Association of Personality, Social Support, Treatment Adherence, Self-Care Activities with Quality of Life among Type-1 Diabetes.

Abstract

Diabetes is a major public health threat to India and the world. Managing type 1 diabetes is a complex and demanding task. Certain personality traits, social support,treatment adherence, and self-care activities facilitate quality of life. The present study aims toassess personality, perceived social support, treatment adherence, self-care practices, and quality of life among type 1 diabetics. A correlational design was used to understand the relationship of personality, perceived social support, treatment adherence, self-care practices, with quality of life. The study was conducted on 59 type 1 diabetics (29 females and 30 males). The results showed that individuals with type 1 diabetes had moderate levels of perceived social support, treatment adherence, and self-care activities, but good quality of life. A significant gender difference was found in agreeableness among type 1 diabetics. Correlation results showed that personality traits like extraversion, conscientiousness, and openness were positively associated with QoL, but neuroticism was negatively associated with QoL. Various dimensions of social support and overall social support, insulin adherence, diet adherence, exercise adherence, food-care adherence, and diabetes self-care activities were positively associated with QoL among type 1 diabetics.

Keywords:

Introduction

Diabetes mellitus is a group of metabolic disorders characterized by chronic hyperglycemia resulting from defects in insulin secretion, insulin action, or both. Although it has many subclassifications, including type 1, type 2, maturity-onset diabetes of the young (MODY), gestational diabetes, neonatal diabetes, and steroids-induced diabetes, the two main classifications are type 1 diabetes mellitus (T1DM), an autoimmune disease marked by the destruction of insulin-producing beta cells, and type 2 diabetes mellitus (T2DM), characterized by insulin resistance and an eventual decline in insulin production (Sapra & Bhandari, 2023).

Type 1 diabetes, formerly known as juvenile diabetes or insulin-dependent diabetes, is a chronic disease in which the pancreas produces little or no insulin. For people living with

diabetes, access to affordable treatment, including insulin, is critical to their survival (WHO, 2023).

The incidence and prevalence of T1D have steadily increased, accounting for approximately 5 to 10 percent of diabetics (Lucier & Weinstock, 2023). In 2021, the number of people with T1DM worldwide was estimated to be approximately 8.4 million, with 500,000 new cases in the same year. By 2040, the number of people with T1DM is projected to increase to 13.5-17.4 million (Ogrotis et al., 2023). India accounts for most children with T1DM in South-East Asia (Das, 2015). As per the Indian Council of Medical Research – India Diabetes (ICMR INDIAB) study published in 2023, the prevalence of diabetes is 10.1 crores. According to a 2022 study by The Times of India, India has around 95,600 cases of type 1 diabetes in children under 14 years old.

Personality is "the enduring configuration of characteristics and behavior that comprises an individual's unique adjustment to life, including major traits, interests, drives, values, self-concept, abilities, and emotional patterns. Personality is generally viewed as a complex, dynamic integration or totality shaped by many forces, including hereditary and constitutional tendencies; physical maturation; early training; identification with significant individuals and groups; culturally conditioned values and roles; and critical experiences and relationships" (American Psychological Association, 2014). The five-factor model of personality is a hierarchical organization of personality traits in terms of five basic dimensions: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (McCrae & John, 1992).

Social support refers to the perception and reality of having a network of people who provide assistance and care, encompassing emotional, informational, and tangible aid. This network, which can include family, friends, and community members, serves as a buffer against stress, enhances well-being, and contributes to both physical and psychological health by fostering a sense of belonging and security (McLean et al., 2022).

According to the 2003 report of the World Health Organization (WHO), adherence to treatment for T1DM consists of self-monitoring of glucose, insulin, diet, physical activity, and other self-care measures (Sabaté, 2003). Diabetes self-management practices include monitoring blood glucose, medication, diet, physical activity, and tending to foot care to normalize blood glucose levels (Ahola et al., 2013; Tewahido& Berhane, 2017). Research shows adherence to these self-care activities is associated with better glycemic controls in diabetics (Bukhsh et al., 2018).

WHO defines Quality of Life as an individual's perception of their position in life in the context of the culture and value systems in which they live and concerning their goals, expectations, standards, and concerns (2012). Health-related quality of life (HRQOL) is a person's or group's perception of their mental and physical health over time (Shockey, 2017).

