha lo ltk	2.Tha lo	3. Pangngai	4. Tha	5. Lutuk
23.	I chenna in ah i lungawi em?	1.Lungawi lo ltk	2.Lunga wi lo	3 Pangngai	4 Lunga wi	5 Lutuk
24.	Inenkawlna i dawn theihah i lungawi em?	1.Lungawi lo ltk	2.Lunga wi lo	3 Pangngai	4 Lunga wi	5 Lutuk
25.	I veivahna lirthei ah i lungawi em?	1.Lungawi lo ltk	2.Lunga wi lo	3 Pangngai	4 Lunga wi	5 Lutuk
26.	Rilru hah leh mangan i nei thin em?	1.Nei ngai lo	2.Nei ve zeuh	3.Nei pangngai	4.Nei zing mai	5.Englai pawhin

VI. Suggestions (If any):

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www.veethi.com (June, 2012)

BIO-DATA OF THE CANDIDATE

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FATHER'S NAME	:	K. Lallura
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EDUCATIONAL DETAILS:

Class	Board/University	Year of Passing	Division	Percentage
H.S.L.C	Mizoram Board of School Education	2003	Distinction	79.9%
H.S.S.L.C	Central Board of School Education	2005	First Division	74.2%
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COPING, SOCIAL SUPPORT AND QUALITY OF LIFE AMONG PERSONS WITH DIABETES IN MIZORAM

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Submitted

In partial fulfillment of the requirement of the Degree of Doctor of Philosophy in Social Work of Mizoram University, Aizawl.

ABSTRACT

COPING, SOCIAL SUPPORT AND QUALITY OF LIFE AMONG PERSONS WITH DIABETES IN MIZORAM

AN ABSTRACT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

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Introduction

The present study attempts to understand the coping patterns, social support and QOL among Persons with Diabetes in Mizoram. In this study, *Person with Diabetes* is a person who has been diagnosed with diabetes and is undertaking treatment for a minimum period of 3 years**.**

Diabetes is a non-communicable disease and is often referred to as a lifestyle illness it is one of the four major types of non-communicable diseases. *Diabetes* is a chronic disease that affects the way the body processes blood sugar (glucose) which negatively affects the whole body including important organs such as the kidney, heart, lungs, eyes and foot. *Diabetes* is also called a *'silent killer'*.

According to Shah (2003) '*Diabetes'* was first described in Egyptian writings around 1500 BC. About AD 230, a Greek Physician named Aretaeus is believed to have called the disease diabetes, which in Greek means "*to siphon*" or *to suck out* (Kelly, 2002). It is described in Indian Vedic Literature where it is referred to as *'Madhumeha'* or *honey urine*, a reference to the sweet urine.

WHO (2016) states that *'Diabetes'* is one of the four major types of non-communicable diseases (cardiovascular disease, diabetes, cancer and chronic respiratory diseases). It is a chronic condition that occurs when the body either does not produce enough insulin or cannot effectively use the insulin it does produce. Insulin is a hormone that regulates the blood sugar (glucose) formed from the food consumed by a person. Diabetes therefore results in raised blood sugar levels which, if not controlled, over time lead to serious damage to many of the body's systems.

Diabetes

According to International Diabetes Federation (2020) '*Diabetes'* is a chronic disease that occurs when the pancreas is no longer able to make insulin, or when the body cannot make good use of the insulin it produces.

Insulin is a hormone made by the pancreas, that acts like a key to let glucose from the food we eat pass from the blood stream into the cells in the body to produce energy. All carbohydrate foods are broken down into glucose in the blood. Insulin helps glucose get into the cells.

Types of Diabetes

There are different types of diabetes such as *Type 1 Diabetes, Type 2 diabetes*, the most common type of diabetes and *Gestational diabetes*.

According to NIDDK (2020), in most people with *type 1 diabetes*, the body's immune system, which normally fights infection, attacks and destroys the cells in the pancreas that make insulin. As a result, our pancreas stops making insulin. Without insulin, glucose can't get into our cells and our blood glucose rises above normal. People with type 1 diabetes need to take insulin every day to stay alive.

In *type 2 diabetes*, our body doesn't make enough insulin or doesn't use insulin well. Too much glucose then stays in our blood, and not enough reaches our cells. The good news is that we one take steps to prevent or delay the development of type 2 diabetes. One can develop type 2 diabetes at any age, even during childhood. However, type 2 diabetes occurs most often in middle-aged and older people.

Centres for Disease Control and Prevention (2020) states *gestational diabetes* as a type of diabetes that is first seen in a pregnant woman who did not have diabetes before pregnancy. Some women have more than one pregnancy affected by gestational diabetes. Gestational diabetes usually shows up in the middle of pregnancy.

Overview of Literature

Young and Unachukwu (2012) explain that an individual's health behaviour is influenced by his or her social, economic, cultural, and physical environment. Ashraff, Siddiqui and Carline (2013) noted that type 1 diabetes mellitus is known to have a major psychological impact on adolescents. According to Nicole (2003), treatment regimens are becoming more and more intensive, comprehensive behavioural changes are required.

Peyrot et al. (2005) explain that although new and more efficacious diabetes medication and improved medication delivery systems have been developed, the majority of diabetic patients do not achieve optimal blood glucose control, leading to poor health outcomes. Negative attitudes, coping difficulties and psychological problems such as depression, anxiety and eating disorders are common in diabetes and can contribute to poor outcomes.

Coping is defined as the behavioural and cognitive efforts used in an attempt to deal with stressful events (Turan, Oscar, Damci & Ilkova, 2002). Dealing with diabetes over the long term requires developing a range of coping skills and techniques, from learning to carry out the daily tasks of diabetes control, to finding ways to deal with the emotions that having diabetes and having to care for it are bound to bring up at times. (Hieronymous, 2012). Coping also may affect psychosocial outcomes, such as psychological adjustment, depression, and QOL (Grey M, 2000). Coping with type 2 diabetic patients is increasingly posing large financial burdens, sorely felt especially by growing economies. Self-management has been found to be an effective approach towards maintaining good control in diabetics (Kadirvela & Sadasivan, 2012). Training and education programs for diabetic adults might benefit from including a component that is aimed at improving coping with issues specific to diabetes (Turan, Oscar, Damci & Ilkova, 2002).

Association of Diabetes Care & Education Specialists (2021) discusses that successful self-management is a vital part of living with a chronic condition and emotional well-being has a big impact on your ability for self-care.

Social support is physical and emotional comfort that one gets from family, relatives, friends and co-workers. It means having family, friends and other people in times of need or crisis or illness. It is the perception and actuality that one is cared for, has assistance available from other people and the supportive resources can be emotional, informative or companionship.

Bakken (2016) defines that the term "*social support*" often appears in discussions of relationships. Social support means having friends and other people, including family, to turn to in times of need or crisis to give you a broader focus and positive self-image. Helgeson (2003) states that *Social Support* is a broad term, which includes the supportive ways that different people behave in the social environment. The source of support may influence which kind of support is effective. There is some evidence that among the different types of support, *emotional* support shows the strongest relation to *QOL*. Informational support, by contrast, is not perceived as helpful from all sources. People want informational support from the experts, i.e. from nurses and physicians.

Quality of Life is an important health outcome in its own right. QOL is measured as physical and social functioning, and perceived physical and mental well-being. QOL may affect diabetes self-efficacy, self-care behaviour, glycemic control and complication (Rubin & Peyrot, 1999). The life of every person with diabetes is unique. Not many patients manage their diabetes actively or effectively. QOL has importance for people with diabetes and their health care providers (Rubin, 2000).

People with diabetes have lower health related QOL than healthy people. Better socio-economic status and better control of cardiovascular risk factor are associated with better health related QOL among the patients with diabetes (Kiadaliri, Najafi and Sani, 2013). Major diabetes complications are associated with worse health-related QOL (Coffey et al., 2002). Skevington (2007) states that QOL has become a key goal of contemporary health care. It is often confused with standard-of-living. WHO (2021) defines QOL as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.

The overview of literature indicates that the empirical studies related to psychosocial challenges, coping with diabetes, social support and quality of life.

Review of Literature

In the past, type 1 diabetes was always fatal within months or even weeks. The introduction of insulin as a treatment changed this. There is still no cure for diabetes, but newer drugs and an awareness of possible causes have further improved the outlook for people with this condition. In ancient India, people discovered that they could use ants to test for diabetes by presenting urine to them. If the ants came to the urine, this was a sign that it contained high sugar levels. They called the condition madhumeha, meaning honey urine (Higuera, 2020).

Studies on Psychosocial Challenges

Peyrot et al. (2005) explain that although new and more efficacious diabetes medication and improved medication delivery systems have been developed, the

majority of diabetic patients do not achieve optimal blood glucose control, leading to poor health outcomes. According to Nicole (2003), treatment regimens are becoming more and more intensive, comprehensive behavioural changes are required.

In a study done by Peyrot et al. (2005), the aim was to examine patient- and provider-reported psychosocial problems and barriers to effective self-care and resources for dealing with those barriers. According to the findings, diabetes-related worries were common among patients, and providers generally recognized these worries.

In a study done by Fernandes et al. (2019), the aim was to assess the psychosocial distress experienced by the people with type 2 diabetes in India. The findings showed a significant difference between selected demographic characteristics and psychosocial distress at p 0.05 level. It was concluded that diabetes related distress can be assessed as a part of mental health. According to Weinger and Smaldone (2018), individuals face significant events or crises at different points during the course of diabetes that challenge their usual ways of coping and dealing with stress. These events evoke heightened anxiety, feelings of helplessness, and temporary states of cognitive confusion.

Studies on Coping and Diabetes

Skinner& Zimmer-Gembeck (2016) defines *Coping* as a basic process integral to adaptation and survival, depicts how people detect, appraise, deal with, and learn from stressful encounters. According to Townsend & Andrews (2019*), Coping* is the ability to manage threatening, challenging, or potentially harmful situations and is crucial for well-being. Coping strategies may be behavioural or cognitive. Blum & Silver (2012) explains that *Coping Strategies* are as numerous and varied as the stressors that precede them.

In a study done by Kausar (2016), the objective was to determine the relationship between self-care, coping strategies and quality of life of individuals with diabetes. Results showed that good self-care improved quality of life with the medication of coping strategies in individuals with diabetes.

In a study done by Collins, Bradley, Sullivan & Perry (2009), the aim was to explore patient perceptions of diabetes self-care, with particular reference to the burden of self-care and coping strategies among patients. Discussion of the result

was made in the theoretical context of the health belief, health value, self-efficacy, and locus of control frameworks.

A study done by Hamid and Manan (2013) investigates the prevalence of diabetes among stress sufferers and to identify stress coping skills in rural and urban area of Sepang, Selangor. Result showed that it is crucial for this group of subjects to practice appropriate stress coping skills and practice healthy life style. It was concluded that although diabetic stress was more common in urban than rural but there is a potential the prevalence was getting higher.

According to Kent et al. (2010), psychological, emotional, and social factors not only impact quality of life, but also often play a role in chronic illness outcomes. Diabetes care, in particular, is greatly influenced by psychosocial factors when they hinder a person's ability to manage the disease and achieve metabolic control.

In a study done by Graue et al. (2004) the objective was to systematically study the various coping styles in a population-based sample of adolescents with type 1 diabetes, exploring the association of different coping styles with metabolic control and adolescent self-reported diabetes-related quality of life.

In a study done by Kirimi et al. (2016), the objective was to determine the relationship between coping strategies, hardiness, and occupational life quality in Type 2 diabetic patients and healthy people in Qazvin. The results of this research indicated that there is a significant relationship between problem-focused strategies, emotion focused strategies, hardiness, and occupational life quality in people suffering from type 2 diabetes and healthy people..

Studies on Social Support and Diabetes

Social support is physical and emotional comfort that one gets from family, relatives, friends and co-workers. It means having family, friends and other people in times of need or crisis or illness. It is the perception and actuality that one is cared for, has assistance available from other people and the supportive resources can be emotional, informative or companionship.

Bakken (2016) defines that the term "*social support*" often appears in discussions of relationships. Social support means having friends and other people, including family, to turn to in times of need or crisis to give you a broader focus and positive self-image.

Cherry (2020) explains that *Social support* is often identified as a key component of solid relationships and strong psychological health. Essentially, social support involves having a network of family and friends that you can turn to in times of need.

In a study done by Ramkisson, Pillay and Sibanda (2017), the objective was to explore whether patients with poor perceived social support have lower levels of well-being and coping than patients with good social support. The findings indicate that there is an inverse relationship between social support and coping, which suggests that an increase in social support is associated with a decrease in emotional distress.

In a study done by Skinner, John and Hampson (2000), the study was to examine whether peer support and illness representation mediate the link between family support, self-management and well-being. The result was that perceived impact of diabetes and supportive family and friends were prospectively predictive of participants' well-being measures.

Henderson (2020) examines that too often diabetes treatment is understood as a simple process of taking medications and monitoring blood sugar. In reality, diabetes is a chronic condition that requires a great deal of mental and emotional energy, which when depleted, can impair care. Diabetes-related mortality and morbidity are highest among people with lower socio-economic status.

In a study done by Unsar, Erol and Sut (2016) the aim was to investigate the social support and quality of life of Turkish older adults and to determine the relationship between social support and quality of life. According to the findings, positive correlations were found between quality of life score and social support total score, social support scale's subgroups of family, friends and special friend scores respectively.

Studies on Quality of Life and Diabetes

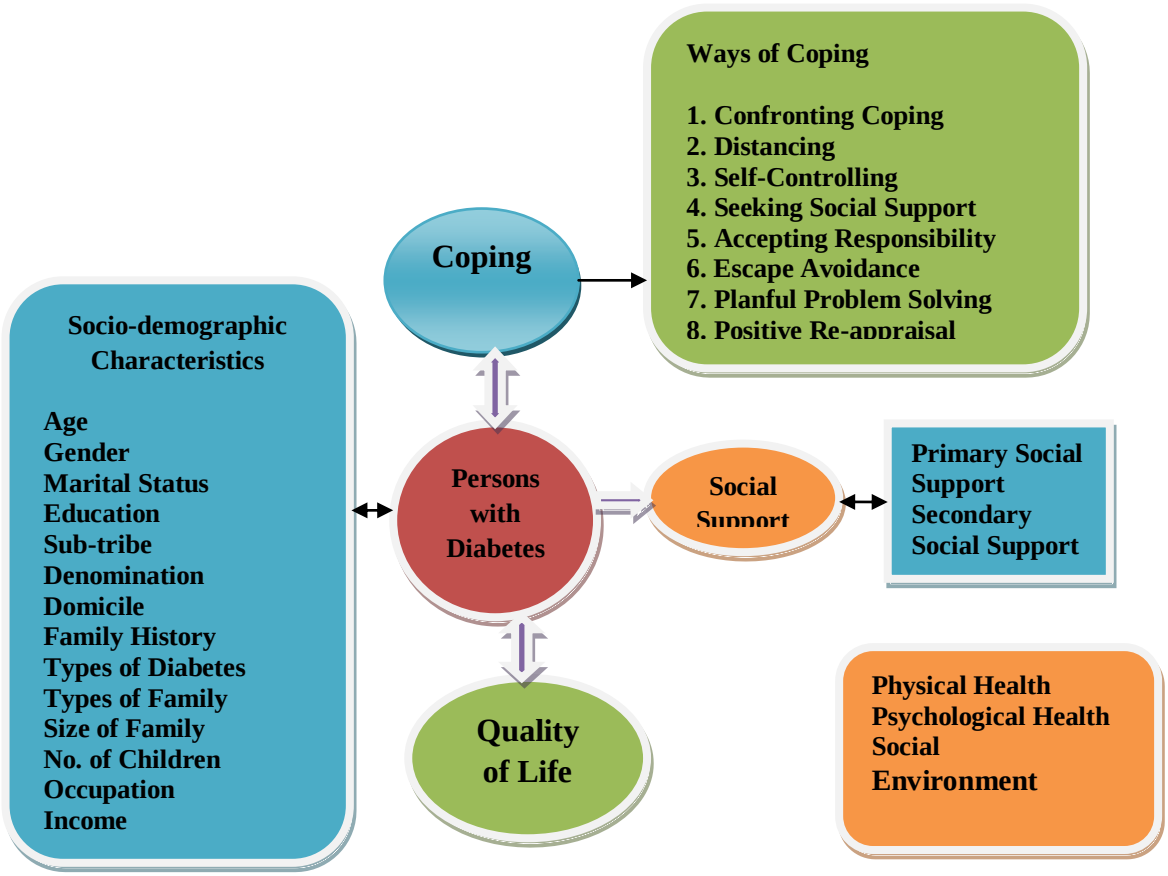
Quality of Life is important for everyone, it can be explained as the standard of health, comfort and happiness experienced by an individual or group. Jenkinson (2021) defines *Quality of life* as the degree to which an individual is healthy, comfortable, and able to participate in or enjoy life events. Rubin and Peyrot (1999) states that *Quality of life* is an important health outcome in its own right, representing the ultimate goal of all health interventions. Abolfotouh, M.A. (1999) explains the

term “quality of life” (QOL), and more specifically “health-related quality of life” (HQOL), as a multidimensional concept that encompasses the physical, emotional, and social components associated with an illness or its treatment.

Conceptual Framework of the Study

Conceptual framework of a study is a model built with various variables which are examined through various work s of literature. After understanding the concepts, the researcher is able to construct the conceptual framework. As the research deals with coping, social support and quality of life among Persons with Diabetes, the researcher has presented the concept as follows:

Figure 1.2 Conceptual Framework of the Study



Source : Constructed by the researcher.

The conceptual framework portrayed here is adapted from variables based on the understanding of the researcher. In this model, the socio-demographic characteristics

of the respondents, ways of coping, social quality of life is displayed. As the level of social support is high, *Persons with Diabetes* will have better coping patterns. When the level of QOL is high, *Persons with Diabetes* will have better coping patterns. This reveals that QOL, social support and patterns of coping are all linked and interrelated.

Statement of the problem

The prevalence of diabetes worldwide is very high. The number of cases increases exponentially every decade at the global level. It is a global public health crisis that threatens the economies of all nations, specifically developing countries. Further, in the 21st century, diabetes represents one of the most challenging public health problems and issues. It is closely associated with industrialization and socio-economic development in developing countries raising its prevalence on one side. Some of the major factors include population growth, age structure and urbanization (Park, 2000) on the other side.

India is among the most affected countries in the world with diabetes. It is the second most affected country in the world. Diabetes is a growing health challenge in India. There is a high prevalence of type 2 diabetes among the overweight and obese group in North-East India. Physically inactive people are more prone to suffer the disease. Mizoram, the state of India, is located in the north-eastern part of the country. The capital is Aizawl, in the north-central part of the state. In a small state like Mizoram, the number of diabetes cases increases day by day. Coping with diabetes can be a challenge for anyone. Social support is very important for patients with diabetes for the successful management of the disease.

Diabetes is a fast emerging health problem in Mizoram. It is now a growing healthcare challenge even among the people who are involved in physical labour. Diabetes is an illness that is influenced by several factors. Diabetes has become a major public health problem and is closely associated with psychological health. It is estimated that Mizoram has about 10 percent of the population suffering from diabetes. Thus, the researcher attempts to study the coping patterns and the QOL of Persons with Diabetes. The study also aims at identifying the physical and psychological health of Persons with Diabetes. The study attempts to examine the nature of social support for Persons with Diabetes in Mizoram. Many people are

diabetes without their knowledge and the present generation is lacking knowledge related to diabetes. There is a lack of adequate professionals to help Persons with Diabetes. The medical infrastructure is insufficient and there are new cases diagnosed every day.

Objectives

The following are the objectives of the present study:

1. To understand the psychosocial challenges faced by Persons with Diabetes;
2. To assess the ways of coping patterns of Persons with Diabetes;
3. To identify the nature of social support for Persons with Diabetes;
4. To assess the QOL of Persons with Diabetes;
5. To find out the relationship between ways of coping patterns and QOL of Persons with Diabetes;
6. To find out the association between social support and QOL of Persons with Diabetes; and
7. To offer suggestions relevant to social work intervention for Persons with Diabetes.

Hypotheses

The following hypotheses are formulated in order to focus on the present study:

H_1 There is a relationship between ways of coping patterns and social support among Persons with Diabetes;

H_2 There is a relationship between ways of coping patterns and QOL among Persons with Diabetes;

H_3 There is a relationship between social support and QOL of Persons with Diabetes; and

H_4 There is a relationship between type 1 and type 2 diabetes with gender, age, domicile, ways of coping, social support and QOL.

These four hypotheses are derived from the intuitive sense of the researcher.

Pilot Study

At the beginning of the study, an extensive review of the literature regarding diabetes, social support, coping patterns and quality of life available was done. A pilot study was then conducted with 8 (eight) members of the Mizoram Diabetic

Society through an interview schedule in order to find out the feasibility of the study. A quality discussion was also organized with the assistance of the Secretary of Mizoram Diabetic Society to understand the status of Persons with Diabetes in Mizoram about their lifestyle, diet, coping patterns, social support and quality of life.

Methodology

This section discusses the methodology adopted in the present study. The sub-heading includes the research design, selection of sample, inclusion criteria, tools of data collection, sources of data, pre-testing, reliability of the tools and data processing and analysis, operational definitions, ethical considerations, limitations and chapter scheme of the present study.

Research Design

The study employs a descriptive design and is cross-sectional. A mixed-method is applied in this research using both qualitative and quantitative methods. The descriptive design is used to describe the various socio-economic characteristics and the psychosocial challenges faced by the respondents. The study intends to discuss and assess the coping patterns, social support and quality of life among *Persons with Diabetes*. Further, the study discusses the relationship between coping patterns, social support and QOL with the help of a standardised scale.

Selection of sample

The respondents were selected from the list provided by the Mizoram Diabetic Society (MDS). The unit of the study is individual members registered in the MDS. There were 762 members registered in *the Mizoram Diabetic Society*. Of the registered members, 50 percent of the respondents were selected from each district by using a stratified proportionate sampling method and giving weightage to the districts of Mizoram.

Tools of Data Collection

Tools are instruments used to collect data from the respondents for a study. An interview schedule was used to collect data from the respondents on the quantitative part whereas case studies and focus group discussions were conducted to collect qualitative information. The following are detailed descriptions of the above-mentioned tools:

i) Interview Schedule:. The interview schedule sought information on socio-demographic characteristics, psychosocial challenges, coping patterns social support and quality of life. In order to assess the coping patterns a standardised scale constructed by Susan Folkman and Richard S. Lazarus, 1985 (Ways of Coping) was used.

iii) ***Social Support Scale*** was constructed by the researcher having 12 items and classified into two domains i.e., *Primary Social Support* and *Secondary Social Support*

iv) Quality of Life WHOQOL-BREF, 1997 standardised scale was used to assess the quality of life. There are four domains in the QOL scale as- *Physical Health* domain, *Psychological* domain, *Social* domain and *Environment* domain

v) Interview guide for Case studies

The interview guide for case studies focused on the psychosocial challenges (psychosocial, economic, health) of persons living with Diabetes and their social support.

vi) Guide for Focus Group Discussion

A focus group discussion involves gathering people with similar illnesses or experiences together to discuss a specific topic of interest. It involves group interviewing in which a small group of 8 people participated. A FGD was conducted with eight members where the researcher discussed with the participants their perception regarding diabetes, their opinion about diabetes, their attitude and their level of understanding regarding diabetes.

Sources of Data

In the present study, two sources of data have been used namely primary and secondary sources of data. Primary data was collected through both quantitative and qualitative methods. The quantitative data was collected from *Persons with Diabetes* using an Interview Schedule to collect information related to Socio-demographic characteristics, Standardised (Susan Folkman and Richard S. Lazarus, 1985) scale is used to assess ways of Coping, Social Support and the Quality of Life (WHOQOL-BREF, 1997) standardised scale was used. The qualitative data was collected through in-depth interviews and reflected by Five case studies and One focus group

discussion with *Persons with Diabetes*. The secondary data was collected through available literature from journal articles, books, magazines, annual reports and open access articles with the help of web resources.

Pre-testing

The interview schedule was prepared to collect quantitative data from the respondents in their regional language. The tool was translated with help of a trained professional who is proficient in the Mizo language. A pre-test was conducted with 10 members of the Mizoram Diabetic Society. Certain items were slightly modified to make it more comprehensive especially in the ways of coping scale and quality of life scale and also provided an insight to ask questions on the local context for social support, which achieved the purpose of the study.

Data Collection

The data collection was conducted by the researchers during the year 2018 in three phases. In the first phase, the researcher collected data in the Aizawl district and the second phase covered the remaining districts. In the last phase, the researcher conducted case studies and the focus group discussion of the present study**.**

Data Processing and Analysis

The quantitative primary data collected through the Interview Schedule was edited, coded and processed with the help of Microsoft Excel and analyzed with the SPSS package. The analysed data was presented in the form of two–way tables, and figures. The researcher used both descriptive statistics and inferential statistics. In descriptive statistics, the researchers used averages, percentages, proportions and standard deviations while in inferential statistics the researcher used non-parametric tests like the chi-square test, Mann-Whitney U test, Kruskal-Wallis test, Spearman's correlation coefficient in order to test the formulated hypotheses of the present study. The qualitative data collected through case studies were reflected in the form of case vignettes and narratives. The FGD was also presented in the form of a detailed discussion based on the topics and themes and the inferences were drawn and incorporated into the discussion of the present study.

Operational Definitions

A person with Diabetes: A *Person with Diabetes* is a person who has been diagnosed with diabetes for a minimum period of 3 years and is undertaking treatment.

Psychosocial problem: Psychosocial problem is the problem in the psychological development and social environment of a person due to a person's ill health

Coping: Coping is a response which aims to decrease or lessen the physical or emotional burden due to certain sickness or illness.

Social Support: Social support is the perception that one is cared for, and has assistance (due to illness) from other people like family, friends, relatives, co-workers, neighbours etc.

Quality of Life: Quality of Life is the general evaluation of a person's physical, emotional and social well-being.

Ethical considerations

The research has been carried out as per the fundamental ethical principles of research. Respondents who were willing to give informed consent for participation in the study took part in the study and confidentiality was maintained. The respondents are informed that at any point in time they can withdraw from the research. The researcher explained the purpose of the study before interviewing the respondents. Further, no video and audio recordings were done during the data collection process.

Limitations of the study

- The present study is restricted only to Persons with Diabetes who have been registered in Mizoram Diabetic Society.
- As a majority of the registered members are from the Aizawl district, most of the respondents were from Aizawl itself. A minority were from other districts and therefore it may not encompass the whole Mizoram.
- The respondents are those who are undertaking treatment for a minimum period of 3 years.

Socio- Demographic Characteristics of Persons with Diabetes

The mean age of the respondents is 55 years. The mean age of male respondents were higher than the female respondents by two years. Majority of the respondents are male and majority are married. It is seen that majority of the respondents level of education was *middle* and *matriculation* and there was no significant difference in education. However, almost a seventh of them reached *primary school level* where female are more in numbers. Most of them belong to *Lusei* sub tribe, this is because *Lusei* is the dominant sub tribe in Mizo society and majority of the respondents belong to *Presbyterian* Church because it is the dominant denomination in Mizo society. Most of the respondents are from *Aizawl* district due to the fact that majority of the members registered in *Mizoram Diabetic Society* were from *Aizawl* district itself. Generally, people with diabetes are much higher in urban than rural areas and this is because of sedentary lifestyle. Half of the respondents have *no history of diabetes* as per the findings. The mean size of family is 5.52 and the mean number of children in the family is 3.19. This shows that small family is the common form of family in the Mizo society. The *mean monthly income* is Rs.33677.17/-and the *mean annual income* is Rs.404125.98/-.It can clearly be seen that most of them belong to *lower middle* (46.98%) and *upper middle* (38.32%) income category which reflects the annual income level of the Mizo society as a whole. This is a clear indication that in Mizo society, the gap between the rich and the poor is not much as compared to other societies of the country. The next chapter will focus on psychosocial challenges and patterns of coping of *Persons with Diabetes*.

Psychosocial Challenges and Coping Patterns

This section focuses on the psychosocial challenges of *Persons with Diabetes* and discusses the ways of coping of Person with Diabetes. There are eight domains in the Ways of Coping Scale viz; *Confronting Coping, Distancing, Self-Controlling, Seeking Social Support, Accepting Responsibility, Escape Avoidance, Planful Problem Solving* and *Positive Reappraisal.*

Qualitative Findings on Psychosocial Challenges among Person with Diabetes

The researcher conducted five studies of different background in order to understand and analyse the issues and challenges faced by *Persons with Diabetes*.

The five studies focus on their case history, diagnosis, status of illness and the issues and challenges experienced by the patients. Focus group discussion was also conducted in order to focus more about the challenges faced by the patients. Topics on the psycho-social challenges, coping patterns, quality of life and suggestions were discussed in the group. According to them:

Firstly, it was discussed that psycho-social issues and challenges are present for some patients of diabetes. Denial is quite common among new patients of diabetes. In this case, *denial* is refusal of acceptance of one's illness at the beginning of diagnosis. Secondly, it was highlighted that their coping patterns include enough good quality sleep, a well-balanced diet, engage in pleasurable activities, prayer and meditations. These coping patterns help them manage with difficult emotions and help them adjust to stressful events as stress seems to increase blood glucose levels.

Thirdly, it was mentioned that people who are surrounded by caring and supportive family helps to see themselves as better capable of dealing with the stresses that life brings especially when it comes to chronic illness like diabetes. Family support is very important for '*Persons with Diabetes'*. Fourthly, it was emphasised that *Quality of Life* is an important health outcome. It is influenced by one's demographic and psycho-social factors. The patients perceived significant differences in the quality of life effects of complications and treatments related to their conditions. Lastly, it was suggested that more awareness is very important at the micro-level and macro level.

Coping Patterns

The descriptive statistics of ways of coping were discussed which include- ways of coping by age, gender, domicile, diabetes type, history of diabetes. In addition, Spearman's Inter correlation Matrix of Ways of Coping is also discussed. Further, this section will analyse Mann Whitney U Test Significant Difference between Mean Rank of *gender* across Ways of Coping domain, Mann Whitney U Test significant difference between mean rank of *domicile* across Ways of Coping domain, Mann Whitney U Test significant difference between mean rank of *diabetes type* across Ways of Coping domain and Level of Ways of Coping by *age, gender, domicile, diabetes type* and *history of diabetes*.

From the analysis, the psychosocial challenges can be understood and the coping patterns of Persons with Diabetes is analysed. It is found that bereavement can be a factor leading to drinking that gradually affects a person's health with certain complications. Alcohol and consumption of excessive meat are both detrimental for a person's health as both can lead to chronic illness like '*diabetes*'. The study highlights that diabetes does differentiate neither rich nor poor family. It can happen to anyone, whether a person may be young or old, rich or poor. It is observed that unwanted circumstances can contribute in adversely affecting one's health condition. One has to be emotionally and spiritually well-being to be able to cope better with the illness. However, the psychosocial challenges experienced by the patients can be a factor that affects the illness. At the same time, patients can be affected emotionally, spiritually and physically due to the illness. Awareness on diabetes and its management is very important. Family is very important in coping with the illness.

As per descriptive statistics of ways of coping by age, we can conclude that the respondents from *Middl*e age group have better coping patterns and male has better coping patterns than female. Patients from rural areas also have better coping patterns than those from the urban areas. Respondents with *type 1 diabetes* have better coping pattern than those with *type 2 diabetes* as per descriptive statistics of ways of coping by diabetes type. Respondents with *no history of diabetes* have better coping patterns than those *having history of diabetes*. The coping domains such as *distancing, self- controlling , seeking social support, accepting responsibility, escape avoidance, planful problem solving* and *positive re-appraisal* are all inter correlated as per Spearman's inter correlation matrix of ways of coping. There is no significant difference between male and female as per Mann Whitney U test significant difference between mean rank of gender across ways of coping domain. There is significant difference between rural and urban as per Mann Whitney U test significant difference between mean rank of domicile across ways of coping domain and that respondents from rural areas have better coping patterns than those from the urban areas. There is significant difference for *insulin dependent* and *non-insulin*

dependent and that the respondents of *insulin dependent* have better coping patterns than those with *non-insulin dependent.*

Social Support of Persons with Diabetes

Social support is physical and emotional comfort that one gets from family, relatives, friends and co-workers. It means having family, friends and other people in times of need or crisis or illness.

From the study, it was identified that as the age increases the primary support also increases whereas the secondary social support decreases as the age increases. However, it is understood that there is no significant difference in terms of social support by gender. There is no significant difference in terms of social support by domicile. Moreover, there is no significant difference in terms of social support by diabetes type.

As per Mann Whitney U test significant difference between mean rank of gender, domicile and diabetes type across social support, male respondents receive better social support than female. The respondents from urban areas receive better social support than the rural areas. Overall social support is higher for *insulin dependent* than *non- insulin dependent*.

The respondents belonging to *middle age group* receive better social support in which more than three fourth (77.01) of them have *Moderate* level of social support. Majority (76.64) of the respondents from urban areas receive better social support in which majority (80.61) receive *High* level of social support. Majority (78.74) of *non-insulin dependent* receive better social support in which more than three fourth (78.57) have *High* level of social support. More than half (51.44) of the respondents with *no history of diabetes* receive better social support in which more than half (58.62) have *Moderate* level of social support. From the findings, it is therefore analysed that the respondents from *Middle* age group receive better social support. Among the gender, the *male* respondents receive better social support than *female*. Further, *urban* respondents, *non-insulin dependent* and patients with *no history of diabetes* receive good social support. Lastly, it can be identified that *Primary* and *Secondary Social Support* are inter correlated. The next chapter will discuss about

Quality of Life of *Persons with Diabetes* and it relationship between Ways of Coping and Social Support.

Quality of Life of Persons with Diabetes

Quality of Life is important for everyone, it can be explained as the standard of health, comfort and happiness experienced by an individual or group.

From the findings, it is understood that the *Quality of Life* declines as the age increases. It has been analysed that male has better *Quality of Life* than female. However, there is no significant difference found between *rural* and *urban* in terms of QOL. Similarly, there is no significant difference between respondents having history of diabetes and respondents with no history of diabetes. By analysing the Inter Correlation matrix of QOL, we learn that all the domains such as-*Physical Health* domain, *Psychological* domain, *Social* domain and *Environment* domain are inter correlated.

Relationship of QOL and Ways of Coping and Social Support.

QOL of life, Ways of Coping and Social Support are very important for patients who have diabetes. In this study, we can understand the relationship of QOL and Ways of Coping and Social Support. Further, significant Difference among Mean Rank of Age Group across Ways of Coping, Social Support and QOL and Kruskal Wallis Test for significant Difference among Mean Rank of Age Group across Ways of Coping, Social Support and QOL has been discussed.

Descriptive statistic of QOL domains by gender reveals that male has better QOL than female. Respondents from rural areas have better QOL rather than those from urban areas as per descriptive statistics of QOL by domicile. The respondents having *no history of diabetes* have better QOL than those *who have history of diabetes*. The QOL is better for *insulin dependent* than those patients of *non-insulin dependent*.

As per Mann Whitney U test significant difference between mean rank of gender, across QOL, male has better QOL than female. In this, *physical health domain, psychological domain* and *environment domain* are all correlating with P value at 0.01 level of significance. As per Mann Whitney U test significant difference between mean rank of domicile across QOL, respondents from rural areas have better QOL than those from urban areas. In this, *physical health domain, psychological*

domain and *environment domain* are all correlating with P value at 0.01 level of significance. As per Mann Whitney U test significant difference between mean rank of diabetes type across QOL, respondents of *type 1 diabetes* have better QOL than those with *type 2 diabetes*. In this, *physical health domain* is correlating with P value at 0.01 level of significance and overall QOL is correlating with P value at0.01 level of significance.

As per level of QOL by *age*, it is found that there is a relationship between QOL and *age*. As per level of QOL by *gender*, it is also found that there is a relationship between QOL and *gender*. As per level of QOL by *history of diabetes*, there is a relationship between QOL and *history of diabetes*. It may be concluded that respondents from the *middle age group* has high level of QOL. From the Spearman's Inter correlation Matrix of QOL it is found that all the four domains viz; *physical, psychological, social relationship* and *environment*. are all correlated. From the Spearman's Inter correlation Matrix with overall ways of coping, it is found that *quality of life, ways of coping* and *social support* are all inter correlated. While applying the Chi-square test for relationship between QOL and ways of coping, it is found that there is a relationship between QOL and ways of coping.

As per Kruskal Wallis Test for significant difference among mean rank of age group across ways of coping, it is found that the domains such as *distancing, self-controlling, seeking social support, accepting responsibility, escape avoidance, planful problem solving* and *positive reappraisal* are all correlating with P value at 0.01 level of significance. As per Kruskal Wallis Test for significant difference among mean rank of age group across social support, it is found that primary social support and secondary social support are also correlating with P value at 0.01level of significance. As per Kruskal Wallis Test for significant difference among mean rank of age group across QOL, it is found that all the four domains such as *physical health* domain, *psychological* domain, *social* domain and *environment* domain are all correlating with P value at 0.01 level of significance.

Social Work Implication

The purpose of the study is to identify the social work intervention. From the findings, the researcher is able to link that there is scope for social work intervention.

In the context of the present study, social workers can intervene in the following manner :

- Surveillance programme on diabetes can be carried out in order to understand the status of lifestyle disease because there are new cases diagnosed every year. Social Workers can engage in such programme for significant outcome.
- Social Workers can engage in the formulation of Diabetes Control Society for the welfare of Persons with Diabetes.
- The need for counselling is evident from the case studies and focus group discussions. In this regard, Mizoram Diabetic Society can engage a counsellor who can operate as a psychiatric counsellor.
- Family counselling centre can be established to provide professional social workers services to Persons with Diabetes and the families in need.
- An extensive awareness campaign can be carried out through community organizations such as MHIP, YMA and MUP and with church based organizations of different communities. Case work and group can also be conducted for better outcome.

Results of Hypotheses testing

- There is no relationship between ways of coping patterns and social support among *Persons with Diabetes* (r =-.026 P=.608).
- There is a relationship between ways of coping patterns and QOL among *Persons with Diabetes* (r= $.243^{**}$ P=0.01).
- There is a relationship between social support and QOL of *Persons with Diabetes* (r=$.148^{**}$ P =0.01).
- There is a relationship between the type of diabetes (type1 and type 2) and gender ($\chi 2 = 5.161^{*}$ P=.023).
- There is no relationship between the type of diabetes (type 1 and type 2) and age (χ^2 = .848 P=.654).
- There is no relationship between the type of diabetes (type 1 and type 2) and domicile age (χ^2 = .830 48 P=.362).
- There is no relationship between the type of diabetes (type 1 and type 2) and domicile age (χ^2 = .830 48 P=.362).

- There is a relationship between the type of diabetes (type1 and type 2) and ways of coping (U = -2.067* P=.039).
- There is no relationship between the type of diabetes (type1 and type 2) and Social Support (U = -11689.000 P=.597).
- There is a relationship between the type of diabetes (type1 and type 2) and QOL
  (U = -2.264* P=.*024*).

Suggestions for Social Workers

The purpose of the study is to identify the social work intervention. From the findings, the researcher can link that there is scope for social work intervention in the context of the present study; social workers can intervene in the following manner:

- A social worker is a member of the multidisciplinary team who can serve as a support to persons with diabetes and their family.
- The social worker would facilitate the person with diabetes and talk about and listen to their feelings, thoughts, and reactions to the diagnosis, worries and concerns.
- Psychiatric social workers and Medicals social workers would offer counselling services in the hospitals and community.
- The social worker could teach relaxation techniques to help to reduce stress or anxiety or other fears associated with diabetes.
- The social worker could also provide emotional support, coping strategies, and support for patients with diabetes and their family members.
- Social Workers can engage in the formulation of the Diabetes Control Society for the welfare of *Persons with Diabetes*.
- Social workers have immense potential to improve the lives of people facing this chronic illness through well-established roles of educator, advocate, counsellor, therapist, community developer, and resource broker
- A social worker may educate persons with diabetes and families about these emotional challenges by conducting and involving effectively preparing self-

care modules or through individual or family counselling sessions based on the context.

- An extensive awareness campaign can be carried out through community organizations such as MHIP, YMA and MUP and with church-based organizations of different communities.
- Casework and group work can also be conducted for a better outcome. Community organisations can collaborate with the Mizoram Diabetic Society NCD programme and generate awareness among women, youth and elderly more effectively.

Scope for future research

From the deliberation of the present study, the researcher is able to explore scope for future research. Therefore, scope for future research has been suggested in the following areas:

- There is a wide scope in areas such as community studies, a comparative study of rural and urban where rural community and urban community can be selected for the study.
- A study on Gestational Diabetes can also be carried out with help of RCH (Reproductive and Child Health) programme under Ministry of Health and Family Welfare Department.
- Type 1 diabetes is hereditary and it is also called a *Juvenile Diabetes* as it is common among patients of younger age group. In this regard, a study on Juvenile Diabetes will be helpful in order to understand their status.
- There is a scope for future research among the families of Persons with Diabetes in order to explore the impact on the family.
- In future research, there is scope for an in depth study on the food habits and lifestyle of *Persons with Diabetes.*

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CHAPTER I
INTRODUCTION

The present study attempts to understand the coping patterns, social support and Quality of Life (QOL) among Persons with Diabetes in Mizoram. In this study, *a Person with Diabetes* is a person who has been diagnosed with diabetes and is undertaking treatment for a minimum period of 3 years**.** This chapter focuses on the concept of diabetes and its types, insulin and its types, the global scenario of diabetes, the Indian scenario of diabetes, the northeast scenario of diabetes, the Mizoram scenario of diabetes, psychosocial challenges, coping with diabetes, social support and quality of life.

Diabetes is a non-communicable disease and is often referred to as a lifestyle illness it is one of the four major types of non-communicable diseases. *Diabetes* is a chronic disease that affects the way the body processes blood sugar (glucose) which negatively affects the whole body including important organs such as the kidney, heart, lungs, eyes and foot. *Diabetes* is also called a *'silent killer'*.

According to Shah (2003) '*Diabetes'* was first described in Egyptian writings around 1500 BC. About AD 230, a Greek Physician named Aretaeus is believed to have called the disease diabetes, which in Greek means "*to siphon*" or *to suck out* (Kelly, 2002). It is described in Indian Vedic Literature where it is referred to as *'Madhumeha'* or *honey urine*, a reference to the sweet urine.

WHO (2016) states that *'Diabetes'* is one of the four major types of non-communicable diseases (cardiovascular disease, diabetes, cancer and chronic respiratory diseases). It is a chronic condition that occurs when the body either does not produce enough insulin or cannot effectively use the insulin it does produce. Insulin is a hormone that regulates the blood sugar (glucose) formed from the food consumed by a person. Diabetes, therefore, results in raised blood sugar levels which, if not controlled, over time lead to serious damage to many of the body's systems.

Diabetes is a disease that develops due to the inability of the body to produce sufficient insulin (Khan, 1990). Diabetes is a chronic disease caused by inherited and/ or acquired deficiency in the production of insulin by the pancreas or in its effects. As a result of this, there is an increased concentration of glucose in the blood. In one form, the pancreas fails to produce the insulin that is essential for survival. However, non-insulin-dependent diabetes is much more common. This form of diabetes occurs principally in adults and results from the body's inability to respond properly to the action of insulin. Malnutrition-related diabetes has also been described in some developing countries, like India (NDCP, 2009). The following list describes the general symptoms that many people with diabetes experience: Frequent urination (polyuria), continual thirst or dry mouth (polydipsia), tiredness and weakness, weight loss, blurry vision, numbness or tingling in feet or legs, skin infection or slow-to-heal cuts, extremely dry skin (Kelly, 2002).

