



Addis Ababa University

College of Education and Language Studies

School of Psychology

PYSCHO-SOCIAL WELLBEING AND DIABETICS MANAGEMENT
BEHAVIOR AMONG TYPE I ADULT DIABETIES PATIENTS: A STUDY
OF THE ETHIOPIAN DIABETES ASSOCIATION.

BY

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SEP. 2025

Addis Ababa, Ethiopia

ADDIS ABABA UNIVERSITY
COLLEGE OF EDUCATION AND LANGUAGE STUDIES SCHOOL
OF PSYCHOLOGY

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A THESIS SUBMITTED TO SCHOOL OF PSYCHOLOGY, COLLEGE OF EDUCATION
AND LANGUAGE STUDIES, ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN COUNSELING
PSYCHOLOGY

Sep, 2025

ADDIS ABABA ETHIOPIA

ADDIS ABABA UNIVERSITY

COLLEGE OF EDUCATION AND LANGUAGE STUDIES SCHOOL OF PSYCHOLOGY

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Diabetes Association.

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Declaration

The researcher hereby declares that the thesis on the title “Psycho-Social Wellbeing And Diabetics Management Behavior Among Type I Adult Diabetes Patients: A Study Of The Ethiopian Diabetes Association.” is my original work and that all source of materials used for thesis have been properly acknowledged.

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Acknowledgements

First and for most I would like to thank the Almighty God. My deepest gratitude goes to my adviser, Nimona Shako (assistant professor), for his sincere, intelligent and relevant thoughts, ideas and recommendation. In addition to that, I would like to thank the staff at Ethiopian Diabetic Association Head office.

Also, I am grateful to thank the study participants for their willingness and cooperation to fill the data. Finally, I want to express my heart-felt gratitude to my friends and family who were encouraging me throughout the research process.

Abstract

This study examines the psychosocial well-being and diabetes management behaviors among Ethiopian adults with Type 1 diabetes, focusing on depression, anxiety, stress, diabetes-related fear, and self-care practices. A cross-sectional design was employed, with 342 participants recruited through stratified random sampling from the Ethiopian Diabetes Association in Addis Ababa. Standardized measures, including the Depression Anxiety Stress Scale (DASS), Fear of Diabetes Scale (FDS), Diabetes Distress Scale (DSS), Summary of Diabetes Self-Care Activities (SDSCA), and Diabetes Self-Management Questionnaire (DSMQ), were used to assess key variables. Results revealed significant psychosocial challenges, with 48.5% of participants reporting mild psychological distress and 7.6% experiencing severe distress on the DASS. Diabetes-specific measures indicated even greater severity, with 71.1% reporting high stress on the DSS and 15.8% exhibiting severe fear on the FDS. While 81.9% demonstrated moderate self-care adherence on the SDSCA, the DSMQ identified 24.3% with severe management difficulties. Regression analyses highlighted strong predictive relationships, particularly between diabetes-related fear and stress ($R^2 = 0.63$, $p < 0.001$). The findings underscore the disproportionate psychosocial burden in this population compared to Western samples, significant gaps between perceived and actual self-management competencies, and the critical role of diabetes-specific fears in overall distress. These results emphasize the need for integrated psychosocial support within diabetes care in low-resource settings. The study contributes to global health literature by characterizing unique mental health challenges in Ethiopia's diabetes population and provides empirical support for culturally adapted interventions targeting disease-specific fears and stress.

Keywords: *Type 1 diabetes, psychosocial well-being, Diabetes management behavior*

Acronyms

T1D: Type 1 Diabetes

EDA: Ethiopian Diabetic Association

DASS:Depression Anxiety Stress Scale

FDS: Fear of Diabetes Scale

DSS: Diabetes distress scale

SDSCA: Summary of Diabetes Self-Care Activities

DSMQ: Diabetes Self-Management Questionnaire

Table of Contents

CHAPTER ONE	5
1.1 BACKGROUND OF THE STUDY	5
1.2 Statement Of The Problem.....	8
1.3 Objective of The Study	9
1.3.1 General Objective	9
1.3.2 Specific Objective.....	10
1.4 Research Questions	10
1.5 Significance of The Study	10
1.6 Scope Of The Study	12
1.7 Definition of Terms	13
CHAPTER TWO	15
2.1 REVIEW OF RELATED LITERATURE.	15
2.1.1 Introduction	15
2.1.1.1 Psychosocial wellbeing of Diabetes	16
2.1.2 Diabetes Management Behaviors	18
2.1.2.1 Impact of Psycho-Social Wellbeing on Diabetes Management	18
2.1.3 Demographic Variables	20
2.2 Theoretical Review	21
2.2.1 Health Belief Model	21
2.2.2 Social Support Theory	22
2.2.3 Self-Determination Theory	22
2.2.4 Stress and Coping Theories	23
2.3 Conceptual Framework	24
CHAPTER THREE	26
3.1 RESEARCH METHODOLOGY	26
3.1.1 Description of Study Area.....	26

3.1.2 Research Design	28
3.1.3 Population and Sampling	29
3.1.4 Source of Data	31
3.1.5 Data collection procedures	32
3.1.6 Reliability and Validity	33
3.1.7 Data analysis and presentation	35
3.1.8 Ethical Consideration	37
CHAPTER FOUR.....	39
4.1 RESULT	39
4.1.1 Sociodemographic Characteristics Of The Study Participants	39
4.1.2 DASS Descriptive Analysis.....	41
4.1.3 FDS Descriptive Analysis	42
4.1.4 DSS Descriptive Analysis	44
4.1.5 SDSCA Descriptive Analysis	45
4.1.6 DSMQ Descriptive Analysis	47
4.2 Correlation Analysis.....	48
4.2.1 Correlation between DASS and FDS	48
4.2.2 Correlation between SDSCA and FDS.....	49
4.2.3 Correlation between DSS and FDS	50
4.2.4 Correlation between SDSCA and DSMQ	51
4.3Regression Analysis	52
4.3.1 Regression of DASS and FDS.....	52
4.3.2 Anova of SDSCA and FDS	53
4.3.3 Anova of FDS and DSS.....	54
4.3.4 Anova of Duration and DSS	56
CHAPTER FIVE	58
5.1 DISCUSSION OF FINDINGS	58
5.1.1 Psychosocial Burden in Diabetes Management.....	59

5.1.2 Management Behavior Patterns.....	60
5.1.3 Interrelationships Between Psychosocial Factors.....	60
5.1.4 relationship with demographic variables.....	61
5.1.5 Methodological Considerations.....	62
5.1.6 Contextual Factors.....	63
5.1.7 Limitations.....	64
CHAPTER SIX.....	65
6.1 CONCLUSIONS AND RECOMMENDATIONS	65
6.1.1 CONCLUSIONS	65
6.2 Recommendation.....	66
6.2.1 Theoretical Recommendation.....	66
6.2.2 Clinical Practice Recommendations.....	67
6.2.4 Research Recommendations	68
Reference	69
Appendix I.....	79
Appendix II	80
Appendix III	81

List of Tables

TABLE 1: RELIABILITY STATISTICS OF SCALES	34
TABLE 2: DISTRIBUTION OF SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE STUDY PARTICIPANTS	40
TABLE 3: THE LEVEL OF DASS SEVERITY	42
TABLE 4: THE LEVEL OF FDS SEVERITY	43
TABLE 5: THE LEVELS OF DSS SEVERITY	44
TABLE 6: THE LEVEL OF SDSCA SEVERITY	46
TABLE 7: THE LEVEL OF DSMQ SEVERITY	47
TABLE 8: CORRELATION OF DASS AND FDS	49
TABLE 9: CORRELATION ANALYSIS OF SDSCA AND FDS	50
TABLE 10: CORRELATION ANALYSIS OF DSS AND FDS	51
TABLE 11: CORRELATION ANALYSIS OF SDSCA AND DSMQ	52
TABLE 12: REGRESSION ANALYSIS OF DASS AND FDS	53
TABLE 13: SDSCA AND FDS	53
TABLE 14: REGRESSION OF DSS AND FDS	55
TABLE 15: ANOVA TEST OF DSS AND FDS	56
TABLE 16: ANOVA TEST OF DURATION AND DSS	57

List of Figures

FIGURE 1: CONCEPTUAL FRAMEWORK	25
FIGURE 2: THE DESCRIPTIVE ANALYSIS OF DASS SCALE	42
FIGURE 4: THE DESCRIPTIVE ANALYSIS OF DSS TOTAL	45
FIGURE 5: DESCRIPTIVE ANALYSIS OF SDSCA TOTAL	46
FIGURE 6: DESCRIPTIVE ANALYSIS OF DSMQ TOTAL	48

CHAPTER ONE

1.1 BACKGROUND OF THE STUDY

Research has shown that incorporating psychosocial care into diabetes management is essential (IDF, 2021), as diabetes affects almost half a billion people worldwide International Diabetes Federation. In North America, (Trief et al. ,2015) research has shown how important it is to address psychological health in the treatment of diabetes, and routine screening for stress, depression, fear, and stigma should be part of treatment regimens. Cultural beliefs, (Mbanya et al. ,2014) socioeconomic barriers, and a lack of healthcare infrastructure presented particular challenges for diabetes management and psychosocial well-being in Africa. According to studies, the rising prevalence of diabetes was made worse by limited access to healthcare, drugs, and diagnostic equipment, particularly in rural areas. Mental health issues, social isolation, and stigma were among the psychosocial effects that made managing the disease even more difficult (Basu et al. ,2016). Addressing both physical and emotional needs required integrated care models that integrated medical care with psychosocial support (Zarulli et al. ,2020).

The diabetes situation in Ethiopia was a reflection of these difficulties. With an adult prevalence rate of 5.2%, the (IDF ,2017) reported 2.6 million cases. Although thorough data on type 1 diabetes (T1D) is still lacking, the (IDF,2023) estimated that thousands of Ethiopian youth had the disease, many of whom went undiagnosed because of structural inequalities in healthcare awareness and access. Because T1D is autoimmune and causes complete insulin dependence, it poses a serious risk to life, especially in environments with limited resources. (Tekola et al., 2022) Due to social stigma and insulin shortages, the condition's childhood or adolescent onset led to strained family dynamics, interrupted education, and increased risks of avoidable

complications. In contrast to other types of diabetes, (IDF, 2023) the unchangeable risk factors and constant demands for self-management associated with type 1 diabetes exacerbated psychological distress and financial hardship.

In low-resource settings like Ethiopia (IDF, 2023), where its autoimmune nature and complete insulin dependence create life-or-death vulnerabilities amid healthcare system gaps, type 1 diabetes (T1D) poses significant psychosocial challenges that are different from those of type 2 diabetes (T2D). The disorder usually manifests in childhood or early adulthood, and because of its constant demands on self-management, (Habtewold et al., 2022) it interferes with education, strains family relationships, and threatens future opportunities. Due to a combination of social misconceptions about their condition and insulin shortages, (Tekola-Ayele et al., 2021) Ethiopian youth with T1D experience additional stressors such as stigma, isolation, and avoidable complications. According to (IDF, 2023), T1D's unchangeable risk factors and ongoing survival needs worsen emotional distress, financial hardship, and caregiver burnout in contrast to T2D's capacity for lifestyle modification. Protecting the physical and mental health of this susceptible group requires addressing these intertwining crises with comprehensive care approaches.

According to (Huppert, 2015), psychosocial well-being included the interaction of social and psychological elements that influence mental health and life quality. Psychosocial well-being (Polonsky & Fisher, 2015) had a major impact on self-care practices for diabetics, such as diet, exercise, and medication adherence. Effective management was frequently hampered by emotional difficulties like social isolation, burnout, and depression (Li et al., 2016). In contrast, coping and health outcomes were enhanced by psychological interventions and strong social support (Anderson et al., 2009). Diabetes Mellitus (DM) is a chronic medical condition that

occurs when the body cannot properly regulate blood sugar (glucose) levels. Insulin is a hormone that helps cells absorb glucose from the bloodstream to be used for energy. The management of diabetes is not only influenced by medical treatment but is also significantly affected by an individual's psychosocial wellbeing, (Polonsky & Fisher, 2015) which encompasses emotional, psychological, and social factors. Effective diabetes management behavior, such as adhering to medication, maintaining a healthy diet, and engaging in regular physical activity, (Anderson et al., 2009) can be greatly impacted by a person's psychological, emotional health, and social support. Emotional challenges like fear, burnout, depression, and anxiety, (Li et al., 2016) along with social factors such as family dynamics and social isolation, can hinder a person's ability to follow treatment protocols, leading to poor health outcomes. Therefore, understanding the relationship between psychosocial wellbeing and diabetes management behavior is crucial, as addressing both the psychological and social aspects of diabetes care can improve adherence, (Nichols et al., 2012) reduce complications, and enhance overall quality of life for individuals living with the condition. Moreover, (Norris et al., 2007) the fear of complications and the demands of daily diabetes care can lead to burnout or frustration. However, (de Groot et al., 2013) strong social support, psychological counseling, and coping strategies can help improve the psychosocial wellbeing of individuals with diabetes, enabling them to better manage their condition and its emotional and social impacts.

Despite the importance of psychosocial care being acknowledged globally Ethiopia did not have specific studies on the impact of social support, emotional distress, and stigma on T1D care. Previous research mainly concentrated on clinical aspects (Kassahun et al. ,2016), Examining patients' psychosocial well-being and diabetes management practices at the Ethiopian Diabetes Association helped close that gap. This study examined the relationships between psychosocial

factors and diabetes management practices using validated psychometric tools in a quantitative cross-sectional design.

1.2 Statement Of The Problem

Diabetes management was not just a medical challenge—it represented a complex interplay of physical care and psychosocial well-being. People living with diabetes faced relentless emotional burdens, including depression, anxiety, stigma, and fear, (Anderson et al., 2001) all of which stemmed from the demands of daily self-care, financial strain, and societal misconceptions. These psychological struggles frequently led to poor treatment adherence, (Goldenberg et al., 2017) worsening health outcomes, and diminished quality of life. Yet healthcare systems often overlooked these psychosocial dimensions, focusing narrowly on blood sugar control rather than holistic patient well-being. Without addressing mental health and social support, even the best medical interventions fell short.

In Africa, (Mbanya et al., 2014) the diabetes crisis was compounded by systemic barriers: inadequate healthcare access, cultural stigma, and economic hardship. Many patients experienced isolation (Ogunbode et al., 2016) due to beliefs that diabetes was a "rich man's disease" or a personal failing. Rural communities suffered most, with scarce clinics, (Basu et al., 2016) unaffordable medications, and limited diabetes education. The result was a cycle of distress and poor self-management, (Adeniyi et al., 2020) where psychosocial neglect exacerbated physical complications. Despite this reality, few interventions had integrated mental health support with diabetes care—a critical gap that undermined patient survival and dignity.