Rationale

Diabetes Mellitus is known as the “Mother of Diseases” because it is the mother of various other diseases such as hypertension, heart disease, stroke, and blindness (Fitriyah et al., 2021). Type 1 diabetes requires extensive self-management including frequent blood glucose monitoring, precise insulin administration, and attention to diet and exercise. However, rates of non-adherence to treatment remain high, which can negatively impact glycemic control and quality of life (Aljawarneh et al., 2023). In populations of people with diabetes, poorer adherence has been linked to specific personality traits and a lack of social support (Chantzaras &Yfantopoulos, 2022). However, few studies have examined how personality and social support influence treatment adherence, self-care practices, and related quality of life in type 1 diabetic populations.

More research on Indian population is required in this area because India is the 'diabetes capital of the world', according to a study by the Indian Council of Medical Research that shows the country now has 101 million diabetics, with a further 136 million pre-diabetic individuals in need of prevention (ICMR INDIAB, 2023). Very few Indian studies are available involving the proposed variables. Therefore, a study that includes the Indian Diabetic population is much needed in the current scenario. The study may reveal certain personality traits and social support systems that encourage treatment adherence, self-care practices, and quality of life among Type 1 diabetics. By knowing the significant impact of associated factors such as personality, social support, treatment adherence, and self-care activities,which impactthe quality of life of type 1 diabetics. Against this background, the following objectives have been formulated:

Objectives

- To assess the personality, perceived social support, treatment adherence, self-care practices, and quality of life among participants with type 1 diabetes.
- To assess the gender differences in Personality, perceived social support, treatment adherence, self-care practices, and quality of life among type 1 diabetics.

- To investigate the relationship of personality with treatment adherence, self-care practices, and quality of life, and the relationship of perceived social support with treatment adherence, self-care practices, and quality of life among type 1 diabetics.

Hypotheses

H1. There would be significant gender differences in personality, perceived social support, treatment adherence, self-care practices, and quality of life among type 1 diabetics.

H2. There would be a positive correlation between Personality, Perceived Social Support, Treatment Adherence, and Self-Care Activities with Quality of Life among Type 1 Diabetics.

Methods

Research Design

The present study is cross-sectional, and a correlational design was chosen to examine associations between the variables. The predictor variables of this study were personality factors, perceived social support and treatment adherence, and self-care practices, and the criterion variablewas quality of life. A survey method using an online questionnaire was used to collect data efficiently within a reasonable timeframe.

Study Sample

The target population for this study was people aged 13 years and above who had confirmed medical diagnoses of type 1 diabetes. The purposive sampling method was used to gather data from 59 patients, 30 male and 29 female. eligibility criteria to participate in this study included:

- Diagnosis of type 1 diabetes
- Age 13+ years
- Ability to complete surveys

Measures of the Study

Medical History Proforma

The researcher developed a proforma specifically for this study to find out the patient's medical history. It provided information about the participants' age, sex, age of diagnosis, method of insulin administration, HBA1C, complications associated with the disease, and other comorbid conditions in the current or recent past, if any.

WHOQOL-BREF

The World Health Organization Quality of Life-BREF (WHOQOL-BREF) is a widely used self-report questionnaire designed to assess an individual's perception of their quality of life.

It evaluates four key domains: physical health, psychological health, social relationships, and environment, along with two general items on overall quality of life and general health. This instrument aims to provide a comprehensive understanding of an individual's subjective well-being, considering the interplay of various life aspects, and is structured to be applicable across diverse cultural settings.In the initial validation paper, the WHOQOL-BREF showed excellent internal consistency (domain α's from 0.66 to 0.84) and demonstrated good discriminant and content validity among multiple illness groups compared to the normal population.

Multidimensional Scale of Perceived Social Support (MSPSS)

The Multidimensional Scale of Perceived Social Support (MSPSS) is a 12-item self-report questionnaire designed to measure an individual's perception of social support from three specific sources: family, friends, and significant others. It utilizes a Likert-type scale, allowing respondents to indicate their level of agreement with statements related to perceived support. The MSPSS is widely used in research and clinical settings to assess the perceived adequacy of social support, which is an essential factor in psychological and physical well-being.The MSPSS has demonstrated good internal reliability overall (alpha = 0.88), and for Significant Other, Family, and Friends subscales, the values were .91, .87, and .85, respectively (Zimet et al., 1988).