National Institute of Diabetes and Digestive and Kidney Disease (NIDDKD, 2020) describes '*Diabetes'* as a disease that occurs when our blood glucose, also called blood sugar, is too high. Blood glucose is our main source of energy and comes from the food we eat. Insulin, a hormone made by the pancreas, helps glucose from food get into our cells to be used for energy. Sometimes our body doesn't make enough or any insulin or doesn't use insulin well. Glucose then stays in our blood and doesn't reach our cells. Over time, having too much glucose in our blood can cause health problems. Although diabetes has no cure, we can take steps to manage our diabetes and stay healthy. Sometimes people call diabetes "*a touch of sugar*" or "*borderline diabetes*." These terms suggest that someone doesn't have diabetes or has a less serious case, but every case of diabetes is serious.

1.1 Diabetes

According to International Diabetes Federation (IDF, 2020) '*Diabetes'* is a chronic disease that occurs when the pancreas is no longer able to make insulin, or when the body cannot make good use of the insulin it produces.

Insulin is a hormone made by the pancreas, that acts like a key to let glucose from the food we eat pass from the blood stream into the cells in the body to produce energy. All carbohydrate foods are broken down into glucose in the blood. Insulin helps glucose get into the cells.

Not being able to produce insulin or use it effectively leads to raised glucose levels in the blood (known as hyperglycaemia). Over the long-term high glucose levels are associated with damage to the body and failure of various organs and tissues.

1.2 Types of Diabetes

There are different types of diabetes such as *Type 1 Diabetes*, *Type 2 diabetes*, the most common types of Diabetes and *Gestational diabetes*.

According to NIDDK (2020), in most people with *type 1 diabetes*, the body's immune system, which normally fights infection, attacks and destroys the cells in the pancreas that make insulin. As a result, our pancreas stops making insulin. Without insulin, glucose can't get into our cells and our blood glucose rises above normal. People with type 1 diabetes need to take insulin every day to stay alive. Type 1 diabetes typically occurs in children and young adults, although it can appear at any age. Having a parent or sibling with the disease may increase our chance of developing type 1 diabetes.

In type 2 diabetes, our body doesn't make enough insulin or doesn't use insulin well. Too much glucose then stays in our blood, and not enough reaches our cells. The good news is that we can take steps to prevent or delay the development of type 2 diabetes. One can develop type 2 diabetes at any age, even during childhood. However, type 2 diabetes occurs most often in middle-aged and older people. We are more likely to develop type 2 diabetes when we are age 45 or older, have a family history of diabetes, or are overweight or obese. Diabetes is more common in people who are Afro-American, Hispanic/Latino, American Indian, Asian American, or Pacific Islander. Physical inactivity and certain health problems such as high blood

pressure affect our chances of developing type 2 diabetes. We are also more likely to develop type 2 diabetes if one has pre-diabetes or had gestational diabetes during pregnancy.

Centres for Disease Control and Prevention (CDCP, 2020) states *Gestational diabetes* is a type of Diabetes that is first seen in a pregnant woman who did not have diabetes before pregnancy. Some women have more than one pregnancy affected by gestational diabetes. Gestational diabetes usually shows up in the middle of pregnancy. Doctors most often test for it between 24 and 28 weeks of pregnancy. Often gestational diabetes can be controlled through eating healthy foods and regular exercise. Sometimes a woman with gestational diabetes must also take insulin. Blood sugar that is not well controlled in a woman with gestational diabetes can lead to problems for the pregnant woman and the baby. Diabetes that is not well-controlled causes the baby's blood sugar to be high. The baby is "*overfed*" and grows extra large. Besides causing discomfort to the woman during the last few months of pregnancy, an extra-large baby can lead to problems during delivery for both the mother and the baby. The mother might need a Caesarean-Section to deliver the baby. The baby can be born with nerve damage due to pressure on the shoulder during delivery.

1.3 Insulin

The Global Diabetes Community (GDC, 2019) defines ***'Insulin'*** is a hormone which plays a key role in the regulation of blood glucose levels. A lack of insulin, or an inability to adequately respond to insulin, can each lead to the development of the symptoms of diabetes. In addition to its role in controlling blood sugar levels, insulin is also involved in the storage of fat. Insulin is a hormone which plays a number of roles in the body's metabolism. Insulin regulates how the body uses and stores glucose and fat. Many of the body's cells rely on insulin to take glucose from the blood for energy. Insulin helps control blood glucose levels by signalling the liver and muscle and fat cells to take in glucose from the blood. Insulin, therefore, helps cells to take in glucose to be used for energy. If the body has sufficient energy, insulin signals the liver to take up glucose and store it as glycogen. The liver can

store up to around 5% of its mass as glycogen. Some cells in the body can take glucose from the blood without insulin, but most cells do require insulin to be present.

American Diabetes Association (ADA, 2020) describes different types of insulin depending on how quickly they work, when they peak and how long they last. Insulin is available in different strengths; the most common is U-100. Inside the pancreas, the hormone insulin is made in the beta cells, which are part of the Islets of Langerhans. These islets also have alpha cells, which make glucagon, as well as delta cells. With each meal, beta cells release insulin to help the body use or store the blood sugar it gets from food.

In the beta cells, insulin is created first as a big molecule called *"proinsulin."* Proinsulin is broken into two pieces: insulin and C-peptide. C-peptide is important especially when determining treatment because it can be used to measure how much insulin a person is making. The more C-peptide a person has, the more insulin they are making. This can help a provider determine how much insulin to prescribe.

In people with type 1 diabetes, the pancreas no longer makes insulin. The beta cells have been destroyed and they need insulin shots to use glucose from meals. People with type 2 diabetes make insulin, but their bodies don't respond well to it. Some people with type 2 diabetes need diabetes pills or insulin shots to help their bodies use glucose for energy. Insulin cannot be taken as a pill because it would be broken down during digestion just like the protein in food. It must be injected into the fat under your skin for it to get into your blood. In some rare cases, insulin can lead to an allergic reaction at the injection site.

Types of insulin

There are different types of insulin such as *Rapid-acting insulin, Regular or short-acting insulin, Intermediate-acting insulin***,** *Long-acting insulin, Ultra long-acting* and *Inhaled insulin***.**

Rapid-acting insulin begins to work about 15 minutes after injection, peaks in about one or two hours after injection, and lasts between two to four hours. *Types: insulin as part (Fiasp, NovoLog) Insulin glulisine (Apidra), and insulin lispro (Admelog, Humalog, Lyumjev).*

Regular or short-acting insulin usually reaches the bloodstream within 30 minutes after injection, peaks anywhere from two to three hours after injection, and is effective for approximately three to six hours. *Types: Human Regular (Humulin R, Novolin R, Velosulin R)*

Intermediate-acting insulin generally reaches the bloodstream about two to four hours after injection, peaks four to 12 hours later, and is effective for about 12 to 18 hours. *Types: NPH (Humulin N, Novolin N, ReliOn).*

Long-acting insulin reaches the bloodstream several hours after injection and tends to lower glucose levels for up to 24 hours. *Types: degludec (Tresiba), detemir (Levemir), and glargine (Basaglar, Lantus).*

Ultra-long-acting reaches the blood stream in six hours, does not peak, and lasts about 36 hours or longer. *Types: glargine U-300 (Toujeo).*

Premixed insulin can be helpful for people who have trouble drawing up insulin out of two bottles and reading the correct directions and dosages. It is also useful for those who have poor eyesight or dexterity and is convenient for people whose diabetes has been stabilized on this combination (ADA, 2020).

In 2015 an inhaled insulin product, Afrezza, became available in the U.S. Afrezza is a rapid-acting inhaled insulin that is administered at the beginning of each meal and can be used by adults with type 1 or type 2 diabetes. Afrezza is not a substitute for long-acting insulin. Afrezza must be used in combination with injectable long-acting insulin in patients with type 1 diabetes and in type 2 patients who use long-acting insulin.

Inhaled insulin begins working within 12 to 15 minutes, peaks by 30 minutes, and is out of your system in 180 minutes. *Types: Techno sphere insulin-inhalation system (Afrezza).*

In addition to this, insulin has three characteristics: *Onset* is the length of time before insulin reaches the bloodstream and begins lowering blood sugar. *Peak time* is the time during which insulin is at maximum strength in terms of lowering blood sugar. *Duration* is how long insulin continues to lower blood glucose.

Apart from these, it should also be noted that *insulin has strength*; all insulins come dissolved or suspended in liquids. The standard and most commonly used strength in the United States today is U-100, which means it has 100 units of insulin per millilitre of fluid, though U-500 insulin is available for patients who are extremely insulin resistant. U-40, which has 40 units of insulin per millilitre of fluid, has generally been phased out around the world, but it is possible that it could still be found in some places (ADA, 2020).

1.4 Global Scenario of Diabetes

According to International Diabetes Federation (IDF, 2021), the 10th edition states that persons living with diabetes are more than one in 10 adults at the global level. In addition, the list of countries is growing in number where one-in-five or even more of the adult population has diabetes. *Since the first edition in 2000, the estimated prevalence of diabetes in adults aged 20–79 years has more than tripled, from an estimated 151 million (4.6% of the global population at the time) to 537 million (10.5%) today*. As a result of analysing the trend of addressing the above situation without any action, we predict that 643 million people will have diabetes by 2030 (11.3% of the population). If the same trend continues, the number will jump to a staggering 783 million (12.2%) by 2045. The increasing number of persons with diabetes is driven by various factors – people are living longer and we have higher quality data. However, much of the diabetes burden remains hidden. Almost every time we find new and more accurate data, our estimates have to be revised now and then.

About 422 million people worldwide have diabetes, the majority living in low-and middle-income countries, and 1.6 million deaths are directly attributed to diabetes each year. Both the number of cases and the prevalence of diabetes have been steadily increasing over the past few decades (WHO, 2020).

Table 1.1 Incidence of Diabetes at the International Level

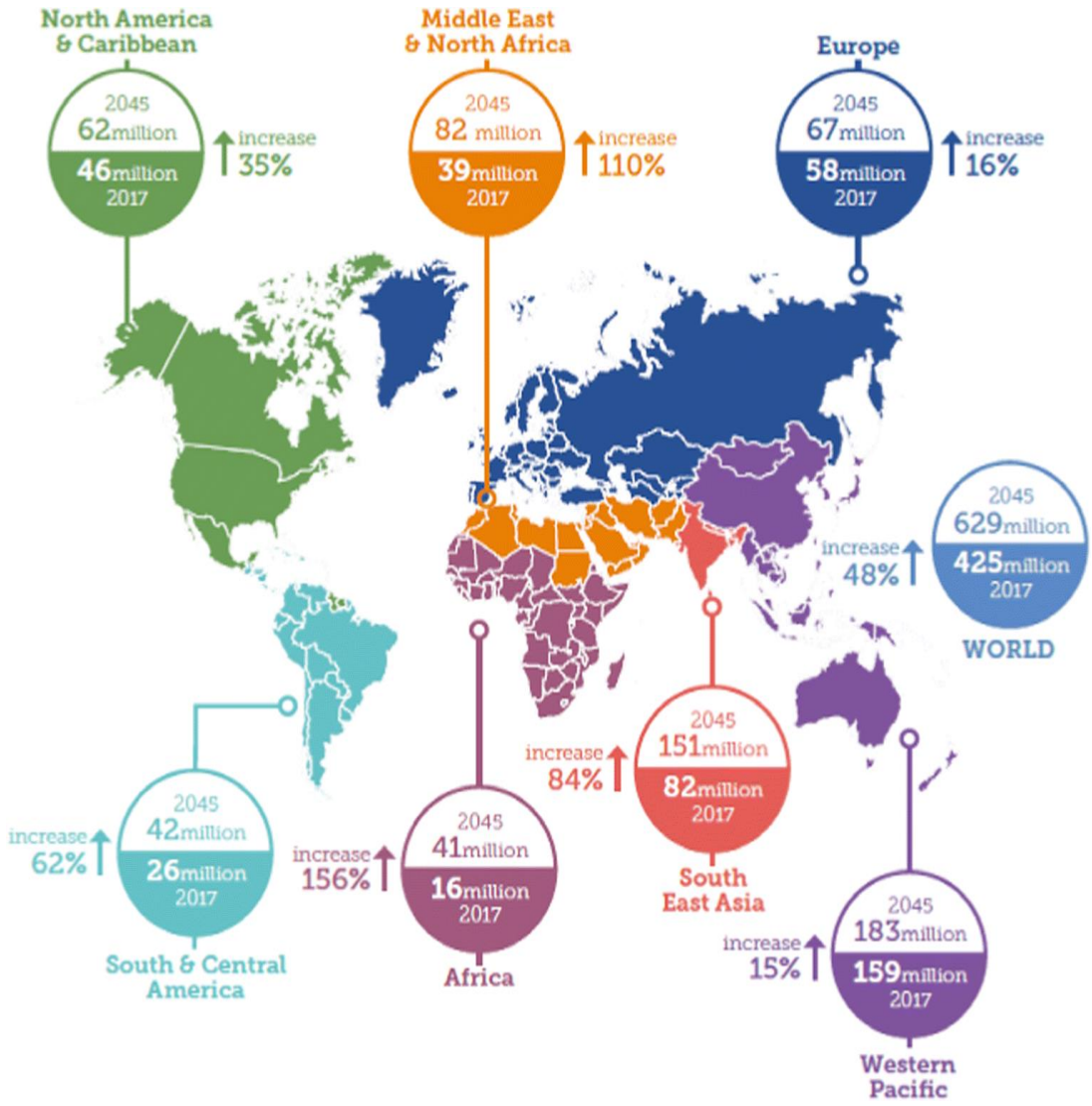
Sl. No.	Year	World (in millions)
1	2000	151
2	2011	366
3	2021	537

Source: IDF, Diabetes Atlas 10th edition, 2021

Table 1.1 shows about Incidence of Diabetes at International Level. There are 151 million people worldwide who have diabetes in the year 2000, 366 million in 2011 and 537 million in the year 2021 as per the International Diabetes Federation Atlas 10th edition 2021. The table shows that between the years 2000 and 2011, it has 115 million diabetes increased and between the years 2011 and 2021, it has been increased by 171 million, which shows that the cases of diabetes are increasing exponentially at the global level.

As shown in **figure 1.1**, there were 82 million people with *diabetes* in India in 2017 and it is estimated that the number will rise to 151 million by 2045.

Fig 1.1 Global Map of Diabetes



Source: Springer Nature Switzerland (2022). Springer Nature. Retrieved from https://link.springer.com/article/10.1007/s11886-019-1107-y/figures/1

1.5 Indian Scenario of Diabetes

Khaliq (2021) states *that 'Diabetes'* is one of the most common chronic diseases in India. The burden of diabetes is increasing rapidly in the country, with one in six people with diabetes in the world being from India. According to

Kaveeshwar and Cornwall (2014) '*Diabetes'* is fast gaining the status of a potential epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease. In 2000, India (31.7 million) topped the world with the highest number of people with diabetes mellitus followed by China (20.8 million) with the United States (17.7 million) in second and third place respectively.

It is predicted that by 2030 diabetes mellitus may afflict up to 79.4 million individuals in India, while China (42.3 million) and the United States (30.3 million) will also see significant increases in those affected by the disease. India currently faces an uncertain future about the potential burden that diabetes may impose upon the country. Many influences affect the prevalence of disease throughout a country, and identification of those factors is necessary to facilitate change when facing health challenges. The aetiology of diabetes in India is multi-factorial and includes genetic factors coupled with environmental influences such as obesity-associated with rising living standards, steady urban migration, and lifestyle changes.

Yet, despite the incidence of diabetes within India, there are no nationwide and few multi-centric studies conducted on the prevalence of diabetes and its complications. The studies that have been undertaken are also prone to potential error as the heterogeneity of the Indian population with respect to culture, ethnicity, and socio-economic conditions mean that the extrapolation of regional results may give inaccurate estimates for the whole country.

There are, however, patterns of diabetes incidence that are related to the geographical distribution of diabetes in India. Rough estimates show that the prevalence of diabetes in rural populations is one-quarter that of the urban population for India and other Indian sub-continent countries such as Bangladesh, Nepal, Bhutan, and Sri Lanka. Further studies are required in India to highlight cultural and ethnic trends and provide a more complete understanding of the differences in diabetes aetiology between Indian and other ethnic groups within India.

Although the Indian urban population has access to reliable screening methods and anti-diabetic medications, such health benefits are not often available to rural patients. There is a disproportionate allocation of health resources between urban and rural areas, and in addition poverty in rural areas may be multi-faceted. Food insecurity, illiteracy, poor sanitation, and dominance of communicable diseases may all contribute, which suggests that both policy makers and local governments may be undermining and under-prioritising the looming threat of diabetes. Such inadequacies contribute to an infrastructure that may result in poor diabetes screening and preventive services, non-adherence to diabetic management guidelines, lack of available counselling, and long-distance travel to health services. Aged care facilities in rural areas report disparity in diabetes management compared with their urban counterparts, with these populations more likely to suffer from diabetic complications compared to their urban counterparts. More needs to be done to address the rural-urban inequality in diabetes intervention.

Obesity is one of the major risk factors for diabetes, yet there has been little research focusing on this risk factor across India. Despite having lower overweight and obesity rates, India has a higher prevalence of diabetes compared to western countries suggesting that diabetes may occur at a much lower body mass index (BMI) in Indians compared with Europeans (Kaveeshwar and Cornwall, 2014).

Table 1.2 Incidence of Diabetes at the National Level

Sl. No.	Year	India (in millions)
1	2000	32
2	2011	61
3	2021	74.2

Source: IDF, Diabetes Atlas 10th edition, 2021

Table 1.2 shows the *Incidence of Diabetes at the National Level*. In the year 2000, there are 32 million people in India had diabetes. Diabetes population rise to 61 million in 2011. This shows that there is an increase of 29 million from the year 2000 to 2011. In the year 2021, the population with diabetes increased to 74.2

million which is an increase of 13.2 million from 2011 as per the International Diabetes Federation Atlas 10th edition 2021. This shows that the case of diabetes is increasing rapidly at the national level.

1.6 North-East Scenario of Diabetes

In a study done by Devi and Singh (2019), they were focusing on type 2 diabetes to find the prevalence in all the states of North East, India. The method consists of works which were published during the year 2010 to 2017, which was eight years. According to the study conducted by the Indian Council of Medical Research (ICMR), India Diabetes Study reported that in blood sugar levels of >140 mg/dl urban women show the highest blood glucose level (9.4%) in both Mizoram and Tripura which is followed by Manipur with (8.8%) and Sikkim with (7.8%) whereas in case of men the highest blood glucose level can be seen in Nagaland (11.1%) followed by Mizoram and Sikkim with (10.7%).

There is a high prevalence of type 2 diabetes among the overweight and obese group. In some states, males show a higher prevalence and in others females show a higher. In conclusion, the study states that type 2 Diabetes mellitus is affected both by genes and environment, people with parental history of diabetes have a higher prevalence. Various lifestyle plays an important role in the conversion of type 2 diabetes. Physically inactive people are more prone to suffer from diabetes than physically active people. It is necessary to conduct more screening for the prevalence of diabetes and its risk factors in the North East region, as very few data were available.

According to Shah et al. (1999), there is no epidemiological data on the prevalence of diabetes in north-eastern India. Therefore, a survey was conducted in the urban population of the city of Guwahati, Assam, to evaluate the prevalence of glucose intolerance and the association of risk factors. In a total of 1016 randomly selected adults aged ≥ 20 years (595 men, 421 women), glucose tolerance was tested by 2h post glucose (75gm), plasma glucose estimation (WHO criteria). The age-adjusted prevalence of type 2 diabetes was 8.2% in total, 8.7% in men, and 7.8% in

women. The age-adjusted prevalence of Impaired Glucose Tolerance (IGT) was 4% in total, 4.1% in men and 3.4% in women. In 83.3% of type 2 diabetes, diabetes was detected earlier. In the multiple regression analysis, age, family history, increasing socioeconomic strata and decreasing physical activity were significantly associated with type 2 diabetes. Sex and BMI were not contributory. In the IGT group, the results were similar to type 2 diabetes but BMI also was a contributory factor. This study showed that the prevalence of type 2 diabetes in urban areas of Assam was also high, as reported earlier by the urban population in southern India.

1.7 Mizoram Scenario of Diabetes

According to the guesstimation of the Secretary of *Mizoram Diabetic Society*, there are around 30,000 people with diabetes in Aizawl District and 762 members are registered in *Mizoram Diabetic Society*. Diabetes Association of Mizoram was formed in 1992 (Ralte, 2012).

In a small tribal state like Mizoram, the disease occurrence has been reported to be increasing over time, and on contrary, records found in the health centres, clinics, and hospitals are fragmentary, discontinuous, and incomplete to make meaningful dis-aggregation at lower levels and it is difficult to probe the frequency of occurrence. Mizoram is a hilly mountainous region of the Eastern Himalayas and belongs to one of the eight sister states of the North-eastern region of India, bordered by Bangladesh and Myanmar, and is the second least populous state in the country (Lalrohlui et al., 2021).

Table 1.3 shows the *Incidence of Diabetes at the State Level* as per NPCDCS, NCD, Mizoram, 2022. There were 1.08 lakhs people being screened during FY 2016-17 and 14,202 patients were diagnosed positive for diabetes. However, the number of diagnoses is declining in FY 2021-22 as per NPCDCS, NCD Mizoram, 2022. The number of patients screened is 84714 (1.80%) only during FY 2021-22, which is minimum as compared to previous years. This is due to the pandemic and lockdown.

Table 1.3 Incidence of Diabetes at State Level (Mizoram)

FY	No. of Person Screened	No. of Person Diagnosed
2014-15	23,947 (3.33%)	3,512 (14.66%)
2015-16	85,710 (11.94%)	9,666 (11.27%)
2016-17	1, 08,888 (15.17%)	14,202 (13.04%)
2017-18	80,000 (11.14%)	10,686 (13.35%)
2018-19	1, 17,359 (16.35%)	8703 (7.41%)
2019-20	1, 05,222 (14.66%)	10695 (10.16%)
2020-21	1, 11,819 (15.58%)	4260 (3.80%)
2021-22	8471 (1.80%)	2762 (3.26%)
Total	**717659**	**64486**

Source: National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular diseases and Stroke, Non-Communicable Diseases, Mizoram, 2022

1.8 Overview of Literature

Young and Unachukwu (2012) explained that an individual's health behaviour was influenced by his or her social, economic, cultural, and physical environment. Medical experts have reported on the psychological components of almost all diseases, particularly chronic illnesses such as diabetes mellitus.

Ashraff, Siddiqui and Carline (2013) pointed out that type 1 Diabetes mellitus is known to have a major psychological impact on adolescents. Different types of therapies have been developed to support the patient as well as their families to deal with this impact. These include Behavioural Family Systems Therapy and Cognitive Behavioural Therapy. However, studies conducted, though few in numbers have shown a direct relationship between general psychological functioning and metabolic control. Self-management of diabetes and its complication, therefore, is an integral part of these programs.

Nicole (2003) suggested that the need for effective, well-evaluated psychosocial interventions to assist people in dealing with the daily demands of diabetes has been urgently stressed. Now, that the treatment regimens are becoming

more and more intensive, comprehensive behavioural changes are required. Additional psychosocial support is called for to help people to make these changes and to preserve and sustain their efforts to optimize both glycemic control and QOL. As the burden of diabetes rapidly increases, there is a pressing need to deliver diabetes care more comprehensively and cost-effectively. Delivering care in a group instead of in an individual format may be an effective way of doing that.

Peyrot et al. (2005) explained that although new and more efficacious diabetes medication and improved medication delivery systems have been developed, the majority of diabetic patients do not achieve optimal blood glucose control, leading to poor health outcomes. Negative attitudes, coping difficulties and psychological problems such as depression, anxiety and eating disorders are common in diabetes and can contribute to poor outcomes. Research has indicated that patients and providers differ substantially in their perceptions and attitudes, which may lead to confusion and conflict and in turn poor outcomes. However, little is known about providers' perception of the severity and consequences of patient problems and of the resources they have to deal with these problems. A better understanding of perceptions and attitudes among both patients and providers is needed to guide initiatives to improve the management of diabetes.

Coping is defined as the behavioural and cognitive efforts used in an attempt to deal with stressful events (Turan, Oscar, Damci & Ilkova, 2002). Dealing with diabetes over the long term requires developing a range of coping skills and techniques, from learning to carry out the daily tasks of diabetes control, to finding ways to deal with the emotions that having diabetes and having to care for it are bound to bring up at times. Being diagnosed with diabetes in the first place often brings up feelings of shock, fear, anxiety, anger, and sadness. And at any time along the way, diabetes may sometimes cause feelings of resentment, annoyance, anxiety, anger, etc. (Hieronymous, 2012). Coping also may affect psychosocial outcomes, such as psychological adjustment, depression, and QOL (Grey M, 2000). Coping with type 2 diabetic patients is increasingly posing large financial burdens, sorely felt especially by growing economies. Self-management is an effective approach to

maintaining good control in diabetics (Kadirvela & Sadasivan, 2012). Training and education programs for diabetic adults might benefit from including a component that is aimed at improving coping with issues specific to diabetes (Turan, Oscar, Damci and Ilkova, 2002).

Association of Diabetes Care and Education Specialists (2021) discusses that successful self-management is a vital part of living with a chronic condition and emotional well-being has a big impact on the patient's ability for self-care. There are constant demands and concerns about the future that factor into the patient's ability to cope. Healthy coping means having a positive attitude towards managing one's condition and positive relationships with others. It's the first step on the road to reaching one's health goals. It's important to find healthy ways to cope, so, we don't turn to harmful habits such as smoking, overeating, drinking or alcohol. This is especially true if one has diabetes. Having a lot of stress can increase one's blood glucose (sugar) levels, make one feel more negative and may lead to less healthy choices.

According to Health Matters (2020), living with diabetes requires a lot of work. It means visiting the doctor regularly, monitoring blood sugar levels daily, diligently taking medications, exercising regularly, and watching what you eat every day. No doubt, a diabetes diagnosis can be a shock both physically and emotionally. Coping with a new diagnosis would take some time, but with the right support network - both social, such as family, friends, and co-workers, and the medical team as well. People will have to become more aware of the impact of the food they eat. We will also need to understand the importance of regular exercise, which can help lower blood glucose. Those with diabetes will need to be more physically active if they weren't before, so taking some time to find a sport or exercise routine that works for a diabetic and that he/she enjoys is crucial. Tremendously, anxiety and depression are much more common in people who have diabetes. They also fuel higher blood glucose levels. Exercise, meditation, and being open to talking to a mental health professional are important ways to manage diabetes stress.

Social support has two terms 'social' and 'support', the term social is connected with society wherein how people meet each other for sharing, encouragement and to get along for pleasure. While the term support is referring to helping or encouraging somebody by showing respect or understanding the feelings and help during any illness. Social support is used in a broader sense involving social integration and social networks**.**

Cohen and Syme (1985) stated that social support is defined and measured in different ways and it is also understood as the feeling that one is cared for by and assistance given by other members of the family and one is considered to be a supportive social network. Many supportive social network systems exist in society. These supportive social systems include emotional, tangible, information and companionship and can come from many sources like family, friends, pets, organizations, co-workers etc. Social support means having friends and other people, including family, to turn to in times of need or crisis to give a broader focus and positive self-image. Social support enhances QOL and provides a buffer against adverse life events.

Helgeson (2003) states that *Social Support* is a broad term, which includes the supportive ways that different people behave in the social environment. The source of support may influence which kind of support is effective. There is some evidence that among the different types of support, *emotional* support shows the strongest relation to *QOL*. Emotional support is helpful no matter who the source is. *Emotional* support is helpful if it comes from family and friends or if it comes from healthcare professionals, such as physicians and nurses. Informational support, by contrast, is not perceived as helpful from all sources. People want informational support from the experts, i.e. from nurses and physicians. It is not clear if the source of support influences whether instrumental support is perceived as helpful.

According to Mojahed, Fallah, Ganjali and Heldari (2019), social support refers to the perceived support and affection from family, friends, and acquaintances in face of stress and daily events. Social support can diminish the adverse effects of chronic diseases and help patients cope with their disease more effectively. It is also

an effective social factor for adequate blood sugar control in diabetic patients. Using two main processes, social support brings about a helpful, positive effect in diabetes control: a) the direct effect of social support through health-related behaviours such as encouraging healthy behaviours, and b) the moderating role of social support with respect to the destructive effects of acute, chronic stress and the increased ability to cope with it.

According to Visagie, Rensburg and Deacon (2018), adults with diabetes receive various types of social support from family, friends, other individuals diagnosed with diabetes, and healthcare providers. To improve the management of diabetes, it is important to give attention to social influences on the emerging adults' activities of daily living.

Emotional (sometimes called non-tangible) *support* refers to the actions people take to make someone else feel cared for. *Instrumental support* refers to the physical, such as money and housekeeping. *Informational support* means providing information to help someone. Social support, whether from a trusted group or valued individual, has been shown to reduce the psychological and physiological consequences of stress and may enhance immune function. Social networks, whether formal (such as a church or social club) or informal (meeting with friends) provide a sense of belonging, security, and community. Social support is now proven to be a literal life saver. People that are supported by close relationships with friends, family, or fellow members of a church, work, or other support groups are less vulnerable to ill health and premature death. Individuals afflicted with leukaemia or heart disease have higher survival rates if they have extensive social support. There is also a strong tie between social support and measures of well-being. Those who have close personal relationships cope better with various stressors (ATC, 2017).

Quality of Life is an important health outcome in its own right. QOL is measured as physical and social functioning and perceived physical and mental well-being. QOL may affect diabetes self-efficacy, self-care behaviour, glycemic control and complication (Rubin and Peyrot, 1999). The life of every person with diabetes is unique. Not many patients manage their diabetes actively or effectively. Most

persons with diabetes feel that diabetes powerfully affects their lives. Diabetes affects a person's QOL. QOL has importance for people with diabetes and their health care providers (Rubin, 2000).

People with diabetes have lower health-related QOL than healthy people. Better socioeconomic status and better control of cardiovascular risk factors are associated with better health-related QOL among patients with diabetes (Kiadaliri, Najafi and Sani, 2013). Major diabetes complications are associated with worse health-related QOL (Coffey et al., 2002).

Skevington (2007) states that QOL has become a key goal of contemporary health care. It is often confused with the standard of living. A consensus about how to define and measure QOL is still widely debated. In the 1970s, its definitions contained terminological similarities to definitions of stress. At a time when stress was seen as a phenomenon that exceeded people's resources, to provide a good QOL these resources needed to be adequate in terms of satisfying people's wants, needs, and capacities. Since then, definitions have placed greater emphasis on people's subjective perceptions of the important features of their life and, in particular, explored the varied meanings ascribed to these experiences. The ways in which people interpret life's events (e.g., as stressful or pleasant) affect how they see their QOL.

WHO (2021) defines QOL as an individual's perception of their position in life in the context of the culture and value systems in which they live and about their goals, expectations, standards and concerns.

Singh and Bradley (2006) state that QOL is a multifaceted, dynamic concept and particular care is needed to define and assess this psychological outcome. QOL is how good or bad a person feels their life to be. This view emphasizes the most essential feature of measuring QOL, which is to capture the individual's subjective evaluation of their QOL and not what others imagine it to be. Clinicians and nurses may feel that because of the enduring relationships they share with their patients they know them well and therefore have a good knowledge of their QOL.

According to Donald (2009), Quality of life (QOL) can be defined in many ways, making its measurement and incorporation into scientific study difficult. As illness and its treatment affect the psychological, social and economic well-being, as well as the biological integrity, of individuals, any definition should be all encompassing while allowing individual components to be delineated. This allows the impact of different disease states or interventions on overall or specific aspects of QOL to be determined

According to Gupta, Kapoor and Sood (2021), patients with diabetes mellitus have to undergo lifestyle adjustments such as timing and type of food, regular exercise, daily medications, and blood glucose monitoring etc., this places unique demands on an individual as well as on the family, which affects their QOL. The QOL has been recognized as an important health outcome, representing the ultimate goal of health for all interventions. Diabetes Mellitus causes serious deterioration in general QOL, especially in the presence of complications.

The overview of literature indicates that the empirical studies related to psychosocial challenges, coping with diabetes, social support and quality of life.

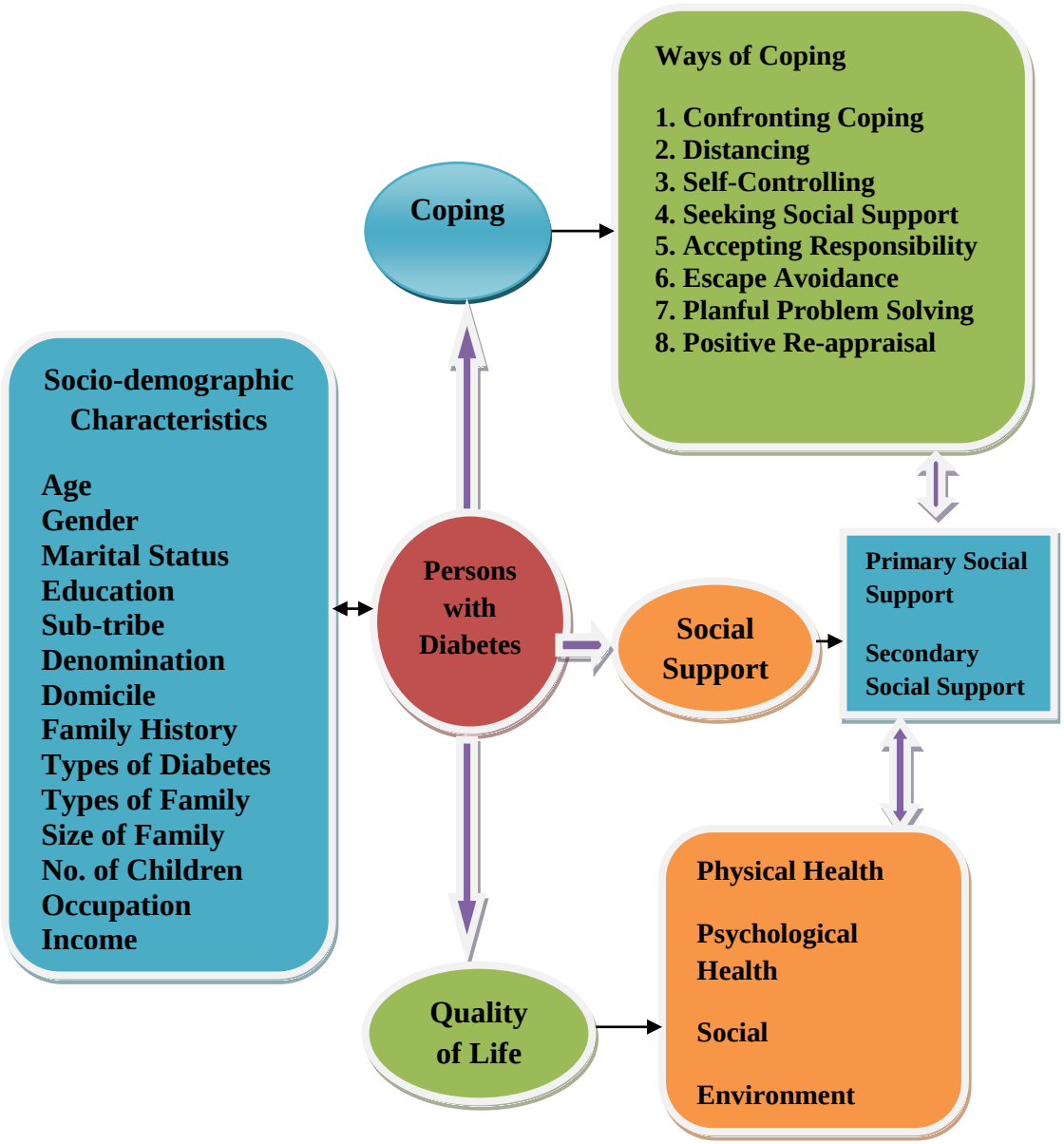
1.9 Conceptual Framework of the Study

The conceptual framework of a study is a model built with various variables which are examined through various works of literature. After understanding the concepts, the researcher can construct the conceptual framework. As the research deals with coping, social support and quality of life among Persons with Diabetes, the researcher has presented the concept as follows:

The conceptual framework portrayed here is adapted from variables based on the understanding of the researcher. In this model, the socio-demographic characteristics of the respondents, ways of coping, and social quality of life are displayed. As the level of social support is high, *Persons with Diabetes* will have better-coping patterns. When the level of QOL is high, *Persons with Diabetes* will

have better-coping patterns. This reveals that QOL, social support and patterns of coping are all linked and interrelated.

Figure 1.2 Conceptual Framework of the Study



Source: Constructed by the researcher.

1.10 Statement of the problem

The prevalence of diabetes worldwide is very high. The number of cases increases exponentially every decade at the global level. It is a global public health crisis that threatens the economies of all nations, specifically developing countries. Further, in the 21st century, diabetes represents one of the most challenging public health problems and issues. It is closely associated with industrialization and socio-economic development in developing countries raising its prevalence on one side. Some of the major factors include population growth, age structure and urbanization (Park, 2000) on the other side.

India is among the most affected countries in the world with diabetes. It is the second most affected country in the world. Diabetes is a growing health challenge in India. There is a high prevalence of type 2 diabetes among the overweight and obese group in North-East India. Physically inactive people are more prone to suffer the disease. Mizoram, the state of India, is located in the north-eastern part of the country. The capital is Aizawl, in the north-central part of the state. In a small state like Mizoram, the number of diabetes cases increases day by day. Coping with diabetes can be a challenge for anyone. Social support is very important for patients with diabetes for the successful management of the disease.

Diabetes is a fast emerging health problem in Mizoram. It is now a growing healthcare challenge even among the people who are involved in physical labour. Diabetes is an illness that is influenced by several factors. Diabetes has become a major public health problem and is closely associated with psychological health. It is estimated that Mizoram has about 10 percent of the population suffering from diabetes. Thus, the researcher attempts to study the coping patterns and the QOL of Persons with Diabetes. The study also aims at identifying the physical and psychological health of Persons with Diabetes. The study attempts to examine the nature of social support for Persons with Diabetes in Mizoram. Many people are diabetes without their knowledge and the present generation is lacking knowledge related to diabetes. There is a lack of adequate professionals to help Persons with

Diabetes. The medical infrastructure is insufficient and there are new cases diagnosed every day.

1.11 Need and significance of the study

Currently, diabetes has become one of the most common non-communicable diseases around the globe. Tanamas, S.K., (2013) highlighted that the disease increases the rate of prevalence of death due to cardiovascular, eye and kidney complications and diseases. In the 21st century, diabetes represents one of the most challenging public health problems and issues. It is closely associated with industrialization and socio-economic development in developing countries raising its prevalence on one side. Some of the major factors include population growth, age structure and urbanization (Park, 2000) on the other side. Further, the risk of developing type 2 diabetes probabilities are quite high; it's because of unhealthy habits of eating, smoking, consuming liquor, and less physical activity in their lifestyle.

The prevalence of diabetes is very high worldwide and is increasing exponentially every decade. India is the second-highest in terms of diabetes. The prevalence of type 2 diabetes is also high in northeast India. Diabetes is a serious issue and gradually increasing among the people of India because of changing lifestyle patterns and adopting a sedentary lifestyle as well as less involvement in physical activity in general and this trend is also prevailing in Mizoram. Persons with diabetes face lots of psychosocial challenges and issues due to stress, anxiety, frustration and depression. These issues and challenges affect their quality of life. In due course, of time they need coping, and social support to get along with the challenges in their life.

In Mizoram, diabetes s a fast emerging health problem and there are new cases diagnosed every day. Hence, a study on diabetes is immensely essential in Mizoram to assess, identify and explore the status of Persons with Diabetes in terms of studying in detail coping, social support and quality of life. In addition, the researcher discusses the role of the social work profession as a helping profession for

persons with diabetes welling. The present study facilitates adding knowledge in the field of education, medicine, and health to understand the coping, social and quality of life of persons with diabetes in the Mizoram context.

Further, the present study assists the government in policy formulation and suggests measures to mitigate the disease with the help of the Ministry of health. The present study would be beneficial to educational institutions, hospital administrations, medical professionals, health professionals, psychiatric social workers, medical social workers, Mizoram Diabetes Association, and others.

1.12 Chapter Scheme

The report writing of the present study is organised into eight (8) chapters. The chapter scheme is briefly discussed as follows:

Chapter I: "Introduction"

The first chapter discusses the background of the study, the basic concepts of diabetes, the types of diabetes, insulin, the global scenario of diabetes, the Indian scenario of diabetes, the northeast scenario of diabetes and the Mizoram scenario of diabetes. Further, psychosocial challenges, coping, social support, quality of life and diabetes are being highlighted.

Chapter II: "Review of Literature"

The data collection was conducted by the researchers during the year 2018 in three phases. In the first phase, the researcher collected data in the Aizawl district and the second phase covered the remaining districts. In the last phase, the researcher conducted case studies and the focus group discussion of the present study**.**

Chapter III: "Methodology"

The third chapter discusses the setting and the methodology of the study which includes a profile of the study area, about Mizoram Diabetic Society, a statement of the problem, objectives of the study, hypotheses, a pilot study, research design, tools of data collection, description of scales used in the study, selection of the sample, source of data, pre-testing, reliability of the tool, data processing & analysis, concepts and definitions, research ethics and limitations of the study.

Chapter IV: "Socio-Demographic Characteristics of Persons with Diabetes"

The fourth chapter presents the socio-demographic characteristic of the respondents which includes – age of the respondents, marital status, educational qualification, sub-tribe, denomination, geographic characteristic of the respondents, domicile of the respondents, type of diabetes, family history, familial characteristics of the respondents like a type of family, size of family and number of children in the family and economic characteristics of the respondents such as – occupation, monthly income classification, annual income and number of family earners.

Chapter V: "Psychosocial Challenges and Coping Patterns"

The fifth chapter consists of two sections. The first section deals with the psychosocial challenges of *Persons with Diabetes* and concentrates mainly on the qualitative findings of the study. In this, five studies of different backgrounds were conducted in order to understand and analyse the issues and challenges faced by *Persons with Diabetes*. The five studies focus on their case history, diagnosis, the status of illness and the issues and challenges experienced by the patients. A Focus group discussion was also conducted to focus more on the challenges faced by the patients.

The second section discusses the ways of coping for *Persons with Diabetes*. There are eight domains in the *Ways of Coping Scale* viz; *confronting coping, distancing, self-controlling, seeking social support, accepting responsibility, escape avoidance, planful problem solving* and *positive reappraisal*. The descriptive statistics of ways of coping are discussed which include- ways of coping by age, gender, domicile, diabetes type, and history of diabetes. In addition, Spearman's Inter correlation matrix of ways of coping is also discussed. Further, this section analyses Mann Whitney U Test's significant difference between the mean rank of *gender* across ways of the coping domain, Mann Whitney U Test's significant difference between the mean rank of *domicile* across Ways of Coping domain, Mann Whitney U Test's significant difference between the mean rank of *diabetes type* across ways of coping domain and Level of Ways of Coping by *age, gender, domicile, diabetes type* and *history of diabetes*.

Chapter VI: "Social Support of Persons with Diabetes"

The sixth chapter presents the descriptive statistics of social support for *Persons with Diabetes* by *age, gender, domicile* and *diabetes type*. Mann Whitney U test significant difference between the mean rank of *gender, domicile and diabetes type* across social support and Spearman's inter-correlation matrix of social support are analysed in the sixth chapter.