Ethiopia mirrored these challenges but with unique severity. Urbanization and lifestyle shifts were driving diabetes prevalence, (Tesfaye et al., 2011) yet the healthcare system remained ill-

equipped to address its psychosocial toll. Patients reported (Abegaz et al., 2017) crippling stigma, with many hiding their condition to avoid Shunning. Limited access to insulin and glucose monitors intensified stress, (Tessema et al., 2018) while cultural myths discouraged help-seeking. Rural patients faced even graver inequities, with virtually no mental health services tailored to diabetes-related distress. Existing care models failed to recognize that psychosocial well-being was not secondary—it was foundational to effective disease management.

This study confronted Ethiopia's research-practice gap by investigating how psychosocial factors—stigma, depression, fear, and social support—shaped diabetes self-management behaviors. While previous studies had focused on clinical metrics, this research centered on patient experiences, particularly within the Ethiopian Diabetes Association, to expose systemic blind spots. The findings provided empirical evidence for integrating psychosocial support with medical care, demonstrating that comprehensive interventions addressing both physical and mental health needs yielded better outcomes than biomedical approaches alone. Without such integration, Ethiopia's diabetes epidemic had continued to claim lives and diminish quality of life at an alarming—yet preventable—rate.

1.3 Objective of The Study

1.3.1 General Objective

The general objective of this study is to investigate the relationship between psychosocial well-being and diabetes management behavior among patients affiliated with the Ethiopian Diabetes Association.

1.3.2 Specific Objective

1. To investigate the psychosocial wellbeing of individual living with diabetes at EDA focusing on their mental health, social support systems and quality of life.
2. To Assess diabetes management behaviors of diabetes patients in the case of Ethiopian Diabetes Association.
3. To Assess the relationship between psychosocial wellbeing and diabetes management behaviors of diabetes patients in the case of Ethiopian Diabetes Association.
4. To examine the psychosocial wellbeing of diabetic patients across some demographic variables.

1.4 Research Questions

1. What is the psychosocial wellbeing of diabetes patients in the case of the Ethiopian Diabetes Association?
2. How do diabetes patients in the Ethiopian Diabetes Association manage their diabetes?
3. What is the relationship between psychosocial wellbeing and diabetes management behaviors of diabetes patients in the Ethiopian Diabetes Association?
4. How does the psychosocial wellbeing of diabetic patients vary across different demographic variables in the Ethiopian Diabetes Association?

1.5 Significance of The Study

The results of this study on the diabetes management practices and psychosocial well-being of members of the Ethiopian Diabetes Association have important theoretical and practical

ramifications. The study theoretically added to the body of knowledge already available on diabetes management by highlighting the crucial role that psychosocial factors—such as social support, stress, anxiety, depression, and stigma—played in influencing diabetes self-management practices. In environments with limited resources, such as Ethiopia, it advanced a more comprehensive approach to managing chronic diseases by offering empirical evidence in favor of combining psychological support with medical treatment.

In practice, the study provided numerous stakeholders with beneficial outcomes. By better understanding the psychological and emotional difficulties that people with diabetes face, healthcare professionals were able to create more all-encompassing care plans that met their patients' biological and psychosocial needs. Along with lowering stigma and increasing treatment adherence, the Ethiopian Diabetes Association and other patient support groups used these evidence-based insights to create focused interventions that enhanced psychological and physical health outcomes.

The results of the study shows the quality of life for diabetics by strengthening their coping mechanisms, improving their support networks, and increasing their adherence to treatment plans. Because integrated care models outperformed traditional biomedical approaches alone, policymakers and healthcare planners incorporated the findings into national diabetes care strategies. In the end, this study significantly improved the psychosocial well-being and clinical outcomes for Ethiopians with diabetes.

1.6 Scope Of The Study

This study looked at how type 1 diabetes management behavior among members of the Ethiopian Diabetes Association relate to psychosocial well-being. In particular, the study evaluated the effects of psychological variables such as social support, fear, anxiety, depression, and stigma on adherence to diabetes management practices like exercising, eating right, and taking medications. By examining a factor that is usually disregarded in traditional medical approaches, the study offered insightful information about the relationship between emotional health and diabetes self-management abilities. By methodically examining these connections, the study addressed a significant research void concerning the function of psychosocial elements in the management of chronic illnesses.

The study focused on members of the Ethiopian Diabetes Association and covered the Addis Ababa Region geographically. This method made it possible to examine how different living situations and healthcare access points affected diabetes management experiences. The study collected data from urban areas with comparatively better access to healthcare and examined the effects of living conditions and healthcare accessibility on psychological and physical health outcomes.

Demographically, the study included individuals living with diabetes who were members of the Ethiopian Diabetes Association. The research incorporated multiple variables including gender, socioeconomic status, and disease duration, with particular attention to how these factors mediated the psychosocial dimensions of diabetes management. Employing a cross-sectional quantitative design, the study collected data through standardized surveys that evaluated current psychosocial status and its association with self-care behaviors. While the investigation did not

incorporate longitudinal tracking or interventional components, its findings provided essential baseline data to inform future intervention strategies and the development of integrated care models for diabetes management in Ethiopia.

1.7 Definition of Terms

Psycho-social wellbeing: Psychosocial wellbeing is a state of mental, emotional, and social health where an individual can effectively cope with life's stresses, maintain fulfilling relationships, and contribute meaningfully to society.

Depression : a condition marked by sadness, emptiness, hopelessness, and loss of interest for most of the day as measured by DASS depression sub-scale.

Anxiety : is a mental problem related to autonomic arousal, skeletal muscle tension, and situational aspects as measured by DASS anxiety sub-scale.

Stress : refers to the sum of physical, mental, and emotional stress or tension on a person as measured by DASS Stress sub-scale.

Fear : Fear is an emotional response to a perceived threat or danger, triggering physiological and psychological changes that prepare the individual to either confront or avoid the source of danger.

Social support : it is the assistance and comfort individuals receive from family, friends, and community. It includes emotional, informational, and practical help, enhancing well-being and coping abilities.

Diabetes: Diabetes is a chronic metabolic disorder characterized by persistent hyperglycemia (elevated blood glucose levels) resulting from defects in insulin secretion, insulin action, or both.

T1D :Type 1 Diabetes is an autoimmune disease in which the body's immune system mistakenly attacks and destroys insulin-producing beta cells in the pancreas. This results in little to no insulin production, requiring lifelong insulin therapy for survival. T1D typically develops in childhood or adolescence but can occur at any age.

CHAPTER TWO

2.1 REVIEW OF RELATED LITERATURE.

2.1.1 Introduction

Diabetes Mellitus (DM) is a chronic metabolic disorder characterized by elevated blood glucose levels (hyperglycemia) resulting from either insufficient insulin production or poor cellular response to insulin. Insulin, a hormone produced by the pancreas, is crucial for regulating glucose metabolism by promoting the uptake of glucose into cells for energy. There are two primary types of DM: Type 1 Diabetes, which is an autoimmune condition where the immune system attacks and destroys the insulin-producing beta cells in the pancreas, and Type 2 Diabetes, which is characterized by insulin resistance and a gradual decline in insulin secretion. (WHO, 2021) Type 1 Diabetes typically develops in childhood or adolescence and requires lifelong insulin therapy, while Type 2 Diabetes is often linked to lifestyle factors such as obesity, physical inactivity, and poor diet, and is more common in adults.

Diabetes mellitus (DM) has a significant psychosocial impact on individuals, affecting various aspects of their mental health, social interactions, and overall well-being. The chronic nature of the disease and the continuous need for management often lead to feelings of stress, anxiety, and depression. (Pouwer et al., 2010) Studies have shown that individuals with DM, particularly Type 2 diabetes, are at a higher risk of developing psychological disorders such as depression and anxiety compared to the general population.

The constant need for self-monitoring of blood glucose levels, adhering to medication regimens, managing dietary restrictions, and coping with the risk of complications can lead to emotional

distress, feelings of loss of control, and a diminished quality of life. This psychological burden can further complicate diabetes management, (Anderson et al., 2001) as individuals may experience difficulties in maintaining consistent self-care behaviors like medication adherence, healthy eating, and exercise.

Additionally, the social support system plays a critical role in the psychosocial well-being of people living with diabetes. Research highlights that strong social support networks—(Dambi et al., 2021) such as family, friends, and healthcare providers—can buffer the negative psychological effects of diabetes. Emotional and practical support from loved ones can help reduce stress and improve coping strategies, leading to better diabetes management and improved health outcomes. On the other hand, individuals who feel isolated or lack adequate support may face greater challenges in managing their condition. Furthermore, stigma associated with diabetes, particularly Type 2 diabetes, (Sluik et al., 2015) can contribute to feelings of shame or embarrassment, leading to social withdrawal and reduced engagement in social activities. Overall, the psychosocial impact of diabetes underscores the need for comprehensive care that addresses both the physical and emotional aspects of the disease.

2.1.1.1 Psychosocial wellbeing of Diabetes

Research indicates that individuals with diabetes experience significantly higher rates of mental health compared to the general population, (Fisher et al., 2016) with studies showing that up to 40% of diabetic patients report depressive symptoms. This emotional burden is often exacerbated by feelings of helplessness and fear regarding disease management, (Nouwen et al., 2011) as patients frequently confront the daily challenges of glucose monitoring, dietary restrictions, and the threat of complications. Additionally, diabetes distress, (Polonsky et al., 2005) characterized

by overwhelming frustration and worry about diabetes management, has been shown to correlate strongly with both anxiety and depression, underscoring the psychosocial challenges inherent in living with the condition.

Diabetes significantly negatively impacts quality of life, (Gonzalez et al., 2016) with studies indicating that individuals with poor glycemic control experience greater limitations in daily activities, increased psychological distress, and lower overall life satisfaction. Poor glycemic control is often associated with a heightened risk of diabetes-related complications, (McEwen et al., 2015) which further aggravates feelings of anxiety and depression. Additionally, research has shown that the emotional burden of managing diabetes—such as fear of hypoglycemia and frustration with treatment regimens—(Fisher et al., 2016) contributes to a decline in mental well-being, ultimately leading to poorer psychosocial outcomes. These findings highlight the importance of addressing both physical and mental health in diabetes management to improve quality of life.

2.1.1.2 Social Support and Diabetes Management

Social support plays a crucial role in the effective management of diabetes, influencing both physical health outcomes and psychological well-being. (Heisler et al., 2010) Research indicates that strong social support networks can lead to better diabetes self-management, improved adherence to treatment regimens, and enhanced quality of life. A study by (Buse et al., 2016) found that individuals with robust social support systems reported lower levels of diabetes distress, which is associated with improved glycemic control and overall health outcomes.

Additionally, the type of support received—whether emotional, informational, or tangible—can significantly affect diabetes management. For instance, (Gallant, 2003) emphasized that

emotional support can buffer the psychological burden of diabetes, while informational support helps individuals navigate the complexities of their treatment plans. Furthermore, family dynamics play a significant role in diabetes management; (Wexler et al. 2016) noted that family involvement in care processes can lead to better adherence and motivation among patients, particularly in adolescents and young adults.

However, social support is not uniformly positive; the quality of support matters. Negative social interactions or conflict can exacerbate feelings of stress and anxiety, (Miller et al., 2014) leading to poorer diabetes outcomes. Therefore, while social support is a vital component of diabetes management, the nuances of these relationships must be considered.

In conclusion, the literature highlights that effective social support is essential for successful diabetes management, impacting both clinical outcomes and psychosocial well-being. Future research should focus on developing targeted interventions that enhance positive social support while addressing potential negative influences.

2.1.2 Diabetes Management Behaviors

Effective diabetes management involves adherence to medication, dietary modifications, regular physical activity, and routine monitoring of blood glucose levels. Understanding the psychosocial factors that influence these behaviors is crucial for developing effective interventions.

2.1.2.1 Impact of Psycho-Social Wellbeing on Diabetes Management

Psychosocial interventions play a crucial role in improving the emotional well-being of individuals with diabetes. Cognitive-behavioral therapy (CBT) (Kovacs et al., 2016) has been shown to effectively reduce anxiety and depression, leading to better diabetes management.

Mindfulness-based stress reduction (MBSR) also demonstrates significant benefits, (Peters et al., 2018) helping patients cultivate greater emotional regulation and reducing diabetes-related distress. Additionally, diabetes education programs that incorporate emotional well-being components enhance patients' understanding of their condition and promote adaptive coping strategies, (Gonzalez et al., 2016) ultimately leading to improved self-care and quality of life. Furthermore, integrated care models that combine physical and psychosocial approaches have been found to enhance diabetes outcomes. Studies indicate that multidisciplinary teams, including healthcare providers, mental health professionals, and diabetes educators, (McGowan et al., 2015) lead to improved glycemic control and higher patient satisfaction. This holistic approach addresses the multifaceted nature of diabetes, recognizing the importance of both physical health and psychological support.

2.1.2.2 Emotional Wellbeing

Emotional wellbeing significantly impacts diabetes management behaviors. Patients experiencing high levels of stress, anxiety, or depression are less likely to adhere to treatment plans. Research has shown that emotional disturbances can lead to poor self-care practices, resulting in adverse health outcomes.

2.1.2.3 Social Support

Social support plays a vital role in the management of diabetes. Patients with strong support networks are more likely to engage in positive health behaviors. In Ethiopia, community support and family involvement are culturally significant, and the Ethiopian Diabetes Association emphasizes the importance of social networks in promoting self-management.

2.1.2.4 Cultural Perceptions

Cultural beliefs surrounding diabetes can influence patients' perceptions of their condition and their willingness to seek help. In Ethiopia, misconceptions about diabetes can lead to stigma and discrimination, which adversely affect psychosocial wellbeing. Understanding these cultural dynamics is essential for developing effective educational programs.

2.1.3 Demographic Variables

2.1.3.1 Age and Gender

Research indicates that age and gender can influence both psychosocial wellbeing and diabetes management behaviors. Older adults often face unique challenges, such as comorbidities and social isolation, which can impact their management behaviors. Women may experience different psychosocial stresses related to caregiving and societal expectations, affecting their diabetes management.

2.1.3.2 Socioeconomic Status

Socioeconomic status is a critical determinant of health behaviors. Patients from lower socioeconomic backgrounds may face barriers to accessing healthcare, education, and resources, which can hinder effective diabetes management. The Ethiopian Diabetes Association aims to address these disparities through community outreach and education.