Big Five-factor scale

The Big Five factor scale, or the OCEAN model, is a widely used framework in psychology to describe and measure human personality. It assesses individuals across five broad dimensions: Openness to experience (curiosity, imagination), Conscientiousness (organization, responsibility), Extraversion (sociability, energy), Agreeableness (cooperation, compassion), and Neuroticism (emotional stability, anxiety). These dimensions represent fundamental personality traits that influence behavior, thoughts, and feelings, and the scale provides a structured way to quantify and understand individual differences in these areas.The BFI-44 scales have demonstrated good internal consistency with alpha coefficients ranging from 0.79 to 0.88 in the original development paper (John et al., 1991) with a mean reliability of 0.83.

Medication Adherence Rating Scale

The Medication Adherence Rating Scale (MARS) is a 10-item self-report scale developed by K. Thompson, J. Kulkarni, and A. A. Sergejew in 2000 to assess medication adherence behavior. It is one of the most widely used adherence rating scales. The reliability analysis of the MARS using Cronbach's alpha is 0.75. The test-retest reliability assessed after a 2-week

interval using parallel-forms Chi-square to test the goodness of fit was 0.72 in the original paper.

Summary of Diabetes Self-Care Activities

The Summary of Diabetes Self-Care Activities (SDSCA) was developed by Deborah J. Toobert, Sarah E. Hampson, and Russell E. Glasgow in 2000 as a brief self-report instrument to assess levels of diabetes self-management across different regimen areas. It includes 11 core items measuring dietary behaviors, exercise, blood glucose testing, foot care, and smoker status on a 0 to 7 scale reflecting days per week. Initial validation analyses found adequate internal consistency ($\alpha \geq 0.70$) and acceptable 2-week test-retest reliabilities ranging from 0.41-0.58 for SDSCA subscales.

Statistical Analysis

In the present study, mean, standard deviation, and t-test have been used to examine gender differences in personality, perceived social support, treatment adherence, self-care practices, and quality of life among type 1 diabetics. The Pearson correlation method was used to examine associations between personality traits, treatment adherence behaviors, self-care activities, and perceived social support with quality of life among individuals diagnosed with type 1 diabetes.

Results

The purpose of this study was to assess the relationship between personality factors and perceived social support, treatment adherence, self-care practices, and quality of life. The data were analyzed using SPSS. Descriptive statistics, Pearson Correlation,and t-test were used to test the hypotheses.

Table 1

Demographic and Background Characteristics of the Sample

	Number of Participants (N)	**Percentage (N%)**
Gender		
Male	30	50.8%
Female	29	49.2%
Age Groups		
Adolescents (14-17)	4	6.8
Young adults (18-25)	26	44.1

Adults (26-64)	27	45.8
Older adults (65 and above)	2	3.4
Current Residence		
Urban	53	89.8
Rural	6	10.2
Years Living with T1D		
1-10	26	44.10
11-20	20	33.90
21-30	6	10.20
31-40	1	1.70
41-50	4	6.70
51-60	2	3.40
Insulin		
MDI (Multiple Daily Injections)	47	79.7
Pump	11	18.6
Other	1	1.7
HBA1C		
Excellent	18	30.5%
Good	33	55.9%
Poor	7	11.9%
Education		
Highschool	10	16.90
Intermediate	1	1.70
Graduate	31	52.50
Post-graduate	15	25.40
Others	2	3.40
Country		
Indian	46	78
International	13	22
Any Comorbidities		
Yes	16	27.1%

No	43		72.9%
Any Complications			
Yes	16		27.1%
No	43		72.9%

Table 1 presents the demographic and background characteristics of a sample of 59 participants.The sample is nearly evenly split between male (50.8%) and female (49.2%) participants.The participants are categorized into four age groups: adolescents (14-17), young adults (18-25), adults (26-64), and older adults (65 and above). The majority of the participants fall into the young adult (44.1%) and adult (45.8%) categories.Most of the participants reside in urban areas (89.8%), with a smaller percentage living in rural areas (10.2%).This category shows the duration participants have lived with Type 1 Diabetes (T1D). The data is distributed across different ranges, with the largest groups having lived with T1D for 1-10 years (44.10%) and 11-20 years (33.90%).The table indicates the type of insulin administration used by the participants. The majority use Multiple Daily Injections (MDI) (79.7%), while a smaller percentage use a pump (18.6%).This refers to the participants' HbA1c levels, a measure of long-term blood sugar control. The levels are categorized as excellent (30.5%), good (55.9%), and poor (11.9%). The education levels of the participants vary, with the largest groups having a graduate (52.50%) or post-graduate (25.40%) education.The participants are classified as Indian (78%) or International (22%).The table shows the percentage of participants with any comorbidities (27.1%) and those without (72.9%).Similar to comorbidities, this shows the percentage of participants with any complications (27.1%) and those without (72.9%).