Chapter VII: "Quality of Life of Persons with Diabetes"

This chapter is divided into two sections. This first section presents the descriptive statistics of QOL domains by age, gender, domicile, history and type of diabetes and Spearman's inter-correlation matrix of QOL. The second section deals with the relationship between QOL and Ways of Coping and Social Support.

Chapter VIII: "Conclusion"

The eighth chapter is the last and briefly summarises the entire thesis, the major findings, discussion and suggestions based on the findings of the present study.

In this chapter, the concept of diabetes, its types, insulin, the global scenario of diabetes, the Indian scenario of diabetes, the northeast scenario of diabetes, the Mizoram scenario of diabetes, overview of literature, conceptual framework of the study, statement of the problem and need and significance of the study have been discussed. By understanding the concepts, a conceptual framework of the study has been portrayed. The next chapter discusses on the review of literature which is an essential component for a study.

CHAPTER II
REVIEW OF LITERATURE

A brief introduction of the present study and the basic concepts has been discussed in the previous chapter. A review of literature is an essential component of a research study. This chapter discusses the nature of diabetes, its causes, consequences and types, the history of diabetes and myths related to diabetes. Further, the review concentrates on studies based on psychosocial challenges, coping patterns, social support, quality of life among *Persons with Diabetes* and the magnitude of the problem.

WHO (2020) defines *Diabetes* as a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar), which leads over time to serious damage to the heart, blood vessels, eyes, kidneys and nerves. The most common is *type 2 diabetes*, usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin. In the past three decades, the prevalence of type 2 diabetes has risen dramatically in countries of all income levels. *Type 1 diabetes*, once known as juvenile diabetes or insulin-dependent diabetes, is a chronic condition in which the pancreas produces little or no insulin by itself. For people living with diabetes, access to affordable treatment, including insulin, is critical to their survival. There is a globally agreed target to halt the rise in diabetes and obesity by 2025.

The Genetic Landscape of Diabetes (2004) describes that *diabetes mellitus* is characterized by abnormally high levels of sugar (glucose) in the blood. When the amount of glucose in the blood increases, e.g., after a meal, it triggers the release of the hormone insulin from the pancreas. Insulin stimulates muscle and fat cells to remove glucose from the blood and stimulates the liver to metabolize glucose, causing the blood sugar level to decrease to normal levels. In people with diabetes, blood sugar levels remain high. This may be because insulin is not being produced at all, is not made at sufficient levels, or is not as effective as it should be. The most common forms of diabetes are type 1 diabetes, which is an autoimmune disorder, and type 2 diabetes, which is associated with obesity. Gestational diabetes is a form of

diabetes that occurs in pregnancy, and other forms of diabetes are very rare and are caused by a single gene mutation.

For many years, scientists have been searching for clues in our genetic makeup that may explain why some people are more likely to get diabetes than others "*The Genetic Landscape of Diabetes*" introduces some of the genes that have been suggested to play a role in the development of diabetes.

Diabetes is classified by the underlying cause. The categories are type 1 diabetes - an autoimmune disease in which the body's immune system attacks the pancreas, rendering it unable to produce insulin; type 2 diabetes—in which resistance to the effects of insulin or a defect in insulin secretion may be seen; gestational diabetes; and "*other types*". Type 2 diabetes commonly occurs in adults who are obese. Many underlying factors contribute to the high blood glucose levels in these individuals. An important factor is the body's resistance to insulin in the body, essentially ignoring its insulin secretions. A second factor is the falling production of insulin by the beta cells of the pancreas. Therefore, an individual with type 2 diabetes may have a combination of deficient secretion and deficient action of insulin. In contrast to type 2, type 1 diabetes most commonly occurs in children and is a result of the body's immune system attacking and destroying the beta cells. The trigger for this autoimmune attack is not clear, but the result is the end of insulin production (The Genetic Landscape of Diabetes, 2004).

Diabetes of all types can lead to complications in many parts of the body and can increase the overall risk of dying prematurely. Possible complications include kidney failure, leg amputation, vision loss and nerve damage. Adults with diabetes also have a two- to three-fold increased risk of heart attacks and strokes. In pregnancy, poorly controlled diabetes increases the risk of fetal death and other complications. Diabetes is also among the leading causes of kidney failure. Reduced blood flow and nerve damage in the feet caused by diabetes can lead to foot ulcers, and the associated infections and complications can lead to the need for limb amputation, as well as severe and life-long health problems (WHO, 2020).

Type 1 diabetes cannot currently be prevented. Effective approaches are available to prevent type 2 diabetes and prevent the complications and premature death that can result from all types of diabetes. These include policies and practices across whole populations and within specific settings (school, home, work place) that contribute to good health for everyone, regardless of whether they have diabetes, such as exercising regularly, eating healthily, avoiding smoking, and controlling blood pressure and lipids. The starting point for living well with diabetes is an early diagnosis – the longer a person lives with undiagnosed and untreated diabetes, the worse their health outcomes are likely to be. Easy access to basic diagnostics, such as blood glucose testing, should therefore be available in primary health care centres. Patients will need periodic specialist assessments or treatment for complications. A series of cost-effective interventions can improve patient outcomes, regardless of what Types of Diabetes they may have. These interventions include blood glucose control, through a combination of diet, physical activity and, if necessary, medication; control of blood pressure and lipids to reduce cardiovascular risk and other complications; and regular screening for damage to the eyes, kidneys and feet, to facilitate early treatment (WHO, 2020).

2.1 History of Diabetes

A disease characterised by the '*too great emptying of urine'* finds its place in antiquity through Egyptian manuscripts dating back to 1500 B.C. Indian physicians called it *madhumeha* ('honey urine') because it attracted ants. The ancient Indian physician, Sushruta, and the surgeon Charaka (400–500 A.D.) were able to identify the two types, later to be named type 1 and type 2 diabetes. Recognised for the last three millennia, recorded history attributes the first complete descriptions in the first century A.D. to Aretaeus the Cappadocian, who coined the word *diabetes* (Greek, '*siphon*') and dramatically stated: "… *no essential part of the drink is absorbed by the body while great masses of the flesh are liquefied into urine*". Avicenna (980–1037 A.D.), the great Persian physician, in *The Canon of Medicine* not only referred to abnormal appetite and observed diabetic gangrene but also concocted a mixture of seeds (lupin, fenugreek, zedoary) as a panacea. The term *Mellitus* (Latin, '*sweet like*

honey) was coined by the British Surgeon-General, John Rollo in 1798, to distinguish this diabetes from other diabetes (*insipidus*) in which the urine was tasteless (Lakhtakia, 2013).

In the past, type 1 diabetes was always fatal within months or even weeks. The introduction of insulin as a treatment changed this. There is still no cure for diabetes, but newer drugs and an awareness of possible causes have further improved the outlook for people with this condition. Understanding the history of diabetes and its early treatment can help us appreciate how far the understanding and treatment of this condition have come. In ancient India, people discovered that they could use ants to test for diabetes by presenting urine to them. If the ants came to the urine, this was a sign that it contained high sugar levels. They called the condition madhumeha, meaning honey urine (Higuera, 2020).

During the third century B.C.E., Apollonius of Memphis mentioned the term "*diabetes*," which may have been its earliest reference. In time, Greek physicians also distinguished between diabetes mellitus and diabetes insipidus. Diabetes insipidus has no link with diabetes mellitus. While it also leads to thirst and urination, it does not affect the body's production or use of insulin. Diabetes insipidus results from a problem with a hormone called vasopressin that the pituitary gland produces. The ancient Roman doctor Galen mentioned diabetes but noted that he had only ever seen two people with it, which suggests that it was relatively rare in those days. By the fifth century C.E., people in India and China had worked out that there was a difference between type 1 and type 2 diabetes. They noted that type 2 diabetes was more common in heavy, wealthy people than in other people. At that time, this might have implied that these individuals ate more than other people and were less active. Nowadays, the ready supply of processed food has weakened the association between wealth and eating more, but obesity, diet, and a lack of exercise are still risk factors for type 2 diabetes.

In the middle ages, people believed that diabetes was a disease of the kidneys, but an English doctor in the late 18th century found that it occurred in people who had experienced an injury to the pancreas. In 1776, Matthew Dobson confirmed that

the urine of people with diabetes could have a sweet taste. According to an article that the journal *Medical Observations and Enquiries* published, he measured the glucose in urine and found that it was high in people with diabetes. Dobson also noted that diabetes could be fatal in some people but chronic in others, further clarifying the differences between type 1 and type 2. By the early 19th century, there were no statistics about how common diabetes was, there was no effective treatment, and people usually died within weeks to months of first showing symptoms (Higuera, 2020).

In 1889, Joseph von Mering and Oskar Minkowski found that removing the pancreas from dogs led them to develop diabetes and die shortly afterwards. This discovery helped scientists understand the role of the pancreas in regulating blood sugar levels. In 1910, Sir Edward Albert Sharpey-Schafer proposed that diabetes developed when there was a lack of a particular chemical that the pancreas produced. He called it insulin, meaning island because the cells in the islets of Langerhans in the pancreas produce it. In 1921, Frederick Banting and Charles Best introduced an extract of pancreatic islet cells from healthy dogs to dogs with diabetes. Doing this reversed diabetes and marked the discovery of the hormone insulin. They worked with two other scientists to purify insulin that they took from the pancreas of cows and produce the first diabetes treatment. In January 1922, 14-year-old Leonard Thompson was the first person to receive an injection of insulin to treat diabetes. Thompson lived another 13 years with the condition and eventually died of pneumonia (Higuera V., 2020).

2.2 Myths about Diabetes

The Global Diabetes Community (2019) states ten myths about diabetes that are all too commonly reported as facts and therefore explains those myths. These misrepresentations of diabetes can sometimes be harmful and lead to an unfair stigma around the condition. Diabetes information is widely available, both from healthcare professionals and on the Internet, but not all of it is true.

The *first Myth* is that *People with diabetes can't eat sugar*. This is one of the most common diabetes myths; people with the condition have to eat a sugar-free diet. People with diabetes need to eat a balanced diet, which can include some sugar in moderation. People with diabetes can eat sugar. The *second* myth is *type 2 diabetes is mild*- This diabetes myth is widely repeated, but of course, it isn't true. No form of diabetes is mild. If type 2 diabetes is poorly managed it can lead to serious (even life-threatening) complications. Good control of diabetes can significantly decrease the risk of complications but this doesn't mean the condition itself is not serious. The *third myth* states that *type 2 diabetes only affects fat people*-whilst type 2 diabetes is often associated with being overweight and obese by the media, it is patently untrue that type 2 diabetes only affects overweight people. Around 20% of people with type 2 diabetes are of normal weight, or underweight. The *fourth myth* says *People with diabetes should only eat diabetic food* - diabetic food is one of the most common myths of the last ten years. The label '*diabetic*' is often used on sweets foods. Often sugar alcohols, or other sweeteners, are used instead of sugar. Diabetic food would often still affect blood glucose levels, is expensive, and may also cause adverse side effects. Diabetes charity Diabetes UK recommends that people with diabetes avoid diabetic food (The Global Diabetes Community, 2019).

The *fifth myth* is that *people with diabetes go blind and lose their legs* - diabetes is a leading cause of blindness and also causes many amputations each year. However, those people with diabetes that control blood pressure, glucose, and weight and quit smoking all increase their chances of remaining complication-free. Blindness and amputation are therefore preventable and the vast majority of people with diabetes will avoid blindness and amputation, particularly if annual diabetic health checks are attended each year.

The *sixth myth* states that - *people with diabetes are dangerous drivers*- This myth is based on an inaccurate generalisation. The main danger of driving for people with diabetes is if hypoglycemia occurs. However, hypoglycemia is a preventable state and the vast majority of people with diabetes are at risk of hypos exercise care to avoid hypos taking place whilst driving. Statistics show that diabetics are no less

safe on the road than anyone else with significant accidents being attributed to hypoglycemia affecting less than 0.2 percent of drivers treated with insulin. However, the myth that people with diabetes are dangerous drivers is ongoing.

The *seventh myth* says *People with diabetes shouldn't play sport*- High-prominence diabetic sportsmen and women have disproved this diabetes myth. People with diabetes should take part in an exercise to maintain a healthy lifestyle. There are some factors worth considering before partaking in sport, but there is no reason why people with diabetes can't participate in most cases.

According to the *eight myths, people with diabetes can't do many jobs*- Having diabetes won't stop you from having a job and with the improvements that have been made in the treatment of diabetes, the number of jobs that people with diabetes are ineligible for is now very small. The armed forces are one profession which may prevent people with diabetes from entering specific roles, such as front-line service, but many other positions will be accessible. It's worth noting that people with diabetes that cannot work, for individual sight or mobility reasons, may be entitled to a specific benefit. The *ninth myth* states that *people with diabetes are more likely to be ill*- People with diabetes are not more likely to have colds or other illnesses. The significance of illness for people with diabetes is that it can make the management of blood glucose levels more difficult which can increase the severity of an illness or infection. Prevention of illness is particularly important and therefore flu jabs are advisable and free.

According to the *tenth myth, diabetes is contagious* - Something of a classic playground myth, diabetes cannot be caught by someone else. Diabetes is categorised as being a non-communicable illness meaning it cannot be passed on by sneezing, through touch, nor via blood or any other person-to-person means. The only way in which diabetes can be passed on is from parents to their children but even this is only a genetic likelihood of diabetes and not the condition itself.

In a study done by Kishore and Rai (2009), a cross-sectional study was carried out in a teaching hospital in Delhi in 2008. 124 diabetic patients attended the regular diabetic clinic, 78 people who accompanied these patients and 214 non-diabetic people were included in the study. A pre-tested interview schedule with 48 questions was used to get information about socio-demographic characteristics and myths about diabetes. The most common myth in the population (22%) was that eating more sugar causes diabetes. Others were: diabetes can only occur in old age, soaking feet in water can help control blood sugar, and diabetes is a result of past sins and is cured by spiritual treatment. Myths were significantly more common in females, non-diabetics, and less educated groups. There was a slightly higher prevalence of myths in the Muslim population. 12.1 percent of diabetics were taking herbal medicines. 15.9 percent of the diabetics and 26 percent of non-diabetics were unaware that complications could occur if diabetes was uncontrolled. 18.5 percent of diabetics and 30.1 percent of non-diabetics were unaware of the role of diet and lifestyle measures in the control of diabetes. The study group consisted of 124 diabetic patients attending the regular diabetic clinic, 78 people who accompanied these patients and 214 non-diabetic people. The sample consisted of 201 males (48.3%) and 215 females (51.7%). The most common myth in the population (22%) was that eating more sugar causes diabetes. Others were diabetes can only occur in old age (7.2%), soaking feet in water can help control blood sugar (11.8%), diabetes is a result of past sins and it can be cured by spiritual treatment (9.4%).

The findings suggest that the prevalence of myths was higher in non-diabetics. The variables that showed significant association were high sugar intake causes diabetes, diabetes is contagious, herbal medicine is the cure for diabetes, and there is no role of lifestyle changes in the treatment of diabetes. This can be explained because the diabetics included in the study were those who were visiting clinics and were in touch with healthcare professionals, getting an education from them about their disease. On the other hand, the non-diabetics were not receiving any such education.

Khaliq (2021) examined that while there is no cure for diabetes, it can be managed with lifestyle changes (diet and exercise) and medical treatment. If people with diabetes are not diagnosed and treated as soon as possible, their body's high blood sugar levels can damage other organs and tissues. Some complications of neglected diabetes are nerve damage, kidney damage, heart attacks, strokes, peripheral vascular disease (causing leg pain and ulcers in the feet), cataracts and loss of vision, among others. Living well with diabetes may feel challenging, but one will realise that it is not. With willpower and correct information, one can make informed choices and modify key aspects of one's lifestyle like diet and activity levels to manage one's blood sugar and regain control of one's life. Diabetes is one of those conditions that carry with it an overload of misinformation and alternative facts.

Lloyd et al., (2005) explain that stressful experiences have been implicated in the onset of diabetes in individuals already predisposed to developing the disease. As early as the beginning of the 17th century, the onset of diabetes was linked to "*prolonged sorrow*" by an English physician. Since then, several research studies have identified stressors such as family losses and workplace stress as factors triggering the onset of diabetes, both type 1 and type 2.

In recent years, some researchers have turned their attention to the possibilities of stressful experiences influencing diabetes control. This potential influence is important, not only for the often debilitating effects poor blood glucose control can have on daily life but also because of the known association between chronically high blood glucose levels and the development of diabetes complications. It is a complex area of research, much of it having been conducted in children and adolescents, with fewer studies in adults or those with type 2 diabetes, and using a number of different measurement tools. Stressful experiences have been recorded using anything from simple checklists to longer self-report questionnaires, to in-depth interviewing techniques. Most studies in this area have not determined the type or severity of stress that may influence changes in glycemic control, nor have they been able to fully address the role of other factors in mediating the impact of stress on glycemic control. Moreover, it is difficult to determine the temporal relationship between stress and health, not least because poor health often leads to adverse

experiences. A number of laboratory studies have been conducted to demonstrate the effects of specific stressful situations (for example, arithmetic problem solving, and unpleasant interviews) on blood glucose levels. Many of these studies have demonstrated that these types of stressors can destabilize blood glucose levels, at least for hours at a time. However, a major criticism of this approach is that it does not mirror the real world in which individuals with diabetes live.

Individuals with type 1 diabetes were interviewed using an in-depth interview schedule and then followed up quarterly for a year with measures of diabetes control. The participants were asked about both negative and positive stressors in their lives. The results showed that those whose glycemic control deteriorated over time were more likely to report negative stress, whereas those whose control improved over the follow-up period reported positive stress. Negative stressors included interpersonal conflicts, death of a close tie, and disturbed behaviour of someone close, whereas positive stressors were events such as engagement to be married, birth of a child, or the desired change in employment.

Some people react to stressful events in a way that makes them psychologically vulnerable, for example, they may experience feelings of hopelessness or anxiety, particularly in the context of social isolation or poverty. Others may respond to stress in positive terms or as a "*challenge*," or they may feel better able to cope with the stress because they have several social supports or the support of a loving family. It is easier to categorize major stressors into those that are positive and those that are negative; it is more difficult for more minor stress or "*hassles*." Long-term chronic difficulties are also important but may change in perceived level of severity or negativity over time.

Findings from Smith's study of women's experiences of diabetes-related stress indicated that a wide variety of factors were important, including relationships with other people (including health care professionals), the interaction between diabetes and daily life and work, and fear of the future. Minor stressors and hassles were seen as an integral part of living with diabetes in this study and increased the risk for type 2 diabetes. A low sense of coherence is thought to negatively affect people's ability to cope with stressors and also be linked to unhealthy lifestyle patterns that could lead to poor health (Lloyd et al., 2005).

2.3 Studies on Psychosocial Challenges

Peyrot et al. (2005) explain that although new and more efficacious diabetes medication and improved medication delivery systems have been developed, the majority of diabetic patients do not achieve optimal blood glucose control, leading to poor health outcomes. Negative attitudes, coping difficulties and psychological problems such as depression, anxiety and eating disorders are common in diabetes and can contribute to poor outcomes. Research has indicated that patients and providers differ substantially in their perceptions and attitudes, which may lead to confusion and conflict and in turn poor outcomes. However, little is known about providers' perception of the severity and consequences of patient problems and of the resources they have to deal with these problems. A better understanding of perceptions and attitudes among both patients and providers is needed to guide initiatives to improve the management of diabetes.

According to Nicole (2003), the need for effective, well-evaluated psychosocial interventions to assist people in dealing with the daily demands of diabetes has been urgently stressed. Now that treatment regimens are becoming more and more intensive, comprehensive behavioural changes are required. Additional psychosocial support is called for to help people to make these changes and to preserve and sustain their efforts to optimize both glycemic control and quality of life. As the burden of diabetes rapidly increases, there is a pressing need to deliver diabetes care more comprehensively and cost-effectively. Delivering care in a group instead of in an individual format may be an effective way of doing that.

In a study done by Peyrot et al. (2005), the aim was to examine patient- and provider-reported psychosocial problems and barriers to effective self-care and resources for dealing with those barriers. The method was a cross-sectional study using face-to-face or telephone interviews with diabetic patients and healthcare providers in 13 countries in Asia, Australia, Europe and North America. Participants were randomly selected adults (n = 5104) with type 1 or type 2 diabetes, and providers (n = 3827), including primary care physicians, diabetes specialist physicians and nurses. According to the result, regimen adherence was poor,

especially for diet and exercise; provider estimates of patient self-care were lower than patient reports for all behaviours. Diabetes-related worries were common among patients, and providers generally recognized these worries. Many patients (41%) had poor psychological well-being. Providers reported that most patients had psychological problems that affected diabetes self-care, yet providers often reported they did not have the resources to manage these problems, and few patients (10%) reported receiving psychological treatment. It was concluded that psychosocial problems appear to be common among diabetic patients worldwide. Addressing these problems may improve diabetes outcomes, but providers often lack critical resources for doing so, particularly skill, time and adequate referral sources.

In a study done by Fernandes et al. (2019), the aim was to assess the psychosocial distress experienced by people with type 2 diabetes in India. The research design and method used were cross-sectional and descriptive design. Participants were recruited from the outpatient department of a hospital with the use of Non-Probability Convenience sampling. The diabetes distress scale (DDS-17) was used to assess Diabetes-related distress, including subscales emotional burden (EB), regimen-distress (RD), interpersonal distress (ID) and physician-related distress (PD). One thirty-one participant were studied.

According to the result, the mean age was 54.9 and the male population was in majority of the study. The participants showed mild distress. The findings showed a significant difference between selected demographic characteristics and psychosocial distress at a $p = 0.05$ level. It was concluded that diabetes-related distress can be assessed as a part of mental health. This assessment could contribute to efficient and less expensive early identification of people prone to develop further psychosocial problems.

According to Weinger and Smaldone (2018), individuals face significant events or crises at different points during diabetes that challenge their usual ways of coping and dealing with stress. These events evoke heightened anxiety, feelings of helplessness, and temporary states of cognitive confusion. People facing crises typically employ coping strategies they have used in the past that have varying levels

of effectiveness. Some strategies such as denial or anger may interfere with health whereas other strategies using a more pragmatic approach serve to help incorporate information and skills into one's lifestyle. Those living with diabetes may face important stressors throughout their illness.

2.4 Studies on Coping and Diabetes

Cleveland Clinic (2021) claims that *Coping* usually involves adjusting to or tolerating negative events or realities while one tries to keep one's positive self-image and emotional equilibrium. Coping occurs in the context of life changes that are perceived to be stressful. Psychological stress is usually associated with negative life changes, such as losing a job or a loved one. However, all changes require some sort of adaptation. Even positive changes -such as getting married or having a child - can be stressful. Changes are stressful because changes require us to adjust and adapt. Experiencing too many changes within a brief period often creates the idea that we aren't in control of events. This perception contributes to low self-esteem and may even contribute to the development of anxiety or depression. In some cases, physical illnesses may develop or get worse when a person's capacity to adapt to change is overwhelmed by too much change.

Coping involves adjusting to unusual demands, or stressors. This requires giving a greater effort and using greater energy than what's needed in the daily routines of life. Prolonged mobilization of effort can contribute to elevated levels of stress-related hormones and eventual physical breakdown and illness. Stressors that require coping may be acute, like moving to a new home or experiencing the onset of marriage problems. Stressors also occur that are of longer duration, such as chronic pain, chronic illness or long-lasting financial problems. The effect of many acute stressors that come within a relatively brief period may be cumulative and profound. Those who experience a marital separation, the death of an ageing parent and a change in job within a brief period may struggle to maintain their physical and emotional health.

Some common coping mechanisms may challenge a person in certain ways such as Lower one's expectations. Ask others to help or assistance. Take responsibility for the situation. Engage in problem-solving. Maintain emotionally supportive relationships. Maintain emotional composure or express distressing emotions. Challenge previously held beliefs that are no longer adaptive. Directly attempt to change the source of stress. Distance oneself from the source of stress and view the problem from a religious perspective.

Experts agree that copying is a process rather than an event. One may alternate between several of these coping strategies to cope with a stressful event. People differ in particular styles of coping or prefer to use certain coping strategies over others. These differences in coping styles usually reflect personality differences. Rigidity in coping is less likely to help than flexibility in coping - being able to fit the most appropriate coping strategy to the demands of different situations. However, some situations that require coping are likely to elicit (bring out) similar coping responses from most people. For example, work-related stressors are more likely to elicit problem-solving strategies. Stressors that are perceived to be changeable are more likely to elicit problem-solving strategies while stressors perceived to be unchangeable are more likely to elicit social support seeking and emotion-focused strategies. What can a person do to protect himself/ herself against stress and enhance one's prospects for successful coping? Perhaps the most important strategy is to maintain emotionally supportive relationships with others. A vast field of research demonstrates that emotional support buffers individuals against the negative impact of stress.

It's especially important to evaluate one's overall lifestyle when encountering significant stress. Engage in stress-reducing activities to help one's overall approach to cope with stressors. Some of the *Coping Strategies* are as follows: Get enough good quality sleep. Eat a well-balanced diet. Exercise regularly. Take brief rest periods during the day to relax. Take vacations away from home and work. Engage in pleasurable or fun activities every day. Practice relaxation exercises such as yoga,

prayer, meditation or progressive muscle relaxation. Avoid the use of caffeine and alcohol.

Good Therapy (2007) explains that *coping mechanisms* are the strategies people often use in the face of stress and/or trauma to help manage painful or difficult emotions. Coping mechanisms can help people adjust to stressful events while helping them maintain their emotional well-being. Significant life events, whether positive or negative, can cause psychological stress. Difficult events, such as divorce, miscarriage, the death of a loved one, or the loss of a job, can cause most people to feel grief or distress. But even events that are considered positive by many - getting married, having a child, and buying a home—can lead to a significant amount of stress. To adjust to this stress, people may utilize some combination of behaviour, thought, and emotion, depending on the situation. People may use coping mechanisms for stress management or cope with anger, loneliness, anxiety, or depression.

Some may confuse defense mechanisms with coping mechanisms. Although these two concepts share some similarities, they are, in fact, different. *Defense mechanisms* mostly occur at an unconscious level, and people are generally unaware they are using them. One's use of coping mechanisms, on the other hand, is typically conscious and purposeful. *Coping mechanisms* are used to manage an external situation that is creating problems for an individual. Defense mechanisms can change a person's internal psychological state.

Coping styles can be problem-focused - also called instrumental - or emotion-focused. Problem-focused coping strategies are typically associated with methods of dealing with the problem to reduce stress, while emotion-focused mechanisms can help people handle any feelings of distress that result from the problem. Further, coping mechanisms can be broadly categorised as active or avoidant. Active coping mechanisms usually involve an awareness of the stressor and conscious attempts to reduce stress. Avoidant coping mechanisms, on the other hand, are characterized by ignoring or otherwise avoiding the problem. Some coping methods, though they work for a time, are not effective for a long-term period. These ineffective coping

mechanisms, which can often be counter productive or have unintended negative consequences, are known as "*maladaptive coping*." Adaptive coping mechanisms are generally considered to be healthy and effective ways of managing stressful situations.

Among the more commonly used adaptive coping mechanisms are- *support*, *relaxation*, *problem-solving* and *humour*. Talking about a stressful event with a *supportive* person can be an effective way to manage stress. Seeking external *support* instead of self-isolating and internalizing the effects of stress can greatly reduce the negative effects of a difficult situation. *Relaxing* activities can help people cope with stress. Relaxing activities may include practising meditation, progressive muscle relaxation or other calming techniques, sitting in nature, or listening to soft music. *Problem-solving* is a coping mechanism that involves identifying a problem that is causing stress and then developing and putting into action some potential solutions for effectively managing it. *Humour* can be making light of a stressful situation and may help people maintain perspective and prevent the situation from becoming overwhelming. *Physical activity* is an exercise that serves as a natural and healthy form of stress relief. Running, yoga, swimming, walking, dance, team sports, and many other types of physical activity can help people cope with stress and the after-effects of traumatic events.

The use of effective coping skills can often help improve mental and emotional well-being. People who can adjust to stressful or traumatic situations (and the lasting impact these incidents may have) through productive coping mechanisms may be less likely to experience anxiety, depression, and other mental health concerns as a result of painful or challenging events. People who find themselves defaulting to maladaptive coping mechanisms and/or experience difficulty utilizing effective coping strategies may eventually see a negative impact on mental and emotional well-being. Those who have a difficult time knowing how to cope with anxiety, stress, or anger may fall into the habit of relying on a maladaptive coping mechanism. Consuming alcohol can often help people feel less stressed in the immediate moment, for example, but if a person comes to rely on alcohol, or any

other substance, in the face of challenging situations, they may eventually become dependent on the substance over time. If one experiences stress and doesn't know how to cope, a therapist or other mental health professional can often help them develop and improve their coping skills. Therapists can provide support and information about coping skills, and therapy sessions can be a safe, nonjudgmental environment for people to explore the coping methods they rely on and determine how they help or hinder stress management.

Skinner and Zimmer-Gembeck (2016) defines *Coping* as a basic process integral to adaptation and survival and depict how people detect, appraise, deal with, and learn from stressful encounters. Decades of research in the social and medical sciences have examined coping in many domains across the lifespan. Mainstream research, focusing on the measurement of individual differences and correlates of coping, suggests that coping can buffer or exacerbate the effects of stress on mental and physical health and functioning, as well as directly shape the development of psychopathology and resilience. New directions include the construction of developmental theories, measurement schemes that augment self-report questionnaires, and designs that capture coping processes.

Specific coping strategies (e.g., 'think of different ways to solve the problem,' 'tell me it doesn't matter) are generally grouped into a variety of coping subtypes to describe categories of adolescents' coping responses. Examples of common subtypes are problem-solving, information seeking, cognitive restructuring, emotional expression or ventilation, distraction, distancing, avoidance, wishful thinking, acceptance, seeking social support, and denial. But, coping strategies are not viewed simply as a large collection of possible responses to stressors with arbitrary groupings. Rather, coping subtypes, and even broader dimensions that comprise sets of these subtypes, are derived based on conceptual models of coping. Researchers then use statistical techniques such as 'factor analysis to determine whether the conceptual model that groups together coping subtypes is appropriate. We now examine the most common models of coping that have been applied in the adolescent coping literature.

Coping could be divided based on its function, into problem-focused coping and emotion-focused coping. Problem-focused coping includes those strategies that involve acting on the environment (e.g., seeking support from others to solve the problem) or the self (e.g., cognitive restructuring). Emotion-focused coping includes those strategies used to regulate one's stressful emotions (e.g., using substances, emotional ventilation). One study found that older, as compared to younger adolescents, tended to use more emotion-focused coping strategies, whereas age was not related to the use of problem-focused strategies. Critics of the problem-focused versus emotion-focused coping framework argue that these two dimensions are overly broad and some strategies may reflect both types of functions (e.g., seeking support from others may be used in the service of solving the problem or to soothe one's feelings). Also, strategies that represent very different types of coping and may be associated with very different outcomes have been subsumed under the same broad category. For example, some argue that the explanation for the finding that emotion-focused coping is often associated with negative outcomes may be attributed to the over-representation of negative emotion-focused items (e.g., cry about it, substance use) that represent this category rather than potentially positive emotion-focused coping strategies (e.g., journaling, sharing feelings with someone) that could be included as emotion-focused strategies. However, in spite of its limitations, this early categorization provided a useful stepping-off point for future conceptualizations of coping. And, Richard Lazarus was one of the first psychologists to discuss coping as an ongoing, dynamic process.

Susan Roth and Lawrence Cohen later conceptualized coping in terms of the direction of the coping responses to the threat or stressor. Approach coping is any behavioural, cognitive, or emotional activity that is directed toward a threat (e.g., problem-solving or seeking information). Avoidance is any behavioural, cognitive, or emotional activity directed away from a threat (e.g., denial, withdrawal). In general, the use of more approaches and less avoidance coping has been associated with more positive outcomes. But, some strategies grouped under avoidance coping may vary in their effectiveness. For example, both cognitive avoidance (e.g., not

thinking about the stressor) and distraction (e.g., engaging in other activities to avoid thinking about the problem) are both avoidance strategies.

Yet, avoiding thoughts and feelings associated with an event may increase the individual's distress over time, whereas distraction (especially distraction techniques that involve engaging in social activities with others) may be effective in dealing with particularly intense feelings and may serve to decrease distress. In addition, critics of this model argue that one cannot always determine that more approach and less avoidance coping is ideal in all cases. Avoidance strategies like distraction might have the benefit of preventing the distress level from becoming too overwhelming; this might be most appropriate in the beginning stages of reaction to a severe stressor. Approach strategies have the benefits of allowing for appropriate action to be taken after distress levels have subsided somewhat and when appropriate action can be taken. So, ideally, most coping researchers agree that it is best to have a flexible coping style which may involve using strategies from different dimensions across the coping process, depending on the current demands of the situation.

A more recent and comprehensive model, the Responses to Stress model, developed by Bruce Compas and colleagues, distinguishes three major coping dimensions, with each dimension comprised of more specific coping subtypes. The first dimension is voluntary coping (i.e., coping responses that involve conscious effort, e.g., problem-solving, cognitive restructuring) versus involuntary coping (i.e., temperamentally based and conditioned reactions, e.g., emotional numbing, rumination, intrusive thoughts). The second dimension involves responses of engagement (i.e., responses directed toward a stressor or one's reaction to a stressor, e.g., problem-solving) versus disengagement (i.e., responses directed away from a stressor or one's reaction to a stressor, e.g., distraction). Voluntary coping responses can be distinguished further along a third dimension: primary control coping strategies (i.e., those strategies aimed at directly altering objective conditions, e.g., problem-solving, emotional expression) versus secondary control coping strategies (i.e., those strategies focused on adaptation to the problem, e.g., acceptance, cognitive restructuring). Voluntary coping responses within this framework are

viewed as goal-directed efforts to maintain, increase, or alter one's control over the environment or the self.

Skinner and Zimmer-Gembeck (2016) examined that coping models have become more elaborated, and coping research is continuously moving toward the view of coping as a multifaceted process instead of coping subtypes as mutually exclusive categories. Recent coping research also reflects an awareness that coping with a stressor is a dynamic process that involves flexibility in strategies across the coping process, depending on the current demands of the situation.

According to Townsend and Andrews (2019*), Coping* is the ability to manage threatening, challenging, or potentially harmful situations and is crucial for well-being. Coping strategies may be behavioural or cognitive. Behavioural coping efforts are overt physical or verbal activities, whereas cognitive efforts involve the conscious manipulation of one's thoughts or emotions. An example of behavioural coping is the use of self-statements focusing on competence, such as "*I am a brave boy*," which can help children tolerate uncomfortable situations for a longer period. Effective coping strategies enable the individual to perceive some sense of control over the stressful event. Typically, older children have a more extensive coping repertoire than younger children. Girls have also been reported to use more emotional and comfort-seeking strategies when faced with a stressful event, but boys use more physical aggression and stalling techniques. However, coping skills vary greatly among individuals. Studies involving venipuncture show that lower pain scores were associated with children who reported using behavioural coping strategies. Coping skills in patients with dental anxiety can be improved through cognitive behavioural therapy.

Blum and Silver (2012) explain that *Coping Strategies* are as numerous and varied as the stressors that precede them. From Folkman and Lazarus' *Ways of Coping Questionnaire* and Charles Carver and colleagues' *Coping Orientation of Problem Experience* (COPE), some common strategies or categories for coping responses are accepting the situation or one's role in it. Active/ confrontive coping to remove the stressor or oneself from the stressor, anticipatory coping aimed toward an

expected but uncontrollable event. Avoiding/ escaping the stressor or associated feelings of distress and Denying the problem or feelings. Disengaging mentally or behaviourally (giving up), distancing/ detaching from the situation or minimizing its significance. Planning is the steps to solve the problem, reinterpreting the stressor as a positive or growth-oriented experience. Seeking social support (discussed later), controlling one's emotions or waiting for an appropriate time to act, using substances to dull feelings, suppressing competing activities until the problem subsides, turning to religion, using humour, and venting emotions. Individuals also engage in proactive coping. *Proactive coping* include building and strengthening all resources (e.g., from practical and academic knowledge, experiences, and sufficient numbers and varied kinds of social contacts; see also direct effects hypothesis of social support). As well, proactive coping involves gaining skills and abilities to assess the changing environment more accurately, from signs of a possible stressor to appropriate strategies and resource use, to feedback on a given situation. Though it is impossible to make causal claims, future-oriented coping tends to be associated with positive outcomes such as goal achievement and lower levels of distress. However, too great an emphasis on the future may be a sign of hypervigilance, which has been linked to negative outcomes such as anxiety and poor information processing.

Further, as with the other components of coping, research classifies strategies by type, such as problem-focused coping or emotion-focused coping. One needs to bear in mind, however, that people's thoughts, feelings, and behaviours seldom fit into black-or-white categories such as those required for quantitative analytics. For example, a man responds to being laid off by networking with friends to learn about other job opportunities. Networking is active coping and planning, both of which are problem-focused. Networking with friends, however, likely adds the benefit of support from others to decrease his anxiety, which is emotion-focused. This illustration also shows that often the best method of coping is a combination of problem-focused and emotion-focused strategies. Whether it is a single strategy or a few enacted together, this approach can both reduce the impact of the stressor and the negative emotions it may evoke. Yet, there is no one universal coping strategy that

will be effective in all situations. Coping strategies that lessen distress in one situation may be ineffective or even detrimental to the individual in another.

Similarly, one must keep in mind that strict labelling of most strategies and other coping behaviours can result in erroneous interpretations. This is especially true when attempting to categorize responses as effective or ineffective. Seldom is a coping response all good or all bad, and one must well consider the many specifics of the situation and the goals of the individual before drawing firm conclusions. For example, considering the time frame during which the strategy is employed (e.g., the duration of the stressor) may help assess its efficacy. Denial or substance use (not to be mistaken with abuse or use of illicit drugs) may be adaptive in the immediate aftermath of a traumatic event. However, these strategies rapidly deteriorate as wise choices for coping over time and should be replaced with responses that are more appropriate as time progresses. So, when the laid-off man goes home, he may have a few beers to wash down his sorrows, but continuing this behaviour would no doubt exacerbate the problem.

In a study done by Kausar (2016), the objective was to determine the relationship between self-care, coping strategies and quality of life of individuals with diabetes. It was hypothesized that there is likely to be a relationship between self-care, coping strategies and quality of life of individuals with diabetes; coping strategies are likely to mediate the relationship between self-care and quality of life. The sample comprised 250 individuals with an equal number of type 1 and type 2 diabetes and it was recruited from different hospitals in Lahore. Diabetes Self-Care Activities Scale (DSAS), Coping Strategies Questionnaire (CSQ) and Quality of Life Scale (QOL) were used for assessment. Results showed that good self-care improved quality of life with the medication of coping strategies in individuals with diabetes.

Further, in the study, self-care dimensions of taking care of diet, exercise, sugar level and foot care showed a positive relationship with active practical and active distractive coping, whereas avoidance and religious coping showed a significant negative relationship with quality of life. Understandably, individuals with diabetes need to use active coping strategies to implement self-care e.g.

implementing a diet plan, doing exercise regularly, ensuring foot care and taking the medication regularly. This would in turn help improve their daily functioning and quality of life. Avoidance and religious coping though would help relieve stress temporarily but would not help improve patients' quality of life in the long run. Another finding of the study was that active-practical and religious-focused coping predict QOL of individuals with diabetes and coping also mediated the relationship between self-care and quality of life. The findings highlight the importance of coping strategies in enhancing the quality of life of individuals with diabetes. The study is an effort in the right direction to caution and guides the patients about self-care activities and the role of coping strategies in improving the quality of life of individuals with diabetes. Findings have important implications for the patients, health professionals, dieticians and care givers who can provide better management of the disease.

In a study done by Collins, Bradley, Sullivan and Perry (2009), the aim was to explore patient perceptions of diabetes self-care, with particular reference to the burden of self-care and coping strategies among patients. A maximum variation sample of 17 patients was selected from GP (General Practitioner) practices and diabetes clinics in Ireland to include patients with type 1 and type 2 diabetes, various self-care regimens, and a range of diabetes complications. Data were collected from in-depth interviews; which were tape-recorded and transcribed. The transcripts were analysed using open and axial coding procedures to identify main categories and were reviewed by an independent corroborator. Discussion of the results is made in the theoretical context of the health belief, health value, self-efficacy, and locus of control frameworks. It was found that patients' perceptions of their self-care varied on a spectrum, displaying differences in self-care responsibilities such as competence with dietary planning, testing blood sugar and regular exercise. Three patient types could be distinguished, which were labelled: "*proactive manager*", a patient who independently monitors blood glucose and adjust his/her self-care regime to maintain metabolic control; "*passive follower*", a patient who follows his/her prescribed self-care regime but does not react autonomously to changes in metabolic control; and

"*nonconformists*", a patient who does not follow most of his/her prescribed self-care regime.

It was concluded that the patients have different diabetes self-care coping strategies which are influenced by their self-care health values and consequently may affect their diet and exercise choices, frequency of blood glucose monitoring, and compliance with prescribed medication regimens. Particular attention should be paid to the patient's self-care coping strategy, and self-care protocols should be tailored to complement the different patient types.

A study done by Hamid and Manan (2013), the study investigates the prevalence of diabetes among stress sufferers and identifies stress coping skills in the rural and urban areas of Sepang, Selangor. A cross-sectional study was conducted in a village and housing estate area in Sepang, Selangor with a sample of 196 in Ulu Teris and 174 in Taman Mawar. A simple random sample of adults aged 18 years and above was selected. Data were collected by an interviewed questionnaire and blood collection. Overall, one-third (33.7%) of respondents in rural and more than half (54.6%) in urban areas were having stress. The rural-urban difference in the prevalence of diabetes among stress respondents was greatest with (50.5%) in urban, whereas (37.9%) in rural. It was also higher compared to non-diabetics in an urban area. The common cause of stress in urban was work and coping skill was self-distraction, whereas in rural area was family and religious activities, respectively. This group of subjects must practice appropriate stress coping skills and practice a healthy lifestyle. It was concluded that although diabetic stress was more common in urban than rural there is a potential that the prevalence was getting higher. In association with increasing diabetes prevalence, this will inevitably result in increasing proportions of deaths from cardiovascular disease, as well as increased prevalence and associated consequences of other complications of diabetes. Awareness to practice appropriate stress management is crucial, not only could reduce stress but indirectly may prevent the development of diabetes. More exploratory behavioural analysis and comprehensive evidence-based strategies of

intervention should be introduced, including periodic monitoring (Hamid and Manan, 2013).

According to Kent et al. (2010), psychological, emotional, and social factors not only impact the quality of life but also often play a role in chronic illness outcomes. Diabetes care, in particular, is greatly influenced by psychosocial factors when they hinder a person's ability to manage the disease and achieve metabolic control. Healthy coping, defined as responding to a psychological and physical challenge by recruiting available resources to increase the probability of favourable outcomes in the future, is essential to effective self-management by people with diabetes. In June 2009, the American Association of Diabetes Educators convened a multidisciplinary expert panel to discuss healthy coping with diabetes. The panel included diabetes educators and behavioural science and mental health professionals. Drawing on their knowledge and experiences, as well as information presented at the symposium, the panel probed several aspects of healthy coping including what it entails, common barriers, assessment, population diversity, and clinical applications. A team approach to addressing the patient’s coping is critical. Team involvement relieves the diabetes educator of the entire burden of supporting the patient in this regard. The team should be broadly defined and include those who are formally and informally involved. Healthy coping is a complex, qualitative behaviour that cannot be easily quantified. Future efforts to address the issue of healthy coping should add to the body of literature regarding diabetes self-management at the individual and population-based levels. Healthy coping is a complex, qualitative behaviour that cannot be easily quantified. Indeed, it is easier to define the outcomes of healthy coping than to define the actual process. Therefore, a broad definition of healthy coping is advised, with a focus on the positive elements that reflect this concept.

