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The Growing Health Concerns among Persons with Diabetes Mellitus: A Study in Selected Urban Areas of West Bengal

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ABSTRACT

Diabetes is a major public health concern, particularly in developing countries like India, which has the highest number of diabetes cases globally (212 million, 26% of the global total). A recent study in West Bengal involving 120 participants from Purba Bardhaman and Kolkata explored the health concerns and social implications of diabetes. It found that women had a higher prevalence of both physical and psychological comorbidities. Diabetes was also seen to affect interpersonal relationships, especially between spouses. The study highlighted the link between health-seeking behaviours and the prevalence of comorbidities, as well as the lack of awareness about preconception counselling, which worsens complications in pregnant women and infants. It called for increased awareness on health education, early detection, and improved healthcare services, including individualised care. It also addressed the affordability issues surrounding health insurance and the need for diabetes education and prevention in areas with limited healthcare access in West Bengal.

Introduction

Diabetes is one of the largest global health emergencies, and it is the 10 leading cause of mortality paired with cardiovascular disease (CVD), respiratory disease, and cancer (Cho et al.,2018 and WHO, 2020).

The World Health Organisation (2019) observed that approximately 77 million adult Indians who are above the age of 18 are suffering from type 2 diabetes mellitus, and around 25 million people are considered prediabetic and are at risk of developing the disease in the future. Statistics present that more than a staggering half of Indians are not aware of the status of their diabetes, which prevents them from availing the appropriate treatment measures and thus avoiding complications related to diabetes mellitus. International Diabetes Federation shared that the South-East Asian region had 1.2 million deaths of adults in 2019 attributable to diabetes, making it the second highest, among which India contributed the lion's share with more than 1 million estimated deaths attributable to diabetes and related complications. The Global Burden of Disease Study 2016 reported that obesity, low dietary intake and tobacco are the most important risk factors for DALY (Disability-Adjusted Life Years) and deaths due to diabetes (Tripathy,2018). Sapra, A. and Bhandari, P. (2022) shared that diabetes mellitus (DM) has various categories like type 1 (T1DM), type 2 (T2DM), maturity-onset diabetes of the young (MODY), gestational diabetes, neonatal diabetes, and secondary causes due to endocrinopathies, steroid use, etc. Type 1 diabetes is a medical condition where the pancreas cannot produce insulin or produces insulin in a very minimal quantity. It is also referred to as insulin-dependent diabetes or juvenile diabetes. Type 2 diabetes is a metabolic disease that emerges due to a medical condition known as insulin resistance. It happens when the human body cannot use the insulin that it secretes. As a result, the pancreas produces more insulin for the cells to react to the insulin. This leads to a situation of high blood glucose in the body. The National Diabetes and Diabetic Retinopathy Survey Report (2019) noted that 11.8% of adult Indians suffer from diabetes mellitus, with 12% of male patients and 11.7% of female patients being reported (Vashist et al., 2021).

Poor blood glucose management and smoking are two of the most influential risk factors in the development of foot complications among diabetic patients (Rossboth et al., 2020). There is a high association between the coexistence of hearing loss and microvascular complications of diabetes mellitus (Mishra et al., 2024). Sexual disorders like hypoactive sexual desire disorder, menstrual disorder, and polycystic ovarian syndrome occur in correlation with depressive disorder in diabetic women. (Sharma et al., 2021). Skin diseases in patients with diabetes mellitus have a high correlation with the poor management of blood glucose levels (de Macedo et al., 2016). Diabetic neuropathy is one of the highly prevalent microvascular comorbidities of diabetes mellitus. Those with high blood pressure and co-existing microvascular complications are also at enhanced chances of developing diabetic neuropathy (Darivemula et al., 2019). Tooth decay or loss, in such patients, usually occurs due to reduced salivation, pH imbalance of the mouth, dryness of the mouth, as well as gingival recession (Rawal et al., 2019).