2.2 Theoretical Review

2.2.1 Health Belief Model

The Health Belief Model (HBM) is a psychological framework that explains health behaviors based on individuals' beliefs regarding health risks and the benefits of taking action. According to the HBM, (Rosenstock, 1974) a person's likelihood of engaging in health-promoting behavior is influenced by their perception of susceptibility to a health issue, the perceived severity of that issue, perceived benefits of taking preventive action, and perceived barriers to taking that action. This model suggests that individuals are more likely to take action if they believe they are at risk for a negative health outcome and perceive the benefits of taking preventive measures as outweighing the costs or barriers involved.

In the context of diabetes, (Miller et al., 2014) individuals' beliefs about their condition significantly influence their adherence to treatment and management practices. Some research indicates that patients who perceive themselves as at high risk for complications from diabetes are more likely to engage in self-care behaviors, such as adhering to medication regimens and maintaining dietary guidelines. Conversely, (Gonzalez et al., 2016) if individuals underestimate the severity of diabetes or perceive barriers to effective management—such as lack of resources or knowledge—they may be less inclined to follow treatment recommendations. Thus, addressing and modifying these beliefs through education and support is crucial for improving diabetes management and health outcomes.

2.2.2 Social Support Theory

Social networks play a vital role in health and well-being by providing emotional, informational, and practical support. (Berkman et al., 2000) Research indicates that strong social connections can lead to improved mental health, increased resilience, and better health outcomes across various populations. Social networks can facilitate access to resources and information, fostering a sense of belonging and reducing feelings of isolation. Furthermore, (Cohen & Wills, 1985) supportive relationships can buffer the effects of stress, which is crucial for maintaining overall health and coping with chronic conditions.

In the context of diabetes management, strong social support is particularly relevant. Studies have shown that individuals with robust support systems experience lower levels of diabetes-related distress, (Buse et al., 2016) which can significantly enhance their ability to cope with the demands of their condition. emotional support from family and friends can help alleviate feelings of anxiety and frustration, (Gallant, 2003) allowing individuals to engage more actively in self-care behaviors. Additionally, informational support from peers and healthcare providers can empower patients to make informed decisions about their treatment, (Fisher et al., 2016) thereby improving adherence to management practices and leading to better health outcomes. Overall, fostering strong social networks can be a critical component of effective diabetes management and overall well-being.

2.2.3 Self-Determination Theory

Self-Determination Theory (SDT) is a psychological framework that emphasizes the role of intrinsic motivation and the fulfillment of basic psychological needs—(Deci & Ryan, 2000) autonomy, competence, and relatedness—in promoting optimal functioning and well-being.

According to SDT, individuals are more likely to engage in behaviors that promote their health and well-being when they feel a sense of control over their actions (autonomy), believe they are capable of achieving their goals (competence), and experience supportive relationships with others (relatedness). This theory posits that fulfilling these psychological needs leads to enhanced motivation, increased engagement in health-promoting behaviors, and overall better health outcomes.

In the context of diabetes management, fostering autonomy is particularly crucial for improving treatment adherence and psychological well-being. Research shows that when patients are encouraged to take an active role in their self-management—such as setting personal health goals and making informed decisions about their treatment—(Williams et al., 2006) they are more likely to adhere to their prescribed regimens and maintain better glycemic control. Autonomy-supportive environments, (Fisher et al., 2016) where healthcare providers empower patients through education and encouragement, have been associated with reduced diabetes distress and improved quality of life. By nurturing autonomy, healthcare professionals can help individuals with diabetes feel more competent in managing their condition and create a supportive network that fosters relatedness, ultimately leading to better health outcomes and emotional resilience.

2.2.4 Stress and Coping Theories

Lazarus and Folkman's Stress and Coping Model (Lazarus & Folkman, 1984) frames stress as a dynamic process that arises from the interaction between an individual and their environment, highlighting how personal perceptions and external circumstances influence the experience of stress. According to this model, stress is not merely a response to environmental demands; rather, it involves cognitive appraisals where individuals assess both the threat posed by a

stressor and their ability to cope with it. This dual appraisal process consists of primary appraisal (evaluating the significance of the stressor) and secondary appraisal (assessing available resources and coping strategies). This framework underscores that coping strategies are influenced not only by the nature of the stressor but also by the individual's beliefs, resources, and past experiences.

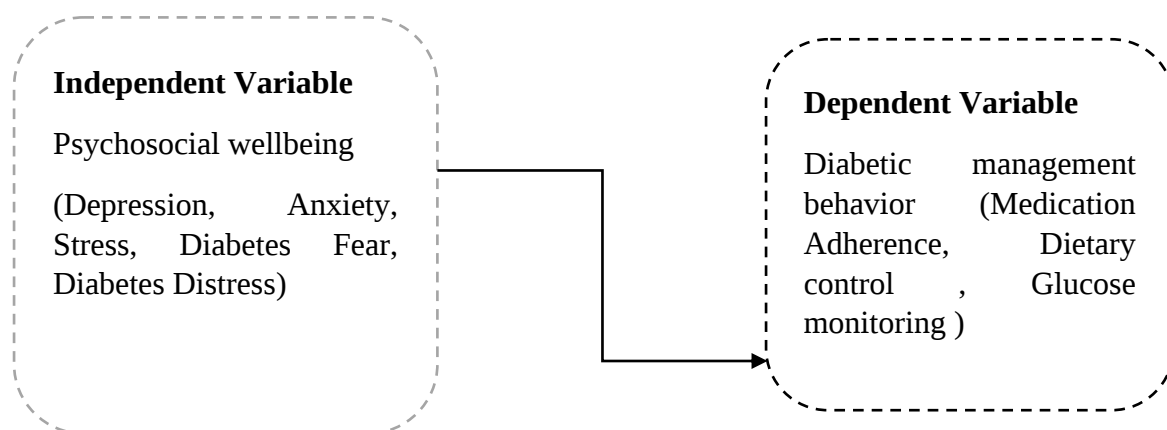
In the context of diabetes management, Lazarus and Folkman's model can help expose the specific stressors faced by patients, such as the daily demands of blood glucose monitoring, dietary restrictions, and the fear of complications. Patients may experience heightened stress when they appraise these challenges as threats to their health and well-being. For instance, a study by (Hagger&Orbell, 2003) demonstrated that individuals who perceive their diabetes management as overwhelming are more likely to adopt maladaptive coping strategies, such as avoidance or denial. Conversely, (Gonzalez et al., 2016) those who perceive their situation as manageable may employ adaptive coping mechanisms, such as problem-solving and seeking social support, ultimately leading to better emotional adjustment and health outcomes. By understanding the interplay between stressors and coping mechanisms through this model, healthcare providers can better support patients in developing effective strategies for managing the psychological aspects of diabetes.

2.3 Conceptual Framework

This conceptual framework explores the dynamic interplay between key variables, highlighting how psychological, environmental, and behavioral factors shape their relationship. By understanding these connections, healthcare providers can design targeted strategies to address both the psychological and behavioral dimensions of diabetes care, ultimately improving patient

outcomes and fostering long-term wellbeing. Diabetes is a chronic condition that requires lifelong management, involving not only medical treatment but also significant lifestyle and behavioral adjustments. While clinical interventions are vital, the role of psychosocial wellbeing in influencing diabetic behavior management has become increasingly recognized as a critical factor in achieving optimal health outcomes. Psychosocial wellbeing, which includes emotional stability, social support, and psychological resilience, significantly impacts a patient's ability to adhere to self-care practices, such as medication adherence, dietary control, and regular physical activity. In this framework, psychosocial wellbeing is identified as the independent variable (predictor), as it is hypothesized to directly influence the dependent variable (outcome), which is diabetic behavior management. Simultaneously, effective diabetic behavior management can enhance psychosocial wellbeing by reducing stress, improving quality of life, and lowering the risk of complications, creating a bidirectional relationship. This framework underscores the importance of addressing both psychosocial and behavioral factors to achieve comprehensive diabetes care.

Figure 1: Conceptual Framework



CHAPTER THREE

3.1 RESEARCH METHODOLOGY

3.1.1 Description of Study Area

People with diabetes were the specific focus of the study, which was carried out among Addis Ababa members of the Ethiopian Diabetes Association. A number of important factors led to the selection of this urban setting as the research site, including the capital's documented increase in diabetes prevalence, the concentration of diverse socioeconomic groups, and the distinctive intersection of contemporary healthcare infrastructure with enduring traditional health beliefs that defined diabetes management in this setting. Ethiopia's epidemiological transition was embodied in Addis Ababa, which made for an important case study. As healthcare systems adjusted to these changing demands, the burden of non-communicable diseases increased due to increasing urbanization and lifestyle changes. The clinical settings in the capital provided access to patients with varying levels of healthcare access and at different stages of diabetes progression, even though it was an urban center. This made it possible to investigate how psychosocial factors functioned across a range of urban experiences, from patients in peri-urban clinics who were having trouble accessing medications to those who were relatively privileged at tertiary care centers.

The Ethiopian Diabetes Association (EDA) is a prominent healthcare organization dedicated to addressing the growing burden of diabetes in Ethiopia. Established to provide critical support and services to individuals living with diabetes, the EDA has developed an extensive network of 90 branches strategically located across the country, ensuring broad geographic and

socioeconomic coverage. With a registry of approximately 89,000 members diagnosed with type 2 diabetes, the association plays a vital role in diabetes management, education, and advocacy. Its programs are designed to cater to diverse populations, including urban and rural communities, where healthcare access and resources vary significantly. The EDA's infrastructure enables it to implement targeted interventions, such as its urban program in Addis Ababa, which serves 7,099 individuals with type 1 diabetes, and its rural initiative, which supports 6,000 type 1 diabetes patients in remote areas.

Through its nationwide reach, the EDA delivers comprehensive diabetes care, including medical services, patient education, community support, medication support and bridging gaps in healthcare accessibility. The association's dual focus on urban and rural populations ensures that vulnerable groups, particularly those in underserved regions, receive essential diabetes management resources. By maintaining a robust registry and deploying tailored interventions, the EDA not only improves individual health outcomes but also contributes to broader public health efforts in diabetes prevention and control. Its work highlights the importance of localized, scalable healthcare solutions in addressing chronic diseases within low-resource settings, making it a key player in Ethiopia's healthcare landscape.

The research setting was especially useful for comprehending how the relationship between psychosocial well-being and diabetes self-management was mediated by Ethiopia's distinct sociocultural context, which includes strong communal traditions, religious influences on health behaviors, and changing gender roles. The investigation was able to capture the opportunities and challenges unique to diabetes care in an urban African setting that is experiencing rapid epidemiological and social change by establishing the study in this context.

3.1.2 Research Design

To systematically investigate the connection between diabetes management practices and psychosocial well-being, the study used a quantitative methodology. Given the practical benefits of a cross-sectional design in Ethiopian research. While taking into account the resource constraints typical of low-income settings, (Sedgwick, 2014) this method successfully captured a temporal snapshot of diabetes management practices and psychosocial well-being. (Levin, 2006) This was especially helpful in identifying priority intervention areas.

(Mann, 2003) A significant benefit for producing timely evidence to guide policy in Ethiopia's poorly understood diabetes landscape is that this design made it easier to collect data from a sizable sample size. The methodology established the groundwork for upcoming longitudinal studies while striking a balance between scientific rigor and pragmatic considerations of feasibility and resource efficiency.

Standardized psychometric tools were used in the study to assess important factors such as depression, stigma, fear, and anxiety related to diabetes, as well as general psychological health. Comprehensive statistical analyses made possible by these measures showed noteworthy patterns and correlations between psychosocial factors and the results of diabetes management. The resulting dataset offered solid proof of the ways in which differences in self-care practices affected the study population's psychosocial well-being, treatment adherence, and general quality of life metrics.

3.1.3 Population and Sampling

The Ethiopian Diabetes Association (EDA) served a substantial patient population, maintaining registries of approximately 89,000 members with type 2 diabetes across its network. The association implemented two distinct intervention projects: an urban program serving 7,099 individuals with type 1 diabetes in Addis Ababa, and a parallel rural initiative supporting 6,000 type 1 diabetes patients in remote areas. Through its extensive infrastructure of 90 strategically distributed branches, the EDA ensured comprehensive service coverage across Ethiopia's diverse geographic and socioeconomic landscapes. This nationwide network enabled the association to deliver diabetes care programs, education initiatives, and support services to both urban centers and hard-to-reach rural communities, addressing critical disparities in healthcare access.

The research focused specifically on a cohort of 3,720 individuals with type 1 diabetes in Addis Ababa who received direct support from the Ethiopian Diabetes Association (EDA). By concentrating on this population, the study assessed the impact and effectiveness of structured diabetes care programs in an urban setting. The findings provided empirical evidence of the EDA's institutional efforts to address the complex needs of individuals with diabetes, offering actionable insights to optimize healthcare delivery nationwide. Including individuals with type 1 diabetes—a population requiring lifelong insulin therapy and intensive self-management—enabled a rigorous examination of the psychosocial and clinical challenges inherent in diabetes care. This approach ensured that the study's conclusions were not only relevant to type 1 diabetes but also broadly applicable to improving care frameworks for all individuals with diabetes, given the shared management principles across diabetes subtypes.

The participants are carefully selected to ensure that the sample size is large enough to provide sufficient statistical power for analyzing the relationships between psychosocial well-being and diabetes management behavior. This sample size is to be considered adequate to detect meaningful effects and differences across various demographic groups within the population. Collectively, these sample sizes support a comprehensive analysis of the interaction between psychosocial factors and diabetes management.

The study employed stratified random sampling to ensure representation across key subgroups, dividing the population into homogeneous strata based on age groups (21-30,31-40,41-50,51-60,61-70 >70 years), gender, and diabetes duration (0-1.2-4.5-7, >7 years). Participants were randomly selected from each stratum proportionally to their representation in the Ethiopian Diabetes Association's registry, maintaining overall randomness while enabling precise subgroup comparisons. This approach addressed potential confounding by these clinically and psychosocially relevant variables, as supported by existing literature demonstrating their significant impact on diabetes experiences. The stratified design ensured adequate power ($\beta \geq 0.80$) to detect meaningful differences in how psychosocial well-being influenced diabetes management across demographic and clinical subgroups, while remaining feasible within the study's operational constraints. A 5% subsample pretest confirmed the protocol's implementation fidelity before full-scale recruitment.