In a study done by Graue et al. (2004) the objective was to systematically study the various coping styles in a population-based sample of adolescents with type 1 diabetes, exploring the association of different coping styles with metabolic control and adolescent self-reported diabetes-related quality of life. Of a total population of 116 adolescents with type 1 diabetes (age 13–18 years), 103 (89%) participated in

the study by completing a questionnaire to obtain information on coping styles and perceptions of diabetes specific quality of life.

In the population-based study, poor metabolic control and reduced diabetes-related quality of life were significantly related to emotion-focused coping styles, such as behavioural and mental disengagement and aggressive coping. Greater use of active coping, on the other hand, was related to improved metabolic control and diabetes life satisfaction. It was, therefore, justified to conclude that in adolescents with type1diabetes, the hypothesized relationships between coping styles and the degree of metabolic control and self-reported diabetes-related quality of life are supported. Because it is cross-sectional, the present study does not allow conclusions about cause and effect. Young people with diabetes might "choose" a particular coping style in response to poorly controlled diabetes. In line with this alternative, beliefs about control play a major role in determining the degree to which a person feels threatened or challenged in a stressful encounter.

Thus serve as adaptive mechanisms. Conversely, poor metabolic control might be a consequence of inherent and pre-morbid coping styles. Adolescents' beliefs about their diabetes and its treatment should be considered as key factors influencing self-care, emotional well-being, and metabolic control. Furthermore, in an attempt to improve diabetes outcomes in adolescents with diabetes. Coping skills training in combination with intensified insulin treatment had a significant impact on the adolescents' metabolic control as well as on their quality of life. The data from the study complement this finding, showing that greater use of active coping was related to better HbA1c and higher diabetes life satisfaction.

In a study done by Kirimi et al. (2016), the objective was to determine the relationship between coping strategies, hardiness, and occupational life quality in type 2 diabetic patients and healthy people in Qazvin. Patients and Methods: Questionnaires such as Valton's on "*occupational life quality*," Billings and Moos' examination of "*Coping strategies*," and Kobasa's investigation of "hardiness" were applied to collect the data needed for the present study. In this regard, 80 people were randomly selected from employees of offices in Qazvin, Iran.

The study employs an applied research style. The relationship between the variables of coping strategies, along with hardiness as a predictor variable and professional life quality as the dependent variable, is investigated. For analysis apart from data descriptions, the Pearson correlation coefficient and multiple regression analysis are used. Before executing the main regression analysis for each specific question, a complete regression analysis model was executed for the variable of professional life quality, considering hardiness and all coping components. This analysis was executed with two purposes in mind: The first purpose is to investigate the basic hypotheses of multiple regression analysis, such as the linearity of the relationship between the target variable and predictor variables, normality and homogeneity of dispersion of conditional distributions. Hypotheses such as the non-linearity of the relationship, the estimation accuracy of parameters, and resulting interpretations are effective. Furthermore, to complete the first purpose, some separate regressions of professional life quality were executed individually on scales, to cause situations of the data distribution to be investigated accurately.

The results of this research indicated that there is a significant relationship between problem-focused strategies, emotion-focused strategies, hardiness, and occupational life quality in people suffering from type 2 diabetes and healthy people. These results also indicated that hardiness does not predict the occupational life quality of people suffering from type 2 diabetes. It was concluded that the result of this study gives some evidence that allows us to conclude that hardiness and coping strategies affect occupational life quality for both people suffering from type 2 diabetes and healthy people. Therefore, it is proposed that people strengthen their hardiness and coping strategies, to improve their occupational life quality.

2.5 Studies on Social Support and Diabetes

Social support is physical and emotional comfort that one gets from family, relatives, friends and co-workers. It means having family, friends and other people in times of need or crisis or illness. It is the perception and actuality that one is cared for, has assistance available from other people and the supportive resources can be emotional, informative or companionship.

Bakken (2016) defines that the term "*social support*" often appears in discussions of relationships. Social support means having friends and other people, including family, to turn to in times of need or crisis to give you a broader focus and positive self-image. Social support enhances the quality of life and provides a buffer against adverse life events. Social support can take different forms: *Emotiona*l (sometimes called non-tangible) *support* refers to the actions people take to make someone else feel cared for. *Instrumental support* refers to the physical, such as money and housekeeping. *Informational support* means providing information to help someone.

Again, Bakken also stated that one of the earliest studies on the physical and psychological health benefits of social support was in 1905. Dr Joseph Pratt, an internist from Boston, gathered a group of tuberculosis patients together to educate them about hygiene about their illness. This "*support group*" provided early evidence of the power of psychological support in physical health and healing.

Social support, whether from a trusted group or valued individual, has been shown to reduce the psychological and physiological consequences of stress and may enhance immune function. Social networks, whether formal (such as a church or social club) or informal (meeting with friends) provide a sense of belonging, security, and community. Social support is now proven to be a literal life-saver. People that are supported by close relationships with friends, family, or fellow members of the church, work, or other support groups are less vulnerable to ill health and premature death. Individuals afflicted with leukaemia or heart disease have higher survival rates if they have extensive social support. There is also a strong tie between social support and measures of well-being. Those who have close personal relationships cope better with various stressors, including bereavement, job loss, rape, and illness.

Cherry (2020) explained that *Social support* is often identified as a key component of solid relationships and strong psychological health. Essentially, social support involves having a network of family and friends that you can turn to in times of need. It is social support that builds people up during times of stress and often

gives them the strength to carry on and even thrive. But social support is certainly not a one-way street. In addition to relying on others, one also serves as a form of support for many people in one's life. Psychologists and other mental health professionals often talk about the importance of having a strong social support network. When trying to reach one's goals or deal with a crisis, experts frequently implore people to lean on their friends and family for support. Research has also demonstrated the link between social relationships and many different aspects of health and wellness. Poor social support has been linked to depression and loneliness and has been shown to alter brain function and increase the risk of the following: alcohol use, cardiovascular disease, depression and suicide.

Social support refers to the psychological and material resources provided by a social network to help individuals cope with stress. Such social support may come in different forms and might involve: Helping a person with various daily tasks when they are ill or offering financial assistance when they are in need. Advising a friend when they are facing a difficult situation. Providing caring, empathy, and concern for loved ones in need.

Social integration is the actual participation in various social relationships, ranging from romantic partnerships to friendships. This integration involves emotions, intimacy, and a sense of belonging to different social groups, including being part of a: family, partnership, religious community, and social activity.

Participation in social groups has a normative influence on behaviours, often influencing whether people eat a healthy diet, exercise, smoke, drink, or use illegal substances. Social groups can sometimes have a negative influence in this regard when peer pressure and influence leads to poor or even dangerous health choices. However, group pressure and support can also lead people to engage in healthy behaviours as well. Social support also helps people to cope with stress. Stress has been shown to have serious health consequences ranging from reduced immunity to an increased risk of heart disease. Being surrounded by people who are caring and supportive help people to see themselves as better capable of dealing with the stresses that life brings. Social relationships can also help people to stay motivated

when trying to achieve their goals. People who are trying to lose weight or quit smoking, for example, often find that it helps to connect with people who are actively trying to attain those same goals. Talking to people who are going through the same experience can often be a source of support, empathy, and motivation.

In a study done by Ramkisson, Pillay and Sibanda (2017), the objective was to explore whether patients with poor perceived social support have lower levels of well-being and coping than patients with good social support. A cross-sectional study was conducted at both public and private facilities on the north coast of KwaZulu-Natal, South Africa. The Diabetes Care Profile (DCP), the General Health Questionnaire (GHQ), the Social Support Questionnaire (SSQ) and the WHO-5 Well-being Index (WHO-5) were administered to 401 participants.

The findings indicated that there is an inverse relationship between social support and coping, which suggests that an increase in social support is associated with a decrease in emotional distress. There was a small positive correlation between the SSQ and the WHO-5, which suggests participants who had good support, endorsed better levels of well-being. Although participants indicated that they were satisfied with their level of support, they had poor coping as indicated by the high mean score on the GHQ and the high HbA1c level. There was a small positive correlation between GHQ and HbA1c (Glycated Haemoglobin). There was no association between social support and HbA1c. It was concluded that social support is important in helping the patient with diabetes cope with the disease and improve treatment adherence. Health care providers should take cognisance of psychosocial factors in the treatment regime of the patient. Family members should be educated about diabetes, the importance of adherence and the long-term complications of the disease.

In a study done by Rad, Bakht, Feizi and Mohebi (2013), the study was conducted using scientific search engines and information databanks like PubMed, ProQuest, SCOPUS, and Elsevier, and keywords like self-care, diabetes, social support, and family support to select studies with cross-sectional, cohort, clinical trial, correlation, and qualitative designs. Moreover, Persian papers were selected

from MEDLIB and IRANMEDEX information databanks and by searching websites of internal research journals. The time range of the reviewed articles was from 1990 until the end of 2011. The findings of other studies showed that the perceived social support situation is not at an optimum level among diabetic patients; the research by Cooper et al. demonstrated that diabetic patients need others' support. Gillibrand's study revealed that social support in diabetic patients is not at an optimum level. The studies conducted in Iran have demonstrated that this support is not at an optimum level among diabetic patients; studies by Shiva Heidari and Mohammad Ali Morowati Sharifabad can be referred to in this regard.

As far as the relationship between social support and self-care behaviours is concerned, the following results can be mentioned: In the study by Alato which used the developed health belief pattern, it was determined that adherence to the self-care diet had a relationship with social support. Wen, who investigated family support, diet, and sports among elderly American Mexican men suffering from type-2 diabetes, observed that with the increase in this support, adherence to diet and sports increased. Gillibrand's research and Albroght's study demonstrated a positive significant relationship between social support and self-care behaviours. They reported that social and family fields are strongly accompanied by self-care behaviours, especially diets.

It was concluded that in the health improvement model, Pender considered family support as the interpersonal effect which can predict health improvement behaviours. In studies which were done based on the health improvement model, (75%) supported interpersonal effects as a predicting factor of behaviour. It has been observed that both general social support and diabetes-related support are in correlation with the adherence to self-care behaviours in diabetic patients. Since close family support and relationship have a special position in Iranian culture, it seems that presenting sufficient information with regard to the disease to the people who are close to the patient and their involvement and cooperation in the treatment and control processes can facilitate the work of treatment team and help the patient in reaching the utmost life quality and health.

A study done by Skinner, John and Hampson (2000) examined whether peer support and illness representation mediate the link between family support, self-management and well-being. Fifty-two adolescents (12-18 years old) with Type 1 diabetes was recruited and followed over 6 months, completing assessments of self-management, well-being, and social support.

The result was that the perceived impact of diabetes and supportive family and friends were prospectively predictive of participants' well-being measures. Although support from family and friends was predictive of better dietary self-care, this relationship was mediated by personal model beliefs. In particular, beliefs about the effectiveness of the diabetes treatment regimen to control diabetes were predictive of better dietary self-care. It was concluded that both friends and family are important to support adolescents as they live with and manage their diabetes. Personal models of diabetes are important determinants of both dietary self-care and well-being. In addition, personal models may serve to mediate the relationship between social support and dietary behaviour.

Henderson (2020) examines that too often diabetes treatment is understood as a simple process of taking medications and monitoring blood sugar. In reality, diabetes is a chronic condition that requires a great deal of mental and emotional energy, which when depleted, can impair care. Diabetes-related mortality and morbidity are highest among people with lower socioeconomic status. Yet, few previous studies have investigated the nature of diabetes distress and social support pertaining to underserved, diverse populations with type 2 diabetes.

The study was conducted at Solano County Family Health Services Clinics in Vallejo and Fairfield, California. Nearly 75 percent of the 101 study participants, were between 40 and 80 years of age. Strong social support supplements effective diabetes self-management behaviours which, in turn, may reduce the risks of diabetes-related hospitalization and death. Given the significant role that social support has on diabetes-related distress, clinicians are highly encouraged to focus not only on providing medical care for people with diabetes but also on learning about their support system to optimize diabetes management outcomes and reduce the risk

of diabetes-related complications. This research signals that our opening conversation with patients should include a robust assessment of diabetes-related distress and perceived social support. If that support is inadequate, one must think about how one can build it into one's diabetes care plan (Henderson, 2020).

In a study done by Unsar, Erol and Sut (2016) the aim was to investigate the social support and quality of life of Turkish older adults and to determine the relationship between social support and quality of life. The method used was a descriptive, cross-sectional study. The sample included 108 adults who were older than 60 years admitting two family health clinics in Edirne. Data were collected through a survey including socio-demographic characteristics of participants, EuroQOL Five Dimension Scale and Multidimensional Scale of Perceived Social Support. Non-parametric tests were used in statistical analyses.

According to the findings, positive correlations were found between quality of life score and social support total score, social support scale's subgroups of family, friends and special friend scores respectively. There was a negative correlation between number of daily medications and quality of life. The quality of life of men and married participants were better than the others. Participants living with their spouse and children had better social support family subgroup scores compared to ones living alone.

It was concluded that a positive correlation was found between social support and the quality of life of older adults. Future studies researching other factors affecting the quality of life and social support levels of older adults and the impact of nursing interventions were suggested.

In a study done by Amelia et al. (2018), the aim was to determine the relationship between family support and the quality of life of patients with type 2 Diabetes Mellitus at the Amplas Primary Health Care (PHC) in Medan. The design of the research was an analytic method with a cross-sectional approach. The studied population was patients with type 2 diabetes mellitus at the Amplas PHC Medan. The number of samples was 100 patients determined by consecutive sampling;

inclusion and exclusion criteria were also considered. The primary data is from direct interviews using questionnaire guidelines. Patient family support was measured using a validated family support questionnaire. For the quality of life, the Short Form-36 (SF-36) questionnaire was translated into Indonesian. All respondents filled out informed consent. Data were analyzed using the Chi-square test done by the SPSS computer program. The results showed the support of the family of diabetic patients at Amplas PHC in Medan is categorised as supportive family support (52%). The quality of life of diabetic patients in Amplas PHC was good (83%). Chi-Square Test results showed that there was a strong relationship between family support and quality of life of DM type 2 patients at Amplas PHC in Medan.

In a study done by Palus, Zarajczyk, Pie and Bien (2019), the aim was to evaluate levels of QOL, social support, acceptance of illness, and self-efficacy among pregnant patients with hyperglycemia. The study was performed between July 2016 and September 2017 in Lublin Province, Poland, in a group of 339 hyperglycemic pregnant women. The inclusion criteria were - above 18 years; consent to participate in the study; time from hyperglycemia diagnosis exceeding 5 weeks; using health care in Poland throughout the pregnancy, and hyperglycemia diagnosed before or during the current pregnancy. The study was performed during the diagnostic survey method with questionnaires.

The following instruments were used: the World Health Organization Quality of Life- BREF (WHOQOL-BREF), the Berlin Social Support Scales (BSSS), the Acceptance of Illness Scale (AIS), the Generalized Self-Efficacy Scale (GSES) and a standardized interview questionnaire designed to record the participants' characteristics. The findings highlighted that among the pregnant women with hyperglycemia in the study group, most were between the age of 26–30 (31.9%), married (88.5%), living in province capitals (39.5%), holders of a master's degree (43.1%), professionally active (61.1%), living in good conditions (53.1%), pregnant for the first time (37.8%), diagnosed with hyperglycemia between weeks 24 and 28 of the current pregnancy (53.4%) and treated with a diabetic diet and exercise (64.9%).

In a study done by Skinner, John and Hampson (2000), the objective was to examine whether peer support and illness representation mediate the link between family support, self-management and well-being. In the method, fifty-two adolescents (12 to 18 years old) with type 1 diabetes were recruited and followed over six months, completing an assessment of self-management, well-being and social support. According to the result, the perceived impact of diabetes and supportive family and friends were prospectively predictive of participants' well-being measures. Although support from family and friends was predictive of better dietary self-care, this relationship was mediated by personal model beliefs. In particular, beliefs about the effectiveness of the diabetes treatment regimen to control diabetes were predictive of better dietary self-care. It was concluded that both friends and family are important to support adolescents as they live with and manage diabetes. Personal models of diabetes are important determinants of both dietary self-care and well-being. In addition, personal models may serve to mediate the relationship between social support and dietary behaviour.

2.6 Studies on Quality of Life and Diabetes

Quality of Life is important for everyone, it can be explained as the standard of health, comfort and happiness experienced by an individual or group. Standard indicators of *Quality of Life* include wealth, employment, the environment, physical and mental health, education, recreation and leisure time**.**

Jenkinson (2021) defines *Quality of life* as the degree to which an individual is healthy, comfortable, and able to participate in or enjoy life events. The term *quality of life* is inherently ambiguous, as it can refer both to the experience an individual has of his or her own life and to the living conditions in which individuals find themselves. Hence, quality of life is highly subjective. Whereas one person may define the quality of life according to wealth or satisfaction with life, another person may define it in terms of capabilities (e.g., having the ability to live a good life in terms of emotional and physical well-being). A disabled person may report a high quality of life, whereas a healthy person who recently lost a job may report a low quality of life. Within the arena of health care, quality of life is viewed as

multidimensional, encompassing emotional, physical, material, and social well-being. Academic interest in quality of life grew after World War II when there was increasing awareness and recognition of social inequalities. This provided the impetus for social indicators research and subsequently for research on subjective well-being and quality of life. The patient's view of his or her health had long played some role in medical consultation; however, in terms of the health care literature, researchers did not begin collecting and reporting such data systematically until the 1960s.

There are several broad categories of quality-of-life measures. These include generic measures, which are designed to evaluate health-related quality of life in any group of patients (indeed, in any population sample); disease-specific measures, such as those designed to evaluate health-related quality of life in specific illness groups; and individualized measures, which allow the inclusion of aspects of life that are considered to be important by individual patients. Examples of quality-of-life measures include the Beck Depression Inventory (BDI), the Sickness Impact Profile (SIP), and the 36-item Short-Form Health Survey (SF-36). These measures cover a wide range of aspects of life that can be adversely affected by ill health, such as physical functioning, emotional well-being, and ability to undertake work and social activities. Disease-specific measures, such as the Arthritis Impact Measurement Scales (AIMS), the 39-item Parkinson’s Disease Questionnaire (PDQ-39), the Endometriosis Health Profile (EHP), and the 40-item Amyotrophic Lateral Sclerosis Assessment Questionnaire (ALSAQ-40), are designed for use with specific patient groups and cover dimensions salient to those groups. Similar to generic measures, they address areas such as physical and emotional functioning. They also cover issues that may be predominant among patients with particular illnesses (e.g., feelings of loss of control, perceptions of social stigma).

A wide variety of uses have been suggested for quality-of-life data, but the most common applications are the assessment of treatment regimes in clinical trials and health surveys. Other applications include population and patient monitoring, screening, and improvement of doctor-patient communication. One of the most

emotive uses of such data, however, is in the economic evaluation of health care, with some measures designed specifically to be used in cost-utility analyses—that is, analyses that attempt to determine the benefits of an intervention in terms of both length of life gained and quality of life.

Rubin and Peyrot (1999) state that *Quality of life* is an important health outcome in its own right, representing the ultimate goal of all health interventions. Quality of life is measured as physical and social functioning and perceived physical and mental well-being. People with diabetes have a worse quality of life than people with no chronic illness, but a better quality of life than people with most other serious chronic diseases. Duration and Types of Diabetes are not consistently associated with quality of life. Intensive treatment does not impair quality of life, and having better glycemic control is associated with better quality of life. Complications of diabetes are the most important disease-specific determinant of quality of life. Numerous demographic and psychosocial factors influence the quality of life and should be controlled when comparing subgroups. Studies of clinical and educational interventions suggest that improving patients' health status and perceived ability to control their disease results in improved quality of life. Methodologically, it is important to use multidimensional assessments of the quality of life and to include both generic and disease-specific measures. Quality of life measures should be used to guide and evaluate treatment interventions.

Abolfotouh, M.A. (1999) explains the term "*quality of life*" (QOL), and more specifically "*health-related quality of life*" (HQOL), as a multidimensional concept that encompasses the physical, emotional, and social components associated with an illness or its treatment. Quality of life deals with the individual's perception of his or her life situation. Hornquist defines QOL as recognized need and functional satisfaction within different life domains. More self-reported life satisfaction within such domains indicates higher levels of quality of life.

Financial, social and psychological handicaps are integral to all chronic diseases, but diabetes differs in two important respects. In the first place, although it affects virtually every aspect of everyday life to a greater or lesser degree, the patient

is encouraged to lead a "*normal life*" without any of the concessions usually made to a person with chronic illness. Secondly, although the treatment is demanding and often complex, the patient is expected to bear much of the responsibility for making decisions which may affect his health, both in the short and long term. This burden is absent in most other chronic illnesses, even in those which are equally invisible, such as epilepsy and mental illness.

People with diabetes make up the most diverse group imaginable, including members of both sexes, with all degrees of health, and in different walks of life. An individual's satisfaction within the different life domains and level of subjective well-being has been associated with perceived difficulties in adherence to diabetic regimens, such as diet, smoking, exercise, injection treatments, etc. The management of chronic incurable diseases such as diabetes has always been an important part of the work of the general practitioner, but there has been a lack of discussion and consensus as to what exactly the role of the general practitioner should be. For many diabetics, their general practitioner is their only source of health care and is the gatekeeper to other services. Greater knowledge among doctors of the functional and social aspects of diabetes would, therefore, improve the quality of care for patients.

In a study done by Huang et al. (2007), the objective was to understand how individuals weigh the quality of life associated with complications and treatments is important in assessing the economic value of diabetes care and may provide insight into treatment adherence. We quantify patients' utilities (a measure of preference) for the full array of diabetes-related complications and treatments. In their findings the mean age of subjects was 63 years; 42 percent were men, 38 percent were black, and 24 percent were Latino. The mean duration of diabetes was 9.9 years and the mean Charlson comorbidity index was 2.64. Of the patients, 23 percent had experienced a micro vascular complication, and 30 percent reported having cardiovascular complications. In comparison with nationally reported risk factors levels, study subjects had lower mean glucose and cholesterol levels but similar blood pressure levels. The majority (61%) used oral diabetes medications alone, 25 percent used

insulin as part of their therapy, and 14 percent used no medications for glucose control.

Patients with diabetes perceive significant differences in the quality-of-life effects of complications and treatments related to their condition. On average, patients rated life with complications, especially end-stage complications, as significantly lower than that of life with treatments. However, we also found that patients perceived comprehensive diabetes care as having significant negative effects on quality of life, and these effects were equivalent to living with several intermediate complications. This quality-of-life burden appeared to arise from the prospect of multiple daily insulin injections rather than the prospect of multiple oral agents. This is implied by the fact that the treatment states with the lowest ratings each included multiple daily injections of insulin and that the utilities for comprehensive diabetes care and comprehensive care with poly pill were not significantly different.

It is important to note that these differences in mean utilities are directly influenced by the heterogeneity in patient utilities and that this heterogeneity varied by complications and treatments. For complication states, it was common to see a heavy left-sided tail for end-stage complications. For treatment states, the majority of patients rated life with treatments as being close to perfect health, indicating that treatments were not burdensome. At the same time, an important minority of patients (10–18%) gave ratings indicating that they perceived life with treatments as being a significant burden on quality of life. Our observation that there is significant heterogeneity in patient treatment preferences highlights the importance of incorporating a shared decision-making approach into everyday diabetes care. Acknowledging individual patient treatment preferences may be one of the keys to translating findings from clinical trial populations to general patient populations.

In a study done by Wong et al. (2018), a sample of 317 residents completed a questionnaire which comprised the WHOQOL-BREF (Hong Kong version) to assess QOL, the International Physical Activity Questionnaire (IPAQ) to study physical activities, and questions on satisfaction with the neighbourhood environment, health-

related behaviours and socio-demographics. One-way ANOVA and linear regression were used to study the associations between environmental satisfaction and QOL in the four domains, overall QOL and general health, followed by assessing the relationships between environmental satisfaction and the potential health-related behaviour mediators with regression tests. Mediation analysis was conducted using multiple linear regressions to study the effects of environmental satisfaction on QOL in the four domains, overall QOL and general health, as well as the potential mediating roles played by various health-related behaviours.

Among the four domains of QOL, the residents in this study had a relatively higher QOL in the physical health domain and a lower QOL in the environmental domain. Overall moderate satisfaction with the neighbourhood environment was found significantly predicted QOL in the psychological domain, however, this effect was partially mediated by the non-smoking status of the residents. This study covered both where the affluent and the relatively poor people were living. According to the census statistics, the demographic characteristic of the respondents was comparable to the whole population in Hong Kong in terms of sex and age. However, the respondents were more educated, mostly married and received lower monthly incomes. The residents showed lower QOL in the physical health and psychological domains compared with the mean scores reported by the 23 countries in the WHOQOL Group but QOL in the social relationships and environmental domains were comparable. When compared with another healthy sample in Hong Kong the residents had slightly lower QOL in the physical health domain but better QOL in the psychological, social relationships and environmental domains. Our sample also showed better QOL scores in all domains compared with another Chinese population living in an urban community in China. Using one SD below the mean as the cut-off standard for low QOL, however, a higher proportion in our study had poor QOL in all the four domains compared with this Chinese population.

The study assessed the QOL of residents living in the Kowloon peninsula of Hong Kong and the effect of overall satisfaction with the neighbourhood environment on QOL. Our residents had lower QOL in the physical health and

psychological domains but similar QOL in the social relationships and environmental domains compared to other countries. As the sample of residents was from different districts in Kowloon, their overall satisfaction with the environment in the neighbourhood varied. A significant relationship between satisfaction with the neighbourhood environment and QOL in the psychological domain was found. The non-smoking status of the residents partially mediated the effect of moderate environmental satisfaction on the psychological domain. In a dense city like Hong Kong where green and open spaces are limited, refraining from smoking seems to be able to lower the influence of the neighbourhood environment on people's QOL in the psychological domain to a certain extent. Health promotion and smoking cessation programs can stress the importance of not smoking in enhancing QOL in the psychological domain. This study also provides policy makers and health administrators with evidence-based information on how physical and built environments can influence residents' QOL, especially in the psychological domain as well as facilitating the development of environmental interventions and policy recommendations (Wong et al., 2018).

From the review of literature it was observed that there are copious studies on psychosocial problems and barriers among people with type1 and type 2 diabetes and to some extent gestational diabetes at International, and national levels. In addition, many studies found on coping with stress, coping mechanisms, and coping strategies. Self-care and coping strategies, coping skills, healthy coping issues and complications, and coping strategies and quality of life among type 1 and type 2 diabetes at both International and national levels. On the other hand, studies are available on social support, social support and coping with diabetes, social support and quality of life, the relationship between family support and quality of life with type 2 diabetes, support and pregnant women and the importance of quality of life of persons with diabetes. There are studies and reports available by the WHO and other international organisations with statistical updates from the web resources. These studies are mostly conducted by medical professionals like doctors, nurses, and health professionals who are working in the health settings and focused mainly on the persons with type1 and type 2 diabetes their challenges and support systems and

quality of life almost all the studies are quantitative. in nature. However, these research gaps could be observed.

Firstly, there are numerous studies on diabetes types specifically type 1 and type 2 diabetes among adolescents, adults and pregnant ladies at global and national levels. However, few studies were found in the northeast region of India in terms of type 2 diabetes and almost all focused on clinical factors. Lalrohlui et al (2021) conducted a study titled "*Fermented port fat (Sa-um) and lifestyle risk factors as potential indicators for type 2 diabetes among Mizo Population in Northeast India*." This study aims to understand the possible influence of Mizo people's dietary and lifestyle habits on type 2 diabetes. In addition, Khiangte, L and C. Devendiran (2019) wrote an article about the lifestyle and social support among persons with diabetes in Mizoram. The earlier study focusing the influencing risk factor for type 2 diabetes from the clinical perspective whereas the latter focuses only on the social support aspects among persons with diabetes.

Secondly, there are few empirical studies focused on coping and social support, social support and quality of life among persons with diabetes in the context of northeast India, in particular Mizoram. Even these studies have not addressed specifically psychosocial challenges, coping, social support and quality of life and most of the studies are clinical and psychological perspectives. On the other hand, more empirical studies found out in the areas of cancer, tuberculosis, HIV/AIDS, and drug-affected persons at global and national levels.

Thirdly, there is a dearth of literature in the context of the Northeast region of India and in particular Mizoram concerning coping, social support, and quality of life to understand the menace of diabetes in the tribal perspectives as well as in the psychosocial aspects. Therefore, the present study attempts to fill up the gaps by conducting a scientific study on the coping, social and quality of life of persons with diabetes in Mizoram.

In the present chapter, the history of diabetes, myths about diabetes, types of diabetes and its complications as well the psychosocial challenges, their coping

patterns, level of social support and quality of life are discussed. There are various empirical studies on coping strategies, social support and diabetes care and quality of life and diabetes. However, in the available literature, there is still a gap in studies on the relationship between Quality of Life and ways of coping for Persons with Diabetes, the relationship between Quality of Life and Social Support of Persons with Diabetes and also on psycho-social challenges of the patients. From the analysis of the literature and various studies, the gaps, research problems and the status of diabetics were understood. Then, as a part of the research objectives, the next chapter discusses the methodology adopted for the present study.

CHAPTER III
METHODOLOGY

The previous chapter focused on the review of the literature and certain research gaps within. The present chapter discusses the setting and the methodology of the study which includes the profile of the study area, about Mizoram Diabetic Society (MDS), statement of the problem, objectives of the study, hypotheses, a pilot study, research design, tools of data collection, description of scales used in the study, selection of the sample, source of data, pre-testing, reliability of the tool, data processing and analysis, concepts and definitions, research ethics and limitations of the study.

3.1 The Setting: Profile of the Study Area

The present study is divided into two sections. The first section deals with the profile of the study area and the descriptions of MDS. The setting of the present study covers the state of Mizoram comprising eight districts. The present study is conducted among respondents in the Mizoram Diabetic Society (MDS) who were from eight districts of the State.

3.1.1 The State of Mizoram

Mizoram, a state of India is located in the north-eastern part of the country and is bounded by Myanmar (Burma) to the east and south and Bangladesh to the west and by the states of Tripura to the northwest, Assam to the north, and Manipur to the northeast. The capital is Aizawl, in the north-central part of the State. Mizoram *("Land of the Mizos*") was known as the Lushai Hills District of Assam before it was renamed the Mizo Hills District in 1954. In 1972 it became a centrally administered union territory under the name of Mizoram, and in 1987 it achieved statehood. Area 8,139 square miles (21,081 square km). Pop. (2021) 1331921 (Lodrick, 2021). At the time of the study, there were eight districts in the State of Mizoram, viz; Aizawl, Champhai, Kolasib, Mamit, Lawngtlai, Lunglei, Serchhip and Siaha districts. But in 2019, there were three new districts namely Hnahthial, Khawzawl and Saitual. The

study restricted itself to respondents registered in the Mizoram Diabetic Society (MDS) where the members were only from eight districts at this time and the majority of the members were from the Aizawl district itself, the capital of the State.

In a small tribal state like Mizoram, the disease occurrence has been reported to be increasing over time, and on contrary, records found in the health centres, clinics, and hospitals are fragmentary, discontinuous, and incomplete to make meaningful dis-aggregation at lower levels and it is difficult to probe the frequency of occurrence. Mizoram is a hilly mountainous region of the Eastern Himalayas and belongs to one of the eight sister states of the North-eastern region of India, bordered by Bangladesh and Myanmar, and is the second least populous state in the country (Lalrohlui, Ghatak, Zohmingthanga, Vanlalhruaii& Kumar, 2021).

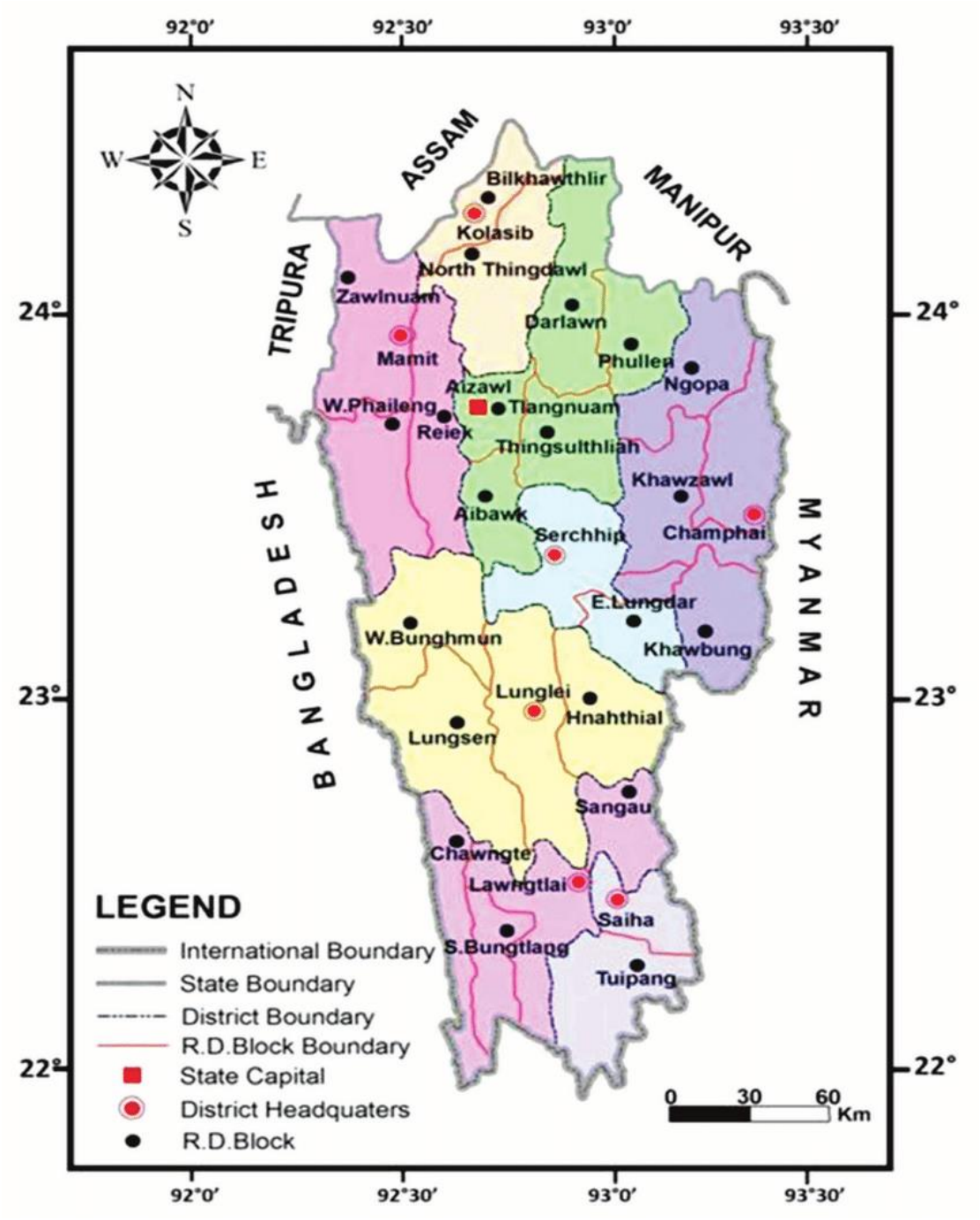
Mizoram has a rugged mountain terrain and most of them are from north to south directions. Generally, Mizoram comprises primarily sand stone and shale which are laid down in deltas and river banks and no valuable mineral deposits have been discovered in Mizoram. Most of the river flows north-south direction and River Tlawng is the longest river in Mizoram. The rivers are fed by monsoon wind and the average rainfall reaches 254 cm per annum. The average height of the mountain ranges is 900 metres.

Mizoram enjoys rich biodiversity and is one of the mega biodiversity hotspots of the world. Natural vegetation comprises tropical evergreen in the lower altitudes and semi-evergreen on the upper slopes. About 90.68 percent of the State's total geographical area is covered under forests. The land is rich in natural resources and the State has 130 square km of very dense forest. Mizoram has abundant natural bamboo resources which cover 31 percent of its geographical area.

Figure 3.1 Map of Mizoram

Source: www.veethi.com (June 2012)

Figure 3.2 Map of the Study Area (Location Map of Mizoram State)



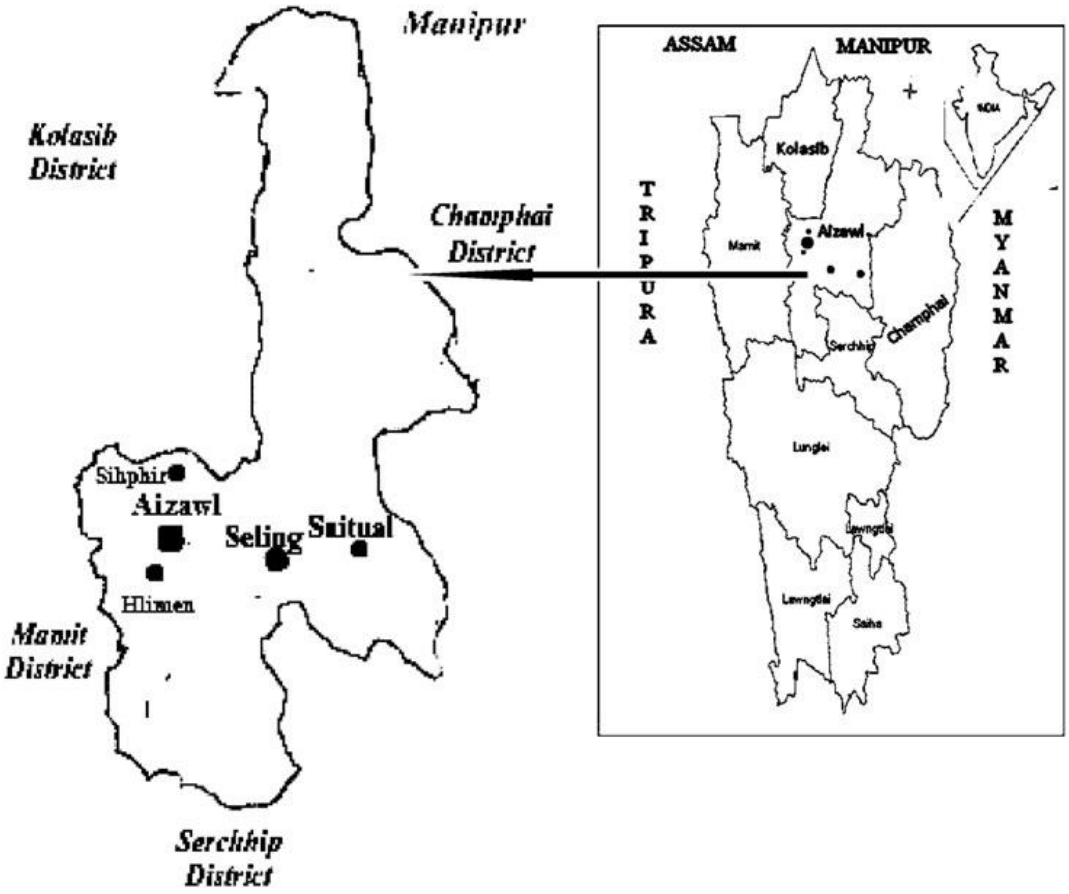
Source: https://www.researchgate.net/figure/Location-map-of-Mizoram-State-Source-by-author_fig1_339133433 (February 2020).

3.1.1.1. Aizawl District

Aizawl is the capital of Mizoram state, north-eastern India. It is situated in the north-central part of the state on a ridge at an elevation of about 2,950 feet (900 metres).

Aizawl was included in the territory that became part of the newly created Assam state in 1950. The tribal peoples of the region's Mizo Hills, however, demanded more autonomy. In the mid-1960s members of the Mizo National Front launched an armed attack on local government offices in Aizawl, but it was quickly suppressed by government forces.

Figure 3.3 Map of Aizawl



Source:https://www.researchgate.net/figure/Map-of-Mizoram-with-Aizawl- district-as-inset-showing-places-of-deployment-of-dosemeters_fig1_299541654 (March, 2016)

The insurgency continued, and in 1972 the union territory of Mizoram was created from a portion of Assam, with Aizawl as the administrative centre. Aizawl became its capital when Mizoram was re-designated as a state in 1987.

Aizawl is the most populous city in the state. Timber and bamboo are collected from the dense hillside forests. The soil cover is generally thin except in the river valleys, where rice, corn (maize), beans, tobacco, cotton, pumpkins, oilseeds, and peanuts (groundnuts) are grown. Poultry raising, hunting, fishing, and animal husbandry supplement agriculture. Aluminium utensils, hand-loomed textiles, and furniture are manufactured in the city. Electricity is generated by a diesel-powered station. Hand-weaving, blacksmithing, carpentry, basket making, and hat making are the main cottage industries. The city's attractions include a zoological park, the State Museum on Macdonald’s Hill, and the Mizoram State Museum, a treasure house of historic relics, ancient costumes, and artifacts.

The surrounding region is a part of the Assam-Myanmar (Burma) geologic province, with steeply inclined hill ranges trending north-south. The rapid Dhaleshwari (*Tiwang), Tuivaw*l, and Sonai (*Tuirial*) rivers and their tributaries crisscross the region. The tribal peoples of the region are mostly emigrants from Myanmar, and most have become Christians. The Border Roads Organization has built many paved roads in the area. An airport handling domestic flights is to the northwest of the city. In addition, there are several protected natural areas nearby to the west, east, and south Population Census (2011).

3.1.1.2 Champhai District

Champhai district is bounded on the north by Churachandpur district of Manipur state, on the west by Serchhip district, and on the south and east by Myanmar. The district occupies an area of 3,185.83 km^2. Champhai District came into existence on 12th December 1997. The District, located in the Northeast corner of Mizoram is bordered by Manipur in the North and Myanmar in the East and South. The District is divided into three Sub-Divisions i.e. Champhai, Ngopa and

Khawzawl and consists of four blocks namely Champhai, Khawzawl, Ngopa and Khawbung. Champhai Town is the administrative Headquarters of the District.

Champhai District has a salubrious climate and many tourist attractions. Champhai valley known as *"The Rice bowl of Mizoram"* located towards the base of the town. A chain of green hills encircles luxuriant rice fields, which add to the beauty of this place.

Champhai is a bustling commercial town at the Indo-Myanmar border, in the beautiful state of Mizoram, 194 km from the capital Aizawl. Champhai District offers a wonderful view of the Myanmar hills. A storehouse of ancient relics, monuments and memorials connected with legends and folklores, Champhai has a background of rich heritage. The small hamlets around the town are dotted with monuments and monoliths that depict success in war, valorous hunting, personal distinctions and achievements.

3.1.1.3 Kolasib District

Kolasib District is situated on the northern tip of Mizoram. The district has been carved out of the then Aizawl district in the year 1998. The district covers an area of 1,382 sq. Km. The district is flanked by Hailakandi and Cachar districts of Assam in the north, Aizawl District in the south and east and Mamit District in the west. The North-South extension of the district is 81.6 km and the East-West extension is 56 km. The district is situated in a part of the Aizawl Mountainous Region of Eastern Hill Zones. The topography of the district is rugged having steep hill slopes and the comparatively low hill ranges run in the North-South direction intercepted by narrow strips of the plain.

3.1.1.4 Lawngtlai District

Lawngtlai District is situated in the southernmost part of the state of Mizoram. It was declared district on 18th September 1998. It was previously under Chhimtuipui District. It has its distinct feature of housing one of the highest minority population concentrated areas in India in the western belt of the district. The district

is cut-off by Lunglei District and Siaha District into two parts. The eastern part is located on the eastern side of the Chhimtuipui River, the biggest river in the state and it comprises Sangau Sub-Division. The western part comprises Lawngtlai Sub-Division (Sadar) and Chawngte Sub-Division.