Diabetic females were more prone to distress than their male counterparts, and unemployed diabetic individuals are more prone to stress than those employed in any sector (Aldossari et al., 2022). Chronic physical diseases (CPDs)are complicated by mental health conditions and emotional crises. Alexithymia, depression, anxiety, psychological distress, sleep disorders, and emotional dysregulation have been found as 'pain catastrophization' in patients suffering from fibromyalgia, osteoporosis, psoriasis, and type II diabetes (Conversano, 2019). Psychological stress caused by diabetes affects the social life of the individuals, thereby, the overall quality of life gets significantly reduced (Bhat et al., 2020). According to the National Diabetes Service Scheme Australia, diabetes distress (DD) is a unique and often hidden emotional load of surviving with and controlling diabetes daily. Psychiatric conditions of depression, anxiety, and eating disorders can also be closely monitored in patients with diabetes (Kalra et al., 2018).

Psycho-social issues of blame, stigma and identity concerns influence self-management and intervention outcomes of diabetes. People living with diabetes often report feeling isolated, misunderstood, and unsupported by their close ones (Ramya et al., 2022).

A crucial gap was recognised between the studies on the health concerns of patients suffering from diabetes mellitus and the social well-being of those patients. It can be established that more research has been conducted on the physical and psychological effects than on the social effects. Additionally, not much literature has been established in the context of West Bengal that highlights the struggles and impact of diabetes mellitus on the physical and psycho-social well-being and functioning of individuals suffering from Diabetes Mellitus. On that account, this study aimed to understand the growing health concerns among persons with Diabetes Mellitus regarding their physical, psychological and social well-being.

Methodology

Objectives

- To understand the health concerns (physical and psychological) pertaining to persons with diabetes mellitus.
- To understand the social impact of diabetes mellitus.

Study Design

This study adopted a descriptive research design.

Sample Size and Sampling Technique

Purposive Sampling method was employed to select 120 persons diagnosed with both Type 1and Type 2 Diabetes Mellitus from urban areas of Kolkata and Purba Barddhaman district of West Bengal in the age group of 25-55 years. 30 male and 30 female respondents were selected from Purba Bardhaman. On the other hand, 29 male and 31 female respondents were selected from Kolkata.

Data Collection and Analysis

A semi-structured interview schedule was employed to obtain data from respondents. SPSS 29.0 and Microsoft Excel were used to analyse the data.

Results

This section presents the socio-demographic profile of the respondents in section I and the major thematic findings of the study. Categories or variables were identified from the interviews of patients with diabetes, which were then condensed under two major themes as discussed below under sections II& III. Section II highlights the theme of health concerns, both physical and psychological health of the patients with diabetes mellitus. Section III provides an overview of the social implications of the disease.

Table 1: Socio-demographic profile and clinical variables of the respondents (N=120) (Discrete Variable)

Variables	Mean	Std. Deviation
Age	2.7583	1.08462
Gender	1.5083	.50203
Religion	1.3750	.67441
Education	3.4250	1.19988
EmploymentStatus	1.3083	.46374
Nature of Profession	8.8333	4.14513
Income per month	3.8417	1.79165
Marital Status	1.4000	.92944
Duration of DM	3.2750	1.53372
Type of DM	1.9833	.64799

On Medications for DM	3.2167	1.53493
Acquisition of DM	1.6167	.61060

Table 1 presents the Socio-Demographic profile of the 120 respondents. The majority of respondents were middle-aged, with the mean age group being 2.76 (SD = 1.08), which corresponds to the 41–50 years age range based on categorical coding. Gender distribution was nearly equal, with a mean of 1.51 (SD = 0.50), indicating a balanced representation of males and females. In terms of religion, most participants identified as Hindu (M = 1.38, SD = 0.67). Educational attainment varied, but the mean score of 3.43 (SD = 1.20) indicated that most participants had completed high school or undergraduate education. Employment status showed that a majority were employed (M = 1.31, SD = 0.46), and the nature of their professions was diverse, ranging from unskilled to professional roles, with a mean score of 8.83 (SD = 4.15), suggesting a prevalence of skilled or semi-skilled occupations. Monthly income levels were moderately distributed, with most participants earning between ₹20,000 and ₹30,000 (M = 3.84, SD = 1.79). Marital status data indicated that most respondents were married (M = 1.40, SD = 0.93). The mean duration of diabetes was 3.28 (SD = 1.53), suggesting that many had been living with the condition for 5 to 10 years. Most participants were diagnosed with Type 2 diabetes (M = 1.98, SD = 0.65), and a significant proportion were receiving insulin or a combination of oral and injectable medications (M = 3.22, SD = 1.53). Regarding the mode of acquisition, the majority of participants reported lifestyle-related factors as the cause of their diabetes (M = 1.62, SD = 0.61). Overall, the sample represented a heterogeneous group in terms of socio-demographic and clinical characteristics, reflecting a typical community-based diabetic population.