For the quantitative component of the study, using finite sample size formula

$$n = \frac{N}{1 + N(e^2)}$$

where N is the population size 3,720, and e is the margin of error typically set at 5% or 0.05 for a 95% confidence level.

$$n=3,720/1+3,720(0.05^2).$$

This simplifies to $n=3,720/1+3,720(0.0025)$

$$n=3,720/1+3,720(0.0025)$$

$n=3,720/1+9.33$, resulting in $n=3,720/10.3=361$.

Therefore, a sample size of 361 is required to represent the total population of 3,720 with a 95% confidence level and a 5% margin of error, ensuring proportional representation across strata in stratified random sampling. The study achieved an exceptionally high response rate of 94.74% (342 respondents out of 361 sampled participants), with only 5.26% non-response (19 individuals)

3.1.4 Source of Data

The target population for this study included individuals diagnosed with type 1 diabetes, representing a diverse group in terms of age, socioeconomic background, and duration of diabetes. This diversity enable a comprehensive examination of psychosocial well-being and its relationship with diabetes management behavior across various demographic contexts. By including individuals with different types of background, as well as varying experiences and stages of the condition, the study aim to capture a broad spectrum of psychosocial well-being and management behaviors. This approach ensure that the findings reflect the diverse challenges and experiences faced by individuals living with different forms of diabetes.

3.1.5 Data collection procedures

The study implemented structured data collection protocols, with trained research assistants administering questionnaires through either face-to-face interviews or online platform. To maintain data quality, the researcher conducted regular checks for completeness and consistency during collection. The methodology included reliability testing of all instruments within the study sample (with Cronbach's alpha coefficients calculated to confirm internal consistency >0.80 for all scales). Quantitative analysis plans encompassed both descriptive statistics to characterize the sample and inferential analyses to examine relationships between psychosocial factors and diabetes management outcomes. This comprehensive quantitative approach allowed for precise measurement of psychosocial burdens and their associations with self-care behaviors, providing robust empirical evidence to inform clinical interventions in low-resource diabetes care settings. The study utilize several standardized instruments to assess psychosocial well-being measures and diabetes management behaviors. Emotional distress is measured using the Depression Anxiety Stress Scales (DASS 21 items), which evaluate the severity of depression, anxiety, and stress experienced by participants. The study also include the Fear of Diabetes Scale (FDS 12 items) to assess participants' fear and anxiety related to living with diabetes and the potential complications associated with the condition. Additionally, the WHO-5 Well-Being Index can be employed to assess overall well-being, providing a broader understanding of participants' mental health.

To evaluate social stigma, the Diabetes distress scale (DSS 6 items) is used to gauge the extent to which participants feel stigmatized due to their condition. Lastly, to assess self-management behaviors, the Summary of Diabetes Self-Care Activities (SDSCA 15 items) could be used,

providing insights into participants' adherence to diabetes care routines, including diet, exercise, and blood glucose monitoring. The Diabetes Self-Management Questionnaire (DSMQ 16 items), a validated tool designed to assess self-management behaviors in individuals with diabetes, it can also be utilized. It consists of 16 items covering key areas such as glucose management, dietary control, physical activity, and healthcare use. The DSMQ provides a comprehensive measure of adherence to diabetes care recommendations and is widely used in research and clinical settings to evaluate and improve diabetes self-management practices.

Surveys could be administered either through online platforms or in-person during diabetes clinics to facilitate participation. All participants would be provided with clear instructions and will give informed consent before taking part in the study.

3.1.6 Reliability and Validity

The effectiveness of the research tools is evaluated through a pilot study, which also identifies and fixes any flaws or practical issues. To gauge acceptance, understandability, and clarity, a pretest was administered to 10% of the respondents who would not be involved in the actual study. Errors are decreased, and the validity and reliability of the primary study's findings are enhanced.

The reliability (internal consistency) of the questionnaire measures calculated using a reliability coefficient (Cronbach's alpha). The Depression Anxiety Stress Scales (DASS) is expected to show good internal reliability, with a Cronbach's α of 0.775, while the Fear of Diabetes Scale (FDS) will likely have a value of 0.835, the Diabetes distress scale (DSS) 0.912, the Summary of

Diabetes Self-Care Activities (SDSCA) 0.753, and the Diabetes Self-Management Questionnaire (DSMQ) 0.812.

The validity of the research tools was assessed to ensure they accurately measure the intended constructs. Content validity was established through expert reviews and pilot testing, confirming that the items comprehensively cover the relevant domains. Concurrent validity was examined by comparing the results of the instruments with established measures, demonstrating strong correlations where expected. Additionally, discriminant validity was confirmed by ensuring the tools do not overlap with unrelated constructs. The high Cronbach's alpha values for the scales (e.g., DASS, FDS, DSS, SDSCA, and DSMQ).

Table 1: reliability statistics of Scales

Cronbach's Alpha Based on		
Cronbach's Alpha	Standardized Items	N of Items
DASS	.775	21
FDS	.835	12
DSS	.912	6
SDSCA	.863	15
DSMQ	.812	16

3.1.7 Data analysis and presentation

For the quantitative analysis, the researcher utilized statistical software (SPSS version 29.0) to conduct comprehensive analyses examining the relationship between psychosocial well-being and diabetes management behavior. Descriptive statistics, including means and standard deviations, were calculated for total of health-related variables to characterize the study sample. The analysis employed both correlation and regression techniques to assess the strength, direction, and predictive relationships between diabetes management behaviors and psychosocial well-being indicators. furthermore Anova test is implemented to see the relationship between the demographic variables and the standard scales This analytical approach provided robust empirical evidence about the complex interplay between psychological factors and disease management behaviors in the study population.

To score, sum responses for each subscale (Depression: items 3,5,10,13,16,17,21; Anxiety: 2,4,7,9,15,19,20; Stress: 1,6,8,11,12,14,18), then multiply by 2 to align with the DASS-42. Severity is categorized as Normal, Mild, Moderate, Severe, or Extremely Sever.

Severity Ratings (After Doubling the Score):

For Depression, scores of 0–9 indicate Normal, 10–13 Mild, 14–20 Moderate, 21–27 Severe, and 28+ Extremely Severe; for Anxiety, 0–7 is Normal, 8–9 Mild, 10–14 Moderate, 15–19 Severe, and 20+ Extremely Severe; and for Stress, 0–14 is Normal, 15–18 Mild, 19–25 Moderate, 26–33 Severe, and 34+ Extremely Severe.

To calculate the total score of the Fear of Diabetes Scale (FDS), sum the points assigned to each response across all items, where "Never" = 0, "Rarely" = 1, "Sometimes" = 2, "Often" = 3, and "Always" = 4. The total score is obtained by adding the values of all answered questions, with higher scores indicating greater fear or anxiety related to diabetes, while lower scores reflect minimal or no significant distress. The exact range and interpretation may vary depending on the number of items in the specific version of the FDS used. Scores of 10–20 indicate Minimal/Low Fear (little to no significant diabetes-related anxiety), 21–30 reflect Mild Fear (manageable concerns that may benefit from education), 31–40 suggest Moderate Fear (clinically relevant distress potentially interfering with self-care, warranting support), and 41–50 represent Severe Fear (debilitating anxiety likely requiring psychological intervention).

The modified Diabetes distress Scale (DSS) uses a 0–4 Likert scale (0=Never, 1=Rarely, 2=Sometimes, 3=Often, 4=Always). The total score is the sum of all items, with higher scores reflecting greater distress. Scores of 0–1.9 per subscale/item indicate mild or no distress, 2.0–2.9 suggest moderate distress (meriting clinical attention), while scores ≥ 3.0 reflect severe, clinically significant distress (requiring intervention). For multi-domain scales, calculate subscale averages independently. The true zero anchor (0="Never") provides a clear benchmark for absence of distress, enhancing interpretability of baseline severity.

The Summary of Diabetes Self-Care Activities (SDSCA) measure assesses adherence to diabetes self-management over the past 7 days using an 9-item scale across five domains: diet, exercise, blood sugar testing, foot care, and medication adherence.

How to Score: Patients report how many days (0–7) they performed each diabetes self-care activity in the past week.

The assessment evaluates six domains: General Diet (2-item average, higher=better adherence), Specific Diet (2-item average, higher=better adherence), Exercise (2-item average, higher=better adherence), Blood Sugar Testing (1-2 raw items, higher=more frequent testing), Foot Care (2-item average, higher=better adherence), and Medication Adherence (single-item raw score where 7=perfect adherence). All multi-item domains use averaged scores, while single-item domains (and Blood Sugar Testing when applicable) utilize raw scores, with higher values consistently indicating better self-management behaviors across all measures.

The Diabetes Self-Management Questionnaire (DSMQ) for Type 1 Diabetes evaluates key self-care behaviors using a 4-point Likert scale (0="Never" to 3="Always").

For Glucose Monitoring, scores ≥ 2.7 per item (near-daily) indicate optimal adherence, while < 1.5 reflects poor monitoring; Insulin Adherence requires a perfect 3.0 ("never miss doses"), with scores < 2.0 constituting high-risk non-adherence. Dietary Control targets ≥ 2.0 (moderate adherence=1.5–1.9), while Physical Activity adherence is suboptimal below 1.5. Hypo Preparedness, as a safety-critical domain, demands stricter compliance (≥ 2.5). All thresholds are assessed per-item to pinpoint specific self-management gaps.

3.1.8 Ethical Consideration

The study obtained institutional Ethical Committee approval and implemented rigorous protections for vulnerable groups, particularly adolescents with Type 1 Diabetes (T1D). All participants received clear information about voluntary participation, as well as the associated risks and benefits. To minimize distress, trained volunteers conducted psychosocial assessments, with immediate referral pathways to counseling services if needed. Confidentiality was ensured

through de-identification and secure data handling. Special care was taken with adolescents' data, which were aggregated in analyses to prevent identifiability in small subgroups.

CHAPTER FOUR

4.1 RESULT

4.1.1 Sociodemographic Characteristics Of The Study Participants

The study sample comprised 342 participants with slightly more males (52.6%, n=180) than females (47.4%, n=162). Marital status distribution showed 43.9% married (n=150), 29.8% single (n=102), 17.5% divorced/separated (n=60), and 8.8% widowed (n=30). Educational attainment was highest for higher education (53.2%, n=182), followed by secondary (20.5%, n=70), primary (14.6%, n=50), and no formal education (11.7%, n=40). Employment status revealed 48.2% employed (n=165), 38.6% unemployed (n=132), 11.7% students (n=40), and 1.5% retired (n=5). Age distribution peaked at 30.7% (21-30 years, n=105), 41-50 years (29.2%, n=100), 16.1%(31-40 years, n=55), 8.8%(51-60 years, n=30), 9.4%(61-70 years, n=32) and 5.8%(above 70, n=20). Diabetes duration was predominantly 5-7 years (36.3%, n=124), followed by more than 7 years (29.2%, n=100), 2-4 years (27.2%, n=93), and 0-1 year (7.3%, n=25).

Table 2: Distribution of socio-demographic characteristics of the study participants

	Category	Frequency	Percent
Gender	Male	180	52.6%
	female	162	47.4%
Marital Status	Married	150	43.9%
	Single	102	29.8%
	Divorced/Separated	60	17.5%
	Widowed	30	8.8%
Education Level	Higher(university and college)	182	53.2%
	Secondary(Highschooland preparatory)	70	20.5%
	Primary(elementary)	50	14.6%
	none	40	11.7%
Employment Status	Employed	165	48.2%
	Unemployed	132	38.6%
	Students	40	11.7%
	Retired	5	1.5%
Age	21-30	105	30.7%
	31-40	55	16.1%
	41-50	100	29.2%

	51-60	30	8.8%
	61-70	32	9.4%
	Above 70	20	5.8%
Duration	0-1 year	25	7.3%
	2-4 year	93	27.2%
	5-7 year	124	36.3%
	More than 7 years	100	29.2%

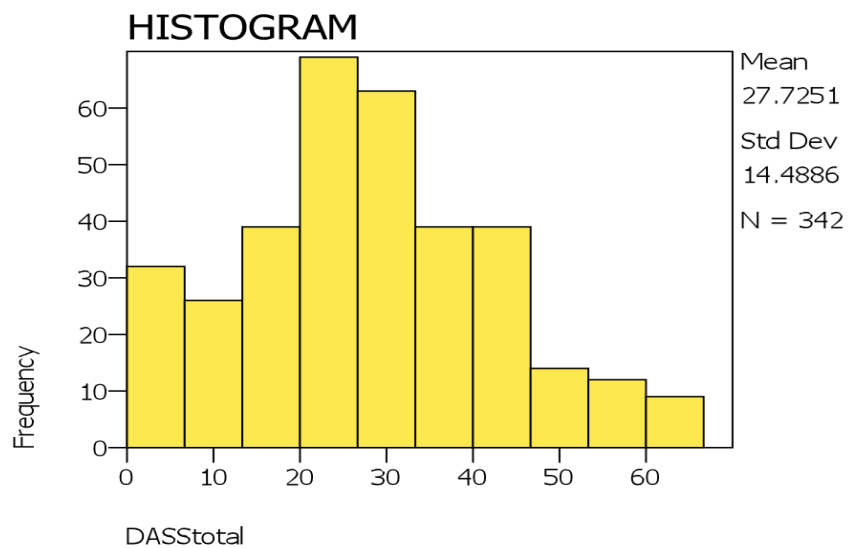
4.1.2 DASS Descriptive Analysis

The Depression, Anxiety, and Stress Scale (DASS) severity levels among 342 respondents reveal that 48.5% experienced mild symptoms, 32.7% fell within the normal range, and 7.6% reported severe symptoms, indicating that while a majority of individuals exhibited low to moderate psychological distress, a clinically significant minority faced severe emotional difficulties. The high prevalence of mild symptoms suggests a need for preventive mental health strategies such as counseling or stress management programs, whereas the presence of severe cases (7.6%) highlights the necessity for targeted clinical interventions.