3.1.1.5. Lunglei District

Lunglei District is located in the southern part of Mizoram. It is bounded by Siaha on the South–East, Lawngtlai District on the South-West, Serchhip District on North-East, and Mamit District on the North. It shares an international border with Bangladesh on the West. The general topography of the Lunglei District varies widely. While the eastern and northern parts of the district are characterised by rather a hilly terrain with high and prominent relief, the western and south-western parts of the district, on the other hand, are portrayed by comparatively low and less prominent ridges. There are, as a whole characterized mainly by several ridge lines and intervening valleys.

3.1.1.6 Mamit District

Mamit District with its headquarters at Mamit was etched out from the erstwhile Aizawl District under Mizoram. Mamit is the least urbanised District of Mizoram with 17.25 percent of the total population i.e out of 86364 only 14,899 people are living in urban areas. Against the State level Sex Ratio of 976, Mamit district comprises of 927 sex ratio which is the lowest among all eight District in the State, in terms of Literacy rate Mamit District is the second least Literacy Rate with 84.9 out of all Eight District of the State.

3.1.1.7 Serchhip District

The establishment of the Serchhip District came into being on 15th September 1998 from the existence of the Rural Development Block. Serchhip is the smallest district in the state. The Tropic of Cancer passed through the District and is located in the central of the state of Mizoram. Serchhip is adjoined by Champhai District in the East, Aizawl in the North and North West and Lunglei District in the

South. The District is divided into 3 (three) Sub-Divisions viz. Serchhip Sadar, North Vanlaiphai and Thenzawl. There are 2 (two) Rural Development Blocks such as Serchhip and East Lungdar RD Blocks. Altogether there are 42 Villages within the District.

3.1.1.8 Siaha District

Siaha District is one of the eight districts of Mizoram state in India. The district is bounded on the north and northwest by the Lunglei district, on the west by Lawngtlai District and on the south and east by Myanmar. The district occupies an area of 1399.9 km². Siaha town is the administrative headquarters of the district. Siaha (Official name given by the Mara Autonomous District Council, popularly known as Siaha) is a census town in the Siaha district in the Indian north-eastern state of Mizoram. It is the Headquarters of the Mara Autonomous District Council, one of the three autonomous district councils within Mizoram. It is located in the South Central part of the state. The word *'Siaha'* in the local Mara language comes from *'Sia'* for Masia which means elephant and 'ha' means tooth - An elephant tooth. It was a place where a large number of elephant teeth were found.

3.1.2 Mizoram Diabetic Society

Diabetic Association of Mizoram was formed in the year 1992 and it was changed to the Mizoram Diabetic Society in the year 2008.

According to the guesstimation of the Secretary of *Mizoram Diabetic Society*, there are around 30,000 people with diabetes in Aizawl District and 762 members are registered in *Mizoram Diabetic Society*. Diabetes Association of Mizoram was formed in 1992 (Ralte, 2012). The majority of the respondents are from the Aizawl district itself and the majority of the members of the Mizoram Diabetic Society belong to the Aizawl district, the capital of Mizoram.

The present study covers respondents registered in the Mizoram Diabetic Society (MDS). The Objectives of the Mizoram Diabetic Society include:

1. Finding a way for diabetic patients to get easy access to their necessities such as (1) Medicine (2) Educator/Dietician
   (3) Doctor (4) Good Facilities for organs such as eyes, heart, lungs, kidneys, nerves etc.
2. Ensuring a helping hand for fellow diabetic patients.
3. Awareness campaign
4. Taking the initiative to have Improved Health Quality and Life Expectancy for patients with diabetes, like they receive aid in other States. Pursuing to get aid from State and Central Governments in areas such as :
   (a) Medical Reimbursement.
   (b) Referring to Diabetes Speciality Centre.
   (c) In relation to hospitalization.
   (d) Separate OPD ward for Diabetes in every District Government Hospital.
   (e) Seeking for free or subsidised consumables for diabetics- such as medicine, insulin, test facilities, nutritional facilities-sugar free, glucometer, and low sodium salt and sugar-free food items.
5. Seeking Health Insurance for Diabetics and their children.
6. Proposing to the State government for taking up Diabetes Prevention Programme like Malaria Prevention team and TB Control Program.
7. Diabetes free Clinic: Ensuring free clinic for rural people.
8. Providing facilities in Collaborating with Private Doctors, Private laboratories, Private Diagnostic Centre, Private shops etc regarding Advantage facilities so that Laboratory tests may be subsidised for MDS members as a group and provision of concession by shops to regular customers. Provision of Identity Card for MDS members with this.
9. Observance of World Diabetes Day for the welfare of diabetics and awareness for those who have not developed the disease yet.
10. Inviting Super Specialist concerning Diabetes and its complications to Mizoram so that the patients may get a check-up at a subsided rate.

11. Exploring a good place for Exercise for Diabetics- Park, Indoor Stadium etc.
12. Extensive Awareness for prevention and treatment through media.
13. Networking with other Diabetes Societies in Northeast, India and other parts of the world.
14. Seeking better facilities for Diabetes related diseases such as Dialysis for kidneys, laser for eyesight, heart, Foot Clinic etc.
15. Ensuring the fulfilment of the above objectives.

3.1.3 Objectives

The following are the objectives of the present study:

1. To understand the psychosocial challenges faced by Persons with Diabetes;
2. To assess the ways of coping patterns of Persons with Diabetes;
3. To identify the nature of social support for Persons with Diabetes;
4. To assess the QOL of Persons with Diabetes;
5. To find out the relationship between ways of coping patterns and QOL of Persons with Diabetes;
6. To find out the association between social support and QOL of Persons with Diabetes; and
7. To offer suggestions relevant to social work intervention for Persons with Diabetes.

3.1.4 Hypotheses

The following hypotheses are formulated in order to focus on the present study:

H_1 There is a relationship between ways of coping patterns and social support among Persons with Diabetes;

H_2 There is a relationship between ways of coping patterns and QOL among Persons with Diabetes;

H_3 There is a relationship between social support and QOL of Persons with Diabetes; and

H_4 There is a relationship between type 1 and type 2 diabetes with gender, age, domicile, ways of coping, social support and QOL.

These four hypotheses are derived from the intuitive sense of the researcher.

3.1.5 Pilot Study

At the beginning of the study, an extensive review of the literature regarding diabetes, social support, coping patterns and quality of life available was done. A pilot study was then conducted with 8 (eight) members of the Mizoram Diabetic Society through an interview schedule in order to find out the feasibility of the study. A quality discussion was also organized with the assistance of the Secretary of Mizoram Diabetic Society to understand the status of *Persons with Diabetes* in Mizoram about their lifestyle, diet, coping patterns, social support and quality of life.

3.2 Methodology

This section discusses the methodology adopted in the present study. The sub-heading includes the research design, selection of sample, inclusion criteria, tools of data collection, sources of data, pre-testing, reliability of the tools and data processing and analysis, operational definitions, ethical considerations, limitations and chapter scheme of the present study.

3.2.1 Research Design

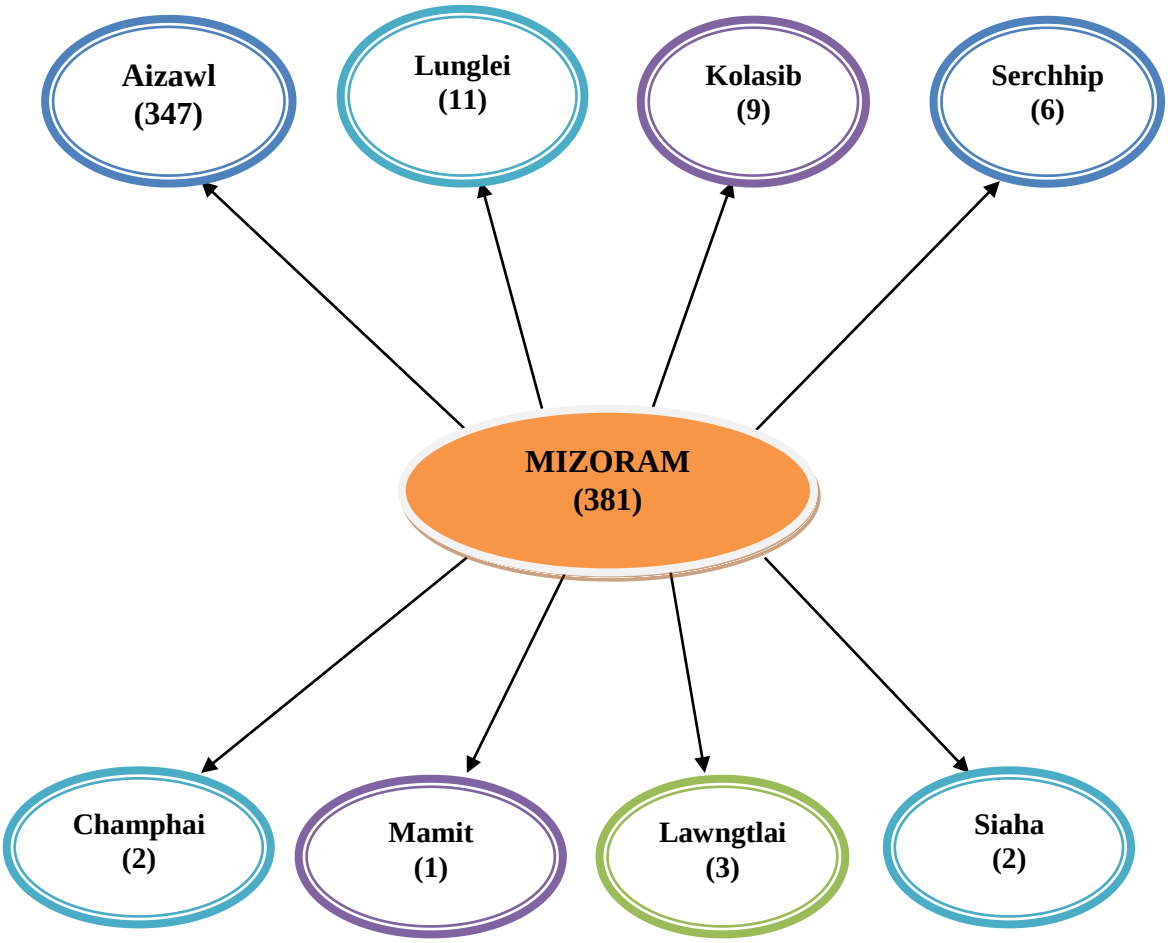
The study employs a descriptive design and is cross-sectional. A mixed-method is applied in this research using both qualitative and quantitative methods. The descriptive design is used to describe the various socio-economic characteristics and the psychosocial challenges faced by the respondents. The study intends to discuss and assess the coping patterns, social support and quality of life among *Persons with Diabetes*. Further, the study discusses the relationship between coping patterns, social support and QOL with the help of a standardised scale.

3.2.2 Selection of sample

The respondents were selected from the list provided by the Mizoram Diabetic Society (MDS). The unit of the study is individual members registered in the MDS. There were 762 members registered in *the Mizoram Diabetic Society*. Of the registered members, 50 percent of the respondents were selected from each district by using a stratified proportionate sampling method and giving weightage to

the districts of Mizoram. **Figure 3.4** depicts the district wises samples selected for the present study.

Figure 3.4 Stratified Proportionate Sampling Diagram



Source: Constructed

3.2.3 Inclusion Criteria

Using the inclusion criteria (listed below), a list of all diabetics who fall within the inclusion criteria and are willing to give informed consent was chosen as the final sample.

i) Male and female (above the age of 18 years) who has been diagnosed with diabetes for at least 3 years.

ii) Literate

iii) Residing in Mizoram.

iv) Willing to give Informed consent for participation in the study.

3.2.4 Tools of Data Collection

Tools are instruments used to collect data from the respondents for a study. An interview schedule was used to collect data from the respondents on the quantitative part whereas case studies and focus group discussions were conducted to collect qualitative information. The following are detailed descriptions of the above-mentioned tools:

i) **Interview Schedule**: The respondents were administered an interview schedule. The interview schedule sought information on socio-demographic characteristics, psychosocial challenges, coping patterns social support and quality of life. In order to assess the coping patterns a standardised scale constructed by Susan Folkman and Richard S. Lazarus, 1985 (Ways of Coping) was used.

ii) **The ways of coping** questionnaire measures eight domains or types of coping such as confronting coping, distancing, self-controlling, seeking social support, accepting responsibility, escape avoidance, planful problem solving, and positive appraisal (see table 3.1). There are 66 statements, which measure the overall ways of coping. The scale measures the specific stressful situation in mind, those who are responding to the statements, should take a few moments and think about the most stressful situation that they have experienced in the past week. The term "stressful" means a situation that was difficult or troubling for him, either because he felt distressed about what happened, or because he had to use considerable effort to deal with the situation. The situation may have involved their family, job, friends, or something else important to him. Before responding to the statements, think about the details of this stressful situation, such as where it happened, who was involved, how he acted, and why it was important to him. While he/she may still be involved in the situation, or it could have already happened, it

should be the most stressful situation that he had experienced during the week.

The raw score for each item on the scale was added to get a total score in order to score the ways of the coping questionnaire. There are four possible responses, 0, 1, 2 and 3, which indicate 0 = does not apply or not used; 1= used somewhat; 2= used quite a bit 3 = used a great deal. There are also the weights that were used to get the raw score. All the 66 items are not scaled in the tool.

Table 3.1 Ways of Coping Scale

Scale	Items in the Scale	No. of items
Confronting Coping	6,7,17,28,34,46	6
Distancing	12,13,15,21,41,44	6
Self-Controlling	10,14,35,43,54,62,63	7
Seeking Social Support	8,18,22,31,42,45	6
Accepting Responsibility	9,25,29,51	4
Escape Avoidance	11,16,33,40,47,50,58,59	8
Planful Problem Solving	1,26,39,48,49,52	6
Positive Reappraisal	20,23,30,36,38,56,60	7

iii) ***Social Support Scale*** was constructed by the researcher having 12 items and classified into two domains i.e., *Primary Social Support* and *Secondary Social Support.*

Table 3.2 Social Support Scale

Scale	Items of the Scale	No.of items
Primary Social Support	1, 2, 3, 4, 5, 6	6
Secondary Social Support	7, 8, 9, 10, 11, 12	6

iv) Quality of Life WHOQOL-BREF, 1997 standardised scale was used to assess the quality of life. There are four domains in the QOL scale as- *Physical Health* domain, *Psychological* domain, *Social* domain and *Environment* domain

Table 3.3 Quality of Life WHOQOL-BREF Scale

Scale	Items of the Scale	No. of items
Physical Health	3,4,10,15,16,18	7
Psychological	5,6,7,11,19,26	6
Social	20, 21, 22	3
Environment	8, 9, 12, 13, 14, 23, 24, 25	8

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v) Interview guide for Case studies

A case study is an in-depth study of one person, group, or event. In a case study, nearly every aspect of the subject of a person's life and history is analyzed to seek patterns and causes of behaviour. A case study allows the researcher to collect rich information about the subjective aspects of the selected respondents about diabetes. The interview guide for case studies focused on the psychosocial challenges (psychosocial, economic, health) of persons living with Diabetes and their social support.

vi) Guide for Focus Group Discussion

A focus group discussion involves gathering people with similar illnesses or experiences together to discuss a specific topic of interest. It is a form of qualitative research where questions are asked about their perceptions, attitudes, experiences, opinion or ideas. In the focus group discussion, participants are free to talk with other group members; unlike other research methods, it encourages discussions with other participants. It involves group interviewing in which a small group of 8 people participated. It was led by the moderator (researcher) in a loosely structured discussion of the selected topic. A FGD was conducted with eight members where the researcher discussed with the participants their perception regarding diabetes, their opinion about diabetes, their attitude and their level of understanding regarding diabetes.

3.2.5 Sources of Data

In the present study, two sources of data have been used namely primary and secondary sources of data. Primary data was collected through both quantitative and

qualitative methods. The quantitative data was collected from *Persons with Diabetes* using an Interview Schedule to collect information related to Socio-demographic characteristics, Standardised (Susan Folkman and Richard S. Lazarus, 1985) scale is used to assess ways of Coping, Social Support and the Quality of Life (WHOQOL-BREF, 1997) standardised scale was used. The qualitative data was collected through in-depth interviews and reflected by Five case studies which were conducted among *Persons with Diabetes*. One focus group discussion was also conducted with *Persons with Diabetes*. The secondary data was collected through available literature from journal articles, books, magazines, annual reports and open access articles with the help of web resources.

3.2.6 Pre-testing

The interview schedule was prepared to collect quantitative data from the respondents in their regional language. The tool was translated with help of a trained professional who is proficient in the Mizo language. A pre-test was conducted with 10 members of the Mizoram Diabetic Society. Certain items were slightly modified to make it more comprehensive especially in the ways of coping scale and quality of life scale and also provided an insight to ask questions on the local context for social support, which achieved the purpose of the study.

3.2.7 Data Collection

The data collection was conducted by the researchers during the year 2018 in three phases. In the first phase, the researcher collected data in the Aizawl district and the second phase covered the remaining districts. In the last phase, the researcher conducted case studies and the focus group discussion of the present study**.**

3.2.8 Reliability of the tool

The standardised tools of Ways of Coping, WHOQOL-BREF and Social Support were statistically tested for validity and reliability after the final data collection was over. The Cronbach alpha and the Guttman split-half coefficient

values of Ways of Coping were .919 and .833. The Cronbach alpha and the Guttman split-half coefficient values of Social Support were .858 and .671. The Cronbach alpha and the Guttman split-half coefficient values of WHOQOL-BREF were .891and .869.

3.2.9 Data Processing and Analysis

The quantitative primary data collected through the Interview Schedule was edited, coded and processed with the help of Microsoft Excel and analyzed with the SPSS package. The analysed data was presented in the form of two–way tables, and figures. The researcher used both descriptive statistics and inferential statistics. In descriptive statistics, the researchers used averages, percentages, proportions and standard deviations while in inferential statistics the researcher used non-parametric tests like the chi-square test, Mann-Whitney U test, Kruskal-Wallis test, Spearman's correlation coefficient in order to test the formulated hypotheses of the present study. The qualitative data collected through case studies were reflected in the form of case vignettes and narratives. The FGD was also presented in the form of a detailed discussion based on the topics and themes and the inferences were drawn and incorporated into the discussion of the present study.

3.3 Operational Definitions

A person with Diabetes: A *Person with Diabetes* is a person who has been diagnosed with diabetes for a minimum period of 3 years and is undertaking treatment.

Psychosocial problem: Psychosocial problem is the problem in the psychological development and social environment of a person due to a person's ill health

Coping: Coping is a response which aims to decrease or lessen the physical or emotional burden due to certain sickness or illness.

Social Support: Social support is the perception that one is cared for, and has assistance (due to illness) from other people like family, friends, relatives, co-workers, neighbours etc.

Quality of Life: Quality of Life is the general evaluation of a person's physical, emotional and social well-being.

3.4 Ethical considerations

The research has been carried out as per the fundamental ethical principles of research. Respondents who were willing to give informed consent for participation in the study took part in the study and confidentiality was maintained. The respondents are informed that at any point in time they can withdraw from the research. The researcher explained the purpose of the study before interviewing the respondents. Further, no video and audio recordings were done during the data collection process.

3.5 Limitations of the study

- The present study is restricted only to Persons with Diabetes who have been registered in Mizoram Diabetic Society.
- As a majority of the registered members are from the Aizawl district, most of the respondents were from Aizawl itself. A minority were from other districts and therefore it may not encompass the whole Mizoram.
- The respondents are those who are undertaking treatment for a minimum period of 3 years.

To conclude, this chapter has attempted to describe the setting of the study area and the methodology applied for the present study in terms of the profile of the study area, about Mizoram Diabetic Society, objectives of the study, hypotheses, a pilot study, research design, tools of data collection, description of scales used in the study, selection of the sample, source of data, pre-testing, reliability of the tool, data processing & analysis, concepts and definitions, research ethics and limitations of the study. The remaining chapters will deliberate on the findings of the study. So, the next chapter focuses on the socio-demographic characteristics of *Persons with Diabetes*.

CHAPTER IV

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF A PERSON WITH DIABETES

In the previous chapter, profile of the study area, statement of the problem, objectives of the study, hypotheses, a pilot study, research design, tools of data collection, description of scales used in the study, selection of the sample, source of data, pre-testing, reliability of the tool, data processing and analysis, operational definitions, research ethics and limitations of the study were discussed. There are certain norms which are socially constructed in every society. Gender is one of the most crucial parameters that indicate various social and economic dynamics of society.

The present chapter is focusing on the socio-demographic characteristic of the respondents of the study. Socio-demographic is a combination of social and demographic factors that define people in a specific group or population. It is a combination of social and demographic factors such as age, marital status, educational qualification, sub-tribe, denomination, geographic characteristics, domicile, gender etc.

4.1 Socio-Demographic Characteristics

This section discusses the socio-demographic characteristics of the respondents. The socio-demographic characteristic is very important in any research to understand the population studied. In this study, the socio-demographic characteristic includes – age, marital status, educational qualification, sub-tribe, denomination, domicile and type of diabetes. Further, this section describes the family history, familial characteristics such as type of family, size of family and number of children in the family and economic characteristics of the respondents namely occupation, monthly income, annual income and number of family earners.

Generally, demographic characteristics help us to understand the size, status, composition, and distribution of the target population of a study. **Table 4.1** shows the demographic characteristic of the respondents by gender. There are three important variables such as *age, marital status and education* distributions as shown in the table. Age is an important variable in social sciences research.

Table 4.1 Demographic Characteristics of the Respondents by Gender

Sl. No.	Characteristics	Gender		Total N =381
		Male n =202	Female n = 179	
I	**Age(Binned)**			
	Young (< 30yrs)	5 (2.48)	5 (2.79)	10 (2.62)
	Middle (30 – 62yrs)	139 (68.81)	135 (75.42)	274 (71.92)
	Old (63+yrs)	58 (28.71)	39 (21.79)	97 (25.46)
	Mean±SD	**55.87±13.97**	**53.89±12.92**	**54.94±13.50**
II	**Marital Status**			
	Unmarried	17 (8.42)	14 (7.82)	31 (8.14)
	Married	151 (74.75)	114 (63.69)	265 (69.55)
	Divorced	4 (1.98)	12 (6.70)	16 (4.20)
	Widow/Widower	27 (13.37)	37 (20.67)	64 (16.80)
	Remarried	3 (1.49)	2 (1.12)	5 (1.31)
III	**Educational Qualification**			
	Primary	22 (10.89)	37 (20.67)	59 (15.49)
	Middle	31 (15.35)	22 (12.29)	53 (13.91)
	Matriculation	57 (28.22)	57 (31.84)	114 (29.92)
	Secondary	35 (17.33)	26 (14.53)	61 (16.01)
	Graduate	48 (23.76)	29 (16.20)	77 (20.21)
	Post Graduate	8 (3.96)	7 (3.91)	15 (3.94)
	Others	1 (0.50)	1 (0.56)	2 (0.52)

Source: Computed Figures in parentheses are percentages

The *age group* is classified into three categories namely, *Young (<30 years), Middle (30-62 years)* and *Old (60+years).* Among the respondents, three fourth (71.92%) of them belonged to *middle age (30-62 years),* in which more than three

fourth (75.42%) of females constitute a higher percentage than males (68.81%) respondents. A fourth (25.46%) of the respondents belonged to *the old age group* (60+ years) in which male (28.71%) represents a higher percentage than female (21.79%). The young (< 30 years) are very few (2.62%) across genders where female shares a little higher percent (2.79%) than male (2.48%). The mean age for males is 55.87 years and that of females is 53.89 years. By analysing the age group, the majority three-fourths (71.92%) of the respondents belong to the middle age group in which the majority (75.42%) were female respondents. Further, the mean age of male respondents was higher than the female respondents by two years.

Marriage is an important institution in society. It gives an important status for a person to take responsibility in the family. The *marital status* is classified into five categories - *unmarried, married, divorced, widow/widower and remarried.* Among the respondents, less than a tenth (8.14%) of them are *unmarried*, whereas male (8.42%) holds a higher percentage than female (7.82%). A majority (69.55%) of them are *married* to males (74.75%) is higher than females (63.69%). Few of the respondents (4.20%) are *divorced* and females (6.70%) are more in number than males (1.98%). A sixth of the respondents is *widow/widower* in female (20.67%) sharing a higher percentage than male (13.37%). Only five (1.31%) out of the three hundred and eighty-one respondents are *remarried*, with males (1.49%) being more in number than females (1.12%). Thus, the data revealed that the majority of the respondents were married and also the majority of them were male.

Education is the process of teaching, learning and acquiring knowledge in an institutional set-up. The educational status includes - *primary, middle, matriculation, secondary, graduate and post-graduate* levels. Among the respondents, a sixth (15.49%) of them reached p*rimary school level* out of which, there were more females (20.67%) than males (10.89%). The respondents who reached *middle school level* constitute almost a seventh (13.91%) where male shares a higher percentage (15.35%) than female (12.29%). Among the respondents, almost a third (29.92%) finished *matriculation* out of which females hold more (31.84%) than males (28.22%) respectively. *A secondary level* of education was completed by a sixth (16.01%) of the respondents of which the majority were male (17.33%) and female

(14.53%) were less in number. A fifth (20.21%) of the respondents were *graduates* and male (23.76%) shares a higher percentage than female (16.20%). A few (3.94%) of the respondents did *post-graduation* where male shares a bit more than female (3.96% and 3.91% respectively). Hence, the table shows clearly that the majority (44%) of the respondent's level of education was *middle* and *matriculation* and there was not much difference in education.

Table 4.2 Respondents District-wise Distribution by Gender

Sl. No.	District	Gender		Total N = 381
		Male n = 202	Female n= 179	
I	**District**			
	Aizawl	183 (90.59)	164 (91.62)	347 (91.08)
	Lunglei	5 (2.48)	6 (3.35)	11 (2.89)
	Champhai	1 (0.50)	1 (0.56)	2 (0.52)
	Serchhip	4 (1.98)	2 (1.12)	6 (1.57)
	Kolasib	5 (2.48)	4 (2.23)	9 (2.36)
	Mamit	0 (0.00)	1 (0.56)	1 (0.26)
	Lawngtlai	3 (1.49)	0 (0.00)	3 (0.79)
	Siaha	1 (0.50)	1 (0.56)	2 (0.52)

Source: Computed Figures in parentheses are percentages

The state of Mizoram was divided into eight districts during the time of data collection which was *Aizawl, Lunglei, Champhai, Serchhip, Kolasib, Mamit, Lawngtlai and Siaha*. **Table 4.2** shows the respondents' district-wise distribution by gender. Among the respondents, the vast majority (91.08 %) belong to *the Aizawl* district, where the male (90.59%) and females (91.62%) share almost the same percentage. Less than a tenth (8.98%) of the respondents belong to other districts, where their share is as follows – *Lunglei* (2.89%), *Champhai* (0.52%), *Serchhip* (1.57%), *Kolasib* (2.36%), *Mamit* (0.26%), *Lawngtlai* (0.79%) and *Siaha* (0.52%). The table clearly shows that the vast majority of the respondents (91.08%) are from

the Aizawl district because the majority of the members registered in *the Mizoram Diabetic Society* were from the *Aizawl* district.

Table 4.3 Social Characteristics of Respondents

Sl.No.	Characteristics	Gender		Total N=381
		Male n= 202	Female n=179	
I	**Sub Tribe**			
	Lusei	133 (65.84)	111 (62.01)	244 (64.04)
	Ralte	32 (15.84)	28 (15.64)	60 (15.75)
	Hmar	13 (6.44)	6 (3.35)	19 (4.99)
	Lai	3 (1.49)	2 (1.12)	5 (1.31)
	Paite	7 (3.47)	10 (5.59)	17 (4.46)
	Mara	1 (0.50)	1 (0.56)	2 (0.52)
	Others	13 (6.44)	21 (11.73)	34 (8.92)
II	**Denomination**			
	Presbyterian	134 (66.34)	131 (73.18)	265 (69.55)
	Baptist	22 (10.89)	20 (11.17)	42 (11.02)
	UPC (NE)	9 (4.46)	9 (5.03)	18 (4.72)
	UPC (Mizo)	11 (5.45)	7 (3.91)	18 (4.72)
	Catholic	8 (3.96)	2 (1.12)	10 (2.62)
	Salvation Army	10 (4.95)	6 (3.35)	16 (4.20)
	Adventist	4 (1.98)	3 (1.68)	7 (1.84)
	Others	4 (1.98)	1 (0.56)	5 (1.31)

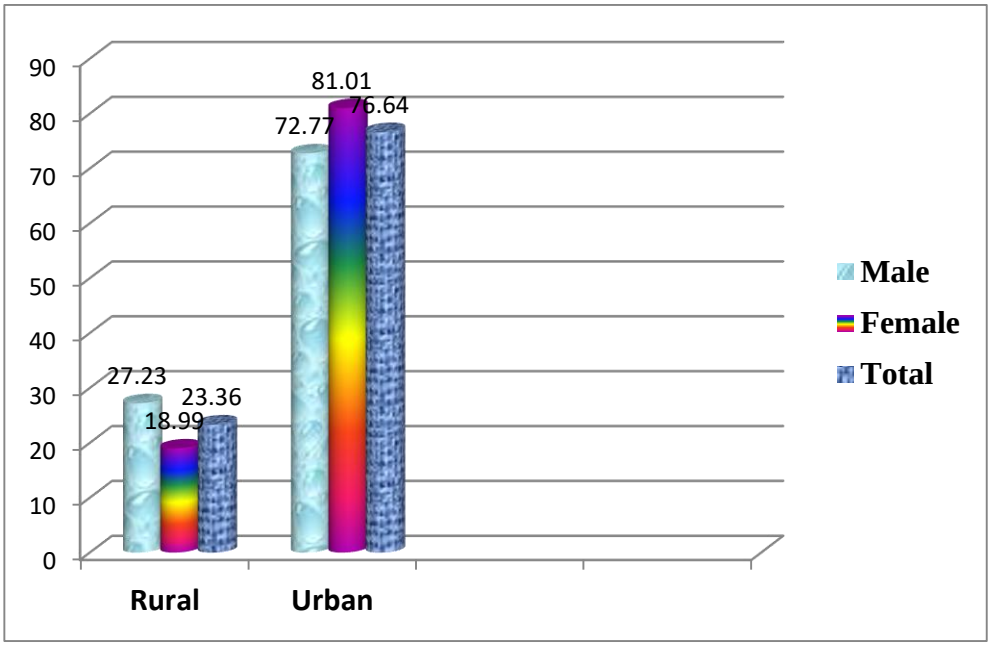
Source: Computed Figures in parentheses are percentages

In any social sciences research, socio-demographic particulars are very important to understand the population being studied. It was with this intention that the data was collected on socio-demographic particulars. **Table 4.3** shows the social characteristic of the respondents by gender. Sub tribe is an important characteristic of a tribe. In this study, the sub-tribe is classified into seven categories namely- *Lusei, Ralte, Hmar, Lai, Paite, Mara* and *others*. Among the respondents, almost two-thirds (64.04%) of them belong to *Lusei* where the male (65.84%) hold a higher percentage than females (62.01%). A sixth (15.75%) of the respondents belong to *the Ralte* tribe where the male (15.84%) and females (15.64%) share almost the same percentage. A fifth of the respondents belongs to the remaining four sub-tribes namely- *Hmar* (4.99%), Lai (1.31%), *Paite* (4.46%), and Mara (0.52%) where there was not much difference between males and females. Almost a tenth (8.92%) belongs to *others*, where the female (11.73%) represents a higher percentage than the male (6.44%). By analysing the sub-tribe, the majority, two-thirds (64.04%) of the respondents belong to *the Lusei* sub-tribe, this is because *Lusei* is the major sub-tribe in Mizo society.

Church membership is an integral part of the Mizo society, where denomination plays a vital role. The denomination is classified into seven categories in this study namely- *Presbyterian, Baptist, UPC (NE), UPC (Mizoram), Catholic, Salvation Army, Adventist* and *others*. Among the respondents, a little higher than two-thirds (69.55%) belong to *Presbyterian* Church, where the female (73.18%) represents a higher percentage than male (66.34%).

More than a tenth (11.2%) of the respondents belonged to *Baptist* church where the male (10.89%) and female (11.17%) constitutes almost the same percent. Less than a fifth of the respondents belong to denominations such as – *UPC(NE)* (4.72%), *UPC(Mizoram)* (4.72%), *Catholic* (2.62%), *Salvation Army* (4.20%) and *Adventist* (1.84%), where male shares higher percentage in all of the denominations excepting *UPC (NE).* A few (1.31%) respondents belong to *other* denominations where the male (1.98%) constitutes a higher percentage than female (0.56%). The data revealed that the majority of the respondents belong to *the Presbyterian* denomination.

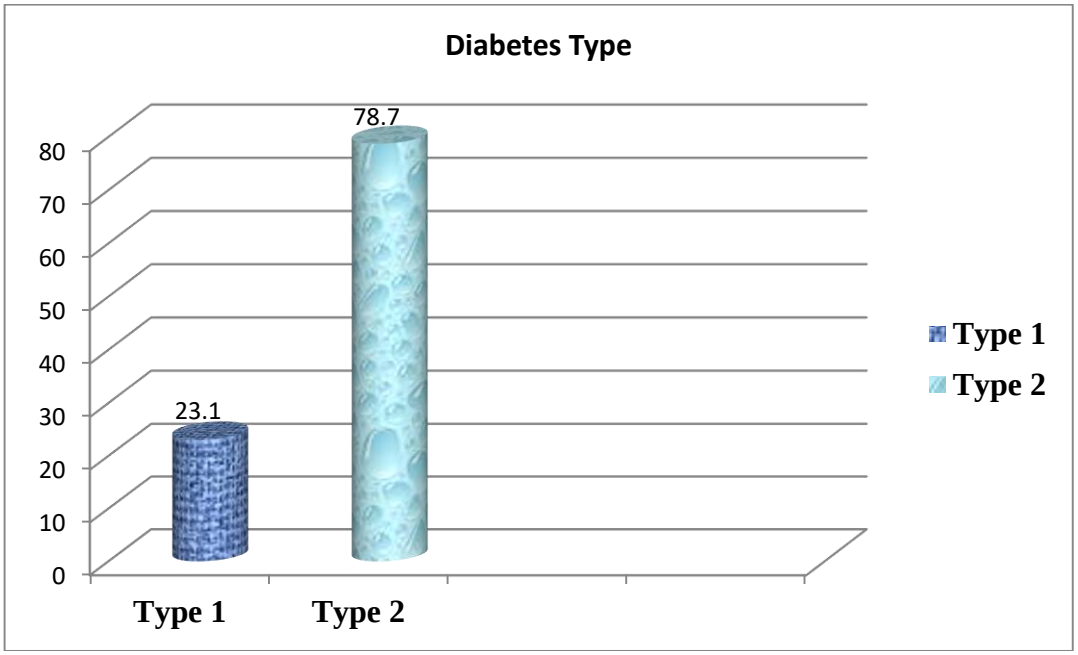
Figure 4.1 Domicile of the Respondents



Source: Computed

In an agrarian society like India, the general population can broadly be divided into *rural* and *urban*-based on their settlements. **Figure 4.1** shows the domicile of the respondents. Among the respondents, more than three fourth (76.64%) were from *an urban* area, where the female (81.01%) shares a higher percentage than the male (72.77%). Almost a fourth of them were from *rural* areas where the male (27,23%) represents a higher percentage than females (18.99%). By analysing the domicile of the respondents, we can conclude that majority of '*Persons with Diabetes*' were from *urban* areas.

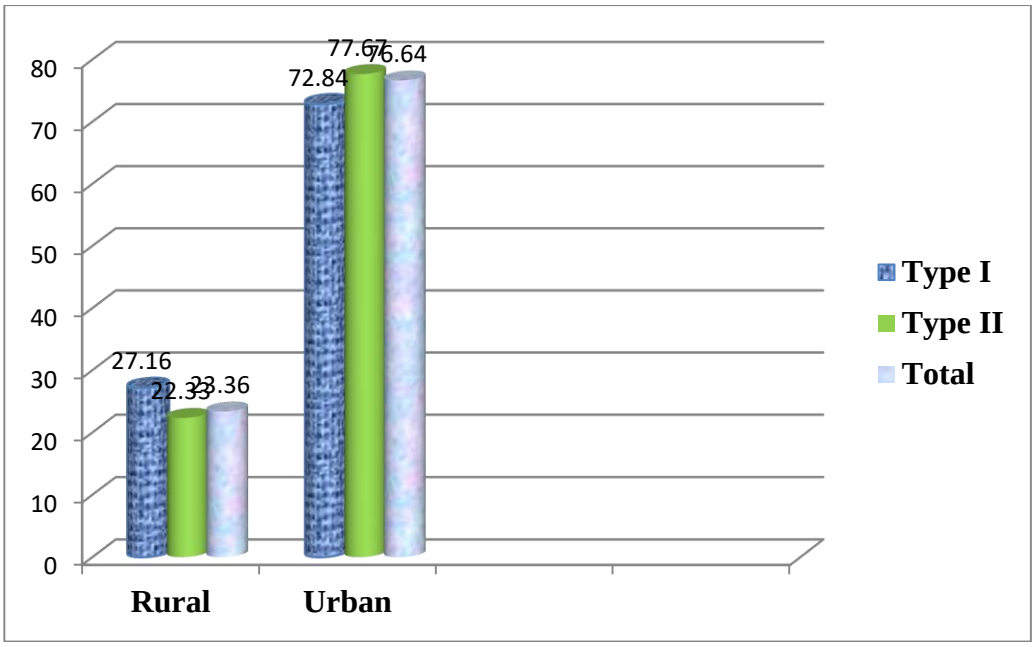
Figure 4.2 Diabetes Type



Source: Computed

Persons with Diabetes are classified into *type 1 (Insulin Dependent)* and *type 2 (Non-Insulin Dependent).* In this study, *type 1 diabetes* is an auto-immune disease in which the body's immune system attacks the pancreas, rendering it unable to produce insulin. *Type 2 diabetes* is a state in which resistance to the effects of insulin or a defect of insulin secretion may be seen. It is also associated with obesity. **Figure 4.2** shows the type of diabetes. Among the respondents, more than three fourth (78.7%) were *type 2* (*non-insulin dependent)* and less than a quarter (23.1%) of them are *type 1 (insulin-dependent)*. The figure clearly shows that *type 2 diabetes* is the common form of diabetes in Mizoram. According to WHO (2020), the most common is *type 2 diabetes*, usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin. In the past three decades, the prevalence of type 2 diabetes has risen dramatically in countries of all income levels.

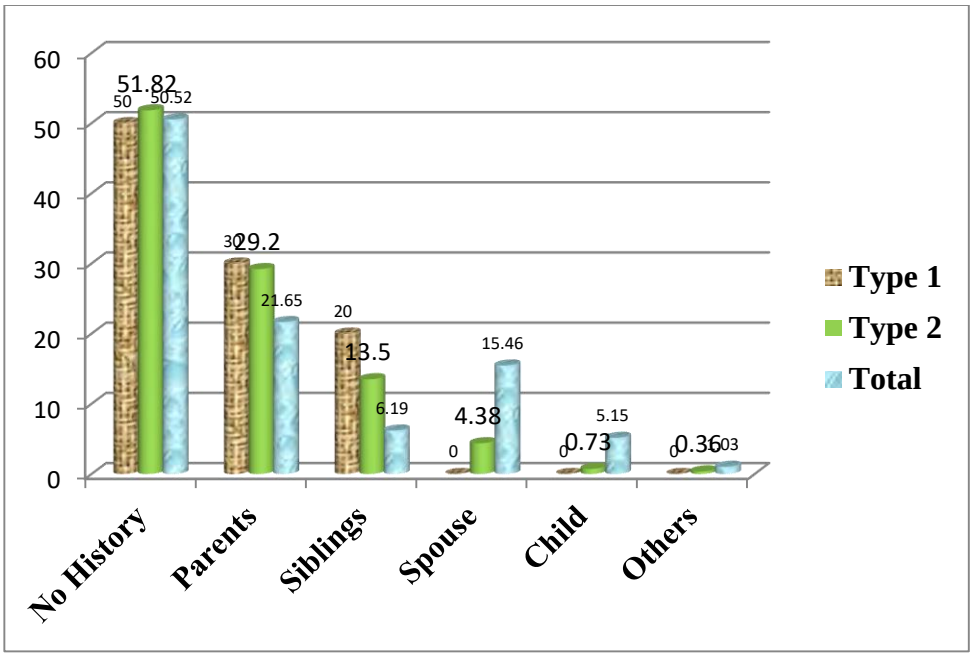
Figure 4.3 Domiciles and Diabetes Type



Source: Computed

Figure 4.3 shows the domiciles and diabetes type. In this study, the domicile of the respondents is classified into rural and urban. Among the respondents, more than three fourth (77.67%) of *non-insulin-dependent (type 2 diabetes)* were from *urban* and less than a fourth (22.33%) of *non-insulin-dependent (type 2 diabetes)* were from *rural* areas. Almost three fourth of *insulin-dependent (type 1 diabetes)* were from *urban* (72.84%) and more than a fourth of *insulin-dependent (type 1 diabetes)* were from *rural* (27.16%) areas. From the above figure, it is seen that people with diabetes are much higher in urban rather than rural areas.

Figure 4.4 Family History and Type of Diabetes



Source: Computed

From the family history and type of diabetes as shown in **figure 4.4**, among *non-insulin dependent*, more than half (51.82%) do not have any history of diabetes, more than a fourth (29.20%) have *parents* with diabetes, and more than a tenth (13.50%) have a *sibling* with diabetes, less than a tenth (4.38%) have a *spouse* with diabetes, a very few of them (0.73%) have *children* with diabetes. Among the *insulin-dependent*, half (50%) of the respondents do not have a family history of diabetes, more than a fourth (30%) have *parents* having diabetes, and a fifth (20%) of them have a *sibling* with diabetes. Hence, from the figure, we conclude that there is no family and diabetes type.

Table 4.4 Type of Diabetes by Gender

Sl. No	Characteristic	Type of Diabetes		Total N= 381
		Insulin Dependent (Type 1) n= 81	Non-Insulin Dependent (Type 2) n= 300	
Gender				
1	Male	52 (64.20)	150 (50.00)	202 (53.02)
2	Female	29 (35.80)	150 (50.00)	179 (46.98)
	Chi-square Value	**χ^2 = 5.161**	**P=.023***	

Source: Computed *p<0.05 Figures in parentheses are percentages

Persons with Diabetes are classified into *type 1* (*insulin-dependent),* and *type 2* (*non-insulin dependent).* In this study, *type 1diabetes* is a chronic condition in which the pancreas produces little or no insulin by itself. *Type 2 diabetes* is a state in which the body becomes resistant to insulin or doesn't make enough insulin. It is also associated with obesity. **Table 4.4** shows the type of diabetes by gender. Among the respondents, almost two-thirds (64.20%) of males belonged *to insulin-dependent* and more than a third (35.80%) belonged to female respondents. Among the *type II diabetes,* (*Non-Insulin Dependent*) half (50.00%) of them belonged to male and another half (50.00%)) of them are female. From this table, it is found that *Type 1 diabetes* (*Insulin Dependent)* is more common among male respondents.

In order to find out the relationship between the type of diabetes and gender, the following hypotheses have been formulated.