Table 2

Mean, Standard Deviation, and Independent Samples t-test of Females and Males in Personality factors, Perceived Social Support, Insulin Adherence, Self-Care Practices, and Quality of Life among people with Type 1 Diabetes (N= 59)

Variable	**Female**		**Male**		**t**	**p-value**
	M	SD	M	SD		
Personality						
Extraversion	3.00	0.91	3.23	0.53	-1.179	0.243
Agreeableness	4.11	0.63	3.67	0.65	**2.573***	0.013

Conscientiousness	3.62	0.62	3.51	0.73	0.615	0.541
Neuroticism	3.13	0.86	2.73	0.79	1.858	0.068
Openness	3.70	0.61	3.67	0.55	0.197	0.845
Social support	4.94	1.52	4.50	1.54	1.095	0.278
Insulin adherence	8.13	1.74	8.36	1.54	-0.534	0.596
Self-care activities	3.88	1.40	4.32	1.26	-1.250	0.217
Quality of life	62.55	16.74	62.16	13.33	0.042	0.966

*Significant at the 0.05 level

Table 2 shows that females had significantly higher scores on agreeableness than males (t = 2.573, p 0.01). non-significant gender difference was found in all the variables and their subscales except agreeableness. This may be because both genders face similar kinds of life challenges and their personality are not determined by their gender.

Table 3*Correlational Analysis of Personality, Perceived Social Support, Treatment Adherence, Self-Care Activities with Quality of Life among Type 1 Diabetics*

Variables	**Physical QoL**	**Psychological QoL**	**Social QoL**	**Environmental QoL**	**QoL and General Health**	**QoL (Overall)**
Extraversion	.259*	.317*	.141	.186	.145	.261*
Agreeableness	.203	.237	.148	.016	.093	.152
Conscientiousness	.529**	.557**	.300*	.305*	.352*	.491**
Neuroticism	**-.327***	**-.322***	-.255	-.172	-.189	**-.300***
Openness	.155	**.285***	.065	.225	.208	.237
Family support	**.384****	**.306***	**.356****	**.300***	**.400****	**.408****
Friends support	**.297***	**.363****	**.410****	.229	.188	**.351****
Significant other support	**.274***	**.420****	**.365****	**.261***	.239	**.370****
Social support (Overall)	**.375****	**.431****	**.446****	**.312***	**.325***	**.445****

Insulin adherence	**.308***	.239	.320*	.254	**.302***	**.336****
Diet Adherence	**.378****	**.393****	**.334****	**.280***	**.410****	**.414****
Exercise Adherence	**.288***	**.338****	.175	.189	**.345****	**.304***
BG Testing Adherence	.189	.190	.065	.196	.140	.205
Foot-care Adherence	.113	**.370****	.150	.076	.115	.184
Diabetes self-care activities	**.376****	**.527****	**.275***	**.288***	**.390****	**.435****