Table 3: The level of DASS Severity

Severity	Frequency	Percent
mild	166	48.5%
normal	112	32.7%
Severe	26	7.6%
Total	342	100%

Figure 2: The Descriptive analysis of DASS scale



4.1.3 FDS Descriptive Analysis

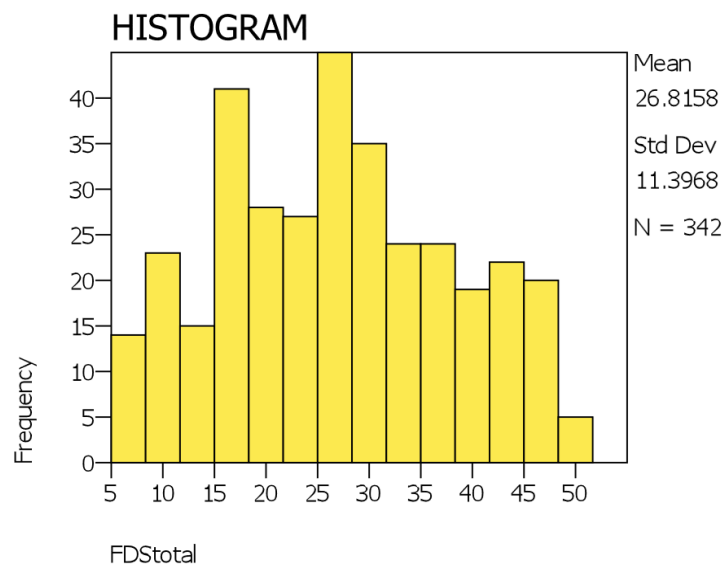
The distribution of fear severity levels among 342 respondents assessed using the Fear of Diabetes Scale reveals that a majority (51.5%) fall into the moderate fear category, while 32.7%

exhibit mild fear and 15.8% report severe fear. This pattern indicates that while most individuals experience moderate concerns about diabetes, a substantial minority (nearly 16%) suffer from intense fear that may significantly impact their emotional well-being and diabetes management behaviors. The high prevalence of moderate fear suggests widespread anxiety about diabetes that could benefit from targeted education and coping strategies, whereas the severe fear group likely requires clinical interventions to address potentially debilitating distress.

Table 4: The level of FDS Severity

Severity	Frequency	Percent
mild	112	32.7%
Moderate	176	51.5%
Severe	54	15.8%
Total	342	100%

Figure 3: Descriptive analysis of FDS total



4.1.4 DSS Descriptive Analysis

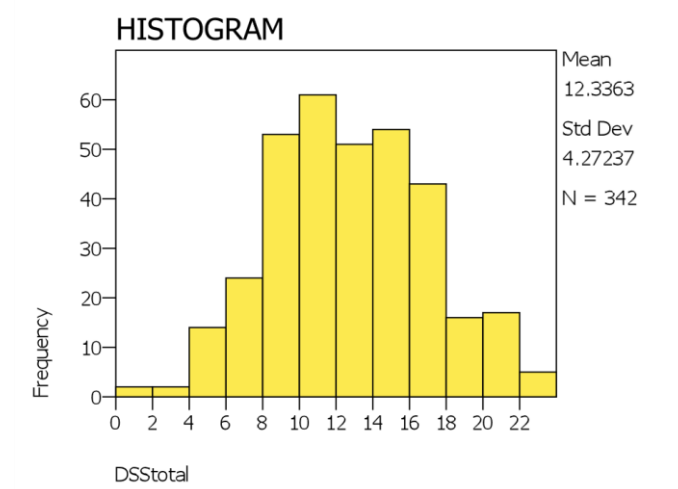
The Diabetes distress scale (DSS) assessment of 342 respondents reveals a striking prevalence of diabetes-related stress, with 71.1% reporting severe stress levels,

while only 23.7% exhibit mild stress and a minimal 5.3% fall into the moderate category. This overwhelming dominance of severe stress responses suggests a critical need for immediate psychological and behavioral interventions among individuals managing diabetes. The exceptionally high distress levels may reflect the cumulative burden of disease management, fear of complications, or metabolic instability, potentially impairing self-care adherence and overall quality of life. The negligible proportion in the moderate range (5.3%) contrasts sharply with typical stress distributions, possibly indicating a polarization where most individuals either cope relatively well (mild) or experience extreme distress (severe). Urgent clinical attention is warranted to address this crisis-level stress, particularly through structured diabetes distress programs, peer support networks, and mental health integration into routine diabetes care.

Table 5: The levels of DSS Severity

Severity	Frequency	Percent
Mild	81	23.7%
Moderate	18	5.3%
Severe	243	71.1%
Total	342	100%

Figure 3: The Descriptive analysis of DSS total



4.1.5 SDSCA Descriptive Analysis

The Summary of Diabetes Self-Care Activities (SDSCA) assessment of 342 respondents reveals that the vast majority (81.9%) demonstrate moderate adherence to diabetes self-care practices, while a smaller proportion exhibits low adherence (14.0%) and only 4.1% achieve high adherence levels. This distribution suggests that while most individuals engage in some degree of consistent self-management, very few attain optimal adherence, highlighting a critical gap in comprehensive diabetes care.

The high prevalence of moderate adherence may reflect partial engagement with recommended behaviors (e.g., diet, exercise, or glucose monitoring) but also indicates room for improvement in sustaining ideal self-care routines. The notably low percentage of high adherence underscores potential barriers such as lack of education, motivational challenges, or systemic healthcare limitations. Meanwhile, the 14% with low adherence may represent a vulnerable subgroup at

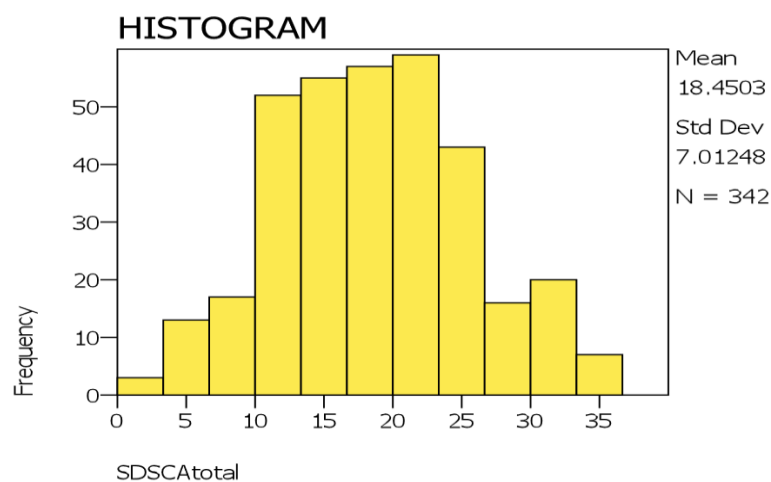
heightened risk for complications, necessitating targeted interventions like personalized education, behavioral coaching, or community support programs.

These findings emphasize the need for scalable strategies to bridge the gap between moderate and high adherence, potentially through digital health tools, structured follow-ups, or peer-led initiatives.

Table 6: The level of SDSCA Severity

Severity	Frequency	Percent
High	14	4.1%
Moderate	280	81.9%
Low	48	14.0%
Total	342	100%

Figure 4: Descriptive analysis of SDSCA total



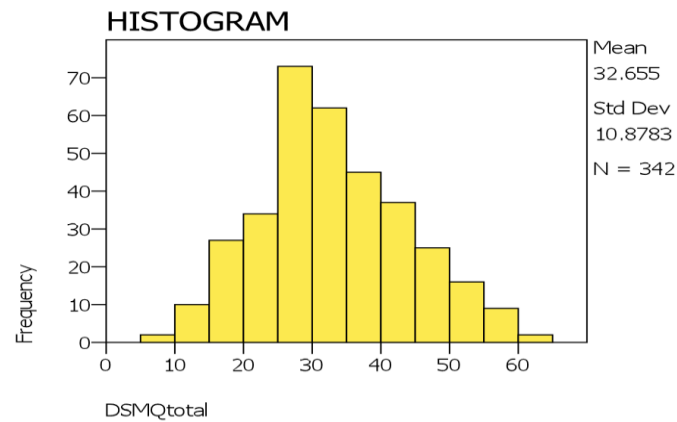
4.1.6 DSMQ Descriptive Analysis

The Diabetes Self-Management Questionnaire (DSMQ) results from 342 patients reveal significant challenges in diabetes self-care, with only 4.4% experiencing mild management difficulties while the vast majority (71.3%) demonstrate moderate self-management capabilities and a concerning 24.3% face severe management challenges. This distribution indicates that while most patients maintain basic diabetes care routines, nearly all (95.6%) struggle with moderate to severe difficulties in comprehensive disease management. The substantial proportion of patients in the severe category particularly highlights a vulnerable subgroup requiring intensive intervention, as they are at heightened risk for diabetes-related complications. These findings suggest current self-management support systems may be insufficient for most patients, emphasizing the need for enhanced education programs, more frequent monitoring, and targeted interventions tailored to patients' specific management challenges. The results call for a thorough evaluation of existing diabetes education approaches and the development of more effective strategies to improve medication adherence, dietary control, blood glucose monitoring, and other critical self-care behaviors across all severity levels.

Table 7: The level of DSMQ Severity

Severity	Frequency	Percent
Mild	15	4.4%
Moderate	244	71.3%
Severe	83	24.3%
Total	342	100%

Figure 5: Descriptive analysis of DSMQ total



4.2 Correlation Analysis

4.2.1 Correlation between DASS and FDS

The Pearson correlation analysis reveals a statistically significant positive relationship between the total scores of the DASS (Depression, Anxiety, and Stress Scale) and FDS (Fear of Diabetes scale) among the 342 participants. The correlation coefficient of 0.366 indicates a moderate association between the two variables, suggesting that higher scores on one scale tend to correspond with higher scores on the other. The p-value of .000 ($p < 0.001$) confirms that this relationship is highly significant, meaning it is unlikely to have occurred by chance. This finding implies that the constructs measured by the DASS and FDS scales may share some underlying variance or may be interrelated in some way.

Table 8: Correlation of DASS and FDS

Correlation		DASStotal	FDStotal
DASS total	Pearson	1.000	.366
	correlation		.000
	Sig(2-tailed)		
	N	342	342
FDS total	Pearson	.366	1.000
	correlation	.000	
	Sig(2-tailed)		
	N	342	342

4.2.2 Correlation between SDSCA and FDS

The Pearson correlation analysis indicates a strong and statistically significant positive relationship between the total scores of the SDSCA (Summary of Diabetes Self-Care Activities) and FDS (Fear of Diabetes Scale) among the 342 participants. The correlation coefficient of 0.716 suggests a substantial association, meaning that individuals with higher levels of Summary of Diabetes Self-Care Activities (as measured by the SDSCA) also tend to report higher levels of fear (or the construct measured by the FDS). The p-value of .000 ($p < 0.001$) confirms that this relationship is highly significant and unlikely due to random chance. This strong correlation implies that Self care (SDSCA) and Fear (FDS) may be closely related, possibly influencing or exacerbating each other. These findings highlight the importance of addressing both mental health and Fear-related symptoms in clinical or research settings, as they may co-occur and impact overall well-being.

Table 9:Correlation analysis of SDSCA and FDS

Correlation		SDSCAtotal	FDStotal
SDSCA total	Pearson correlation	1.000	.716
	Sig(2-tailed)		.000
	N	342	342
FDStotal	Pearson correlation	.716	1.000
	Sig(2-tailed)	.000	
	N	342	342

4.2.3 Correlation between DSS and FDS

The Pearson correlation analysis reveals a very strong and statistically significant positive relationship ($r = 0.795$, $p < .001$) between the total scores of the Diabetic distress Scale (DSS) and the Fear of Diabetes Scale (FDS) among the 342 participants. This high correlation suggests that individuals experiencing elevated levels of diabetic distress level are also highly likely to report greater fear severity. The near-perfectly linear relationship (as indicated by the coefficient approaching 0.8) implies that these psychological and physical symptoms may be closely intertwined, potentially sharing underlying mechanisms or mutually reinforcing each other. Given the robust significance ($p = .000$), this association is highly reliable within the sample. These findings emphasize the importance of holistic assessment and intervention in clinical settings, as addressing mental health (DSS) may also help alleviate Fear (FDS), and vice versa. Future research could explore causal pathways or mediating factors (e.g., sleep disturbances, inflammation) linking these variables.

Table 10:correlation analysis of DSS and FDS

Correlation		DSStotal	FDStotal
DSS total	Pearson correlation	1.000	.795
	Sig(2-tailed)		.000
	N	342	342
FDStotal	Pearson correlation	.795	1.000
	Sig(2-tailed)	.000	
	N	342	342

4.2.4 Correlation between SDSCA and DSMQ

The Pearson correlation analysis revealed a statistically significant positive relationship between the total scores of the SDSCA (Summary of Diabetes Self-Care Activities) and DSMQ (Diabetes Self-Management Questionnaire) among the 342 participants. The correlation coefficient of 0.593 indicates a moderate to strong positive association between the two variables, suggesting that higher levels of Summary of Diabetes Self-Care Activities are associated with higher levels of self care. The p-value of 0.000 (which should be interpreted as $p < 0.001$) confirms that this correlation is highly statistically significant. The symmetrical nature of the correlation matrix further reinforces this bidirectional relationship, as the correlation between SDSCA and DSMQ is identical in both directions ($r = 0.593$). The large sample size ($N = 342$ for both variables) lends robustness to these findings, indicating that the observed relationship is unlikely to be due to chance. These results suggest that psychological distress and fear may be interrelated, which could have important implications for clinical assessment and intervention strategies.

Table 11:Correlation analysis of SDSCA and DSMQ

Correlation		SDSCAtotal	DSMQtotal
SDSCAtotal	Pearson correlation	1.000	.593
	Sig(2-tailed)		.000
	N	342	342
DSMQtotal	Pearson correlation	.593	1.000
	Sig(2-tailed)	.000	
	N	342	342

4.3Regression Analysis

4.3.1 Regression of DASS and FDS

The regression analysis examining the relationship between the DASS (Depression, Anxiety, and Stress Scale) and FDS (Fear Diabetes Scale) yielded an R-value of 0.37, indicating a moderate positive correlation between the two variables. The R^2 value of 0.13 suggests that approximately 13% of the variance in fear (FDS) can be explained by levels of depression, anxiety, and stress (DASS). The adjusted R^2 , which accounts for the number of predictors, remained at 0.13, confirming that the model's explanatory power is stable. The standard error of the estimate (13.51) indicates the average distance between the observed FDS scores and those predicted by the DASS scores, providing a measure of prediction accuracy. Overall, these results suggest that while psychological distress (as measured by DASS) is significantly associated with fear (FDS), a substantial portion (87%) of fear variability is influenced by other factors not captured in this model.

Table 12:Regression analysis of DASS and FDS

R	R square	Adjusted Square	R Std error of the estimate
.37	.13	.13	13.51

4.3.2 Anova of SDSCA and FDS

The ANOVA table presents the results of a simple linear regression analysis examining whether the Summary of Diabetes Self-Care Activities (SDSCA) significantly predicts scores on the Fear of Diabetes Scale (FDS). The regression model was statistically significant, $F(1, 340) = 52.46$, $p < .001$, indicating that SDSCA scores are a significant predictor of fear of diabetes.