H_0: There is no relationship between gender and type of diabetes.

H_1: There is a relationship between type gender and type of diabetes.

While applying the χ^2test to test the hypothesis, the χ^2 value is significant at a 0.05 level. Hence, we rejected the null hypothesis and accepted the alternate hypothesis. Thus, there is a relationship between gender and type of diabetes i.e; type1 and type 2.

Table 4.5 Familial Characteristics of the Respondents

Sl. No	Characteristics	Gender		Total N=381
		Male n = 202	Female n = 179	
I	**Type of Family**			
	Nuclear	104 (51.49)	92 (51.40)	196 (51.44)
	Joint	86 (42.57)	71 (39.66)	157 (41.21)
	Extended	9 (4.46)	13 (7.26)	22 (5.77)
	Reconstituted	2 (0.99)	2 (1.12)	4 (1.05)
	Others	1 (0.50)	1 (0.56)	2 (0.52)
II	**Size of Family (Binned)**			
	Small(<= 5)	102 (50.50)	99 (55.31)	201 (52.76)
	Medium(6 - 9)	95 (47.03)	73 (40.78)	168 (44.09)
	Large (10+)	5 (2.48)	7 (3.91)	12 (3.15)
	Mean ±SD	5.52 ±1.94		
III	**No of Children**			
	No children	19 (9.41)	9 (5.03)	28 (7.35)
	1-2 Children	51 (25.25)	60 (33.52)	111 (29.13)
	3-4 Children	89 (44.06)	77 (43.02)	166 (43.57)
	5 and above children	43 (21.29)	33 (18.44)	76 (19.95)
	Mean ±SD	3.19±1.74		

Source: Computed Figures in parentheses are percentages

Family is a basic social unit in any society. The family system plays a vital role in practising the norms and value systems of their traditions based on the community. **Table 4.5** shows the family characteristics of the respondents. There are three important variables such as *type of family, size of family* and *number of children. Type of family* is classified into four categories namely – *nuclear, joint, extended* and *reconstituted* family. Among the male respondents, more than half

(51.49%) of them belong to the nuclear family, less than half (42.57%) belong to a joint family, and a few of them belong to an extended family (4.46%), reconstituted family (0.99%) and others (0.50%). Among the female respondents, more than half (51.40%) belong to the nuclear family, two-fifths (39.66%) of them belong to a joint family, less than a tenth (7.26%) belong to an extended family, a few belong to the reconstituted family (1.12%) and others (0.56%).

The size of the family is classified into small *(<=5), medium (6-9)* and *large (10+) famil*ies. Among the male respondents, half (50.50%) belong to a *small* family, less than half (47.03%) belong to *medium* size family and a few (2.48%) belong to *a large* family. Among the female respondents, more than half (55.31%) belong to *a small* family, two-fifths (40.78%) belong to *medium* size family and a few (3.91%) belong to *a large* family.

The numbers of children are classified into four categories – *no children, 1-2 children, 3-4 children* and *5 and above children*. Among the male respondents, a tenth (9.41%) do not have any children, a fourth (25.25%) of the respondents have *1 or 2 children*, almost half (44.06%) of them have *3 to 4 children* and more than a fifth (21.29%) have *5 or more* children. The mean size of the family is 5.52 and the mean number of children in the family is 3.19, which means the average size of the family is 6 and the average number of children in a family is 3. This shows that a small family is the common form of family in Mizo society.

From the table, it is found that more than half of the families belong to *nuclear famil*ies and more than half of the respondents belong to small size family. This is because *nuclear family* and *small size family* is more common in the Mizo society. Almost a quarter of the respondents have *1 to 2 children* in the family, more than two-fifths have *3 to 4 children* in the family and only less than a fifth of the respondents have *5 or more children* in the family. This shows that a large family is not common among the Mizo family.

Table 4.6 Economic Characteristics of the Respondents

Sl. No.	Characteristics	Gender		Total N = 381
		Male n= 202	Female n = 179	
I	**Occupation**			
	Govt. Employee	80 (39.60)	50 (27.93)	130 (34.12)
	Private Employee	26 (12.87)	16 (8.94)	42 (11.02)
	Labourer	24 (11.88)	13 (7.26)	37 (9.71)
	Business	27 (13.37)	33 (18.44)	60 (15.75)
	Dependent	43 (21.29)	67 (37.43)	110 (28.87)
	Others	2 (0.99)	0 (0.00)	2 (0.52)
	Chi-square	**19.092[a]**	**df=5**	***P=0.00****
II	**Monthly Income**			
	Less than Rs. 6000	8 (3.96)	11 (6.15)	19 (4.99)
	Lower Middle (Rs.6000-25000)	91 (45.05)	83 (46.37)	174 (45.67)
	Upper Middle (Rs. 25000- 70000)	81 (40.10)	65 (36.31)	146 (38.32)
	High (Above Rs. 70000)	22 (10.89)	20 (11.17)	42 (11.02)
	Mean±SD	**33677.17±27316.892**		
III	**Annual Income**			
	Low (Rs<=70000)	5 (2.48)	9 (5.03)	14 (3.67)
	Lower Middle (Rs.70000-300000)	94 (46.53)	85 (47.49)	179 (46.98)
	Upper Middle (Rs.300000-8.5 Lakhs)	81 (40.10)	65 (36.31)	146 (38.32)
	High (Rs.<=8.5Lakhs)	22 (10.89)	20 (11.17)	42 (11.02)
	Mean ± SD	**404125.98±327802.70**		
IV	**No of the Family earners**			
	One	41 (20.30)	56 (31.28)	97 (25.46)
	Two	80 (39.60)	76 (42.46)	156 (40.94)
	Three	61 (30.20)	33 (18.44)	94 (24.67)
	Four and above	20 (9.90)	14 (7.82)	34 (8.92)

Source: Computed Figures in parentheses are percentages

An economic characteristic is an important aspect to determine the living condition of a people. **Table 4.6** shows the economic characteristics of the respondents. There are four important variables such as – *occupation*, *monthly income, annual income* and *number of family earners.* Among the male respondents, two-fifths (39.60%) are *government employed,* and three occupational categories - *private employed* (12. 87%) *labourer* (11.88%) and *business* (13.37%) constitute less than a tenth each. More than a fifth (21.29%) are *dependent* and a few of them (0.99%) belong to *others*. Among the female respondents, more than a fourth (27.93%) are *government employed* and *private employed* (8.94%) and *labourers* (7.26%) constitute less than a tenth, less than a fifth (18.44%) are engaged in *business,* more than a third (37.43%) are *dependent.*

In order to find out the relationship between gender and occupation, the following hypotheses have been formulated.

H_0: There is no relationship between gender and occupation.

H_1: There is a relationship between gender and occupation.

While applying the chi-square test 19.092^a and P-value 0.00 which is significant at 0.01 levels, the null hypothesis is rejected and the alternate hypothesis is accepted. Therefore, there is a relationship between males and females in occupation.

Monthly income is classified into four categories such as those who earn less than *Rs.6000*, lower middle *(Rs.6000-25000), upper-middle (Rs.25,000-70,000)* and *high (above Rs.70,000)* respectively. Among the male respondents, almost half (45.05%) belong to *a lower-middle* category, two-fifths (40.10%) belong to the *upper middle*, a tenth (10.89%) belong to *the high-income* category and a few (3.96%) have monthly income less than Rs.6000/-. Among the female respondents, almost half (46.37%) belong to *lower middle* income, more than a third (36.31%) belong to *upper middle,* more than a tenth (11.1%) belong to high income and less than a tenth (6.15%) have monthly income less than Rs.6000. The *mean monthly income* is Rs.33677.17/-. While comparing both lower-middle and upper-middle income groups, constitute more than two-thirds (83.99%), which shows that majority

of the respondents belong to upper-middle and middle-income groups are more affected by diabetes in Mizoram.

Annual income is classified into four categories such as *low (Rs.<=70,000) lower-middle (Rs.70,000-3,00,000), upper-middle (Rs. 3,00,000 – 85,0,000)* and *high (Rs.>=8,50,000)*. Among the male respondents, almost half (46.53%) belong to *the lower middle*, two-fifths (40.10%) belong to the *upper middle*, a tenth (10.89%) belong to *high income* and a few (2.48%) have annual income less than Rs.70,000/-. Among the female respondents, more than half (47.49%) belong to the *lower middle,* more than a third (36.31%) belong to *the upper middle*, more than a tenth (11.17%) have *high annual income* and a few (5.03%) of them have *annual income less than Rs.70,000/-*. The *mean annual income* is *Rs.404125.98/-*.

A number of family earners are classified into four categories such as *one, two three* and *four & above*. Among the male respondents, a fifth (20.30%) have *one earner* in the family, two-fifths (39.60%) of them have *two earners* in the family, almost a third (30.20%) have *three earners* and a tenth (9.90%) of them have *four or more earners* in the family. Among the female respondents, almost a third (31.28%) have *one earner* in the family, more than two-fifths (42.46%) have *two earners*, almost a fifth (18.44%) have *three earners* and less than a tenth (7.82%) have *four or more earners* in the family.

From the above table, it can be seen that most of them belong to *lower-middle* (46.98%) and *upper-middle* (38.32%) income categories which reflects the annual income level of the Mizo society as a whole. This is a clear indication that in Mizo society the gap between the rich and the poor is not much as compared to other societies in the country.

This chapter discusses the socio-demographic characteristics of *Persons with Diabetes* in terms of gender, social characteristics, geographic characteristics, types of diabetes, familial characteristics and economic characteristics of the respondents. We conclude that the mean age of male respondents was higher than the female respondents by two years. The majority of the respondents are male and the majority are married. It is seen that the majority of the respondent's level of education was

middle and *matriculation* and there was no significant difference in education. However, almost a seventh of them reached *primary school level* where females are more in number. Most of them belong to *the Lusei* sub-tribe, this is because *Lusei* is the dominant sub-tribe in Mizo society and the majority of the respondents belong to the *Presbyterian* denomination. Most of the respondents are from the *Aizawl* district because the majority of the members registered in *the Mizoram Diabetic Society* were from *the Aizawl* district itself.

Half of the respondents have *no history of diabetes* as per the findings. The mean size of the family is 6 and the mean number of children in the family is 3. This shows that a small family is the common form of family in Mizo society. The *mean monthly income* is Rs.33677.17/-and the *mean annual income* is Rs.404125.98/-.It can be seen that most of them belong to *the lower middle* (46.98%) and *upper-middle* (38.32%) income categories which reflects the annual income level of the Mizo society as a whole. This is a clear indication that in Mizo society, the gap between the rich and the poor is not much as compared in other societies in the country.

The next chapter focuses on psychosocial challenges and coping patterns of *Persons with Diabetes*.

CHAPTER V
PSYCHOSOCIAL CHALLENGES AND COPING PATTERNS

In the previous chapter, the socio-demographic characteristic of the respondents by gender, social characteristics, geographical characteristics, types of diabetes, familial characteristics and economic characteristics of the respondents were discussed. The present chapter focuses on psychosocial challenges and coping patterns of *Persons with Diabetes* in both qualitative and quantitative dimensions.

There are two sections in this chapter. The first section focuses on the psychosocial challenges of *Persons with Diabetes* and mainly concentrates on the qualitative discussion of the study. The second section discusses the ways of coping for Persons with Diabetes. There are eight domains in the Ways of Coping Scale viz; *confronting coping, distancing, self-controlling, seeking social support, accepting responsibility, escape avoidance, planful problem solving* and *positive reappraisal.*

5.1 Qualitative Discussion on Psychosocial Challenges among Persons with Diabetes

This section focuses on the psychosocial challenges among *Persons with Diabetes* based on qualitative aspects such as case studies and focuses group discussions. The psychosocial challenge is the difficulties faced by a person in different areas and social functioning due to the disease or illness.

The researcher conducted five studies of different backgrounds in order to understand and analyse the issues and challenges faced by *Persons with Diabetes*. The five studies focus on their case history, diagnosis, the status of illness and the issues and challenges experienced by the patients. Focus group discussion was also conducted in order to focus more on the challenges faced by the patients. The case studies and FGD are as follows:

Case Vignette 1

Mr. A is 50 years old and he was diagnosed with diabetes at the age of 45 years. He has a wife with two adorable sons and they were very close to one another and support each other in many ways. He was working as a businessman and his wife

was a government servant. But unfortunately, his beloved wife died in the year 2010. He was in grief and emotionally in pain due to the loss of *"the love of his life*". He never thought that his wife would suddenly leave him to be all alone. He experienced loneliness and emptiness without her. He finds it difficult to adjust himself and was unable to adapt to his new situation. He also felt frustrated and sometimes thought that his life is meaningless and miserable without the mother of his children. He thought that why would a loving God take away the life of his beloved wife who is so important to him and his family. He then started to develop a habit of drinking due to the bereavement of his wife. His family tried their best to console him in his grief and convince him to understand the situation and accept such unavoidable circumstances happening in one's life.

In the year 2012, he began to experience dryness of skin, as well as frequency in urine and continual thirst. He was then advised to consult a doctor and examined his blood. The result of the test confirmed that Mr. A is a diabetic. At first, he was surprised to learn about his illness and first denied that he was a diabetic. However, he finally acknowledged his illness and gradually began to cope with it.

He finally remarried in the year 2014 and the same year he was diagnosed with Urinary Tract Infection (UTI). His new wife gave him full support in his management of diabetes and his other illnesses. He was able to quit the habit of drinking and began to improve his lifestyle to cope with the illness and also became more conscious of himself and careful about his diet. He goes for a regular check-up as his wife accompanies him and gave her full dedication so that he may have rapid progress in his health.

Discussion of Case 1

From the above case, it is obvious that the habit of drinking contributes to a person becoming a diabetic. Bereavement can also be a factor leading to drinking that gradually affects a person's health with certain complications. Support from a spouse can be a good factor for coping with the illness. It may be concluded that lifestyle change is a significant factor after all.

Case Vignette 2

Mr. B is 45 years old and when he was diagnosed with diabetes he was only 40 years of age. He is a humble and hard-working man who takes care of his family at his level best in spite of his shortcomings. However, he is sometimes stubborn and sticks to his opinion when it comes to diet and health. He is a man who favours non-vegetarian food and seldom takes alcohol. He lives with his wife and two lovely children, a son and a daughter. He is a waged labourer and his wife is a vegetable seller and the family belongs to lower socio-economic strata.

In the year 2011, he began to experience extreme fatigue and slow to heal cuts. His family instantly suggested Mr B consult a doctor and examined his blood. The report of the blood examination confirmed that Mr. B was a diabetic. He was shocked to learn that he is diabetic and at the beginning, he finds it difficult to accept it as he has to change his diet and adjust his lifestyle. He was also frustrated on the other hand he never expected himself to be a diabetic and he was never interested in such kind of illness.

However, with the help and much support from his family, he was able to understand his condition and began to manage and cope with the illness. He began to quit the habit of drinking and also control his diet to improve his health condition. He also started to go for a morning walk regularly. He became more careful and more conscious about his diet and health. He became very obedient regarding suggestions given by a doctor and other health care professionals. He was then fully convinced that self-management and self-care are very important for diabetes and also for one's own health.

Discussion of Case 2

From the above case, we can understand that diet is very important. Moreover, drinking alcohol is an important factor that contributes to the illness. It is seen that alcohol and consumption of excessive meat are both detrimental to a person's health as both can lead to chronic illnesses like '*diabetes*'. The above case

highlights that diabetes does differentiate neither rich nor poor families. It can happen to anyone, whether a person may be young or old, rich or poor.

Case Vignette 3

Mrs. C is 45 years of age and she was diagnosed with diabetes at the age of 40 years. She is a Government Servant. She has an understanding husband and they have a daughter and two sons. She consumes whatever she likes to eat and she also has the habit of smoking cigarettes.

In the year 2012, she met a minor accident and was hospitalised. She did not have any signs and symptoms of diabetes, but while staying in the hospital, she was detected that she was a diabetic. She was a bit shocked to learn that she was diabetic because she never expected herself to be diabetic and was not much aware of the illness.

She was furious and shocked to learn that she was having such a serious health condition. Nevertheless, she began to change her lifestyle and dietary habits in spite of multiple challenges. Moreover, her spouse does not have any kind of lifestyle illness and he was very conscious of his diet and habit.

One year later, her younger son passed away due to an accident. She mourned her son extremely which even affected her health condition. She was in extreme pain due to the loss of her beloved son so suddenly and she was so unprepared for such kind of incident. Her management of diabetes was somehow affected and felt very weak emotionally, spiritually and physically. She was also diagnosed with hypertension in the same year.

Her husband was extremely worried about her because her illness was deteriorating. As her husband is a more conscious person about his health and diet, his blood sugar level doesn't under control. He also tried his best to help his wife cope with the illness. He makes a better effort for his wife and contributes more and helps her manage her illness in every possible way. He convinces her to take regular check-ups and control her diet as well. He would also accompany her for an evening walk regularly. The health status of Mrs. C gradually improves as a result of her

lifestyle change and management and the support of her husband who is willingly available for her.

Discussion of Case 3

The above case highlights the importance of awareness of diabetes and its management. Moreover, it was observed that unwanted circumstances can contribute to adversely affecting one's health condition. One has to be emotionally and spiritually balanced to have better management and maintain better health status. Nevertheless, family plays a vital role for a person with an illness like diabetes. The support and contribution given by one's spouse could facilitate to have a positive result in such health complications.

Case Vignette 4

Mr. D was 48 years old when he was diagnosed with diabetes. He is a Government Servant and his wife is a home maker. They have two daughters and a son. In the past, he has had the habit of drinking alcohol, smoking and chewing tobacco but he is a non-vegetarian and pork is his favourite dish and he finds it difficult to resist when it comes to a deliciously prepared pork dish.

Unfortunately, one late evening, he met a minor two-wheeler accident when he and his wife were on their way home from the market. Later, it was recognised that he began to experience slow to heal cuts like never before. He also experienced weight loss and fatigue which urged him to rush for a medical check-up to explore his health condition. Several medical tests were conducted for him including a blood test for diabetes. The result of the test confirmed that he was a diabetic and that his blood sugar level was extremely high i. e, 300 (fasting) and 420 (postprandial). He was surprised to come to know about his illness. When his wife learns about his diabetes, she was shocked by the result and even states "*it is a surprise you didn't fall due to dizziness*." Mr. D has a family history of diabetes and some of his siblings have the illness. In the beginning, he used to escape screening for diabetes due to the fear of quitting his habit. Finally, after diagnosis, it was discovered that his health condition was already affected to some extent. However, his vital organs were not

adversely affected, fortunately. As he has had the habit of smoking, his wife was afraid that he would easily develop hypertension which would make his condition worse and more complicated.

Nevertheless, he was given counselling regarding his health condition, his habit and his lifestyle. Gradually, he began to realise his status/condition and that he needs to make adjustments and change his lifestyle to improve his health complications. He started to quit smoking and his drinking habit and began to take exercise and evening walks. He also adjusts and managed his diet in spite of difficulty. However, the much support from his family regarding his diet and lifestyle contributes tremendously to a better way.

Discussion of case 4

From the above case, it is clear that lifestyle, diet and habit play an important role in diabetes. Family history is an important factor in contributing to the illness. Self-management plays a crucial role in the control of the illness. Support from family is very necessary for a diabetic in order to improve one's lifestyle and health status.

Case Vignette 5

Mrs. E is 44 years old and she was 38 years of age when she was diagnosed with diabetes. She is a mother of two beautiful daughters and she has a loving and caring husband who takes good responsibility for the family. She is working in a business woman and her husband is a Government Servant. She is a lady who loves to cook and bake. She also favours sweet and oily food. The family belongs to middle socio-economic strata.

One fine day, she accidentally cut her hands while working in the backyard of their house. From that time, she began to experience slow to heal cuts. She also recognized tingling in her feet and dryness of the skin. She was not much doubt about her health condition at the beginning, but she was advised by her husband to consult a doctor. She underwent different medical tests and through her blood test, it was confirmed that she is a diabetic. She was totally surprised to learn about her

illness as she was not aware of such an illness as 'diabetes'. She does not have any history of diabetes, i.e., her parents and her other siblings do not have the illness.

She sometimes wished that she would have been aware of the disease earlier so that she might have had an early diagnosis. She would even be able to take preventive measures in order to avoid or delay the illness. Nevertheless, she was given counselling by a counsellor and therefore she was able to understand her health condition and gradually adjust herself according to the situation. She is fortunate to have a supportive husband who was able to deal with her in any kind of situation.

She takes a good effort to control her diet and does exercises regularly as well. Her husband is always supportive whenever she needs her. The couple co-operates with each other in whatever way possible for the betterment of their health and lifestyle.

Discussion of case 5

From the above case, we can understand how diabetes affects a person's life. Lack of awareness is one of the factors that also lead to the illness at an earlier age. Support from a spouse is very important for the improvement of one's physical and psychological health.

From the above cases, we can understand that lifestyle and diet are very important for a diabetic. Bereavement can also be a factor leading to drinking that gradually affects a person's health with certain complications. Support from a spouse can be a good factor for coping with the illness. It is also found that alcohol and consumption of excessive meat are both detrimental to a person's health as both can lead to chronic illnesses like '*diabetes*'. The findings highlight that diabetes does differentiate neither rich nor poor families. It can happen to anyone, whether a person may be young or old, rich or poor. It is observed that unwanted circumstances can contribute to adversely affecting one's health condition. One has to be emotionally and spiritually well-balanced to have better management for better health status. Family history is an important factor in contributing to the illness. Self-management also plays a crucial role in the control of the illness. However, the psychosocial

challenges experienced by the patients can be a factor that affects the illness. At the same time, patients are affected emotionally, spiritually and physically due to the illness. Awareness of diabetes and its management is very important. Support from spouses and family members are also very important for *Persons with Diabetes*.

Focus Group Discussion with Persons with Diabetes

A focus group discussion is a form of qualitative research where questions are asked about their perceptions, beliefs, opinion or ideas. It generally involves group interviewing a small group of usually 8 to 12 people. It is led by a moderator (interviewer) in a loosely structured discussion based on topics of interest. The group's composition and the group discussion were carefully planned to create a non-intimidating environment so that participants feel free to talk openly and give honest opinions. Focus group discussion is one of the vital qualitative techniques to get information about opinions, perceptions and experiences from *persons with diabetes.*

Accordingly, a group discussion was held with 8 (eight) members who were between the age group of 40 – 65 years. Details of the members are shown below:

Table 5.1 Particulars of Persons with Diabetes participating in Focus Group Discussion

Sl. No.	Marital Status	Age	Educational Qualification	Occupation	Types of Diabetes	Duration since diagnosis
1	Married	58	Graduate	Govt. Servant	Type 2	5 years
2	Married	51	Matriculate	Business	Type 1	4 years
3	Widowed	60	Primary	Business	Type 2	7 years
4	Unmarried	40	Graduate	Govt. Servant	Type 2	3 years
5	Married	45	Matriculate	Business	Type 1	5 years
6	Married	57	Primary	Housewife	Type 2	4 years
7	Widowed	65	Matriculate	Pensioner	Type 2	8 years
8	Married	55	Primary	Housewife	Type 1	6 years

Source: Compiled

Table 5.1 shows the particulars of *Persons with Diabetes* participating in the Focus Group Discussion such as marital status, age, educational qualification, occupation, Types of Diabetes and duration since diagnosis. In this FGD, the group members include married, unmarried and widowed. The age group is from 40 to 65 years and they belonged to type 1 and type 2. The educational qualification ranges from primary level to graduate level. Some of the group members are housewives while others are government servants, pensioners, business men and business women. Duration since diagnosis ranges from three to eight years.

FGD was carried out with the help of the following questions prepared well in advance based on the objectives of the present study.

- What are the psycho-social challenges concerning diabetes?
- What are the common coping patterns and QOL?
- What are your suggestions?

Topics on the psycho-social challenges, coping patterns, quality of life and suggestions were discussed in the group.

Firstly, it discussed the psycho-social issues and challenges with recently detected persons with diabetes. According to them, *denial* was quite common at the time of diagnosis. *Denial* is a common *defense mechanism* for persons with diabetes; it is the refusal to acceptance of one's illness at the beginning of diagnosis. As per discussion, frustration can also occur among some diabetic patients as they are unable to consume whatever they wish to eat like other people. Some patients also experienced anxiety due to their illness. *Anxiety* can develop due to excessive fear and worry about the management and care of diabetes.

Secondly, it was highlighted that their coping patterns include a well-balanced diet, engaging in pleasurable activities, prayer and meditations, and enough good quality sleep. These coping patterns helped them to manage their difficult emotions and also helped them to adjust to stressful events as stress seems to increase blood glucose levels.

Thirdly, it was mentioned that people who are surrounded by caring and supportive family members seemed to have better capable of dealing with the stresses, especially when it comes to chronic illnesses like diabetes. Family support is very important for '*Persons with Diabetes'*. One who does not get good support from a spouse or family members may face several difficulties in the management of the illness and may harm one's health as well.

Fourthly, it was emphasised that *Quality of Life* is an important health outcome. It is influenced by one's demographic and psycho-social factors. The patients perceived significant differences in the quality of life effects of complications and treatments related to their conditions. The quality of life of *'Persons with Diabetes* decreased as compared to healthy people, but they also perceive their quality of life to be better than those with other chronic illnesses.

Lastly, it was suggested that more awareness is needed at the micro-level and macro-level about diabetes in terms of its causes, symptoms and care system may be included in the health education components. Awareness of Diabetes prevention, care and management and about healthy diet may be taught among children, adolescents and other youth in the church as well. It was also suggested that lists of a healthy diet should be prepared in a more comprehensive manner which shall be printed and displayed in the kitchen so that the person responsible in a family kitchen may be more conscious and aware of a healthy diet. Accordingly, proper rules can be practiced in the family to follow a healthy diet.

From the above discussion, we can conclude that the patients most commonly experienced denial and anxiety due to diabetes. However, their coping patterns like a well-balanced diet, engaging in pleasurable activities, prayer, meditation and enough good quality sleep help them in managing difficult emotions and help them adjust to stressful events. Moreover, the support they receive from their family facilitates them to be better and capable of dealing with the stresses due to their illness. Their quality of life decreased as compared to healthy people, but they also perceive their quality of life to be better than those with other chronic illnesses. It was emphasised that

extensive awareness is very important regarding the prevention, care and management of diabetes.

5.2 Coping Patterns

This section highlights the *Ways of Coping* with *Persons with Diabetes*. '*Coping'* is a conscious or unconscious strategy used to reduce unpleasant emotions. Coping patterns can be cognitions or behaviours and can be individual or social. When stress levels are high, resources are needed from people within the social environment to facilitate coping. In this study, a Scale constructed by Susan Folkman and Richard S. Lazarus, 1985 (Ways of Coping) was used to assess Coping Patterns. There are eight domains in the Ways of Coping Scale viz; *Confronting Coping, Distancing, Self-Controlling, Seeking Social Support, Accepting Responsibility, Escape Avoidance, Planful Problem Solving* and *Positive Reappraisal*.

In this section, the descriptive statistics of ways of coping are discussed which include- ways of coping by age, gender, domicile, Types of Diabetes, and history of diabetes. In addition, Spearman's Inter correlation Matrix of Ways of Coping is also discussed. Further, this section analyses Mann Whitney U Test Significant Difference between Mean Rank of *gender, domicile and types of diabetes* across Ways of Coping domains and Level of Ways of Coping by *age, gender, domicile, Types of Diabetes* and *history of diabetes* as well.

Table 5.2 Descriptive statistics of Ways of Coping by Age

Domains	Age (Binned)						Total N = 381	
	Young (< 30 years) n = 10		Middle (30 - 62 Years) n= 274		Old (63+Years) n = 97			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Confronting Coping	5.60	1.955	7.01	3.090	6.75	2.926	6.91	3.028
Distancing	9.10	2.885	9.09	2.312	7.30	2.274	8.64	2.441
Self-Controlling	9.50	3.206	10.68	2.623	9.24	2.676	10.28	2.721
Seeking Social Support	9.00	2.108	9.24	2.213	8.22	2.563	8.98	2.341
Accepting Responsibility	6.00	1.054	6.29	1.622	4.97	1.934	5.95	1.787
Escape Avoidance	8.40	2.547	8.69	3.046	7.28	2.897	8.33	3.052
Planful Problem Solving	8.80	1.549	8.74	2.104	7.31	2.559	8.38	2.298
Positive Reappraisal	11.60	2.319	11.64	2.340	10.09	3.049	11.25	2.620

Source: Computed

Table 5.2 shows the descriptive statistics of Ways of Coping by Age. *Age* is an important determining variable to assess with the Ways of Coping domains. The age group is classified into three groups namely, *Young* (<30 years), *Middle* (30-62 years), and *Old* (63+ years). Among the respondent's mean scores, the majority (11.25) in the positive re-appraisal domain in which the majority (11.64) mean score was found in the *Middle*, (11.60) in *Young* and (10.09) in the *Old* age group. The mean score (10.28) for self-controlling also shows that the *Middle age group* (10.68) scores the majority among *Young* (9.50) and *Old* (9.24). The next mean score (8.98) is Seeking Social Support in which the majority (9.24) mean score found among *Middle*, (9.00) in *Young* and (8.22) in *Old.* Hence, the table shows that the majority of the respondents in the first three ways of coping domains are *Positive Reappraisal*, *Self-Controlling* and *Seeking Social Support* which majority of the respondents are in the *Middle Age group*.

Table 5.3 Descriptive statistics of Ways of Coping by Gender

Domains	Gender				Total N = 381	
	Male n =202		Female n = 179			
	Mean	SD	Mean	SD	Mean	SD
Confronting Coping	6.66	2.977	7.18	3.071	6.91	3.028
Distancing	8.71	2.410	8.56	2.479	8.64	2.441
Self-Controlling	10.40	2.658	10.15	2.791	10.28	2.721
Seeking Social Support	8.99	2.259	8.96	2.437	8.98	2.341
Accepting Responsibility	6.00	1.733	5.89	1.848	5.95	1.787
Escape Avoidance	8.21	2.816	8.45	3.302	8.33	3.052
Planful Problem Solving	8.43	2.328	8.32	2.270	8.38	2.298
Positive Reappraisal	11.44	2.609	11.03	2.624	11.25	2.620

Source: Computed

Table 5.3 shows descriptive statistics of Ways of Coping domains by gender. Gender is used to describe the characteristics of women and men that are socially constructed. Among the respondent's mean scores, the majority (11.25) in the positive re-appraisal domain in which the majority (11.44) is male which is more than female (11.03). The mean score (10.28) for self-controlling also has a majority mean score (10.40) for males than females (10.15). Likewise, the mean score (8.98) for seeking social support has a majority mean score (8.99) for males than females (8.96). The mean score (8.64) for distancing in which the mean score (8.71) of males is greater than the female mean score (8.56).

About the domain of confronting coping, the mean score (6.91) in which females mean scores (7.18) is better than male mean scores (6.66) and the last mean score (5.95) for accepting responsibility, the mean scores (5.95) in which males mean score (6.00) is better than females mean score (5.89).

Hence, the table shows that the majority of the mean score of the ways of coping domains are *positive reappraisal, self-controlling* and *seeking social support* in which the males have better-coping ways than females.

Table 5.4 Descriptive statistics of Ways of Coping by Domicile

Domains	Domicile				Total N = 381	
	Rural n = 89		Urban n = 292			
	Mean	SD	Mean	SD	Mean	SD
Confronting Coping	6.70	2.898	6.97	3.069	6.91	3.028
Distancing	9.09	2.254	8.50	2.482	8.64	2.441
Self-Controlling	10.54	2.624	10.20	2.749	10.28	2.721
Seeking Social Support	9.16	2.094	8.92	2.412	8.98	2.341
Accepting Responsibility	6.06	1.661	5.91	1.825	5.95	1.787
Escape Avoidance	9.29	3.314	8.03	2.910	8.33	3.052
Planful Problem Solving	8.69	1.893	8.28	2.404	8.38	2.298
Positive Reappraisal	11.15	2.372	11.28	2.694	11.25	2.620

Source: Computed

Table 5.4 shows descriptive statistics of Ways of Coping domains by domicile. In an agrarian society like India, the general population can broadly be divided into *rural* and *urban*-based on their settlements. Among the respondent's mean scores, the majority (11.25) was in the positive re-appraisal domain in which the majority mean score was found in urban (11.28) which is better than rural (11.15). The next mean score (10.28) was found in *self-controlling* in which the majority score is found in rural (10.54), the third mean score (8.98) found *seeking social support* in the majority mean score (9.16) was found in rural areas. Hence, the table shows that the first three ways of coping are *positive reappraisal, self-controlling* and *seeking social support* of the respondents in which rural respondents coping ways are better than those urban except in *positive reappraisal*.

Table 5.5 Descriptive statistics of Ways of Coping by Types of Diabetes

Domains	Types of Diabetes				Total N = 381	
	Insulin Dependent n = 81		Non-Insulin Dependent n=300			
	Mean	SD	Mean	SD	Mean	SD
Confronting Coping	6.26	2.616	7.08	3.111	6.91	3.028
Distancing	9.11	2.324	8.51	2.460	8.64	2.441
Self-Controlling	10.83	2.792	10.13	2.687	10.28	2.721
Seeking Social Support	9.59	2.155	8.81	2.365	8.98	2.341
Accepting Responsibility	5.90	1.736	5.96	1.803	5.95	1.787
Escape Avoidance	8.91	3.001	8.17	3.051	8.33	3.052
Planful Problem Solving	8.81	2.098	8.26	2.339	8.38	2.298
Positive Reappraisal	12.01	2.283	11.04	2.670	11.25	2.620

Source: Computed

Table 5.5 shows descriptive statistics of the Ways of Coping domains by Types of Diabetes. Diabetes is hereditary and is linked to family history and genetics. However, an environmental factor also plays a role. Types of Diabetes are also an important determining variable to assess with the Ways of Coping domains. The Types of Diabetes are classified into *insulin-dependent* and *non-insulin dependent*. Among the respondent's mean scores, the majority (11.25) in the positive re-appraisal domain in which the majority (12.01) mean score was found among *Insulin-dependent* than *non- insulin-dependent* (11.04). The next mean score (10.28) is found in the self-controlling domain and the (8.98) mean score is found in seeking social support. While comparing the table, it is found that the first three ways of coping are *positive reappraisal; self-controlling* and *seeking social support* in*sulin dependent* respondents have better ways of coping than *non-insulin dependent*.

Table 5.6 Descriptive statistics of Ways of Coping by History of Diabetes

Domains	History of Diabetes				Total N = 381	
	Yes n = 185		No n = 196			
	Mean	SD	Mean	SD	Mean	SD
Confronting Coping	7.08	3.224	6.74	2.830	6.91	3.028
Distancing	8.52	2.341	8.75	2.533	8.64	2.441
Self-Controlling	10.15	2.656	10.40	2.782	10.28	2.721
Seeking Social Support	8.95	2.268	9.00	2.414	8.98	2.341
Accepting Responsibility	5.89	1.803	6.00	1.774	5.95	1.787
Escape Avoidance	7.96	2.858	8.67	3.194	8.33	3.052
Planful Problem Solving	8.28	2.453	8.47	2.145	8.38	2.298
Positive Reappraisal	11.25	2.611	11.24	2.635	11.25	2.620

Source: Computed

Table 5.6 shows descriptive statistics of the Ways of Coping domains by the history of diabetes. Diabetes is hereditary and also linked to family history and genetics. However, environmental factors also play a role. History of diabetes is also an important determining variable to assess with the Ways of Coping domains. The history of diabetes is classified into Yes (*Respondents having diabetes*) and No (*Respondents with no history of diabetes).*

Among the respondent's mean scores, the majority (11.25) in the positive re-appraisal domain in which there is no significant difference among *those respondents having a history of diabetes (*11.25*)* and those with *no history of diabetes* (11.24). The next mean score (10.28) was found in self-controlling in which the mean score (10.40) of the respondents have no history of diabetes. Also, the next mean score (8.98) was found in social support. From the analysis of the table, we found that the first three ways of coping domains are *positive reappraisal*, *self-controlling* and *seeking social support* and the data revealed that the majority of the respondents with no history of diabetes have better-coping patterns.

Table 5.7 Spearman's Inter correlation Matrix of Ways of Coping

Domain	Distancing	Self- Controlling	Seeking Social Support	Accepting Response ability	Escape Avoidance	Planful Problem Solving	Positive Re-appraisal	Overall Ways of Coping
Distancing	1.000							
Self-Controlling	.598**	1.000						
Seeking Social Support	.558**	.589**	1.000					
Accepting Responsibility	.540**	.507**	.509**	1.000				
Escape Avoidance	.494**	.484**	.432**	.415**	1.000			
Planful Problem Solving	.544**	.543**	.546**	.563**	.390**	1.000		
Positive Reappraisal	.500**	.521**	.535**	.552**	.327**	.592**	1.000	
Overall Ways of Coping	.765**	.781**	.754**	.713**	.682**	.733**	.696**	1.000

Source: Computed *p< 0.05 **p< 0.01

Table 5.7 shows Spearman's inter-correlation matrix of Ways of Coping taking into consideration all the domains i.e., distancing, *self-controlling*, *seeking social support*, *accepting responsibility, escape avoidance*, *planful problem solving* and *positive re-appraisal*

Among the ways of coping domains, the spearman's correlation coefficient value is 0.598 is significant at a 0.01 level, which confirms that there appears to be a moderate positive correlation between self-controlling and distancing. With regard to seeking social support, the P values (0.558 and 0.589) are significant at the 0.01 level, which also shows that there is a moderate positive correlation between seeking social support and distancing, seeking social support and self-controlling. With regard to accepting responsibility, the P values (0.540, 0.507 and 0.509) are significant at the 0.01 level, which also shows that there is a moderate positive correlation between accepting responsibility and distancing, accepting responsibility and self-controlling, accepting responsibility and seeking social support.

In escape avoidance, the P values (0.494. 0.484. 0.432, 0.415) are significant at the 0.01 level, which also shows that there is a moderate positive correlation between escape avoidance and distancing, escape avoidance and self-controlling, escape avoidance and seeking social support, escape avoidance and accepting responsibility.

In planful problem solving, the P values (0. 544, 0. 543, 0.546, 0.563 and 0.390) are significant at the 0.01 level, which also shows that there is a moderate positive correlation between planful problem solving and distancing, planful problem solving and self-controlling, planful problem solving and seeking social support, planful problem solving and accepting responsibility, and there is a weak positive correlation between planful problem solving and escape avoidance.

In positive re-appraisal, the P values (0.500. 0.521. 0.535. 0.552, 0.327 and 0.592) are significant at the 0.01 level, which shows that there is a moderate positive correlation between positive re-appraisal and distancing, positive re-appraisal and self-controlling, positive re-appraisal and seeking social support, positive re-appraisal and accepting responsibility, positive re-appraisal and planful problem solving and there is a weak positive correlation between positive re-appraisal and escape avoidance.

With regard to overall ways of coping, the P values (0.765, 0.781, 0.754, 0.713, 0.682, 0.733 and 0.696) are significant at the 0.01 level, which also shows that there is a strong positive correlation between overall and distancing, overall and self-controlling, overall and seeking social support, overall and accepting responsibility, overall and escape avoidance, overall and planful problem solving, overall and positive re-appraisal.

Thus, Spearman's inter-correlation matrix of ways of coping reveals that there is a moderate positive correlation between self-controlling and distancing, seeking social support and distancing, and self-controlling. At the same time, in the domain of accepting responsibility, there is a significant relationship between accepting responsibility and distancing, self-controlling and seeking social support. The overall ways of coping there is a strong positive correlation across the domains.

Table 5.8 Mann-Whitney U test Significant Difference between Mean Rank of Gender across Ways of Coping Domain

Domain	Gender n =381		Z value	P-Value
	Male n = 202	Female n = 179		
Confronting Coping	181.20	202.06	-1.855	.064
Distancing	193.53	188.14	-.481	.631
Self-Controlling	194.62	186.91	-.686	.493
Seeking Social Support	190.89	191.13	-.021	.983
Accepting Responsibility	191.88	190.01	-.168	.867
Escape Avoidance	188.38	193.96	-.497	.619
Planful Problem Solving	194.55	187.00	-.675	.500
Positive Reappraisal	198.20	182.87	-1.370	.171
Overall Ways of Coping	189.58	192.60	-.267	.789

Source: Computed *p<0.05 **p<0.01

Table 5.8 shows the Mann-Whitney U test significant difference between the mean rank of gender across Ways of Coping Domain**.** Gender is an important determining variable in terms of *Ways of Coping*. Among the respondent's mean rank, in *confronting coping domain* in which the majority (202.06) are females.

In the mean rank for *distancing*, the majority (193.53) is found in males than females (188.14). The mean rank for *self-controlling* also has a majority (194.62) for males rather than females (186.91). However, in the mean rank for *seeking social support*, females (191.13) have the majority score over males (190.89). Males have a higher (191.88) mean rank in *accepting responsibility* than females (190.01). The mean rank in *escape avoidance* is higher for females (193.96) than males (188.38). Mean rank is higher for males (194.55) than females (187.00) in *planful problem solving* and also higher for males (198.20) than females (182.87) in *positive reappraisal*. However, the overall *coping domain* is higher for females (192.60) than males (189.58). This shows that females have better-*coping patterns* than males.

While comparing the gender difference in the mean rank scores, it was found that the first three mean ranks of the male are *positive re-appraisal* (198.20), *self-controlling* (194.62) and *planful problem solving* (194.55). Similarly, the mean rank of females is *confronting* (202.06), *escape avoidance* (193.96) *and seeking social*

support (191.13). Among the overall coping domains, the majority mean rank (192.60) is found in female respondents. However, there was no significant difference between the genders. Hence, the table shows that the first three domains among the male respondents are *positive re-appraisal*, *self-controlling* and *planful problem solving* and for females, the first three domains are *confronting, escape avoidance and seeking social support*.

Table 5.9 Mann-Whitney U test Significant Difference between Mean Rank of Domicile across Ways of Coping Domain

Domain	Domicile		Z Value	P-value
	Rural n = 89	Urban n = 292		
Confronting Coping	183.78	193.20	-.710	.478
Distancing	210.91	184.93	-1.965	*.049**
Self-Controlling	201.35	187.85	-1.019	.308
Seeking Social Support	194.87	189.82	-.382	.702
Accepting Responsibility	197.88	188.90	-.683	.495
Escape Avoidance	219.69	182.26	-2.825	*.005***
Planful Problem Solving	201.82	187.70	-1.070	.285
Positive Reappraisal	182.04	193.73	-.885	.376
Overall Ways of Coping	204.23	186.97	-1.295	.195

Source: Computed *p<0.05 **p<0.01

Table 5.9 shows the Mann-Whitney U test significant difference between mean ranks of domicile across the Ways of Coping domain. In an agrarian society like India, the general population can broadly be divided into *rural* and *urban*-based on their settlements. The mean rank is higher for urban (193.20) than rural (183.78) in *confronting coping*. The mean rank is also higher for urban (193.73) than rural (182.04) in positive reappraisal. The mean rank is higher for rural in other domains such as *distancing* (210.91), *self-controlling* (201.35), *seeking social support* (194.87), *accepting responsibility* (197.88), *and escape avoidance* (219.69) and *planful problem solving* (201.82). The overall mean rank is higher for rural (204.23) than urban (186.97).

While comparing the domicile difference in the mean ranking scores, it was found that the first three mean ranks of rural are escape avoidance (219.69), distancing (210.91) and planful problem solving (201.82). Similarly, the mean ranks of urban are confronting coping (193.20), positive reappraisal (193.73) and seeking social support (189.82).