Note. ** significant at the 0.01 level *significant at the 0.05 level

Table 3 presents the correlationalresults of personality, perceived social support, treatment adherence, and self-care activities with quality of life among Type 1 Diabetics. Extraversion was significantly and positively associated with physical QoL (r = .259, p 0.05), psychological QoL (r = .317, 0.05), and overall QoL (r = .261, 0.05). Conscientiousness was significantly and positively associated with physical QoL (r = .529, p 0.01), psychological QoL (r = .557, p 0.01), social QoL (r = .300, p 0.05), environmental QoL (r = .305, p 0.05), QoL and general health (r = .352, p 0.05), and Overall QoL (r = .491, p 0.01). Neuroticism was significantly and negatively associated with physical QoL (r = -.327, p 0.05), psychological QoL (r = -.322, p 0.05), overall QoL (r = -.300, 0.05). Openness was significantly and positively associated with psychological QoL (r = .285, p 0.05). Family support was significantly and positively associated with physical QoL (r = .384, p 0.01), psychological QoL (r = .306, p 0.05), social QoL (r = .356, p 0.01), environmental QoL (r = .300, p 0.05), QoL and general health (r = .400, p 0.01), and Overall QoL (r = .408, p 0.01). Friend's support was significantly and positively associated with physical QoL (r = .297, p 0.05), psychological QoL (r = .363, p 0.01), social QoL (r = .410, p 0.01), and Overall QoL (r = .351, p 0.01). Significant other's support was significantly and positively associated with physical QoL (r = .274, p 0.05), psychological QoL (r = .420, p 0.01), social QoL (r = .356, p 0.01), environmental QoL (r = .261, p 0.05), QoL and Overall QoL (r = .370, p 0.01). Social support (overall) was significantly and positively associated with physical QoL (r = .375, p 0.01), psychological QoL (r = .403, p 0.01), social QoL (r = .446, p 0.01), environmental

QoL (r = .312, p 0.05), general health (r = .325, p 0.05), and Overall QoL (r = .445, p 0.01). Insulin adherence was significantly and positively associated with physical QoL (r = .308, p 0.05), social QoL (r = .320, p 0.05), QoL and general health (r = .302, p 0.05), and Overall QoL (r = .336, p 0.01). Diet adherence was significantly and positively associated with physical QoL (r = .378, p 0.01), psychological QoL (r = .393, p 0.01), social QoL (r = .334, p 0.01), environmental QoL (r = .280, p 0.05), QoL and general health (r = .410, p 0.01), and Overall QoL (r = .414, p 0.01). Exercise adherence was significantly and positively associated with physical QoL (r = .288, p 0.05), psychological QoL (r = .338, p 0.01), QoL and general health (r = .4345, p 0.01), and Overall QoL (r = .304, p 0.05). Foot-care adherence was significantly positively associated with psychological QoL (r = .370, p 0.05). Diabetes self-care activities were significantly and positively associated with physical QoL (r = .376, p 0.01), psychological QoL (r = .527, p 0.01), social QoL (r = .275, p 0.05), environmental QoL (r = .288, p 0.05), QoL and general health (r = .390, p 0.01), and Overall QoL (r = .435, p 0.01).

Discussion

The study's primary objective was to examine the difference between gender and the association among the variables. Based on the gender difference t-test showed that agreeableness personality was found to be significant, and reported females have higher levels of agreeableness personality than their male counterparts. This may be because women are often socialized to prioritize interpersonal harmony, caregiving, and cooperative behavior, which aligns with traits of agreeableness.some theories suggest that women's roles in child-rearing may have favored the development of traits like empathy and cooperation, which are key components of agreeableness, to ensure offspring's well-being and maintain social harmony within groups. It's important to recognize that these are general trends, and individual personalities vary greatly, transcending gender stereotypes (Mukherjee et al., 2022).

Extraversion was significantly and positively associated with physical, psychological, and overall quality of life (QoL) among type 1 diabetic individuals because extraverted people tend to engage more actively in social interactions, express emotions openly, and maintain higher levels of energy and enthusiasm, which can buffer the psychological and physical burdens of chronic illness. Their sociability often leads to stronger support networks, better stress management, and greater adherence to health-related behaviors such as regular

exercise, proper diet, and routine medical check-ups. These adaptive behaviors and emotional resources contribute to a more positive outlook on life, improved mental health, and better coping with the demands of diabetes management, thereby enhancing their overall quality of life. A prior study reported that the extraversion trait was significantly associated with quality of life and positive outcomes like social engagement in society (Liang et al., 2021).

Conscientiousness was significantly and positively associated with all domains of quality of life (QoL), including physical, psychological, social, environmental, general health, and overall QoL, because individuals high in conscientiousness are typically organized, responsible, goal-oriented, and disciplined, which are crucial traits for managing a chronic condition like diabetes. These individuals are more likely to follow medical advice, adhere to treatment plans, maintain healthy routines (such as diet and exercise), and avoid harmful behaviours, leading to better physical health outcomes. Their reliability and structured approach to life also contribute to psychological stability, stronger social relationships, and a proactive engagement with their environment. As a result, they experience better emotional well-being, social support, environmental control, and overall satisfaction with life and health. Previous studies aligned with the findings that conscientiousness was found to be positively associated with all the dimensions of QoL, i.e., physical, psychological, social, environmental, general health, and overall QoL among young adults (Van Straten et al., 2006; Chow, 2021).