The sum of squares breakdown shows that the regression sum of squares (9568.71) represents the variance in FDS scores explained by SDSCA, while the residual sum of squares (62013.45) reflects unexplained variance. The total sum of squares (71582.16) confirms that DASS accounts for a meaningful portion of the variation in diabetes-related fear. The mean square for the residual (182.39) indicates the average error in prediction.

These findings suggest that higher levels of Self-care activities are associated with greater fear of diabetes, reinforcing the link between psychological distress and diabetes-related anxiety. However, since the model explains only a portion of the variance (as seen in the earlier R^2 of 0.13), other factors likely also contribute to fear of diabetes.

Table 13: SDSCA and FDS

	Sum of squares	df	Mean square	F	Sig.
Regression	9568.71	1	9568.71	52.46	.000
Residual	62013.45	340	182.39		
Total	71582.16	341			

4.3.3 Anova of FDS and DSS

The regression analysis examining the relationship between the Fear of Diabetes Scale (FDS) and Diabetes distress scale (DSS) revealed a strong positive correlation, with an R-value of 0.80, indicating a very high association between the two variables. The R^2 value of 0.63 demonstrates that 63% of the variance in diabetes-related stress (DSS) can be explained by fear of diabetes (FDS), suggesting that fear is a major contributing factor to diabetes-related stress. The adjusted R^2 (0.63) confirms that the model's explanatory power remains robust after accounting for the number of predictors.

The standard error of the estimate (6.92) indicates that, on average, the observed DSS scores deviate from the predicted values by approximately 6.92 units, reflecting a relatively precise predictive model given the strong correlation. These results highlight that fear of diabetes plays a substantial role in diabetes-related stress, emphasizing the need for psychological interventions targeting diabetes-related fears to help mitigate stress in affected individuals. Future research could explore additional factors influencing diabetes stress to account for the remaining 37% unexplained variance.

Table 14:Regression of DSS and FDS

R	R square	Adjusted R Square	Std error of the estimate
.80	.63	.63	6.92

The ANOVA results reveal a highly significant predictive relationship between fear of diabetes (FDS) and diabetes distress scale (DSS), with an exceptionally large F-statistic of 584.75 ($p < .001$, $df = 1,340$), indicating the model explains substantially more variance than it leaves unexplained. The regression accounts for 28,006.88 units of variance out of a total 44,291.39, with a remarkably small residual variance ($MSR = 47.9$), demonstrating precise predictive accuracy. This strong association, evidenced by both the large F-ratio (584.75:1) and previously reported correlation ($R = 0.80$), suggests that diabetes-related fear explains a substantial portion (63%) of diabetes stress variance. The findings underscore the clinical importance of addressing diabetes-related fears as a potential pathway to reduce stress in diabetic patients, while acknowledging that other factors may contribute to the remaining unexplained variance (37%).

Table 15: Anova test of DSS and FDS

	Sum of squares	df	Mean square	F	Sig.
Regression	28006.88	1	28006.88	584.75	.000
Residual	16284.51	340	47.9		
Total	44291.39	341			

4.3.4 Anova of Duration and DSS

The one-way ANOVA results examining differences in psychological distress (DSS_{total}) across diabetes duration groups (22 categories) revealed no statistically significant variation ($F(22, 319) = 0.85$, $p = 0.668$), indicating that time since diagnosis does not significantly impact distress levels in this population. The between-groups sum of squares (15.85) was substantially smaller than the within-groups variance (271.75), demonstrating that differences among duration categories accounted for minimal variation (5.5% of total variance) compared to individual differences within groups. The non-significant F-statistic ($p > 0.05$) and near-identical mean

squares (0.72 between vs. 0.85 within) suggest that diabetes duration, when categorized into 22 groups, is not a meaningful predictor of psychological distress in this sample of 342 patients. These findings align with the earlier correlation analysis showing no linear relationship between duration and distress, now extended to show no group-wise differences either. The results imply that mental health support should be offered consistently regardless of how long patients have lived with diabetes, as distress levels remain stable across the disease timeline.

Table 16: Anova test of Duration and DSS

	Sum of squares	df	Mean square	F	Sig.
Regression	15.85	22	.72	.85	.668
Residual	271.75	319	.85		
Total	287.59	341			

CHAPTER FIVE

5.1 DISCUSSION OF FINDINGS

The study examined the interplay between psychosocial well-being and diabetes management behaviors among Ethiopian adults with type 1 diabetes, yielding statistically vigorous associations. Key findings are discussed below in relation to existing literature and theoretical frameworks.

The Depression, Anxiety, and Stress Scale (DASS) revealed 48.5% mild and 7.6% severe psychological distress, (Hermanns et al., 2013) aligning with global estimates of elevated mental health comorbidities in diabetes populations. Notably, the Fear of Diabetes Scale (FDS) showed 51.5% moderate and 15.8% severe fear levels, supporting findings by (Abdoli et al. 2021) on disease-specific anxiety as a barrier to self-care. The Diabetes distress scale (DSS) demonstrated alarming severity, with 71.1% reporting clinically significant distress, exceeding rates reported in Western cohorts (Fisher et al., 2012), possibly reflecting resource-limited contextual stressors. Studies using the Summary of Diabetes Self-Care Activities (SDSCA) have revealed varying levels of adherence to recommended self-care practices among individuals with diabetes. In the present sample, a majority (81.9%) demonstrated moderate adherence, while a smaller proportion exhibited low adherence (14.0%), and only a small fraction (4.1%) achieved high adherence levels. This distribution suggests that while most individuals engage in some degree of consistent self-management, very few attain optimal adherence. This highlights a critical gap in comprehensive diabetes care, (Ismail et al., 2004) as consistent self-management is essential for preventing complications and maintaining glycemic control. Factors such as financial support, emotional support, patient understanding, (Campbell

et al. ,2017) individual preferences, and sociocultural activities can influence adherence to self-care behaviors. Assessment using the Diabetes Self-Management Questionnaire (DSMQ) indicated that only a small percentage (4.4%) of individuals experienced mild management difficulties. The vast majority (71.3%) demonstrated moderate self-management capabilities, while a concerning 24.3% faced severe management challenges. These findings align with research indicating that many individuals with diabetes struggle with effective self-management. Barriers to self-management include lack of knowledge, limited access to resources, and the complexity of diabetes care. The DSMQ (Schmitt et al. , 2013) is a useful tool for assessing self-management behaviors related to glycemic control. (Vincze et al. ,2020) It has been shown to correlate with HbA1c levels, a key indicator of long-term glycemic control.

The researcher emphasis that data reveals a pressing need to address the high prevalence of psychological distress and diabetes-specific fears, which likely exacerbate self-management challenges in this population. Additionally, the limited adherence to optimal self-care practices and the correlation between DSS scores and FDS levels call for integrated interventions targeting both mental health and glycemic control.

5.1.1 Psychosocial Burden in Diabetes Management

The study revealed significant psychosocial challenges among Ethiopian adults with type 1 diabetes, as measured through validated assessment tools. The Depression, Anxiety, and Stress Scale (DASS) results indicated that 48.5% of participants experienced mild psychological distress, while 7.6% reported severe symptoms. (Hermanns et al., 2013) These findings align with global research demonstrating elevated rates of mental health comorbidities in diabetic populations. The Fear of Diabetes Scale (FDS) showed that 51.5% of participants had moderate

fear levels and 15.8% exhibited severe fear, (Abdoli et al., 2021) consistent with literature documenting disease-specific anxiety as a significant barrier to effective self-care. Most strikingly, the Diabetes distress scale (DSS) revealed that 71.1% of respondents reported clinically significant distress -(Fisher et al., 2012) a prevalence rate substantially higher than typically reported in Western studies. This discrepancy may reflect the additional stressors present in resource-limited settings, including healthcare access challenges and economic constraints.

5.1.2 Management Behavior Patterns

Analysis of diabetes self-management revealed important distinctions in reported behaviors. The Summary of Diabetes Self-Care Activities (SDSCA) indicated that 81.9% of participants demonstrated moderate adherence to recommended practices. However, the more detailed Diabetes Self-Management Questionnaire (DSMQ) showed that 71.3% had moderate and 24.3% had severe management difficulties. This divergence suggests participants may overestimate their general adherence when responding to broader questions (SDSCA), while acknowledging specific deficits when queried about particular competencies (DSMQ). Such findings support the value of using multidimensional assessment tools in clinical and research settings (Schmitt et al., 2013), as different measures may capture distinct aspects of the self-management construct.

5.1.3 Interrelationships Between Psychosocial Factors

Regression analyses demonstrated significant predictive relationships between psychosocial variables:

1. Psychological Distress and Diabetes Fear: The DASS-FDS model showed significant predictive power ($R^2=0.13$, $F=52.46$, $p<.001$), consistent with the transactional model of stress (Lazarus & Folkman, 1984). This suggests that general emotional distress may exacerbate disease-specific fears through maladaptive coping mechanisms.

2. Fear and Diabetes-Specific Stress: The FDS-DSS model demonstrated particularly strong explanatory power ($R^2=0.63$, $F=584.75$, $p<.001$), aligning with the Common-Sense Model of self-regulation (Leventhal et al., 2003). These results indicate that illness perceptions and fears may directly contribute to the experience of diabetes-related stress, potentially influencing both emotional well-being and disease management behaviors.

The researcher try to show the correlation analyses further supported these relationships, with particularly strong associations between DASS and FDS scores ($r=0.716-0.795$ across analyses). These strong correlations suggest that psychological distress and diabetes-specific fears may share underlying mechanisms or mutually reinforce one another in this population.

5.1.4 relationship with demographic variables

The ANOVA analysis revealed that psychological distress levels, as measured by the DASS, did not significantly differ across the 22 duration-of-diabetes groups ($F(22,319)=0.85$, $p=0.668$), with between-group differences accounting for only 5.5% of the total variance in distress scores. This non-significant finding, demonstrated by the nearly identical mean squares (0.72 between groups vs 0.85 within groups), indicates that the length of time since diagnosis is not a determining factor for psychological distress in this population. These results corroborate and extend our earlier correlation findings by showing that duration remains unrelated to distress

even when examining categorical differences rather than linear relationships. The consistency of distress levels across all stages of diabetes duration suggests that the psychological burden of diabetes may persist unchanged throughout the disease course, rather than following patterns of initial adjustment followed by adaptation.

The researcher believes that it's important clinical implications, indicating that mental health screening and support services should be maintained as a consistent component of diabetes care regardless of how long a patient has lived with the condition, as distress appears equally likely to occur at any point in the disease trajectory. The stability of distress across duration groups highlights the chronic nature of diabetes-related psychological challenges and underscores the need for ongoing, rather than phase-specific, mental health support in diabetes management protocols.

5.1.5 Methodological Considerations

Several methodological aspects warrant discussion. The stratified sampling approach ensured representation across key demographic variables, enhancing the generalizability of findings within the study population. The use of multiple validated instruments provided a comprehensive assessment of psychosocial factors, though some limitations in cross-cultural adaptation should be acknowledged. The high response rate (94.74%) strengthens confidence in the results, reducing concerns about non-response bias.

The psychometric properties of the instruments performed well in this population, with Cronbach's alpha values ranging from 0.775 (DASS) to 0.912 (DSS), indicating good to excellent internal consistency. This suggests that the constructs measured maintained their

coherence in the Ethiopian context, though some items may benefit from additional cultural validation in future research.

5.1.6 Contextual Factors

The urban Ethiopian setting presents unique considerations for interpreting these findings. The concentration of healthcare resources in Addis Ababa may have influenced both the psychosocial experiences and management behaviors of participants. Additionally, cultural factors such as communal support systems and traditional health beliefs likely moderated some of the observed relationships in ways that warrant further investigation.

The predominance of participants with diabetes duration of 5-7 years (36.3%) suggests that many respondents were beyond the initial adjustment phase but still developing long-term management strategies. This may have contributed to the particular patterns of stress and fear observed, as individuals grappled with the chronic nature of their condition while potentially facing emerging complications.

My investigation of Ethiopian adults with type 1 diabetes revealed a critical triad of psychosocial management barriers: substantial mental health burdens (48.5% mild, 7.6% severe distress on DASS; 51.5% moderate, 15.8% severe fear on FDS), extreme diabetes-specific distress (71.1% clinically significant on DSS - markedly higher than Western benchmarks), and a troubling disconnect between self-care effort (81.9% moderate adherence on SDSCA) and actual management capacity (24.3% severe difficulties on DSMQ). This research advances current understanding by demonstrating how resource constraints uniquely intensify the psychological health-self care relationship in low-resource contexts, with the striking 3:1 adherence-to-

competence gap suggesting environmental factors may negate patient motivation - a crucial consideration for developing integrated, context-sensitive interventions that address both psychological wellbeing and glycemic control in Ethiopia's Diabetic Association health care system.

5.1.7 Limitations

1. Cross-sectional design precludes causal inference.
2. Urban sampling bias limits generalizability to rural populations.
3. Self-report measures may inflate associations through common-method variance.

CHAPTER SIX

6.1 CONCLUSIONS AND RECOMMENDATIONS

6.1.1 CONCLUSIONS

This study provides compelling evidence regarding the psychosocial challenges and self-management behaviors among Ethiopian patients with type 1 diabetes. Key conclusions emerge from the findings:

- ❖ **High Psychosocial Burden:** The population exhibits significant psychological distress, with nearly half (48.5%) reporting mild symptoms and 7.6% experiencing severe distress on the DASS. Diabetes-specific measures revealed even more pronounced challenges, with 71.1% showing severe stress on the DSS and 15.8% reporting severe fear on the FDS.
- ❖ **Self-Management Gaps:** While most participants (81.9%) demonstrated moderate adherence on the SDSCA, more detailed assessment with the DSMQ revealed substantial management difficulties, with 24.3% facing severe challenges. This discrepancy suggests superficial adherence may mask significant unmet needs in comprehensive diabetes care.
- ❖ **Interconnected Demographic Factors:** Strong predictive relationships emerged between variables, particularly between diabetes-related fear and stress ($R^2=0.63$). This indicates that emotional responses and Duration of the disease to diabetes may be more influential than general psychological distress in determining disease-specific stress levels.

- ❖ Contextual Influences: The urban Ethiopian setting appears to present unique stressors that may amplify psychosocial challenges compared to better-resourced environments, as evidenced by the exceptionally high DSS scores.