Among the overall coping domains, the majority mean rank (204.23) is found in rural respondents. The table shows that the first three domains among the rural respondents are escaping avoidance, distancing and planful problem-solving. Among the urban respondents, the first three domains are confronting coping, positive reappraisal and seeking social support. *The distancing domain* and *escape avoidance domain* found significant differences between the Mean ranks of domicile with a P-value of 0.01 level of significance.

The following hypotheses have been formulated to test the significant difference between mean ranks of domicile across ways of the coping domain.

H_0: There is no significant difference between mean ranks of domicile across ways of the coping domain.

H_1: There is a significant difference between the mean rank of domicile across ways of the coping domain.

Since the P-value is less than 0.05, the null hypothesis is rejected at the 5% level with regard to distancing. Hence, there is a significant difference between domiciles with regard to distancing domains. Based on the mean rank, respondents from rural areas cope better by distancing because those in the rural areas can have the opportunity to manage their illness by doing some activity alone.

Since the P-value is less than 0.01, the null hypothesis is rejected at a 1% level with regard to escape avoidance. Hence, there is a significant difference between rural and urban with regard to the escape avoidance domain. Based on the mean rank, respondents from rural cope better with escape avoidance because the respondents took it lightly regarding the illness.

There is no significant difference between rural and urban with regard to confronting coping, self-controlling, seeking social support, accepting responsibility, planful problem solving and positive re-appraisal as self-management is very important in this type of illness.

The table shows that the respondents from rural areas have better-coping patterns than those from urban as per the Mann-Whitney U test significant difference between the mean rank of domicile across ways of coping.

Table 5.10 Mann Whitney U test Significant Difference between Mean Rank of Types of Diabetes across Ways of Coping Domain

Domain	Types		Z Value	P-Value
	Insulin Dependent (Type 1) n = 81	Non-Insulin Dependent (Type 2) n = 300		
Confronting Coping	170.87	196.44	-1.864	.062
Distancing	212.08	185.31	-1.958	.050
Self-Controlling	212.93	185.08	-2.033	***.042****
Seeking Social Support	219.68	183.26	-2.667	***.008****
Accepting Responsibility	186.07	192.33	-.461	.645
Escape Avoidance	208.84	186.18	-1.653	.098
Planful Problem Solving	210.15	185.83	-1.782	.075
Positive Reappraisal	224.27	182.02	-3.094	***.002****
Overall Ways of Coping	213.44	184.94	-2.067	***.039****

Source: Computed *p<0.05 **p<0.01

Table 5.10 shows Mann Whitney U test significant difference between mean ranks of Types of Diabetes across Ways of Coping Domain. Diabetes is hereditary and is a link to family history and genetics. However, environmental factors also play a role. Types of Diabetes are also an important determining variable to assess with the Ways of Coping domains. The Types of Diabetes are classified into *Insulin-dependent* and *non-insulin dependent*.

While comparing *Types of Diabetes* in the mean ranking scores, it was found that the first three mean ranks of *insulin-dependent* are positive reappraisal (224.27), seeking social support (219.68) and self-controlling (212.93). Similarly, the mean ranks of non-insulin dependent are confronting coping (196.44), accepting responsibility (192.33) and escape avoidance (186.18). Among the overall coping domains, the majority mean rank (213.44) is found among *insulin-dependent*

The following hypotheses have been formulated to test the significant difference between mean ranks of types of diabetes across ways of the coping domain.

$H_{0:}$ There is no significant difference between mean ranks of types of diabetes across ways of the coping domain.

H_1: There is a significant difference between the mean rank of Types of diabetes across ways of the coping domain.

Since the P-value is less than 0.05, the null hypothesis is rejected at a 5% level with regard to self-controlling, and overall ways of coping domains of Types of Diabetes of respondents. Hence, there is a significant difference between Types of Diabetes with regard to the self-controlling and overall ways of the coping domain. Based on the mean rank, the insulin-dependent respondents have better self-controlling and overall ways of coping domains because those with type1 diabetes have a better self controlling mindset and that their system lacks insulin and they have taken insulin directly in the form of an injection which directly supplies to the blood.

Since the P-value is less than 0.01, the null hypothesis is rejected at a 1% level with regard to seeking social support and positive reappraisal. Hence, there is a significant difference between type 1 and type 2 diabetes with regard to the social support of respondents.

Since the P-value is greater than 0.05. Hence, the null hypothesis is accepted at a 5% level with regard to confronting coping, distancing, accepting responsibility, escape avoidance and planful problem solving because, for both types 1 and 2, management of the illness is very difficult in these domains.

The table shows that the respondents of *insulin-dependent* have better-Coping patterns than those *non-insulin dependent* while comparing the mean ranks and the acceptance of alternative hypotheses at0.01 and 0.05 levels of significance.

Table 5.11 shows the Level of ways of Coping by Age, Gender, Domicile, Types of Diabetes and History of Diabetes. Among the respondents, the majority (71.92) of the *Middle* age group have better ways of coping in which majority (81.06) of them have *High* coping patterns. This shows that respondents of the *middle* age group have better coping patterns.

The following hypotheses have been formulated in order to find out the relationship between Ways of Coping and *age*.

Ho: There is no relationship between Ways of Coping and *age*.

H1: There is a relationship between Ways of Coping and *age*.

The Chi-Square is significant at a 0.01 level. Hence, the null hypothesis is rejected and the alternate hypothesis is accepted. This reveals that there is a relationship between Ways of Coping and *age*.

Among the male respondents, more than half (53.02) have better ways of coping in more than half (55.47) have *Moderate* ways of coping.

Among the respondents, the majority (76.64) from urban areas have better coping patterns in more than three-forth (77.27) have a *High* level of coping patterns. The majority (78.74) of *non-insulin dependent* have good coping patterns. More than half (51.44) of respondents with *no history of diabetes* have good coping patterns in more than half (53.03) have a *High* level of coping patterns.

Thus, the table reveals that the majority of persons with diabetes who belong to the *Middle* age group have better ways of coping. Among the gender, the *male* respondents have better coping patterns than *female*s. Further, *urban* respondents, *non-insulin dependent* and patients with *no history of diabetes* have good ways of coping.

Table 5. 11 Level of ways of Coping by Age, Gender, Domicile, Types of Diabetes and History of Diabetes

Sl. No.	Characteristics	Ways of Coping (Binned)			Total N = 381
		Low n = 2	Moderate n = 247	High n = 132	
I	**Age (Binned)**				
	Young(< 30)	0 (0.00)	8 (3.24)	2 (1.52)	10 (2.62)
	Middle(30 – 62)	0 (0.00)	167 (67.61)	**107 (81.06)**	**274 (71.92)**
	Old (63+)	2 (100.00)	72 (29.15)	23 (17.42)	97 (25.46)
	Chi-square	13.67	df=4	**0.008****	
II	**Gender**				
	Male	2 (100.00)	**137 (55.47)**	63 (47.73)	**202 (53.02)**
	Female	0 (0.00)	110 (44.53)	69 (52.27)	179 (46.98)
III	**Domicile**				
	Rural	0 (0.00)	59 (23.89)	30 (22.73)	89 (23.36)
	Urban	2 (100.00)	188 (76.11)	**102 (77.27)**	**292 (76.64)**
IV	**Types of Diabetes**				
	Insulin Dependent	0 (0.00)	46 (18.62)	35 (26.52)	81 (21.26)
	Non-Insulin Dependent	2 (100.00)	**201 (81.38)**	**97 (73.48)**	**300 (78.74)**
V	**History of Diabetes**				
	No History	0 (0.00)	126 (51.01)	**70 (53.03)**	**196 (51.44)**
	Parents	1 (50.00)	69 (27.94)	34 (25.76)	104 (27.30)
	Sibling	0 (0.00)	26 (10.53)	19 (14.39)	45 (11.81)
	Spouse	1 (50.00)	17 (6.88)	9 (6.82)	27 (7.09)
	Child	0 (0.00)	7 (2.83)	0 (0.00)	7 (1.84)
	Others	0 (0.00)	2 (0.81)	0 (0.00)	2 (0.52)

Source: Computed Figures in parentheses are percentages

Table 5. 12 Summary of Mann-Whitney U Test with the type of diabetes across Ways of Coping Domains

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Confronting Coping is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.062	Retain the null hypothesis.
2	The distribution of Distancing is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.050	Retain the null hypothesis.
3	The distribution of Self-Controlling is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.042	Reject the null hypothesis.
4	The distribution of Seeking Social Support is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.008	Reject the null hypothesis.
5	The distribution of Accepting Responsibility is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.645	Retain the null hypothesis.
6	The distribution of Escape Avoidance is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.098	Retain the null hypothesis.
7	The distribution of Planful Problem Solving is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.075	Retain the null hypothesis.
8	The distribution of Positive Reappraisal is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.002	Reject the null hypothesis.
9	The distribution of Overall Ways of Coping is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.039	Reject the null hypothesis.

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

Source: Computed *p<0.05 **p<0.01

Table 5.12 shows the Summary of the Mann-Whitney U Test with the type of diabetes across Ways of Coping Domains and the distribution of each domain, whether, the null hypothesis was retained or rejected against its every domain. The

table shows that the null hypothesis is rejected since the P-value is less than 0.05 at a 5% level with regard to the distribution of self-controlling the same across the categories of types of diabetes and overall ways of coping is the same across the categories of types of diabetes. Further, the null is rejected; since the P-value is less than 0.01 at a 1% level with regard to the distribution of the seeking social support and Positive reappraisal are the same across the categories of types of diabetes

In this chapter, the psychosocial challenges can be understood and the coping patterns of Persons with Diabetes are analysed. It is found that bereavement can be a factor leading to drinking that gradually affects a person's health with certain complications. Alcohol and consumption of excessive meat are both detrimental to a person's health as both can lead to chronic illnesses like '*diabetes*'. The study highlights that diabetes does differentiate neither rich nor poor families. It can happen to anyone, whether a person may be young or old, rich or poor. It is observed that unwanted circumstances can contribute to adversely affecting one's health condition. One has to be emotionally and spiritually well-being to be able to cope better with the illness. However, the psychosocial challenges experienced by the persons could also be a factor that affects the illness. At the same time, patients can be affected emotionally, spiritually and physically due to the illness. Awareness of diabetes and its management is very important. Family is very important in coping with the illness.

. The next chapter discusses *the social support* of *persons with diabetes* in the present study.

CHAPTER VI

SOCIAL SUPPORT FOR PERSONS WITH DIABETES

The preceding chapter offered an understanding of the psychosocial challenges and patterns of coping. This chapter discusses the nature of social support for *Persons with Diabetes*. *Social support* is physical and emotional comfort that one gets from family, relatives, friends and co-workers. It means having family, friends and other people in times of need or crisis or illness. It is the perception and actuality that one is cared for, has assistance available from other people and the supportive resources can be emotional, informative or companionship. In this study, *the social support scale* was constructed by the researcher having 12 items and classified into two domains i,e., *Primary Social Support* and *Secondary Social Support*. *Primary Social Support* is the support from family members such as parents, siblings, spouses and children and *Secondary Social Support* is the support which one gets from relatives, cousins, uncles, aunts and friends.

6.1 Social Support and Persons with Diabetes

This chapter will discuss descriptive statistics of social support for *Persons with Diabetes* by *age, gender, domicile* and *Types of Diabetes*. Mann Whitney U test significant difference between the mean rank of *gender, domicile and Types of Diabetes* across social support is analysed. Further, the inter-correlation matrix of social support is analysed as well.

Table 6.1 Descriptive Statistics of Social Support by Age

Domain	Age (Binned)						Total N = 381	
	Young (< 30 Yrs.) n= 10		Middle (30 - 62 Yrs.) n= 274		Old (63+ Yrs.) n= 97			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Primary Social Support	15.30	3.020	15.36	2.507	15.98	2.657	15.52	2.567
Secondary Social Support	16.70	2.541	16.05	2.607	14.92	3.538	15.78	2.909
Overall Social Support	32.00	5.292	31.42	4.555	30.90	5.271	31.30	4.759

Source: Computed

Table 6.1 shows descriptive statistics of *social support* by age. Age is an important determining variable to assess with social support domains. The age group is classified into three groups namely, *Young* (<30 years), *Middle* (30-62 years), and *Old* (63+ years). Among the respondent's mean scores, the majority (15.78) in *secondary social support* in which the majority (16.70) are *young* (<30 years), followed by *the middle*-age group (16.05) and the *old* age group (14.92). While in the *primary social support* domain, the majority (15.98) in which the old age, (15.36) followed by the middle age group (15.30) and the *Young* (<30 years). From the analysis, the table shows that as the age increases the primary support also increases whereas the secondary social support decrease as the age increases.

Table 6.2 Descriptive Statistics of Social Support by Gender

Domain	Gender				Total N=381	
	Male n=202		Female n= 179			
	Mean	SD	Mean	SD	Mean	SD
Primary Social Support	15.54	2.462	15.50	2.687	15.52	2.567
Secondary Social Support	15.86	2.833	15.69	2.998	15.78	2.909

Source: Computed

Table 6.2 shows descriptive statistics of *social support* domains by gender. Gender is an important determining variable in terms of social support. In this study, gender is classified into male and female. Among the respondent's maximum mean scores (15.78) found in secondary social support, there is no significance for males (15.86) and females (15.69). In terms of the mean score (15.52) for primary social support, there is no significant difference between males (15.54) and females (15.50). Hence, the table shows that there is no significant difference in terms of social support by gender.

Table 6.3 Descriptive Statistics Social Support by Domicile

Domain	Domicile				Total N = 381	
	Rural n = 89		Urban n = 292			
	Mean	SD	Mean	SD	Mean	SD
Primary Social Support	15.22	2.280	15.61	2.645	15.52	2.567
Secondary Social Support	15.90	2.581	15.74	3.005	15.78	2.909

Source: Computed

Table 6.3 shows descriptive statistics of Social Support domains by domicile. In an agrarian society like India, the general population can broadly be divided into *rural* and *urban*-based on their settlements. Among the respondent's maximum mean scores (15.78), found in secondary social support there is no significant difference between rural (15.90) and urban (15.74). Likewise, in terms of the mean score (15.52) for primary social support, there is no significant difference between rural (15.22) and urban (15.61). From the analysis, the table shows that there is no significant difference in terms of social support by domicile.

Table 6.4 Descriptive Statistics of Social Support by Types of Diabetes

Domain	Types of Diabetes				Total N = 381	
	Insulin Dependent n =81		Non-Insulin Dependent n = 300			
	Mean	SD	Mean	SD	Mean	SD
Primary Social Support	15.60	2.206	15.50	2.658	15.52	2.567
Secondary Social Support	16.15	2.535	15.68	2.998	15.78	2.909

Source: Computed

Table 6.4 shows descriptive statistics of *Social Support* domains by Types of Diabetes. Types of Diabetes are classified into *insulin-dependent* (type 1) and *non-insulin dependent* (type 2). Among the respondent's maximum mean scores (15.78) were found in secondary social support, there is a slight difference between *Insulin-dependent* (16.15) and *non-insulin dependent* (15.68). However, there is no

significant difference between *insulin-dependent* (15.60) and *non-insulin dependent* (15.50) in *the Primary Social Support* domain.

Table 6.5 shows Mann Whitney U test Significant Difference between Mean Rank of Gender, Domicile and Types of Diabetes across social Support. The mean rank for females (192.71) is higher than males (189.48) in Primary Social Support. The mean rank for Secondary Social Support is higher for males (191.75) than for females (190.15). However, the overall social support is higher for males (191.94) than for females (189.94). This shows that male respondents receive better social support than females.

The mean rank for urban areas is higher than rural in all the domains such as Primary Social Support (196.91), Secondary Social Support (192.39) and Overall Social Support (195.13). This shows that the respondents from urban areas receive better social support than those from rural areas

Table 6.5 Mann-Whitney U test Significant Difference between Mean Rank of Gender, Domicile and Types of Diabetes across social Support

Domain	**Gender**		**Z Value**	**P-Value**
	Male n = 202	**Female n -179**		
Primary Social Support	189.48	**192.71**	-.292	.770
Secondary Social Support	191.75	190.15	-.148	.883
Overall Social Support	191.94	189.94	-.178	.858
Domain	**Domicile**		**Z Value**	**P Value**
	Rural n = 89	**Urban n= 292**		
Primary Social Support	171.60	196.91	-1.942	.052
Secondary Social Support	186.43	192.39	-.464	.643
Overall Social Support	177.45	195.13	-1.336	.181
Domain	**Types of Diabetes**		**Z Value**	**P-Value**
	Type 1 (Insulin Dependent)	**Type 2 (Non-Insulin Dependent)**		
Primary Social Support	189.85	**191.31**	-.109	.913
Secondary Social Support	207.80	186.47	-1.606	.108
Overall Social Support	196.69	189.46	-.528	.597

Source: Computed *p<0.05

The following hypotheses have been formulated to test the significant difference between mean ranks of domicile across social support.

H_0: There is no significant difference between mean ranks of domicile across social support.

H_1: There is a significant difference between the mean rank of domicile across social support.

Since the P-value is more than 0.05, the null hypothesis is accepted at a 5% level concerning primary social support. Hence, there is no significant difference between domicile and primary social support.

The mean rank for *non-insulin dependent* (191.31) is higher than *insulin-dependent* (189.85) for Primary Social Support. But the mean rank for *insulin-dependent* (207.80) is higher than *non- insulin-dependent* (186.47) in Secondary Social Support. However, the overall social support is higher for *insulin-dependent* (196.69) than *for non-insulin dependent* (189.46).

. **Table 6.6** shows the level of social support by age, *gender, domicile, types of diabetes* and *history of diabetes***.** Among the respondents, the majority (71.92) of the *middle age group* receive better social support in more than three fourth (77.01) of them have a *moderate level* of social support.

More than half (53.02) of the male respondents receive good social support in more than half (54.59) have *a high level* of social support. The majority (76.64) of the respondents from urban areas receive better social support in which majority (80.61) receive *a high level* of social support.

The majority (78.74) of *non-insulin dependent* receive better social support while the majority (82.65) have a *low level* of social support and almost three forth (74.71) have *a moderate level* of social support, and more than three fourth (78.57) have a *high level* of social support. More than half (51.44) of the respondents with *no history of diabetes* receive better social support in more than half (58.62) have a *moderate level* of social support.

Table 6.6 Level of Social Support by Age, Gender, Domicile, Types of Diabetes and History of Diabetes

Sl. No	Characteristics	Social Support (Binned)			Total N = 381
		Low n = 98	Moderate n = 87	High n = 196	
I	**Age (Binned)**				
	Young (< 30)	1 (1.02)	3 (3.45)	6 (3.06)	10 (2.62)
	Middle (30 – 62)	67 (68.37)	67 (77.01)	140 (71.43)	274 (71.92)
	Old (63+)	30 (30.61)	17 (19.54)	50 (25.51)	97 (25.46)
II	**Gender**				
	Male	50 (51.02)	45 (51.72)	107 (54.59)	202 (53.02)
	Female	48 (48.98)	42 (48.28)	89 (45.41)	179 (46.98)
III	**Location**				
	Rural	24 (24.49)	27 (31.03)	38 (19.39)	89 (23.36)
	Urban	74 (75.51)	60 (68.97)	158 (80.61)	292 (76.64)
IV	**Types of Diabetes**				
	Type 1 (Insulin Dependent)	17 (17.35)	22 (25.29)	42 (21.43)	81 (21.26)
	Type 2 (Non-Insulin Dependent)	81 (82.65)	65 (74.71)	154 (78.57)	300 (78.74)
V	**History**				
	No History	50 (51.02)	51 (58.62)	95 (48.47)	196 (51.44)
	Parents	22 (22.45)	20 (22.99)	62 (31.63)	104 (27.30)
	Sibling	10 (10.20)	11 (12.64)	24 (12.24)	45 (11.81)
	Spouse	10 (10.20)	4 (4.60)	13 (6.63)	27 (7.09)
	Child	4 (4.08)	1 (1.15)	2 (1.02)	7 (1.84)
	Others	2 (2.04)	0 (0.00)	0 (0.00)	2 (0.52)

Source: Computed Figures in parentheses are percentages

Thus, the table reveals that the respondents from *the middle* age group receive better social support. Among the gender, the *male* respondents receive better social

support than *female*s. Further, *urban* respondents, type 2 (*non-insulin dependent)* and patients with *no history of diabetes* receive good social support.

Table 6.7 Spearman's Inter correlation Matrix of Social Support

Social Support	Primary Social Support	Secondary Social Support	Overall Social Support
Primary Social Support	1.000		
Secondary Social Support	***.371*****	1.000	
Overall Social Support	***.786*****	***.825*****	1.000

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

Source: Computed

Table 6.7 shows the Inter correlation matrix of social support taking into consideration the indicators i.e., *primary social support* and *secondary social support.* In this study, *social support* is classified into *primary social support* and *secondary social support*. *Primary Social Support* is the support from family members such as parents, siblings, spouses and children. *Secondary Social Support* is the support which one gets from relatives, cousins, uncles, aunts and friends. Among the social support domains, the Spearman correlation coefficient value is 0.371 at a 0.01 level, which confirms there appears to be a weak positive correlation between secondary social support and primary social support. For overall social support domains, the P values (.786 and .825) are significant at a 0.01 level, which shows that there is a strong positive correlation between overall and primary social support. Further, the value shows that there is a very strong positive correlation between overall social support and secondary social support. Hence, the table shows that there is a strong positive correlation with overall social support.

Among the domains, *primary social support* is correlated with *secondary social support* at a 0.01 level of significance. Hence, the table shows that *Primary* and *Secondary Social Support* is correlated with the overall social support among the respondents.

The present chapter discusses descriptive statistics of social support of *Persons with Diabetes* by age, gender, domicile, types of diabetes, Mann-Whitney U test significant differences between Mean ranks of Gender, domicile, type of diabetes across social support and levels of social support by gender, domicile, types of diabetes and history of diabetes and Spearman's inter-correlation Matrix of Social Support.

From the above discussion, the level of social support can be understood. From the analysis, as the age increases the primary support also increases whereas the secondary social support decreases as the age increases. However, it is understood that there is no significant difference in terms of social support by gender. There is no significant difference in terms of social support by domicile. Moreover, there is no significant difference in terms of social support by Types of Diabetes.

As per the Mann-Whitney U test significant difference between the mean rank of gender, domicile and Types of Diabetes across social support, male respondents receive better social support than females. The respondents from urban areas receive better social support than those from rural areas. Overall social support is higher for *type 1* (*insulin-dependent)* than *type 2 (non- insulin-dependent).*

The respondents belonging to the *middle age group* receive better social support in which more than three fourth (77.01) of them have a *moderate* level of social support. The majority (76.64) of the respondents from urban areas receive better social support in which majority (80.61) receive a *high* level of social support. The majority (78.74) of *type 2* (*non-insulin dependent)* receive better social support in more than three fourth (78.57) have a *high level* of social support. More than half (51.44) of the respondents with *no history of diabetes* receive better social support in more than half (58.62) have a *moderate level* of social support. From the findings, it is therefore analysed that the respondents from *the middle* age group receive better social support. Among the gender, the *male* respondents receive better social support than *female*s. Further, *urban* respondents, *type 2* (*non-insulin dependent)* and patients

with *no history of diabetes* receive good social support. Lastly, it can be identified that *primary* and *secondary social support* is inter-correlated.

The next chapter discusses the Quality of Life of *Persons with Diabetes* and the relationship between Ways of Coping and Social Support.

CHAPTER VII
QUALITY OF LIFE OF PERSONS WITH DIABETES

The previous chapter, Social Support of *Persons with Diabetes* includes descriptive statistics on social support of *Persons with Diabetes* by age, gender, domicile and Types of Diabetes were discussed. Mann Whitney U test Significant Difference between Mean Rank of *Gender, Domicile and Types of Diabetes* across social support and inter-correlation matrix of social support was also analysed. In this chapter, the assessment of Quality of Life and the relationship between Ways of Coping and Social Support are analysed.

This chapter is divided into two sections. This first section discusses the descriptive statistics of QOL domains by *age, gender, domicile, history* and *types of Diabetes.* Further, Inter Correlation matrix of QOL is analysed. The second section focuses on the relationship between QOL and Ways of Coping and Social Support.

7.1 Quality of Life of Persons with Diabetes

Quality of Life is important for everyone; it represents the standard of health, comfort and happiness experienced by an individual or group. Standard indicators of *Quality of Life* include wealth, employment, the environment, physical and mental health, education, recreation and leisure time. In this study, Quality of Life WHOQOL-BREF, 1997 standardised scale was used to assess the quality of life. There are four domains in the QOL scale as- *physical health* domain, *psychological* domain, *social* domain and *environment* domain.

Table 7.1 shows descriptive statistics of Quality of Life domains by age. Age is an important variable in order to understand the QOL. The age group is classified into three groups namely, *Young* (<30 years), *Middle* (30-62 years), and *Old*(63+ years). Among the respondent's mean scores, the majority (65.01) in the social relationship domain, which majority (70.80) among *the young*, (66.56) in *the middle* age group and (60.03) among the *old* age group.

Table 7.1 Descriptive statistics of QOL Domains by Age

Sl. No	Domain	Age (Binned)						Total N = 381	
		Young (< 30 Yrs.) n= 10		Middle (30 - 62 Yrs.) n= 274		Old (63+ Yrs.) n= 97			
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	Physical Health	65.30	6.075	59.66	10.968	48.43	13.739	56.95	12.674
2	Psychological	64.00	8.743	60.66	9.849	51.91	13.069	58.52	11.398
3	Social Relationship	70.80	2.898	66.56	10.405	60.03	13.519	65.01	11.536
4	Environment	60.30	8.499	61.95	8.919	56.66	12.053	60.56	10.041
	Total QOL	90.90	4.149	89.36	7.447	80.26	12.586	87.08	9.812

Source: Computed

On the other hand, in the age group, the standard deviation (2.898) difference is high (10.405) which shows there is an age gap between *young* and *middle*. The following next mean score (60.56) was found in *the environment* domain, in which there was no difference among the age groups, (58.52) *psychological* domain, in which the majority (64.00) were among *young*, (60.66) in *middle*, and (51.91) in *old* age group respectively.

In terms of *physical health* domain (56.95) mean score, in which the majority (65.30) is among *the young*, (59.66) in the *middle* age group, and (48.43) in the *old* age group. Further, there is a difference between the age group in *the physical* domain. While comparing the overall domain means scores with the age groups the vast majority (90.90) is found among *the young*, (89.36) in the *middle*, which shows that there is not much difference in terms of *young* and *middle* age groups whereas there is difference between the *middle* (89.36) and *old* (80.26) age group. Thus, the table shows that the majority mean scores were found in the *social relationship* domain (65.01) in which the majority (70.80) is among *the young* age group with more age deviations, which reveals that as the age increases *social relationship*s decline in the same line with all the domains.

Table 7.2 Descriptive statistic of QOL Domains by Gender

Sl. No.	Domain	Gender				Total N =381	
		Male n =202		Female n = 179			
		Mean	SD	Mean	SD	Mean	SD
1	Physical Health	59.01	11.892	54.62	13.151	56.95	12.674
2	Psychological	59.31	10.494	57.64	12.310	58.52	11.398
3	Social Relationship	66.84	9.813	62.94	12.934	65.01	11.536
4	Environment	62.15	8.448	58.75	11.336	60.56	10.041
	Total QOL	88.57	8.392	85.40	10.984	87.08	9.812

Source: Computed

Table 7.2 shows descriptive statistics of Quality of Life domains by *gender*. Gender is an important determining variable for Quality of Life. Among the respondent's mean scores, the majority of the respondents were found in the social relationship domain, in which more than two-thirds were male respondents. There is some difference in standard deviation (9.813) for males (12.934) and females. The following mean (62.15) score in the environment domain is more than females (58.75).

In the *physical health* domain (56.95) mean score, which majority (59.01) mean score is found in males rather than (54.62) in females. In terms of the psychological domain also, the mean score (59.31) in males is more than in females (57.64). Thus, the table shows that the majority of mean scores were found in male, which reveals that male has better Quality of Life than female.

Table 7.3 Descriptive Statistics of QOL by Domicile

Sl. No.	Domain	Domicile				Total N =381	
		Rural n= 89		Urban n= 292			
		Mean	SD	Mean	SD	Mean	SD
1	Physical Health	62.06	8.919	55.39	13.239	56.95	12.674
2	Psychological	62.03	9.489	57.45	11.726	58.52	11.398
3	Social Relationship	65.52	10.390	64.85	11.876	65.01	11.536
4	Environment	62.47	9.084	59.97	10.259	60.56	10.041
	Total QOL	88.62	7.449	86.62	10.393	87.08	9.812

Source: Computed

Table 7.3 shows descriptive statistics of *quality of Life* domains by domicile. In an agrarian society like India, the general population can broadly be divided into *rural* and *urban*-based on their settlements. Among the respondent's mean scores, the majority (65.01) in the *social relationship* domain, in which the majority (65.52) is from rural and (64.85) from urban. The following next mean score (60.56) was found in *the Environment domain*, in which there is little difference for rural (62.47) and (59.97) for urban. In terms of the *physical health* domain (56.95) mean score, we can see the majority (62.06) mean score in rural rather than urban (55.39). In terms of the psychological domain also, the mean score (62.03) in rural is more than urban (57.45). Thus, the table shows that the majority of mean scores are found in the social relationship domain and the majority of them are from a rural areas. In the total QOL, the majority of the respondents belong to rural areas rather than the urban area which shows that rural respondents have better QOL than urban. There is a significant difference in standard deviation for rural and urban.

Table 7.4 shows descriptive statistics of *Quality of Life* domains by the history of diabetes. Diabetes is hereditary and is a link to family history and genetics. However, an environmental factor also plays a role. History of diabetes is also an important determining variable to assess with QOL domains. The history of diabetes is classified into Yes (*respondents having a history of diabetes*) and No (*respondents with no history of diabetes)*, as well as *Insulin-dependent* and *non-insulin dependent*. Among the respondent's mean scores, the majority (65.01) in the *Social relationship* domain, in which there is not much difference between *respondents having diabetes* (64.74) and r*espondents with no history of diabetes* (65.27) mean score. In terms of environment also, there is no significant difference between *respondents having a history of diabetes* (60.22) and *respondents with no history of diabetes* (60.88). While comparing the total QOL with a history of diabetes, the majority mean (87.31) of the respondents *do not have a history of diabetes* and their QOL is better than those *who have a history of diabetes*.

Table 7.4 Descriptive Statistics of QOL by History and Types of Diabetes

Dimensions	History of Diabetes				Total N = 381	
	Yes n = 185		No n= 196			
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Physical	55.58	13.279	58.23	11.967	56.95	12.674
Psychological	57.79	11.168	59.21	11.598	58.52	11.398
Social Relationship	64.74	11.931	65.27	11.176	65.01	11.536
Environment	60.22	10.046	60.88	10.052	60.56	10.041
Total QOL	86.84	10.211	87.31	9.441	87.08	9.812
	Types of Diabetes					
Dimensions	**Insulin Dependent (type 1) n = 81**		**Non-Insulin Dependent (type 2) n = 300**		**Total N = 381**	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Physical Health	62.35	11.031	55.49	12.710	56.95	12.674
Psychological	61.23	10.608	57.79	11.510	58.52	11.398
Social Relationship	66.73	9.058	64.54	12.090	65.01	11.536
Environment	62.75	9.106	59.96	10.213	60.56	10.041
Total QOL	89.10	8.495	86.54	10.083	87.08	9.812

Source: Computed

Among the respondent mean scores, there is a more significant difference in *the physical health* domain for *insulin-dependent* (62.35) and *non-insulin dependent* (55.49). There is also a significant difference in the environment domain for *insulin-dependent* (62.75) and *non-insulin dependent* (59.96) mean scores. While comparing the total QOL with Types of Diabetes, the majority of mean scores (89.10) were found in *insulin-dependent.* Thus, the table shows that the QOL is better for *insulin-dependent* than those patients *with non-insulin dependent*.

Table 7.5 Mann-Whitney U test Significant Difference between Mean Rank of Gender, Domicile and Types of Diabetes across QOL

Domain	Gender N = 381		Z value	P-Value
	Male n = 202	**Female n = 179**		
Physical Health	208.33	171.45	-3.308	***.001****
Psychological	195.99	185.37	-.957	.339
Social Relationship	205.63	174.49	-2.875	***.004****
Environment	205.68	174.43	-2.833	.005**
Total QOL	204.05	176.27	-2.461	***.014****
Domain	**Domicile N = 381**			
	Rural n = 89	**Urban n = 292**		
Physical Health	232.26	178.42	-4.095	***.000****
Psychological	227.40	179.90	-3.628	***.000****
Social Relationship	189.73	191.39	-.130	.897
Environment	214.96	183.70	-2.403	***.016****
Total QOL	197.57	189.00	-.644	.520
	Types of Diabetes N = 381			
Domain	**Insulin Dependent (type 1) n= 81**	**Non-Insulin Dependent (type 2) n = 300**		
Physical Health	238.25	178.24	-4.413	***.000****
Psychological	218.43	183.59	-2.573	***.010***
Social Relationship	203.02	187.76	-1.156	.248
Environment	211.01	185.60	-1.889	.059
Total QOL	215.54	184.37	-2.264	***.024****

Source: Computed *p<0.05 **p<0.01

Table 7.5 shows the Mann-Whitney U test's significant difference between the mean rank of *gender, domicile* and *Types of Diabetes* across QOL**.** The mean rank for males is higher for males in all the domains such as *physical health*(208.33), *psychological* (195.99), *social relationship* (205.63) and *environment* (205.68). While comparing the gender difference in the mean ranking scores, it was found that the first three mean ranks of males are physical health (208.33), environment (205.68) and social relationship (205.63). Similarly, the mean ranks of females are psychological (185.37), social relationship (174.49) and environment (174.43). Among the overall QOL domains, the majority mean rank (204.05) is found in male

respondents. Hence the table shows that the first three domains among the male respondents are physical health, environment and social relationship and for the female respondents, the first three domains are psychological social relationship and environment. *The physical health domain, social relationship and environment domains* are all correlating with a P value at a 0.01 level of significance.

The following hypotheses have been formulated to test the significant difference between the mean rank of gender, domicile and *Types of Diabetes* across the domains of QOL.

H_0: There is no significant difference between the mean rank of gender, domicile and *Types of Diabetes* across the domains of QOL.

H_1: There is a significant difference between the mean rank of gender, domicile and *Types of Diabetes* across the domains of QOL.

Since P-value is less than 0.01, the null hypothesis is rejected at a 1% level with regard to QOL gender across QOL domains. Hence, there is a significant difference between males and females with regards to the domain of physical health, social relationship, environment and overall QOL domains. Based on the mean ranks, the male respondents have better physical health, social relationship and environment across the QOL domain than female respondents because males are better at coping and taking things lightly.

The mean rank of rural is higher than urban in the domains such as *physical health* (232.26), *psychological* (227.40) and *environment* (214.96). However, the mean rank for urban (191.39) is higher than rural (189.73) in *Social relationship*s. The overall QOL is higher for rural (197.57) than urban (189.00). This shows that respondents from rural areas have better QOL. While comparing the domicile difference in the mean ranking scores, it was found that the first three mean ranks of rural are physical health (232.26), psychological (227.40) and environment (214.96). Similarly, the mean ranks of urban are social relationship (191.39), environment (183.70) and psychological (179.90). Among the overall QOL domains, the majority mean rank (197.57) is found among rural respondents.

Since the P-value is less than 0.01, the null hypothesis is rejected at a 1% level with regard to domicile across QOL domains. Hence, there is a significant difference between domiciles with regard to the domain of physical health and psychological domains. Based on the mean ranks, the rural respondents have better physical health, and psychological domains across QOL, it may be because of the stressful lifestyle in rural areas.

Since the P-value is less than 0.05, the null hypothesis is rejected at the 5% level with regard to domicile across QOL domains. Hence, there is a significant difference between domiciles with regard to the domain of Environment. Based on the mean ranks, the rural respondents have a better environment than urban respondents.

Since the P-value is greater than 0.05, the null hypothesis is accepted at a 5% level with regard to domicile across overall QOL. Hence, there is no significant difference between domiciles with regard to the overall total QOL. Based on the mean ranks in the overall domains of QOL there are various other factors like psychosocial issues also responsible.

While comparing Types of Diabetes in the mean ranking scores, it was found that the first three mean ranks of insulin-dependent are *physical health* (238.25), *psychological* (218.43) and *environment* (211.01). Similarly, the mean ranks of non-insulin dependent are social relationship (187.76), environment (185.60) and psychological (183.59). Among the overall QOL domains, the majority mean rank (215.54) is found in insulin dependence. Hence, the table shows that the first three domains among insulin-dependent (type 1) are physical health, psychological and environment. Among the non-insulin dependent (type 2), the first three domains are social relationship, environment and psychological. *The physical health domain* is correlating with the P-value at a 0.01 level of significance. Overall QOL is correlating with the P-value at a 0.01 level of significance.

Since the P-value is less than 0.01, the null hypothesis is rejected at a 1% level with regard to the Type of diabetes across QOL domains. Hence, there is a significant difference between types of diabetes with regard to the domain of

physical health. Based on the mean ranks, the type 1 respondents (insulin-dependent) have better physical health than type 2 (Non-Insulin dependent) across QOL, it may be because insulin is supplied to the blood instantly.

Since the P-value is less than 0.05, the null hypothesis is rejected at a 5% level with regard to types of diabetes across total QOL domains. Hence, there is a significant difference between types of diabetes with regard to Psychological domain and total QOL. Based on the mean ranks, the insulin (type 1) dependent respondents have better QOL than Non-insulin dependent (type 2), it may as soon as the insulin level decreases when the insulin is supplied artificially by injection, it instantly dissolves in the blood and energy is supplied and psychologically the respondents feel better.

Since the P-value is greater than 0.05, the null hypothesis is accepted at a 5% level with regard to the type of diabetes across QOL. Hence, there is no significant difference between types of diabetes with regard to social relationships and the environment of the domain of QOL. Based on the mean ranks in the non-insulin dependent (type 2) respondents may not maintain social relationships as well as in the environment.

Hence, the table shows there is a significant difference between males and females with regards to the domain of physical health, social relationship, environment and overall QOL domains. Further, the results show that the male respondents have better physical health, social relationship and environment across the QOL domain than female respondents. There is a significant difference between domiciles with regard to the domain of physical health and psychological domains. The rural respondents have better physical health and psychological domains across QOL. There is a significant difference between types of diabetes with regards to the domain of physical health and the insulin (type 1) dependent respondents have better QOL than Non-insulin dependent (type 2).

Table 7.6 Level of QOL by Age, Gender, Domicile, Diabetes Type and History of Diabetes

Sl. No.	Characteristics	QOL (Binned)			Total N = 381
		Low n = 32	Moderate n = 105	High n = 244	
I	**Age (Binned)**				
	Young (< 30 Years)	0 (0.00)	2 (1.90)	8 (3.28)	10 (2.62)
	Middle(30 - 62 Year)	11 (34.38)	61 (58.10)	202 (82.79)	274 (71.92)
	Old (63+ Years)	21 (65.63)	42 (40.00)	34 (13.93)	97 (25.46)
	Chi-Square Tests	56.241[a]	df = 4	***.000****	
II	**Gender**				
	Male	11 (34.38)	48 (45.71)	143 (58.61)	202 (53.02)
	Female	21 (65.63)	57 (54.29)	101 (41.39)	179 (46.98)
	Chi-Square Tests	9.773[a]	df = 2	***.008****	
III	**Domicile**				
	Rural	5 (15.63)	20 (19.05)	64 (26.23)	89 (23.36)
	Urban	27 (84.38)	85 (80.95)	180 (73.77)	292 (76.64)
IV	**Types of Diabetes**				
	Insulin-dependent (type 1)	6 (18.75)	16 (15.24)	59 (24.18)	81 (21.26)
	Non-insulin dependent (type 2)	26 (81.25)	89 (84.76)	185 (75.82)	300 (78.74)
V	**History**				
	No History	16 (50.00)	55 (52.38)	125 (51.23)	196 (51.44)
	Parents	6 (18.75)	20 (19.05)	78 (31.97)	104 (27.30)
	Siblings	3 (9.38)	11 (10.48)	31 (12.70)	45 (11.81)
	Spouse	4 (12.50)	14 (13.33)	9 (3.69)	27 (7.09)
	Child	3 (9.38)	3 (2.86)	1 (0.41)	7 (1.84)
	Others	0 (0.00)	2 (1.90)	0 (0.00)	2 (0.52)
	Chi-Square Tests	35.475[a]	df = 10	***.000****	

Source: Computed *p<0.05 **p<0.01

Table 7.6 shows the level of QOL by *age, gender, domicile, Types of Diabetes* and *history of diabetes.* Among the respondents, the majority (71.92) of the *Middle* age group have a better level of QOL in which majority (82.79) are having *High* level of QOL and more than half (58.10) of the respondents in the *Middle* age group have a *Moderate* level of QOL and one-third (34.38) of the respondents have *Low* level of QOL. However, among the *Old* age group, the majority (65.63) have a *Low* level of QOL.

The following hypotheses have been formulated in order to find out the relationship between QOL and *Age*.

H_0: There is no relationship between QOL and age group.

H_1: There is a relationship between QOL and age group.

The Chi-Square is significant at a 0.01 level. Hence, the null hypothesis is rejected and the alternate hypothesis is accepted. This reveals that there is a relationship between QOL and age group.

Among the gender, the male has a better level of (53.02) QOL in more than half (58.61) have *a High* level of QOL. However, the majority (65.63) of females has *Low* level of QOL. Again, to test the relationship between QOL and gender, the following hypotheses have been formulated

H_0: There is no relationship between QOL and gender.

H_1: There is a relationship between QOL and gender.

The Chi-Square is significant at a 0.01 level. Hence, the null hypothesis is rejected and the alternate hypothesis is accepted. This reveals that there is a relationship between QOL and gender.

Among the domicile, urban respondents have a better level of QOL (76.64) than the respondents from the urban area who score QOL in which more than four-fifths (84.38) has *a low level* of QOL and almost three-fourth (73.77) of them has *a high level* of QOL. Among the Types of Diabetes, more than two-thirds (78.74) of the respondents of *non-insulin dependent* have better levels of QOL in the majority (84.76) have *moderate level*s of QOL. This shows that the patients of *non-insulin dependent* have better levels of QOL. Among the history of diabetes, more than half

(51.44) of the respondents with *no history of diabetes* have a better level of QOL in more than half (52.38) have *moderate level*s of QOL.

The following hypotheses have been formulated in order to test the relationship between QOL and *history of diabetes*.

H_0: There is no relationship between QOL and *a history of diabetes*.

H_1: There is a relationship between QOL and *a history of diabetes*.

The Chi-Square is significant at a 0.01 level. Hence, the null hypothesis is rejected and the alternate hypothesis is accepted. This reveals that there is a relationship between QOL and *a history of diabetes*.

Thus, the table reveals that the majority of the respondents are in the age group of 30-62 years (M*iddle*) and the majority of the respondents have *high level*s of QOL. Further, there is a relationship between QOL and age group as well as with gender.

Table 7.7 Spearman's Inter Correlation matrix of QOL

Domain	Physical	Psychological	Social	Environment	Total QOL
Physical	1.000				
Psychological	***.688*** **	1.000			
Social Relationship	***.410*** **	***.417*** **	1.000		
Environment	***.645*** **	***.690*** **	***.562*** **	1.000	
Total QOL	***.618*** **	***.717*** **	***.703*** **	***.794*** **	1.000

Source: Computed *p< 0.05 **p< 0.01

Table 7.7 shows Spearman's inter-correlation matrix of QOL. In this study, QOL is classified into four domains viz. *physical, psychological, social relationship* and *environment*.