Neuroticism was significantly and negatively associated with physical, psychological, and overall quality of life (QoL) among diabetic individuals because individuals high in neuroticism are more prone to experience negative emotions such as anxiety, depression, irritability, and self-doubt, which can exacerbate the psychological strain of managing a chronic illness like diabetes. This heightened emotional reactivity often leads to poor stress management, unhealthy coping mechanisms, and lower motivation to adhere to treatment regimens or maintain healthy lifestyle behaviors. Additionally, constant worry and emotional instability can amplify the perception of physical symptoms, reduce pain tolerance, and impair social functioning, ultimately diminishing both physical and psychological well-being and leading to a lower overall quality of life. The prior study revealed that neuroticism was positively associated with depression and QoL among persons with diabetic conditions (Sidi, 2021).

Openness was significantly and positively associated with psychological quality of life (QoL) among diabetic individuals because people high in openness tend to be more curious, adaptable, and willing to explore new experiences and perspectives, including those related to managing their health. Their openness to new ideas and approaches may lead them to seek out and adopt effective coping strategies, psychological support, and lifestyle modifications that enhance mental well-being. Additionally, their reflective and imaginative nature allows them to find meaning and personal growth even in the face of chronic illness, contributing to a more resilient and positive psychological state. A previous study reported that openness and significant other factors were associated with good quality of life among diabetics (Tamornpark et al., 2022).

The present study found the association of social support and its dimensions with various domains of QoL and overall QoL. Findings revealed that family support – dimension of QoL was significantly and positively associated with physical, psychological, social, and environmental quality of life (QoL), as well as general health and overall QoL among diabetic individuals because the presence of a supportive family fosters a stable and nurturing environment that enhances both emotional and practical coping resources. Family members often provide encouragement, assist with daily disease management tasks such as medication adherence, diet control, and physical activity, and offer emotional reassurance during stressful or depressive moments. This consistent support reduces feelings of isolation and distress, strengthens social connectedness, and reinforces healthy behaviors, leading to improved physical health, emotional well-being, and a greater sense of security and satisfaction across various life domains. As a result, diabetic individuals with strong family support are more likely to experience a higher overall quality of life and better general health outcomes. A previous study demonstrated that support from family leads to good QoL among diabetics because they can help to overcome clinical symptoms of diabetes and facilitate good QoL (Young et al., 2020; Yeole et al., 2020).

Friends' support was significantly and positively associated with physical, psychological, social, and overall quality of life (QoL) among individuals with diabetes. These findings may be because supportive friendships provide emotional comfort, practical assistance, and a sense of belonging, all of which are vital in managing a chronic condition like diabetes. Friends can encourage healthy behaviors such as proper diet, exercise, and medication adherence, which directly impact physical health. Emotionally, their presence helps reduce

stress, anxiety, and feelings of isolation, thereby enhancing psychological well-being. Socially, strong friendships contribute to a richer, more fulfilling life, promoting self-worth and a sense of connectedness. Altogether, these supportive dynamics foster resilience and motivation, which holistically improve the individual's quality of life across all domains. A previously investigated study reported that support from friends can help to overcome academic and interpersonal challenges that can foster better QoL among diabetics (Trikkalinou et al., 2017; Young et al., 2020).

Significant others' support was significantly and positively associated with physical, psychological, social, environmental, and overall quality of life (QoL) among diabetic individuals. These findings may be because emotional and practical support from a close partner plays a vital role in managing the complex demands of a chronic condition like diabetes. This support can enhance treatment adherence, reduce stress, and promote healthier lifestyle choices such as balanced nutrition, regular physical activity, and routine monitoring of blood sugar levels. Moreover, the presence of a caring partner provides emotional stability, motivation, and a sense of security, which improves psychological well-being. It also enriches social interactions and strengthens a person's sense of belonging and connectedness. Additionally, with supportive involvement, individuals often experience a more positive perception of their environment, including healthcare access, home conditions, and daily living resources. Collectively, these factors contribute to better management of diabetes and an overall improvement in quality of life across multiple domains. It has been reported previously that support for others, like a close partner or unknown persons, helped overcome diabetic related challenges and facilitated good QoL among people suffering from diabetes (Ghimire et al., 2024; Molla et al., 2022).