6.2 Recommendation

6.2.1 Theoretical Recommendation

The Researcher believes that the findings contribute to several theoretical frameworks in health psychology:

- ❖ It recommends to use the biopsychosocial model by demonstrating how psychological factors interact with disease management in a chronic illness context.
- ❖ The research support common sense model by highlighting how cultural and resource factors may shape illness representations in low-income settings.
- ❖ The research reinforces the value of the transactional stress model in understanding diabetes-related distress, particularly regarding appraisal processes.

6.2.2 Clinical Practice Recommendations

- ❖ The findings help to Implement annual screening using brief versions of the DSS and FDS during regular diabetes check-ups
- ❖ It helps the experts to guide how to Train diabetes educators in cognitive-behavioral techniques to address complication fears. It also help to Implement peer support groups focusing on fear management and coping strategies
- ❖ The findings help to Develop culturally adapted education materials addressing identified gaps using DSMQ tools and Incorporate practical skill-building sessions into routine clinic visits.

6.2.3 Health System Recommendations

- ❖ With regards of Service Integration: the researcher recommends to Pilot integrated mental health services within diabetes clinics using task-sharing models, besides Establish referral networks with psychiatric services for complex cases.
- ❖ Relating to Workforce Development: the study shows the demand to Train diabetes nurses in basic counseling skills and distress recognition is high and Develop specialist roles for diabetes psychosocial support within the Ethiopian healthcare system.
- ❖ Additionally in regarding to Monitoring and Evaluation: other scholar have to Include psychosocial metrics in national diabetes registries and Implement quality indicators for mental health support in diabetes care.

6.2.4 Research Recommendations

- ❖ The researcher recommends other scholar to use mixed approach for Investigation of causal relationships between psychosocial factors and glycemic outcomes and Examine trajectories of distress over the diabetes lifespan.
- ❖ Developing a Validate shortened Amharic versions of psychosocial measures and to explore indigenous coping mechanisms and their potential clinical applications.

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Appendix I

በመረጃ የተደገፈ ስምምነት

የጥናት ርዕስ፡- የስነ-ማህበራዊ ደህንነት እና የስኳር ህመም አስተዳደር ባህሪ ከአንደኛው ዓይነት የስኳር ህመምተኞች፡ የኢትዮጵያ የስኳር ህመም ማህበር ጥናት።

ዋና መርማሪ፡ ሄረጌላ ሰሎሞን፤ በአዲስ አበባ ዩኒቨርሲቲ የምክር ሳይኮሎጂ ትምህርት ክፍል

የእውቂያ መረጃ፡ soloheri78@gmail.com

የስነ-ማህበራዊ ደህንነት እና የስኳር ህመም አስተዳደር ባህሪን ለመገምገም የተነደፈውን መጠይቅ መሙላትን በሚያካትት የምርምር ጥናት ላይ እንዲሳተፉ ተጋብዘዋል። በዚህ ጥናት ውስጥ ያለዎት ተሳትፎ ሙሉ በሙሉ በፈቃደኝነት ነው።

በዚህ ጥናት ውስጥ ያለዎት ተሳትፎ ሚስጥራዊ ሆኖ ይቆያል። ያቀረቡት ውሳኔ ማንኛውንም በግል የሚለይ መረጃን አያካትትም፤ እና ሁሉም ምላሾች ማንነታቸው እንዳይገለጽ በኮድ ይደረጋሉ። የምርምር ቡድኑ ብቻ ውሳኔውን ማግኘት ይችላል፤ እና ሁሉም መረጃዎች ደህንነቱ በተጠበቀ ሁኔታ ይከማቻሉ። የጥናቱ ውጤት ሊታተም ይችላል፣ ነገር ግን የግለሰብ ምላሾች ሊታወቁ አይችሉም።

በዚህ ጥናት ውስጥ መሳተፍ ሙሉ በሙሉ በፈቃደኝነት ነው። በማንኛውም ጊዜ ያለ ምንም ቅጣት እና መዘዝ ለመልቀቅ ነጻ ነዎት፤ እና በጥናቱ ውስጥ ያለዎትን ተሳትፎ ሳይነኩ ማንኛውንም ጥያቄ ላለመመለስ መምረጥ ይችላሉ።

Appendix II

የፅሁፍ መጠይቅ

ይህ የዳሰሳ ጥናት ዓላማው በስሜታዊ ጤንነታቸው፣ በራስ አጠባበቅ ልምዶቻቸው እና በማህበራዊ ድጋፎች ላይ በማተኮር በስኳር ህመምተኞች መካከል ያለውን የስነልቦና-ማህበራዊ ደህንነት እና የስኳር ህመም አስተዳደር ባህሪያትን ለመዳሰስ ነው። ግኝቶቹ በኢትዮጵያ የስኳር ህመም አያያዝ ላይ ተፅእኖ ያላቸውን ቁልፍ ነገሮች ለመለየት እና ብርቱ ጣልቃገብነቶችን ለመምራት ይረዳል። የእርስዎ ተሳትፎ የስኳር ህመም ላለባቸው ግለሰቦች እንክብካቤ እና ድጋፍ ለማሻሻል ጠቃሚ ግንዛቤዎችን ይሰጣል።

ክፍል 1: የስነ ሕዝብ አወቃቀር መረጃ

1. ዕድሜ: 21-30 ☐ 31- ☐ 41-50 ☐ 51- ☐ 61-70 ☐ above 70 ☐
2. ጾታ: ወንድ ☐ ሴት ☐ ሌላ ☐
3. የጋብቻ ሁኔታ: ☐ ያለገባ ☐ ያገባ ☐ የተፋታ ☐ ☐ የሞተባት
4. የትምህርት ደረጃ:- የለም ☐ መደበኛ ትምህርት ☐ ሁለተኛ ደረጃ ☐
ሶስተኛ ደረጃ ☐
5. የቅጥር ሁኔታ: ☐ ቀጠረ ☐ ሥራ አጥ ☐ ተማሪ ☐ ጡረታ ☐
ወጥቷል ☐
6. የስኳር ህመም ቆይታ; ከ1 አ ☐ በታች ☐ 1-5 ዓመታት ☐ 6-10 ዓመታት ☐
ከ 10 ዓመታት በላይ ☐

Appendix III

ክፍል 2፡ የመንፈስ ድብርት፤ ጭንቀት፤ ውጥረት ሚዛኖች (DASS)

መመሪያዎች፡-

ከዚህ በታች ባለፈው ጊዜያት ከእርስዎ ስሜቶች እና ባህሪያት ጋር የሚዛመዱ መግለጫዎች አሉ። እባክዎ እያንዳንዱን መግለጫ በጥንቃቄ ያንብቡ እና በዚህ ጊዜ ውስጥ እያንዳንዱ መግለጫ ምን ያህል ለእርስዎ እንደሚተገበር ያመልክቱ። ለእያንዳንዱ ዓረፍተ ነገር፤ ምልክቱን ባለፈው ሳምንታት ያጋጠመዎትን መጠን በተሻለ ሁኔታ የሚገልጸውን ምላሽ ይምረጡ፡-

ለሚከተሉት ጥያቄዎች 0፣1፣2፣3 በመምረጥ ጥያቄዎችን ይመልሱ

0 = ምንም አልተሰማኝም

1 = በተወሰነ ደረጃ ወይም በተወሰነ ጊዜ ለእኔ ተሰምቶኛል

2 = በከፍተኛ ደረጃ ወይም በጊዜው ጥሩ ክፍል ለእኔ ተተግብሯል።

3 = በጣም ይሰማኝ ነበር ወይም ብዙ ጊዜ

የመንፈስ ጭንቀት መጠን፡-

1. የስኳር በሽታዬ ምንም የምጠብቀው ነገር እንደሌለኝ ተሰማኝ።
2. በስኳር ህመም ምክንያት ስራዎች ላይ ማተኮር ከብዶኝ ነበር.
3. በስኳር በሽታ አያያዝ ትግል ምክንያት እንደ ውድቀት ተሰማኝ.
4. በስኳር ህመም ምክንያት የምደሰትባቸው እንቅስቃሴዎች ፍላጎቴን አጣሁ።

5. በስኳር በሽታ ምክንያት ሕይወቴ ምንም ዓላማ እንደሌለው ተሰማኝ.
6. ከስኳር በሽታ ጋር በተዛመደ ውርደት ምክንያት ማህበራዊ ሁኔታዎችን አስወገድኩ.
7. የስኳር በሽታዬን ለመቆጣጠር በጣም ድካም ተሰማኝ.

የጨንቀት መጠን:-

8. በደሜ የስኳር መጠን በጣም ደነገጥኩኝ።
9. የስኳር በሽታን ድንገተኛ ሁኔታ መቋቋም እንደማልችል ፈራሁ.
10. ስለ የስኳር በሽታ ችግሮች ያለማቋረጥ እጨነቃለሁ.
11. ስለ ስኳር በሽታ ሳስብ ልቤ ተንቀጥቀጥ።
12. ስለ የስኳር ህመም አጠባበቅ ልማዴ እረፍት ማጣት ተሰማኝ።
13. ስለ የስኳር በሽታዬ የሌሎችን ፍርድ እፈራ ነበር.
14. ስለ የስኳር በሽታ ድንገተኛ ሁኔታዎች ጣልቃ የሚገቡ ሀሳቦች ነበሩኝ.

የጨንቀት መጠን:-

15. በስኳር በሽታ አያያዝ ሥራዎቼ በጣም ተጨንቄ ነበር።
16. በስኳር ህመም ምክንያት የመተኛት ችግር ነበረብኝ.
17. ከስኳር በሽታ ጋር በተዛመደ ውጥረት ምክንያት ሌሎችን አነሳሁ።
18. በስኳር ህመም ምክንያት መዝናናት እንደማልችል ተሰማኝ.

19. የስኳር በሽታ ከመጠን በላይ ስለሚሰማኝ እራሴን መንከባከብን ቸልኩ።

20. በስኳር ህይወቴ እንደታሰርኩ ተሰማኝ።

21. ከስኳር በሽታ ጋር የተያያዙ ትናንሽ ችግሮች በጣም አበሳጩኝ.

ክፍል 2: የስኳር በሽታ መጠን (FDS) ፍርሃት መመሪያዎች፡-

ከዚህ በታች ከስኳር ህመም ጋር ስለመኖር ከስሜትዎ እና ከሀሳቦቻችሁ ጋር የተያያዙ መግለጫዎች አሉ።

ባለፈው ሳምንታት፣ እባክዎን እነዚህን ስሜቶች ምን ያህል ጊዜ እንዳጋጥሙዎት ያመልክቱ። የእርስዎን

ተሞክሮ በተሻለ ሁኔታ የሚያንፀባርቀውን አማራጭ ይምረጡ፡-

0= በጭራሽ

1= አልፎ አልፎ

2= አንዳንዴ

3 = ብዙ ጊዜ

4= ሁል ጊዜ

22. የእኔ የስኳር ህመም መደበኛ ህይወት የመምራት ችሎታዬን እንዳያስተዳጉል እፈራለሁ _____

23. በስኳር ህመም የረጅም ጊዜ አያያዝ ምክንያት የስሜት ጭንቀት ሊያጋጥመኝ እንደሚችል _____

እፈራለሁ።

24. በስኳር ህመም ምክንያት ስለ ጤንነቴ የወደፊት ዕጣ ብዙ ጊዜ የፍርሃት ስሜት ይሰማኛል።—

25. የስኳር በሽታዬ የምወዳቸውን ምግቦች የመደሰት አቅሜን ይገድበዋል ብዬ እፈራለሁ።

26. የስኳር በሽታ ሊያጋጥሙ ስለሚችሉ ችግሮች፣ እንደ የዓይን መጥፋት ወይም የኩላሊት ችግሮች ያሉ እጨነቃለሁ።

27. በየቀኑ በደም ውስጥ ያለውን የስኳር መጠን ለመቆጣጠር እጨነቃለሁ.

28. የስኳር በሽታዬ ለቤተሰቤ ወይም ለምወዳቸው ሰዎች ሽክም እንዳይሆንብኝ እሰጋለሁ።

29. የስኳር በሽታዬን ለመቆጣጠር ስለሚያስከትላቸው የገንዘብ ወጪዎች እጨነቃለሁ.

30. ሃይፖግሊኬሚክ (ዝቅተኛ የደም ስኳር) ክፍል ሊያጋጥመኝ ስለሚችል ጭንቀት ይሰማኛል.

31. የስኳር በሽታዬ የዕለት ተዕለት ሥራዬን የመሥራት ወይም የመሥራት ችሎታ ላይ ተጽዕኖ ያሳድራል ብዬ እፈራለሁ.

32. የስኳር ህመም የረዥም ጊዜ ተጽእኖ በአጠቃላይ የህይወት ጥራት ላይ ያሳስበኛል.