The correlation coefficient between psychological and physical domain values is 0.688 which indicates a strong correlation between physical and psychological domains. With regards to the social relationship domain, the P values (0.410 and 0.417) are significant at 0.01 levels which shows that there is a moderate positive correlation between social relationship and physical domain, social

relationship and psychological domain. Among the environment domain, the P values (0.645, 0.690 and 0.562) are significant at 0.01 levels, which shows that there is a strong positive correlation between the environment domain and physical domain, environment domain and psychological domain, and a moderate positive co-relation between environment domain and social relationship. About overall QOL domains, the P values (0.618, 0.717, 0.703 and 0.794) are significant at the 0.01 level, which shows that there is a strong positive correlation between overall QOL and all the four domains – physical, psychological, social relationship and environment.

Hence, the table shows that there is a strong positive correlation with all the four domains across overall QOL.

From the findings, the researcher can understand that the *Quality of Life* declines as age increases. It has also been analysed that male has better *Quality of Life* than female. However, there is no significant difference found between *rural* and *urban* in terms of QOL. Similarly, no significant difference between respondents is having a history of diabetes and respondents with no history of diabetes. By analysing the inter-correlation matrix of QOL, we learn that all the domains such as- *physical health* domain, *psychological* domain, *social* domain and *environment* domain are inter-correlated.

7.2 Relationship between QOL and Ways of Coping and Social Support

QOL of life, *Ways of Coping* and *Social Support* are very important for patients who have diabetes. In this study, we can understand the relationship between QOL and Ways of Coping and Social Support.

Table 7.8 Spearman's Inter correlation Matrix with overall Ways of Coping, Social support and QOL

Scale	Ways of Coping	Social Support	QOL
Ways of Coping	1.000		
Social Support	-.026	1.000	
QOL	**.243****	**.148****	1.000

Source: Computed *p<0.05 **p<0.01

Table 7.8 shows Spearman's inter-correlation matrix with overall Ways of Coping, Social support and QOL taking into consideration all the indicators i.e., ways of coping, social support and quality of life**.** The table reveals that QOL is correlated with ways of coping and social support at a 0.01 level of significance. Thus, we can say that *quality of life; ways of coping* and *social support* are all inter-correlated.

The following hypotheses have been formulated to test the correlation between social support and ways of coping:

H_0: There is no correlation between social support and ways of coping.

H_1: There is a correlation between social support and ways of coping.

The correlation coefficient between social support and ways of coping is -0.026 which is a negative correlation. Hence, the null hypothesis is accepted and the alternate hypothesis is rejected which shows that there is no correlation between social support and ways of coping.

With regards to QOL, the correlation coefficient between QOL and ways of coping, the P-value is 0.243 which shows that there is a correlation between QOL and ways of coping. The correlation coefficient between QOL and social support the P-value is 0.148 which indicates that there is a correlation between QOL and social support.

Table 7.9 Chi-square test for a relationship between QOL and Ways of Coping

QOL	Ways of Coping (Binned)			Total	Chi-square Value	P-Value
	Low	Moderate	High			
Low	1 (50.00)	26 (10.53)	5 (3.79)	32 (8.40)	11.857[a]	***.018****
Moderate	1 (50.00)	62 (25.10)	42 (31.82)	105 (27.56)		
High	0 (0.00)	159 (64.37)	85 (64.39)	244 (64.04)		
Total	2 (100.00)	247 (100.00)	132 (100.00)	381 (100.00)		

Source: Computed *p<0.05 **p<0.01

Table 7.9 shows the Chi-square test for a relationship between QOL and ways of coping. The QOL and ways of coping based on overall scores have been divided into three categories *Low*, *Moderate* and *High*. Among the respondents, the majority (64.04) is in a high level of QOL with which almost two-thirds (64.39) are in *high level*s of ways of coping. Further, it is also found that almost two-thirds are in *moderate-level* ways of coping.

The following hypotheses have been formulated in order to test the relationship between QOL and ways of coping:

H_0: There is no relationship between QOL and ways of coping.

H_1: There is a relationship between QOL and ways of coping.

While applying the Chi-square test 11.857 and a P-value of 0.18 which is significant at a 0.01 level. Hence, the null hypothesis is rejected and the alternate hypothesis is accepted. Therefore, there is a relationship between QOL and ways of coping.

Table 7.10 shows the Chi-square test for a relationship between QOL and Social Support. The QOL and social support based on overall scores have been divided into three categories such *Low, Moderate* and *High*. Among the respondents, the majority (64.04) is in a high level of QOL in two-thirds (66.84) are in a high level of social support. Further, it is also found that almost three fourth (71.26) are in a *moderate level* of social support.

The following hypotheses have been formulated in order to test the relationship between QOL and Social Support:

Table 7.10 Chi-square test for a relationship between QOL and Social Support

QOL	Social Support			Total	Chi-square Value	P-Value
	Low	Moderate	High			
Low	22 (22.45)	5 (5.75)	5 (2.55)	32 (8.40)	36.366[a]	***.000****
Moderate	25 (25.51)	20 (22.99)	60 (30.61)	105 (27.56)		
High	51 (52.04)	62 (71.26)	131 (66.84)	244 (64.04)		
Total	98 (100.00)	87 (100.00)	196 (100.00)	381 (100.00)		

Source: Computed *p<0.05 **p<0.01

H_0: There is no relationship between QOL and Social Support.

H_1: There is a relationship between QOL and Social Support.

While applying the Chi-square test 36.366 and P-value 0.000 which is significant at a 0.01 level. Hence, the null hypothesis is rejected and the alternate hypothesis is accepted. Therefore, there is a relationship between QOL and Social Support.

Table 7.11 shows the Kruskal Wallis test for significant differences among the mean rank of age group across Ways of Coping, Social Support and QOL. The mean rank for *Young* (<30) is the highest (211.60) in the *distancing domain*.

However, the mean rank for the *Middle Age Group* is highest in other domains such as *confronting coping* (193.78), *self-controlling* (205.82), *seeking social support* (202.45), *accepting responsibility* (210.24), *escape avoidance* (203.48), *planful problem solving* (206.68) and *Overall Ways of Coping* (209.74). In *Primary Social Support,* the mean rank for *Old* (218.06) is highest among *Young* (189.55) and *Middle Age Group* (181.47). While comparing the age group in the mean ranking scores, it was found that the first three mean ranks of *Young* are distancing (211.60), planful problem solving (203.15) and escape avoidance (191.05). Similarly, the mean ranks for the middle age group are distancing (210.52), accepting responsibility (210.24) and planful problem solving (206.68). Further, the first three mean ranks of the old age group are confronting coping (187.97), seeking social support (160.20) and escape avoidance (155.75).

Among the overall coping domains, the majority mean rank (209.74) is found among the Middle Age Group.

In order to test the significant difference between mean ranks of age groups across the domains of ways of coping, the following hypotheses have been formulated.

H_0: There is no significant difference between mean ranks of age groups across the domains of ways of coping.

H_1: There is a significant difference between the mean rank of age group across the domains of ways of coping.

Table 7.11 Kruskal Wallis Test for significant Difference among Mean Rank of Age Group across Ways of Coping, Social Support and QOL

Ways of Coping	**Age N =381**			**Chi-Square**	**P-Value**
	Young (<30 Yrs.) n = 10	**Middle (30-62Yrs.) n =274**	**Old (63+ Yrs.) n = 97**		
Confronting Coping	144.20	193.78	187.97	2.075	.354
Distancing	211.60	210.52	133.73	35.806	***.000*****
Self-Controlling	160.10	205.82	152.34	17.935	***.000*****
Seeking Social Support	176.00	202.45	160.20	10.945	***.004*****
Accepting Responsibility	188.70	210.24	136.88	32.774	***.000*****
Escape Avoidance	191.05	203.48	155.75	13.620	***.001*****
Planful Problem Solving	203.15	206.68	145.45	22.731	***.000*****
Overall Ways of Coping	182.95	209.74	138.89	29.725	***.000*****
Social support	**Age N = 381**			**Chi-Square**	**P-Value**
	Young (<30 Yrs.) n = 10	**Middle (30-62 Yrs.) n =274**	**Old (63+ Yrs.) n = 97**		
Primary Social Support	189.55	181.47	218.06	8.275	***.016****
Secondary Social Support	235.00	197.28	168.73	6.957	***.031****
Overall Social Support	216.95	190.49	189.76	.582	.747
QOL Domain	**Age N = 381**			**Chi-Square**	**P-Value**
	Young (<30 Yrs.) n = 10	**Middle (30-62Yrs.) n =274**	**Old (63+Yrs.) n = 97**		
Physical Health	267.30	212.03	123.73	52.440	***.000*****
Psychological	246.75	209.08	134.18	37.113	***.000*****
Social Relationship	230.10	203.54	151.55	18.810	***.000*****
Environment	181.80	204.53	153.72	16.099	***.000*****
Total QOL	217.65	212.02	128.89	41.539	***.000*****

Source: Computed *p<0.05 **p<0.01

Since the P-value is less than 0.01, the null hypothesis is rejected at the 1% level with regard to the significant difference between mean ranks of age groups across the domains of ways of coping. Hence, there is a significant difference between mean ranks of age groups across the domains of ways of coping such as distancing, self-controlling, seeking social support, accepting responsibility, escape avoidance, planful problem solving and overall ways of coping. Based on the mean ranks, the middle age group have better distancing which shows that the middle age group cope better with their illness through distancing, self-controlling and seeking social support from their family members. Further, the mean ranks show that accepting responsibility, escape avoidance and planful problem solving as their coping patterns. While looking at the overall mean scores, among the eight domains except confronting coping, the other seven domains have better mean ranks.

Hence, there is a significant difference between young, middle and old with regard to the self-controlling domain. Based on the mean rank, the middle age group have better self-controlling while coping with the illness.

Hence, there is a significant difference between young, middle and old with regard to seeking social support. In addition, based on the mean ranks, the middle age group cope better by seeking social support. Thus, based on the mean ranks, respondents belonging to the middle age group cope well through accepting responsibility, escape avoidance, planful problem solving and overall ways of coping.

The mean rank for *Young* (235.00) is highest in *Secondary Social Support* and *Overall Social Support* (216.95). The mean rank for *Young* is highest in *physical health* (267.30), *psychological* (246.75) and *social relationship* (230.10). However, the mean rank for *the Middle Age Group* is highest in the *environment domain* (204.53). The mean rank in total QOL is highest among the *young* (217.65) followed by the *middle age group* (212.02) and *old age group* (128.89). This shows that QOL declines as age increases.

The following hypotheses have been formulated to test the significant difference between mean ranks of age groups across the domains of social support:

H_0: There is no significant difference between mean ranks of age groups across the domains of social support.

H_1: There is a significant difference between the mean rank of age groups across the domains of social support.

Since the P-value is less than 0.05, the null hypothesis is rejected at a 5% level with regard to the primary social support domain and age group. Hence, there is a significant difference between age groups in primary social support and secondary social support. Based on the mean rank, respondents belonging to the old age group have better primary social support which indicates that older people need primary social support than the younger ones in relation to illness. Based on the mean ranks, respondents belonging to the young age group get better support through secondary social support which indicates that the support they need is not as high as compared to older people.

While comparing the age group in the mean ranking scores of QOL, it was found that the first three mean ranks of *Young* are physical health (267.30), psychological (246.75) and social relationship (230.10). Similarly, the mean ranks of the middle age group are physical health (212.03), psychological (209.08) and environment (204.53). Further, the first three mean ranks of the old age group are environment (153.72), social relationship (151.55) and psychological (134.18). Among the overall QOL domains, the majority mean rank (217.65) is found among the young age group.

The following hypotheses have been formulated to test the significant difference between mean ranks of age groups across the domains of QOL:

H_0: There is no significant difference between mean ranks of age groups across the domains of QOL.

H_1: There is a significant difference between the mean rank of age groups across the domains of QOL.

Since the P-value is less than 0.01, the null hypothesis is rejected at a 1% level with regard to the physical health domain and age group. Hence, there is a

significant difference between age groups with regards to domains of physical health, psychological, social relationship, environment and total QOL. Based on the mean ranks, respondents belonging to the young age group have better physical health, and psychological, and the young age group have better social relationships. Further, the respondents belonging to the middle age group have a better environment rather than the young and old which indicates that the middle age group are more concerned regarding a better environment and the young age group has better overall QOL.

Hence, the table shows that respondents belonging to *the young* age group have a better quality of life than *the middle* and *old* age groups. The mean rank results show that in the domains of QOL the respondents have significant relationships at a 0.01 level of significance.

Table 7.12 Summary of Mann-Whitney U Test across Quality of Life Domains

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Physical Health is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.
2	The distribution of Psychological is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.010	Reject the null hypothesis.
3	The distribution of Social Relationship is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.248	Retain the null hypothesis.
4	The distribution of Environment is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.059	Retain the null hypothesis.
5	The distribution of TotalQoL is the same across categories of Type of Diabetes.	Independent-Samples Mann-Whitney U Test	.024	Reject the null hypothesis.

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

Source: Computed *p<0.05 **p<0.01

Table 7.12 shows the Summary of the Mann-Whitney U Test across Quality of Life Domains and its distribution in each domain, whether, the null hypothesis was retained or rejected against its each domain. The table shows that the null hypothesis is rejected since the P-value is less than 0.01 at a 1% level with regard to the distribution of psychological domain the same across the categories of types of diabetes and total QOL is the same across the categories of type of diabetes. Further, the null hypothesis is rejected since the P-value is less than 0.05 at the 5 % level with regard to the distribution of physical domain the same across the categories of types of diabetes.

Table 7.13 Summary of Kruskal-Wallis Test Age across Quality of Life Domains

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Physical Health is the same across categories of Age (Binned).	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
2	The distribution of Psychological is the same across categories of Age (Binned).	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
3	The distribution of Social Relationship is the same across categories of Age (Binned).	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
4	The distribution of Environment is the same across categories of Age (Binned).	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
5	The distribution of TotalQoL is the same across categories of Age (Binned).	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

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

Table 7.13 shows the Summary of Kruskal-Wallis Test Age across Quality of Life Domains and its distribution in each domain, whether, the null hypothesis retained or rejected against its each domain. The table shows that the null hypothesis is rejected since the P-value is less than 0.01 at 1% level with regard to the distribution of physical, psychological , social , environmental and overall QOL, the domains are the same across the categories of types of diabetes and total QOL

The present chapter dealt with the QOL of *Persons with Diabetes* has been assessed with the help of the QOL scale. From the analysis, it is found that the QOL declines as age increases. Descriptive statistic of QOL domains by *gender* reveals that male has better QOL than female. Respondents from rural areas have better QOL rather than those from urban areas as per descriptive statistics of QOL by *domicile*. The respondents having *no history of diabetes* have better QOL than those *who have a history of diabetes*. The QOL is better for *insulin-dependent (type 1)* than those patients *with non-insulin dependent (type 2)*.

As per Mann Whitney U test significant difference between mean ranks of gender, across QOL, male has better QOL than female. In this, the *physical health domain, psychological domain* and *environment domain* are all correlating with a P value at 0.01 level of significance. As per the Mann-Whitney U test significant difference between the mean rank of domicile across QOL, respondents from rural areas have better QOL than those from urban areas. In this, *the physical health domain, psychological domain* and *environment domain* are all correlating with a P value at 0.01 level of significance. As per the Mann-Whitney U test significant difference between the mean rank of Types of Diabetes across QOL, respondents with *type 1 diabetes* have better QOL than those with *type 2 diabetes*. In this, *the physical health domain* is correlating with P-value at 0.01 level of significance and overall QOL is correlating with P-value at 0.01 level of significance **(see Table 7.12).**

As per the level of QOL by *age,* it is found that there is a relationship between QOL and *age*. As per the level of QOL by *gender,* it is also found that there is a relationship between QOL and *gender.* As per the level of QOL by *the history of diabetes,* there is a relationship between QOL and a *history of diabetes.* It may be concluded that respondents from the *middle age group* have a high level of QOL. From Spearman's inter-correlation matrix of QOL, it is found that all the four domains viz; *physical, psychological, social relationship* and *environment*. are all correlated. From Spearman's inter-correlation matrix with overall ways of coping, it is found that *quality of life; ways of coping* and *social support* are all inter-correlated.

While applying the Chi-square test for a relationship between QOL and ways of coping, it is found that there is a relationship between QOL and ways of coping.

As per the Kruskal Wallis test for significant differences among the mean rank of age groups across ways of coping, it is found that the domains such as *distancing, self-controlling, seeking social support, accepting responsibility, escape avoidance, planful problem solving* and *positive reappraisal* are all correlating with P-value at 0.01 levels of significance. As per the Kruskal Wallis test for significant differences among the mean rank of age groups across social support, it is found that primary social support and secondary social support are also correlating with P-value at 0.01level of significance. As per the Kruskal Wallis test for significant differences among the mean rank of age group across QOL, it is found that all the four domains such as *physical health* domain, *psychological* domain, *social* domain and *environment* domain are all correlating with P value at a 0.01 level of significance.

The next chapter discusses on conclusion of the present study.

CHAPTER VIII
CONCLUSION

The present study mainly discusses the major findings of the research. The research titled "*Coping, Social Support and Quality of Life among Persons with Diabetes in Mizoram"* is an attempt to study and understand how Persons with Diabetes cope with their illness, from where they receive social support as well as their level of social support and the quality of life they have. The study also tries to understand the relationship between coping patterns and quality of life of *Persons with Diabetes* and the association between social support and quality of life of Persons with Diabetes and to offer suggestions relevant to social work intervention. Information has been sought through both qualitative and quantitative methods.

8.1 Summary

The whole thesis consists of eight chapters. Among them, the first chapter broadly discusses the general introduction of the study including conceptualization of the term *diabetes,* types of diabetes, insulin type, the global, national, north-eastern, and Mizoram scenarios of diabetes, psychosocial issues and challenges, coping with diabetes, social support and social support as different forms, quality of life, need and significance of the study. The second chapter discusses the available literature review related to the present study in terms of diabetes and its types, history of diabetes, myths about diabetes, psychosocial issues and challenges, coping and diabetes, social support and diabetes, QOL and Diabetes and research gaps, conceptual frame work of the study and conclusion.

The third chapter highlights the profile of the study area in detail the State of Mizoram and its eight districts viz; Aizawl, Champhai, Kolasib, Mamit, Lawngtlai, Lunglei, Serchhip and Siaha, Mizoram Diabetic Society and statement of the problem, its objectives and hypotheses, pilot study, methodological descriptions of the present study covering the research design, sampling procedure, inclusion criteria, tools used for data collections- structured interview schedule- descriptions of the scales, interview guide for case studies, a guide for FGD. The sources of data collection, pretesting, data collection, assessments of tools reliability, data processing

and analysis, operational definitions, ethical considerations, limitations of the study and the chapter scheme are covered in the present study.

The following are the objectives of the present study:

1. To understand the psychosocial challenges faced by *Persons with Di*abetes;
2. To assess the ways of coping patterns of *Persons with Diabetes*;
3. To identify the nature of social support for *Persons with Diabetes*;
4. To assess the QOL of Persons with Diabetes;
5. To find out the relationship between ways of coping patterns and QOL of *Persons with Diabete*s;
6. To find out the association between social support and QOL of *Persons with Diabetes*; and
7. To offer suggestions relevant to social work intervention for *Persons with Diabetes*;

The following are hypotheses of the present study:

H_1 There is a relationship between ways of coping patterns and social support among *Persons with Diabetes*;

H_2 There is a relationship between ways of coping patterns and QOL among *Persons with Diabete*;

H_3 There is a relationship between social support and QOL of *Persons with Diabetes*; and

H_4 There is a relationship between type 1 and type 2 diabetes with gender, age domicile, ways of coping, social support and QOL.

These four hypotheses are derived from the intuitive sense of the researcher.

The fourth chapter discusses the socio-demographic characteristics of *Persons with Diabetes* in terms of gender, social characteristics, geographic characteristics, types of diabetes, familial characteristics and economic characteristics of the respondents.

The fifth chapter discusses psychosocial challenges and coping patterns, at the beginning of the chapter, it narrates qualitative aspects of case studies descriptions and FGD followed by the quantitative aspects- descriptive statistics of ways of coping by age, gender, domicile, types of diabetes, history of diabetes and Spearman's inter-correlation matrix of ways of coping, Mann-Whitney U test significant differences between mean ranks of gender, domicile, type of diabetes across ways of coping domain and levels of ways of coping by gender, domicile, types of diabetes and history of diabetes.

The sixth chapter discusses descriptive statistics of social support of *Persons with Diabetes* by age, gender, domicile, types of diabetes, Mann-Whitney U test significant differences between Mean rank of Gender, domicile, type of diabetes across social support and levels of social support by gender, domicile, types of diabetes and history of diabetes and Spearman’s inter-correlation matrix of social support.

The seventh chapter discusses the QOL of persons with diabetes and its descriptive statistics of QOL by age, gender, domicile, history and types of diabetes. Mann-Whitney U test significant differences between Mean rank of Gender, domicile, type of diabetes across QOL and levels of QOL by gender, domicile, types of diabetes and history of diabetes and Spearman’s inter-correlation matrix of QOL. Further, the relationship between Spearman's correlation matrix with overall ways of coping, social support and of QOL and chi-square test for a relationship between QOL and ways of coping, social support, Kruskal Wallis test for significant difference among mean ranks of age group across ways of coping, social support and QOL. This chapter also focuses on the relationship between QOL and ways of coping as well as QOL and social support.

Lastly, the eighth chapter highlights, the major findings, discussions, conclusions, suggestions, social work implications and scope for future research.

8.2 Socio-demographic characteristics of Persons with Diabetes

The Socio-demographic characteristics represent the gender, social characteristics, geographic characteristics, types of diabetes, familial characteristics and economic characteristics of persons with diabetes. The majority of the respondents belong to the *middle age group* which is 30 to 62 years of age. The mean age of p*ersons with diabetes* is 54.94 (55) years and 55.87 (56) years for males and 53.89 (54) years for females. From these, we come to know that the *mean age* of *male* respondents is higher than the *female* respondents by two years. Most of the respondents are *married*. With regard to education, **t**heir level of education was mostly at the *middle level* and *matriculation* and there was no significant difference between males' and females' educational levels. *Lusei* is the major sub-tribe in Mizo society and the majority of the respondents are from t*he Presbyterian* denomination. Most of the respondents were from the *Aizawl* district as the majority of the members registered in *the Mizoram Diabetic Society* were from the *Aizawl* district itself. More than three-fourths of them were from urban areas.

A similar finding is found in a study conducted by Tataranni and Bogardas (2001) where they pointed out that people with diabetes are much higher in urban than rural areas because the urban population are not involved much in physical activities and also due to a sedentary lifestyle, people are more likely to get chance of diabetes.

More than three fourth were *non-insulin dependent* and less than a fourth of the respondents were *insulin-dependent.* The majority of the respondents are *type 2 (non-insulin dependent)* as per the findings. According to WHO (2020), the most common is *type 2 diabetes,* usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin. In the past three decades, the prevalence of type 2 diabetes has risen dramatically in countries of all income levels. The rising prevalence of diabetes in developing countries is closely associated with industrialization and socio-economic development. The major determinants include population growth, age structure and urbanization (Park, 2000).

More than half of the family belongs to a nuclear family and more than half belong to a small family where family members are more than five. The *mean size of the family* is 5.52 (6) and the *mean number of children* in the family is 3.19 (3). This shows that a small family is the common form of family in Mizo society.

More than two-fifths of the respondents belong to *Lower Middle* where monthly income is between Rs.6000-25000. Two-fifths of the respondents have two family earners. The *mean monthly income* is Rs.33677.17/- and the *mean annual income* is Rs.404125.98/- for the family of *Persons with Diabetes*.

8.3 Psychosocial Challenges and Coping Patterns of Persons with Diabetes

There are several psychosocial challenges for *Persons with Diabetes*. Shock, denial and anxiety are common at the time of diagnosis. Support from family gives extensive contribution to the management of their illness. It is found that bereavement can be a factor leading to drinking that gradually affects a person's health with certain complications. Alcohol and consumption of excessive meat are both detrimental to a person's health as both can lead to chronic illnesses like '*diabetes*'. The study highlights that diabetes does differentiate neither rich nor poor families. It can happen to anyone, whether a person may be young or old, rich or poor. It is observed that unwanted circumstances can contribute to adversely affecting one's health condition. The qualitative findings also suggest that one has to be emotionally and spiritually well-balanced to cope better with the illness. However, the psychosocial challenge experienced by the person with diabetes patients varies from person to person during the discussion and they also pointed out physical and social factors that affect the illness. At the same time, patients can be affected emotionally, spiritually and physically due to the illness. Awareness of diabetes and its management is very important. Family is very important in coping with the illness.

As per descriptive statistics of ways of coping by age, it is found that the majority of the respondents in the first three ways of coping domains are *positive reappraisal, self-controlling* and *seeking social support* which majority of the

respondents are in the *middle age group.* So that these findings revealed *that* the *middle age group* have better-coping patterns and the male has better-coping patterns than females.

As a result, it is found that the majority of the mean score of the ways of coping domains are *positive reappraisal, self-controlling* and *seeking social support* which the males have better coping ways than females. It is found that the first three ways of coping are *positive reappraisal, self-controlling* and *seeking social support* of the respondents in which rural respondents coping ways are better than those urban except in *positive reappraisal*. Therefore, we can conclude that persons with diabetes from rural areas also have better coping patterns than those from urban areas.

It is found that the first three ways of coping are *positive reappraisal; self-controlling* and *seeking social support insulin-dependent (type 1)* respondents have better ways of coping than *non-insulin dependent.* These results show that the respondents with *type 1 diabetes* have better coping patterns than those with *type 2 diabetes* as per descriptive statistics of ways of coping by types of diabetes.

From the analysis of the data, we found that the first three ways of coping domains are *positive reappraisal, self-controlling* and *seeking social support with a* history of diabetes and the data revealed that the majority of the respondents with no history of diabetes have better-coping patterns.

Spearman's inter-correlation matrix of ways of coping reveals that there is a moderate positive correlation between self-controlling and distancing, seeking social support and distancing, and self-controlling. At the same time, in the domain of accepting responsibility, there is a significant relationship between accepting responsibility and distancing, self-controlling and seeking social support. The overall ways of coping there is a strong positive correlation across the domains. The domain of escape avoidance is correlated; this coping pattern is corroborated by the study by Good Therapy (2007) where avoidance is one of the coping mechanisms adopted by persons with diabetes.

There is no significant difference between males and females as per Mann Whitney U test significant difference between mean ranks of gender across ways of the coping domain. It is found that the first three domains among the male respondents are *positive re-appraisal*, *self-controlling* and *planful problem solving* and for females, the first three domains are *confronting*, *escape avoidance and seeking social support*.

There is a significant difference between rural and urban as per the Mann-Whitney U test significant difference between the mean ranks of domicile across ways of the coping domain. As a result, it was found that the first three mean ranks of rural are escape avoidance (219.69), distancing (210.91) and planful problem solving (201.82). Similarly, the mean ranks of urban are confronting coping (193.20), positive reappraisal (193.73) and seeking social support (189.82). In addition, those respondents from rural areas have better coping patterns than those from urban areas.

It was found that the first three mean ranks of *insulin-dependent* are positive reappraisal (224.27), seeking social support (219.68) and self-controlling (212.93). Similarly, the mean ranks of non-insulin dependent are confronting coping (196.44), accepting responsibility (192.33) and escape avoidance (186.18). Among the overall coping domains, the majority mean rank (213.44) is found among *insulin-dependent*

There is a significant difference between type 1 dependent and type 2 as per Mann Whitney U test significant difference between mean rank with regard to the self-controlling and overall ways of the coping domain. There is a significant difference between type 1 and type 2 diabetes with regard to the social support of respondents.

As regards the level of ways of coping by age, gender, domicile, types of diabetes and history of diabetes, the majority of persons with diabetes who belong to the *Middle* age group have better ways of coping. Among the gender, the *male* respondents have better coping patterns than *female*s. Further, *urban* respondents, *non-insulin dependent* and patients with *no history of diabetes* have good ways of

coping. The Chi-square is significant at a 0.01 level so there is a relationship between ways of coping and *age*.

8.4 Social Support of Persons with Diabetes

Among the respondent's mean scores, the majority (15.78) in *secondary social support* in which the majority (16.70) are *young* (<30 years), followed by *the middle*-age group (16.05) and the *old* age group (14.92). The level of *social support* can be understood that as the age increases the primary support also increases whereas the secondary social support decreases as the age increases.

Among the respondents, maximum mean scores (15.78) are found in secondary social support in terms of gender. It is understood that there is no significant difference in terms of social support by gender. Among the respondents, maximum mean scores (15.78) are found in secondary social support in terms of domicile. There is no significant difference in terms of social support by domicile.

Among the respondents, maximum mean scores (15.78) were found in secondary social support in terms of types of diabetes. Moreover, there is no significant difference in terms of social support by Types of Diabetes.

As per the Mann-Whitney U test significant difference between the mean rank of gender, domicile and types of diabetes across social support, male respondents receive better social support than females. The respondents from urban areas receive better social support than those from rural areas. Overall social support is higher for *insulin-dependent* than *non- insulin-dependent*.

The respondents belonging to *the middle age group* receive better social support in which more than three fourth (77.01) of them have *a Moderate* level of social support. The majority (76.64) of the respondents from urban areas receive better social support in which majority (80.61) receive *a High* level of social support. The majority (78.74) of *non-insulin dependent* receive better social support in more than three fourth (78.57) have a *High* level of social support. More than half (51.44) of the respondents with *no history of diabetes* receive better social support in more than half (58.62) have a *Moderate* level of social support. From the findings, it is

therefore analysed that the respondents from *the Middle* age group receive better social support. Among the gender, the *male* respondents receive better social support than *female*s. Further, *urban* respondents, *non-insulin dependent* and patients with *no history of diabetes* receive good social support.

Lastly, it is identified that among the social support domains, the Spearman correlation coefficient value is 0.371 at a 0.01 level, which confirms there appears to be a weak positive correlation between secondary social support and primary social support. However, in overall social support domains, the P values (.786 and .825) are significant at a 0.01 level, which shows that there is a strong positive correlation between overall and primary social support.

8.5 Quality of Life of Persons with Diabetes

From the descriptive statistics of QOL analysis from the respondents' mean scores, the majority of mean scores were found in the *social relationship* domain (65.01) in which the majority (70.80) is among *the young* age group with more age deviations, which reveals that as the age increases *social relationship*s decline in the same line with all the domains.

Among the respondent's mean scores, the majority of the respondents were found in the social relationship domain, in which more than two-thirds were male respondents. This shows that male has better QOL than female. Among the respondent's mean scores, the majority (65.01) in the *social relationship* domain, in which the majority (65.52) is from rural and (64.85) from urban. Hence, respondents from rural areas have better QOL rather than those from urban areas as per descriptive statistics of QOL by domicile.

The respondents having *no history of diabetes* have better QOL than those *who have a history of diabetes*. The QOL is better for *insulin-dependent* than those patients *with non-insulin dependent*.

As per the Mann-Whitney U test significant difference between mean ranks of gender, across QOL, male has better QOL than female. In this, the *physical health,*

psychological and *environment domains* are all having significant differences between mean ranks of gender since the P-value is significant at 0.01 levels.

As per the Mann-Whitney U test significant difference between the mean ranks of domicile across QOL, respondents from rural areas have better QOL than those from urban areas. In this, *the physical health, psychological and environment domains* are all significant differences between mean ranks of domicile since the P-value is significant at 0.01 level of significance.

As per the Mann-Whitney U test significant difference between the mean ranks of types of diabetes across QOL, respondents with *type 1 diabetes* have better QOL than those with *type 2 diabetes*. In this, *the physical health and overall QOL are significant* with a P-value of 0.01 level of significance.

As per the level of QOL by *age*, it is found that there is a relationship between QOL and *age*. As per the level of QOL by *gender*, it is also found that there is a relationship between QOL and *gender.* As per the level of QOL by *the history of diabetes*, there is a relationship between QOL and a *history of diabetes.* It may be concluded that respondents from the *middle age group* have a high level of QOL.

From Spearman's inter-correlation matrix of QOL, it is found that all the four domains viz; *physical, psychological, social relationship* and *environment* are all correlated. Regarding overall ways of coping, it is found that *quality of life; ways of coping* and *social support* are all inter-correlated. While applying the Chi-square test for a relationship between QOL and ways of coping, it is found that there is a relationship between QOL and ways of coping.

As regards the level of ways of coping and QOL, the majority (64.04) in a high level of QOL with almost two-thirds (64.39) are in *high level*s of ways of coping and there is a relationship between QOL and ways of coping since the Chi-square test 11.857 and a P-value of 0.18 which is significant at a 0.01 level.

As regards the level of social support and QOL, the majority (64.04) is in a high level of QOL two-thirds (66.84) are in a high level of social support and there is

a relationship between QOL and Social Support since the Chi-square test 36.366 and P-value 0.000 which is significant at a 0.01 level.

As per the Kruskal Wallis test for significant differences among the mean rank of age groups across ways of coping, it is found that the domains such as *distancing, self-controlling, seeking social support, accepting responsibility, escape avoidance, planful problem solving* and *positive reappraisal* are all correlating with P-value at 0.01 levels of significance.

As per the Kruskal Wallis test for significant differences among the mean rank of age groups across social support, it is found that primary social support and secondary social support are having significant differences at 0.01level of significance.

As per the Kruskal Wallis test for significant differences among the mean rank of age groups across QOL, it is found that all the four domains such as *physical health* domain, *psychological* domain, *social* domain and *environment* domain are having significant differences at a 0.01 level of significance.

8.6 Results of Hypotheses testing

- There is no relationship between ways of coping patterns and social support among *Persons with Diabetes* (r =-.026 P=.608).
- There is a relationship between ways of coping patterns and QOL among *Persons with Diabetes* (r= $.243^{**}$ P=0.01).
- There is a relationship between social support and QOL of *Persons with Diabetes* (r=$.148^{**}$ P =0.01).
- There is a relationship between the type of diabetes (type1 and type 2) and gender ($\chi 2 = 5.161^{*}$ P=.023).
- There is no relationship between the type of diabetes (type 1 and type 2) and age (χ^2 = .848 P=.654).
- There is no relationship between the type of diabetes (type 1 and type 2) and domicile age (χ^2 = .830 48 P=.362).

- There is no relationship between the type of diabetes (type 1 and type 2) and domicile age (χ^2 = .830 48 P=.362).
- There is a relationship between the type of diabetes (type1 and type 2) and ways of coping (U = -2.067* P=.039).
- There is no relationship between the type of diabetes (type1 and type 2) and Social Support (U = -11689.000 P=.597).
- There is a relationship between the type of diabetes (type1 and type 2) and QOL

  (U = -2.264* P=*.024*).

8.7 Suggestions

The present study provides empirical information on persons with diabetes regarding their ways of coping patterns, social support and QOL in the study area. Further, based on the findings of both quantitative and qualitative approaches the following suggestions put forth by the researcher:

- Most of the respondents are from the middle age group with a mean age of 55 years. Therefore, they have to take care of their health by doing regular exercise, like walking, yoga, and meditation for their physical fitness as well as controlling their blood sugar level with regular monitoring.
- As the study revealed that most of the respondents are from urban areas, therefore, the urban population must be educated about lifestyle illnesses and also take care of their wellbeing.
- With regard to the type of diabetes, more than three fourth were non-insulin dependent and most of them were middle age groups, which is associated with obesity. Therefore, it is high time for persons with diabetes in the urban area of Mizoram, especially the Aizawl District. An awareness programme should be conducted regarding the causes and consequences of diabetes and how to control the menace at the initial stage by keeping the mind the adage *"Prevention is better than cure*".
- The study revealed that the majority of the respondent's income groups belong to the lower-middle and upper middle-income groups. So, these

groups could be awakened to take care of their health otherwise they may have to face the problem of obesity and other lifestyle illnesses. Therefore, a sensitisation programme is essential for different levels of income groups and this menace does not look rich or poor people.

- From the qualitative discussion, the study revealed that the respondents face several psychosocial challenges due to diabetes. The respondents highlighted that they face problems like shock due to the result of a blood test, denial, anxiety, frustration, and loss of a dear and near one due to this illness. In order to get rid of these worries, the respondents consume alcohol as one of their coping mechanisms. They also experienced emotional instability and spiritual and physical imbalances. Therefore, persons with diabetes should be provided counselling services like pre-counselling and post-counselling with the help of Medical social workers, professional social workers, psychiatric social workers and concerned medical officers working under non-communicable diseases.
- The need for counselling is evident from the case studies and focus group discussions. In this regard, the Mizoram Diabetic Society can engage a counsellor who can operate as a psychiatric counsellor. A psychiatric counsellor will be able to function as a counsellor and a social worker to assist the patients and their families to overcome the challenges facing the patients and their families.
- As a result, it was found that the majority of the respondents' ways of coping domains are positive reappraisal, self-controlling and seeking social support. Hence, these three ways of coping patterns are further strengthened among persons-with diabetes with help of micro-level interventions at individual and family levels in understanding the situation of the illness. At the mezzo level, imparting necessary information and education to friends and relatives. At the macro level, community people such as children, women, youth and the elderly can be educated about the causes and consequences, systems and care of diabetes.

- The result shows that the respondents with type 1 diabetes have better coping patterns than those with type 2 diabetes. So that the non-insulin dependent persons could be educated by the Mizoram Diabetes Association about healthy diet and change their lifestyle patterns.
- As the study revealed that there is a significant difference between rural and urban as per the Mann-Whitney U test across the ways of coping. Hence, equal sensitisation as well as with help of local self-government and Municipal council should take policy measures to regulate lifestyle illnesses.
- As a result, it was found that the level of social support in terms of age group, as the age increases the primary support also increases whereas the secondary social support decreases, which is not healthy for elderly persons with diabetes, therefore, the micro-level of intervention is highly essential for the persons with diabetes is to strengthen the secondary social support systems, especially for the type 2 diabetes (non-insulin dependent).
- With regard to QOL, the study reveals that the social relationships decline in the same line as with all the domains of QOL. This finding is not favouring and beneficial to the middle as well as to the old age persons with diabetes. So that initiatives should be taken by the macro-level interventions by the civil society organisations at local and community levels in collaboration with the hospital and social welfare department and health departments.
- As per the Mann-Whitney U test significant difference between mean ranks of gender across QOL, it is found that males have better QOL than females. Therefore, the Messo level of intervention especially the MHIP (Mizo Hmechhe Insuihkawm Pawl) should come forward to take up steps with the help of social work professionals and medical social workers to conduct extension lectures to improve the health condition, especially for women groups, since they are the very important group of the society.

- Awareness of diabetes prevention, care and management and about healthy diet may also be taught among children, adolescents and old age groups by them. It was also suggested that lists of a healthy diet should be prepared in a more comprehensive manner which shall be printed and displayed in the kitchen so that the person responsible in a family kitchen may be more conscious and aware of a healthy diet. Accordingly, proper rules can be practiced in the family to follow a healthy diet.
- Surveillance programmes on diabetes can be carried out in order to understand the status of lifestyle disease which is prevalent among the Mizo people because there are new cases diagnosed every year. Social Workers can engage in such programmes for significant outcomes.
- A family counselling centre can be established to provide professional social workers services to Persons with Diabetes and their families in need.

8.7.1 Suggestions for Social Workers

The purpose of the study is to identify the social work intervention. From the findings, the researcher can link that there is scope for social work intervention in the context of the present study; social workers can intervene in the following manner:

- A social worker is a member of the multidisciplinary team who can serve as a support to persons with diabetes and their family.
- The social worker would facilitate the person with diabetes and talk about and listen to their feelings, thoughts, and reactions to the diagnosis, worries and concerns.
- Psychiatric social workers and Medicals social workers would offer counselling services in the hospitals and community.
- The social worker could teach relaxation techniques to help to reduce stress or anxiety or other fears associated with diabetes.
- The social worker could also provide emotional support, coping strategies, and support for patients with diabetes and their family members.
- Social Workers can engage in the formulation of the Diabetes Control Society for the welfare of *Persons with Diabetes*.

- Social workers have immense potential to improve the lives of people facing this chronic illness through well-established roles of educator, advocate, counsellor, therapist, community developer, and resource broker
- A social worker may educate persons with diabetes and families about these emotional challenges by conducting and involving effectively preparing self-care modules or through individual or family counselling sessions based on the context.
- An extensive awareness campaign can be carried out through community organizations such as MHIP, YMA and MUP and with church-based organizations of different communities.
- Casework and group work can also be conducted for a better outcome. Community organisations can collaborate with the Mizoram Diabetic Society NCD programme and generate awareness among women, youth and elderly more effectively.

8.8. Implication for social work practice

Social work is a new profession more than eight decades old in India. It has its philosophies and principles, knowledge and values, methods, skills and techniques to be practiced or intervened by the individuals, groups and communities, those who have encountered challenges in society. Through these social work processes, the clients or the people realize the problems encountered and work out the modalities in such a way that the potential and resources are utilized to remove the cause deals with the symptoms and reduce the magnitude of the problem. In this area there is enough scope to practice the methods of social work such as the primary methods of working with individuals, working with groups, working with communities and the secondary methods namely, social action, social welfare administration and social research.

The primary methods of social work have wider implications for social work to provide counselling one-one basis, group work can be conducted for the different age groups in the hospital setting, especially for the elderly people who are affected by diabetes at the micro-level of interventions.

The community organisation method also facilitates the social workers to do meso/mezzo level of intervention in the communities with the help of civil society organisations like Women Association, Youth Associations and elderly associations which are available in the community by which the social workers play a vital role for prevention, awareness generation about lifestyle illnesses or non-communicable diseases.

In the secondary social work methods, there is high scope for social work research since there is a dearth of empirical studies on the psychosocial challenges, coping, social support, and care management of diabetes, especially in the field of gerontology for type 1 and type 2 diabetes.

The present study provides a comprehensive understanding knowledge that familiarises the social worker with regard to the psychosocial challenges, coping, social support, and QOL of persons with diabetes. Subsequently, the social work fraternity must delve into the psychosocial challenges and cultural and food habits and how to modify the lifestyle of the people in the local context of the study by using the social work methods. Taking into consideration the magnitude of the challenges faced by persons with diabetes, the Government must bring out a separate programme and policy for addressing the issue, so that the present study suggests National Programme for Prevention and control of Diabetes could be operated in each state with help of Ministry of Health and Family Welfare.

8.9 Scope for future research

From the deliberation of the present study, the researcher can explore the scope for future research. Therefore, the scope for future research has been suggested in the following areas:

- There is a wide scope in areas such as community studies, a comparative study of rural and urban where rural communities and urban communities can be selected for the study.
- Gestational Diabetes is a form of high blood sugar affecting pregnant women and therefore, a study on *gestational diabetes* can also be carried

out with the help of the RCH (Reproductive and Child Health) programme under the Ministry of Health and Family Welfare Department.

- In the field of gerontology, there is a lack of social work research for working with elderly persons with diabetes, the study revealed the middle and old age groups are affected by both type 1 and type 2 diabetes.
- Social work Research could be focused on an empirical understanding of the psychosocial experiences for dealing with the challenges of diabetes mellitus.
- Type 1 diabetes is hereditary and it is also called *Juvenile Diabetes* as it is common among patients of younger age group. In this regard, a study on Juvenile Diabetes will be helpful to understanding their status.
- The families of *Persons with Diabetes* are very important to have an in-depth understanding of the challenges faced by the patients. There is a scope for future research among the families of *Persons with Diabetes* to explore the impact on the family as well as the issues and challenges faced by the patients.
- In future research, there is scope for an in-depth study on the food habits and lifestyle of *Persons with Diabetes.*