Social support (overall) was significantly and positively associated with physical, psychological, social, and environmental quality of life (QoL), as well as general health and overall QoL among diabetic individuals,these findings may be because when individuals receive consistent and reliable support from family members, friends, peers, or healthcare providers, they are more likely to manage these responsibilities effectively. **Physical QoL** is improved as social support can motivate individuals to maintain healthier routines, attend medical appointments, and adhere to treatment plans. **Psychologically**, emotional encouragement helps reduce stress, anxiety, and depressive symptoms, which are commonly associated with diabetes, thereby promoting a more stable and positive mental state.In terms

of **social QoL**, having strong support systems fosters meaningful interactions, reduces feelings of loneliness or isolation, and enhances a person's sense of belonging and acceptance. Supportive relationships also encourage individuals to remain socially active, which is crucial for emotional resilience. **Environmental QoL** is influenced by the practical assistance received, such as help in navigating healthcare systems, accessing resources, and creating a supportive living or work environment that accommodates their health needs. Additionally, **general health** benefits from the protective effects of social support, which have been shown to boost immune function, reduce the impact of stress on the body, and promote faster recovery from illness. Altogether, when individuals feel valued, understood, and supported, they are more likely to adopt positive health behaviours and experience a higher overall quality of life. Therefore, social support acts as a powerful psychosocial resource that significantly contributes to the holistic well-being of people living with diabetes. Prior studies reported that social support was found to be positively associated with QoL among diabetics (Kuriakose et al., 2025; Trikkalinou et al., 2017; Marte et al., 2019; Alzahrani et al., 2023).

Insulin adherence was significantly and positively associated with physical QoL, social QoL, general health, and overall QoL among diabetic individuals. These findings may be that consistent insulin use plays a critical role in maintaining stable blood glucose levels, preventing complications, and improving day-to-day physical functioning. When individuals adhere to their insulin regimen, they are more likely to experience fewer symptoms such as fatigue, dizziness, or frequent infections, which directly enhances their physical well-being. Improved physical health also enables greater participation in social activities, work, and family life, thereby contributing to better social quality of life. Moreover, adherence fosters a sense of control, self-efficacy, and confidence in managing the illness, leading to better general health perceptions and a higher overall quality of life.Majeed et al. (2021) have explored previously that treatment of insulin adherence was found to be positively associated with good quality of life among diabetics. Treatment adherence was significantly associated with QoL among them (Marinho et al., 2018).

Diet adherence was significantly and positively associated with physical, psychological, social, environmental, general health, and overall quality of life (QoL) among diabetic individuals. These findings may be attributed to the fact that maintaining a healthy and consistent diet plays a crucial role in managing blood glucose levels, reducing complications,

and improving overall health outcomes. Physically, a proper diet enhances energy levels, reduces symptoms, and prevents further deterioration, thereby improving physical QoL. Psychologically, it fosters a sense of control and self-efficacy, reducing anxiety and depression related to disease management. Socially, individuals who manage their condition well through diet are more likely to engage confidently in social activities without fear of symptoms or restrictions. Environmentally, dietary adherence often reflects better access to health education, resources, and supportive surroundings that encourage healthy behaviours. Altogether, these factors contribute to improved general health and a more positive perception of life, significantly enhancing overall QoL in people living with diabetes. Prior findings suggested that a healthy and balanced diet leads to good physical, psychological, and overall QoL among type 2 diabetics (Hasan et al., 2024). It has been reported that diet adherence was positively associated with good physical, psychological, and social QoL among people with diabetes (Al-Salmi et al., 2021).

Exercise adherence was significantly and positively associated with physical QoL, psychological QoL, general health, and overall QoL among diabetic individuals. These findings may be that regular physical activity plays a crucial role in managing blood glucose levels, improving cardiovascular health, enhancing muscular strength, and reducing the risk of diabetes-related complications. Beyond physical benefits, consistent exercise also contributes to psychological well-being by reducing stress, anxiety, and depressive symptoms while boosting self-esteem and mood through the release of endorphins. Moreover, individuals who adhere to exercise routines often feel a greater sense of control over their condition, leading to increased self-efficacy and motivation. This holistic improvement in both physical functioning and mental health directly enhances their perception of general health and quality of life. A previous study reported that exercise adherence helps to overcome diabetic related issues and achieve excellent QoL (Hasan et al., 2024). Exercise training leads to better QoL among people with diabetes (Myers et al., 2013; Çolak et al., 2015).