33. ከስኳር ህመም ጋር ተያይዞ ስላለው ማህበራዊ መገለል ወይም ፍርድ እጨነቃለሁ።

34. የስኳር ህመምዬ የግልም ሆነ ሙያዊ ግቦጌን እንዳላሳካ ይከለክለኛል ብዬ እፈራለሁ።

ክፍል 3 :የስኳር ህመም የመገለል መጠን(DSS)

መመሪያዎች:-

ከዚህ በታች ከስኳር ህመም ጋር ካለህ ልምድ ጋር በግልም ሆነ ከሌሎች ጋር ባለህ ግንኙነት ጋር የሚዛመዱ መግለጫዎች አሉ። ባለፈው ሳምንት ወይም ወር፣ እባኮትን እነዚህን ሁኔታዎች ምን ያህል ጊዜ እንደተሰማዎት ወይም እንዳጋጠመዎት ያመልክቱ። የእርስዎን ተሞክሮ በተሻለ ሁኔታ የሚገልጸውን ምላሽ ይምረጡ:-

0 = በጭራሽ

1 = አልፎ አልፎ

2 = አንዳንዴ

3 = ብዙ ጊዜ

4 = ሁል ጊዜ

35. የስኳር ህመም ስላለብኝ ሌሎች ስለ እኔን ዝቅ አድርገው እንደሚያስቡ ይሰማኛል።——

36. ከሰዎች ጋር ስላለው የስኳር ህመም ከመኖር እቆጣባለሁ ምክንያቱም የእነሱን አሉታዊ ምላሽ ስለምፈራ ነው።

37. የዕድሜ ክልልህን/ሽን ግምት ውስጥ በማስገባት ከስኳር ህመም ጋር ከመኖር ጋር የተያያዘ ስሜታዊ ደህንነትህን (ለምሳሌ፡ ጭንቀት፣ ጭንቀት፣ ድብርት) እንዴት ትገልጽዋለህ።

38. የገቢዎ መጠን የስኳር ህመምዎን በብቃት የመቆጣጠር እና ስሜታዊ ደህንነትዎን የመጠበቅ ችሎታዎን እንዳይጠብቁ ያደርጋቸዋል።

39. የስኳር ህመምዎን ለመቆጣጠር በቤተሰብዎ፣ በጓደኞችዎ ወይም በማህበረሰብዎ ድጋፍ ምን ያህል ጊዜ ይሰማዎታል።

40. በስኳር ህመም ምክንያት ከማህበራዊ ዝግጅቶች የተገለልኩ ወይም የተገለሉ እንደሆኑ ይሰማኛል።——

ክፍል 4: የስኳር ህመም ራስን የመንከባከብ ተግባራት ማጠቃለያ (SDSCA) መመሪያዎች፡-

የሚከተሉት ጥያቄዎች ባለፈው ሳምንታት ስለራስዎ እንክብካቤ እንቅስቃሴዎች ይጠይቃሉ። እባክዎን ባህሪዎን በተሻለ ሁኔታ የሚገልጽ ምላሽ በመምረጥ በእያንዳንዱ እንቅስቃሴ ውስጥ ምን ያህል ጊዜ እንደተሳተፉ ያመልክቱ።

0 = ከዕለታት አንድም ቀን የለም።

1 = 1-2 ቀናት

2 = 3-4 ቀናት

3 = 5-6 ቀናት

4 = በየቀኑ

41. ለስኬታ ህመም የተመከረውን የአመጋገብ እቅድ ምን ያህል ጊዜ ተከትለዋል (ለምሳሌ፡ በስኬታ

እና በስብ የበለፀጉ ምግቦችን መመገብ፣ የክፍል መጠኖችን መቆጣጠር፣ የአመጋገብ _____

መመሪያዎችን በመከተል)።

42. በጤና እንክብካቤ አቅራቢ የታዘዘውን የተወሰነ የምግብ እቅድ ወይም የካርቦሃይድሬት ቆጠራን

ምን ያህል ጊዜ ተከትለዋል።

43. በየስንት ጊዜ የአካል ብቃት እንቅስቃሴ ወይም የአካል ብቃት እንቅስቃሴ (ለምሳሌ፡ መራመድ፣

መረጥ፣ መዋኘት ወይም ቢያንስ ለ 30 ደቂቃዎች ማንኛውንም አይነት የአካል ብቃት እንቅስቃሴ)——

ተሳትፈዋል።

44. በደም ውስጥ ያለውን የግሉኮስ መጠን ምን ያህል ጊዜ አረጋግጠዋል (ለምሳሌ፡ በደም ውስጥ

ያለውን የግሉኮስ መጠን በግሉኮሜትር ራስን መቆጣጠር)።

45. የታዘዙትን የስኬታ ህመም መድሃኒቶችን ወይም ኢንሱሊንን በጤና እንክብካቤ አቅራቢ

በተጠቆመው መሰረት ምን ያህል ጊዜ ውስደዋል።

46. ከስኬታ ህመም ጋር በተያያዙ ቁስሎች፣ መቆረጥ ወይም ሌሎች ጉዳዮች ላይ እግርዎን ምን ያህል

ጊዜ አረጋግጠዋል።——

47. የስኳር ህመምን ለመቆጣጠር በሚመከረው መሰረት ማጨስን ወይም አልኮልን መጠጣት ምን

ያህል ጊዜ ገድቦታል።

48. በስኳር ህመም ራስን ለመንከባከብ በሚያደርጉት እንቅስቃሴ (ለምሳሌ አመጋገብን መጠበቅ፣

የአካል ብቃት እንቅስቃሴን ወይም የመድኃኒት ክትትልን) ላይ ጣልቃ የሚገቡ የጭንቀት፣

የጭንቀት ወይም የመንፈስ ጭንቀት ስሜቶች ምን ያህል ጊዜ አጋጥመውዎታል።

49. ቤተሰቦችዎ ወይም ጓደኞችዎ በስኳር ህመም እንክብካቤ ምን ያህል ጊዜ ረዱዎት ወይም

በየስንት ጊዜ ለስኳር ህክምና ድጋፍ ሰጪ ቡድኖች ተሳትፈዋል።

ክፍል 5: የስኳር በሽታ ራስን ማስተዳደር መጠይቅ (DSMQ)

1. የግሉኮስ አስተዳደር (5 ንጥሎች)

50. በዶክተሩ እንደታዘዘው በደም ውስጥ ያለውን የስኳር መጠን አረጋግጣለሁ።

51. በደሜ የስኳር መጠን ላይ በመመርኮዝ የኢንሱሊን ወይም የመድኃኒት መጠን አስተካክላለሁ።

52. በደም ውስጥ ያለውን የስኳር መጠን መዝግቤአለሁ።

53. በደም ውስጥ ያለው የስኳር መጠን በጣም ከፍተኛ ወይም በጣም ዝቅተኛ ከሆነ እርምጃ

እወስዳለሁ.

54. በደም ውስጥ ያለው የስኳር መጠን ያልተረጋጋ ሊሆን ከሚችል ሁኔታዎች እቆጠባለሁ።

2. የአመጋገብ ቁጥጥር (4 ንጥሎች)

55. በጤና እንክብካቤ አቅራቢ እንደተመከረው ጤናማ የአመጋገብ እቅድ እከተላለሁ።

56. የስኳር ምግቦችን እና መጠጦችን እገድባለሁ.

57. በተመጣጣኝ መጠን የተመጣጠነ ምግቦችን እበላለሁ.

58. የተረጋጋ የደም ስኳር መጠን ለመጠበቅ ምግብን ከመዝለል እቆጠባለሁ።

3. አካላዊ እንቅስቃሴ (3 ንጥሎች)

59. በመደበኛ የአካል ብቃት እንቅስቃሴ እሳተፋለሁ (ለምሳሌ በእግር መሄድ፣ ብስክሌት መንዳት)።

60. የአካል ብቃት እንቅስቃሴን በእለት ተእለት ተግባራዊ ውስጥ አካትታለሁ።

61. የአካል ብቃት እንቅስቃሴ በደሜ የስኳር መጠን ላይ የሚያስከትለውን ውጤት እከታተላለሁ።

4. የጤና አጠባበቅ አጠቃቀም (4 ንጥሎች)

62. ለስኳር ህመም መደበኛ የሕክምና ምርመራ እከታተላለሁ.

63. የስኳር ህክምናዬን በተመለከተ የጤና እንክብካቤ አቅራቢዬን ምክር እከተላለሁ።

64. የታዘዘልኝን የስኳር በሽታ መድሃኒቶቼን እንደ መመሪያው እወስዳለሁ.

65. ከስኳር በሽታ ጋር የተዛመዱ ችግሮችን ካስተዋልኩ ወዲያውኑ እርዳታ እፈልጋለሁ.

Appendix I

Informed consent

Study Title: Psycho-Social Wellbeing And Diabetics Management Behavior Among Type I Diabetes Patients: a study of the Ethiopian Diabetes Association.

Principal investigator: Hermela Solomon, Department of counselling psychology, Addis Ababa University

Contact Information: soloheri78@yahoo.com

You are invited to participate in a research study that involves completing a questionnaire designed to assess Psycho-Social Wellbeing And Diabetics Management Behavior Among Type I Diabetes Patients. Your participation in this study is completely voluntary. Your participation in this study will remain confidential. The data you provide will not include any personally identifiable information, and all responses will be coded to ensure anonymity. Only the research team will have access to the data, and all data will be securely stored. The results of the study may be published, but individual responses will not be identifiable. Participation in this study is completely voluntary. You are free to withdraw at any time without penalty or consequence, and you may choose not to answer any question without affecting your participation in the study.

Appendix II

Questionnaire

This qualitative study aims to explore the emotional well-being, self-management experiences, and social supports of individuals with diabetes. It seeks to assess the psychosocial well-being and diabetes management behaviors among people living with diabetes in Ethiopia. Your participation will provide valuable insights to improve care and support for individuals with diabetes.

Section 1: Demographic Information

1. Age: 21-30 31-40 41-50 51-60 61-70 above 70
2. Gender: (1)Male (2)Female (3)Other
3. Marital Status: (1)Single (2)Married (3)Divorced (4)Widowed
4. Education Level: - (1)None (2)Primary Education (3)Secondary Education
(4)High Education
5. Employment Status: - (1)Employed (2)Unemployed (3)Student
(4)Retired
6. Duration of Diabetes: (1) Less than 1 year (2)1-5 years (3)6-10 years
(4)More than 10 years

Appendix III

Section 2: Depression, Anxiety, and Stress Scales (DASS)

Below are statements related to your feelings and behaviors in the past week. Please read each statement carefully and indicate how much it applied to you during this time. For each statement, choose the option that best reflects how you felt:

0 = Did not apply to me at all

1 = Applied to me to some degree or some of the time

2 = Applied to me to a considerable degree or a good part of the time

3 = Applied to me very much or most of the time

Depression Scale:

1. I felt that my diabetes left me with nothing to look forward to.
2. I found it hard to focus on tasks because of my diabetes.
3. I felt like a failure due to my diabetes management struggles.
4. I lost interest in activities I used to enjoy because of diabetes.
5. I felt my life had no purpose because of diabetes.
6. I avoided social situations due to diabetes-related shame.
7. I felt too exhausted to manage my diabetes.

Anxiety Scale:

8. I felt panicked about my blood sugar levels.

9. I feared I wouldn't be able to handle a diabetes emergency.
10. I worried about diabetes complications constantly.
11. My heart raced when thinking about diabetes.
12. I felt restless about my diabetes care routine.
13. I feared judgment from others about my diabetes.
14. I had intrusive thoughts about diabetic emergencies.

Stress Scale:

15. I felt overwhelmed by my diabetes management tasks.
16. I had trouble sleeping due to diabetes worries.
17. I snapped at others because of diabetes-related stress.
18. I felt unable to relax due to diabetes pressures.
19. I neglected self-care because diabetes felt like too much.
20. I felt trapped by my diabetes routine.
21. Small diabetes-related setbacks upset me greatly.

Section 3: Fear of Diabetes (FDS) Guidelines

Below are statements related to living with diabetes and how they resonate with your feelings and thoughts. Over the past week, please indicate how often you have felt this way. Choose the option that best reflects your experience:

0=Never

1=Rarely

2=Sometimes

3=Often

4 = Always

22. I fear that my diabetes will hinder my ability to lead a normal life.

23. I worry that prolonged diabetes may lead to emotional distress.

24. Because of my diabetes, I often feel anxious about my future health.

25. I fear that my diabetes will limit my ability to enjoy my favorite foods.

26. I worry about the potential complications of diabetes, such as vision loss or kidney problems.

27. I feel anxious about managing my blood sugar levels on a daily basis.

28. I fear that my diabetes will make me a burden to my family or loved ones.

29. I worry about the financial costs associated with managing my diabetes.

30. I feel stressed about the possibility of experiencing a hypoglycemic (low blood sugar) episode.

31. I fear that my diabetes will affect my ability to work or perform daily tasks.

32. I worry about the long-term impact of diabetes on my overall quality of life.

33. I feel anxious about the social stigma or judgment associated with having diabetes.

34. I fear that my diabetes will prevent me from achieving my personal or professional goals.

Section 4: Diabetes Distress Scale (DSS)

Instructions:

Below are statements related to your experience with diabetes. Please indicate how often you have felt this way in relation to your interactions with others over the past week or month.

Choose the option that best reflects your experience:

0= Never

1= Rarely

2= Sometimes

3= Often

4= Always

35. I feel that others think less of me because I have diabetes.

36. I hesitate to talk about my diabetes with others because I fear their negative reactions.

37. How do you perceive your emotional well-being (such as stress, anxiety, depression) related to living with diabetes in your age group?

38. Your income level may affect your ability to manage diabetes and maintain your emotional well-being.

39. How often do you feel supported by your family, friends, or community in managing your diabetes?

40. I feel singled out or judged in social situations because of my diabetes.

Section 5: Self-Care Activities for Diabetes Management (SDSCA) Guidelines

The following questions ask about your self-care activities related to diabetes over the past week.

Please select the response that best reflects your behavior for each activity.

0=Not at all

1 = 1-2 days

2 = 3-4 days

3 = 5-6 days

4 = Every day

41. How often have you followed the recommended meal plan for managing your diabetes (for example, eating healthy foods and controlling portion sizes)?

42. How often have you followed a prescribed meal plan or carbohydrate counting guidelines from your healthcare provider?

43. How often have you engaged in physical activity or exercise (for example, walking, jogging, swimming, or any form of physical activity for at least 30 minutes)?

44. How often have you monitored your blood glucose levels (for example, checking your blood glucose with a meter)?

45. How often have you taken your prescribed diabetes medications or insulin as directed by your healthcare provider?

46. How often have you managed symptoms related to diabetes, such as numbness, tingling, or other issues?

47. How often have you avoided unhealthy behaviors, such as skipping meals or consuming alcohol?

48. How often have you felt calm and in control during your diabetes management activities?

49. How often have your family or friends provided support for your diabetes management, or how often have you participated in support groups related to diabetes?

Section 6: Diabetes Self-Management Questionnaire (DSMQ)

The following questions ask about your self-care activities related to diabetes over the past week.

Please select the response that best reflects your behavior for each activity.

0=Not at all

1 = 1-2 days

2 = 3-4 days

3 = 5-6 days

4 = Every day

1. Glucose Management (5 items)

50. I check my blood sugar levels as recommended by my doctor.

51. I adjust my insulin or medication dose based on my blood sugar levels.

52. I keep a record of my blood sugar levels.

53. I take action when my blood sugar levels are too high or too low.

54. I avoid situations where my blood sugar levels could become unstable.

2. Dietary Control (4 items)

55. I follow a healthy eating plan as recommended by my healthcare provider.

56. I limit my intake of sugary foods and drinks.

57. I eat balanced meals with appropriate portion sizes.

58. I avoid skipping meals to maintain stable blood sugar levels.

3. Physical Activity (3 items)

59. I engage in regular physical activity (e.g., walking, cycling) as recommended.

60. I incorporate physical activity into my daily routine.

61. I monitor the effect of physical activity on my blood sugar levels.

4. Healthcare Use (4 items)

62. I attend regular medical check-ups for my diabetes.

63. I follow the advice of my healthcare provider regarding my diabetes management.

64. I take my prescribed diabetes medications as directed.

65. I seek help immediately if I notice any diabetes-related complications.