Foot-care adherence was significantly and positively associated with psychological quality of life (QoL) among diabetic individuals. These results may be because consistent foot-care practices reduce the risk of painful complications such as ulcers, infections, and amputations, which are common sources of anxiety and emotional distress in diabetes. By regularly engaging in preventive care, individuals gain a greater sense of control over their health,

leading to reduced fear of disease progression and improved self-efficacy. This proactive management fosters psychological reassurance, lowers health-related stress, and enhances confidence in handling daily challenges, thereby contributing to better emotional well-being and overall psychological QoL. It has been previously explored that food care and a healthy diet can lead to good QoL among Indian participants with diabetes (Bashir et al., 2019).

Diabetes self-care activities were significantly and positively associated with physical, psychological, social, and environmental quality of life (QoL), general health, and overall QoL among diabetic individuals. These findings may be that consistent self-care practices, such as monitoring blood glucose, maintaining a healthy diet, engaging in physical activity, taking medications as prescribed, and managing stress, directly contribute to better physical health and metabolic control. These practices reduce complications and improve energy levels, which enhance physical functioning. Furthermore, effective self-care fosters a sense of autonomy, self-efficacy, and emotional stability, contributing to better psychological well-being. Regular engagement in self-care also often involves social interactions, such as seeking support or participating in group activities, which enrich social QoL. Additionally, managing the disease effectively enables individuals to adapt more confidently to their surroundings and access resources, positively influencing environmental QoL. Altogether, these improvements across domains result in enhanced overall quality of life and general health perceptions among people with diabetes. It has been previously studied that self-care activity was positively associated with QoL, and it was facilitated by social support, i.e., family, friends, and significant others, among type 2 diabetics (Hasan et al., 2024). It has been reported that self-care activity was found to be associated with good QoL among people with diabetes (Alzahrani et al., 2023).

Conclusion

The present study highlights the significant associations between personality traits, social support, treatment adherence, and self-care activities with various domains of quality of life (QoL) among individuals with Type-1 Diabetes. Findings suggest that personality traits, particularly extraversion, conscientiousness, and openness,were associatedwith better physical, psychological, social, environmental, and overall QoL. Social support emerged as a vital psychosocial resource, enhancing physical, psychological, social, and environmental quality of life (QoL), as well as general health and overall QoL among type1 diabetic persons. Moreover, adherence to treatment and regular engagement in self-care activities

were strongly correlated with improved physical health, psychological, social, environmental, general health, and overall QoL. These results underscore the multifaceted nature of diabetes management and the importance of integrating psychological, behavioral, and social interventions in diabetes care. Enhancing personality strengths, strengthening support systems, and encouraging consistent self-management behaviors can collectively contribute to a higher quality of life among individuals living with Type 1 Diabetes.

Implications and Future Directions

The findings of this study carry important implications for clinical practice, public health policies, and psychosocial interventions aimed at improving the quality of life among individuals with Type 1 Diabetes. First, the results emphasize the need for a holistic and person-centered approach in diabetes care that goes beyond medical treatment to include psychological assessment and support. Incorporating personality profiling into patient care can help healthcare providers tailor interventions that align with individual traits, thereby enhancing motivation, adherence, and coping strategies. Second, given the strong role of social support in improving various QoL domains, it is crucial to foster family, peer, and community-based support systems, possibly through counselling, support groups, and health education programs.

In terms of future directions, longitudinal studies are recommended to establish causal relationships and better understand how these variables interact over time. Additionally, exploring the role of digital tools and mobile health applications in promoting self-care behaviors and treatment adherence could be a valuable area of research. Future studies may also investigate the moderating and mediating effects of psychological variables such as self-efficacy, health beliefs, and coping styles on the relationship between personality, support, adherence, and QoL. Culturally sensitive and age-specific interventions should also be developed, especially for adolescents and young adults with Type 1 Diabetes, to address their unique psychosocial needs. Overall, these insights can inform integrated care models that support both physical and psychological well-being, ultimately enhancing the long-term health outcomes and life satisfaction of individuals with Type 1 Diabetes.

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