SECTION II: HEALTH CONCERNS

Part – 1: Physical Health Concerns

Figure1: Physical comorbidities of the respondents (N = 120) (Descriptive Variable)

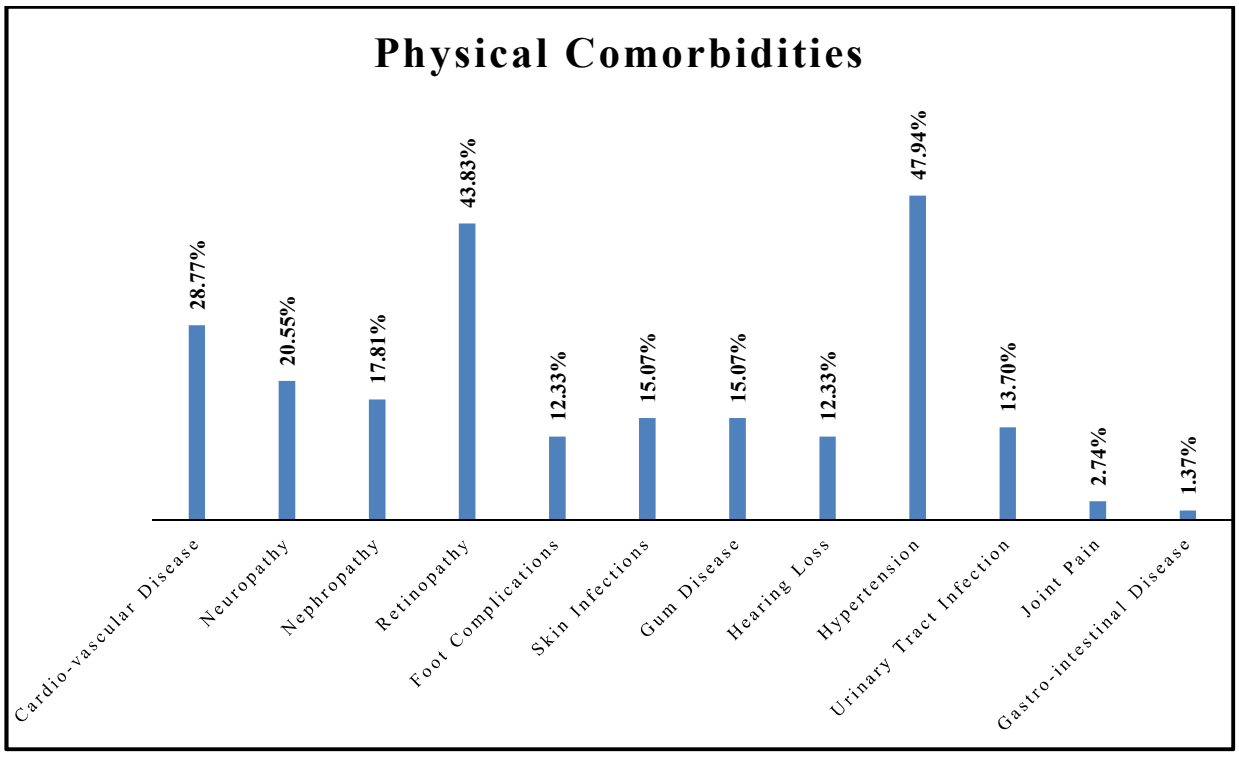


Figure 1 presents the frequency of different physical comorbidities reported among the participants with Diabetes Mellitus. Hypertension was the most frequently reported comorbidity, affecting 47.94% participants. Retinopathy (eye complications) was reported by 43.83% participants, indicating that diabetic eye issues are widespread in the sample. Cardio-vascular disease was reported by 28.77% participants, which is a significant illness among the sample. Moderately Common Conditions: Neuropathy (nerve damage) – 20.55% participants, Skin Infections and Gum Diseases – 15.07% participants, Urinary Tract Infection – 13.07% participants, followed by foot complications and hearing loss among 12.33% participants. Least Common Comorbidities: Joint Pain – reported by 2.74% participants, and Gastrointestinal Disease – 1.37% participants were affected.

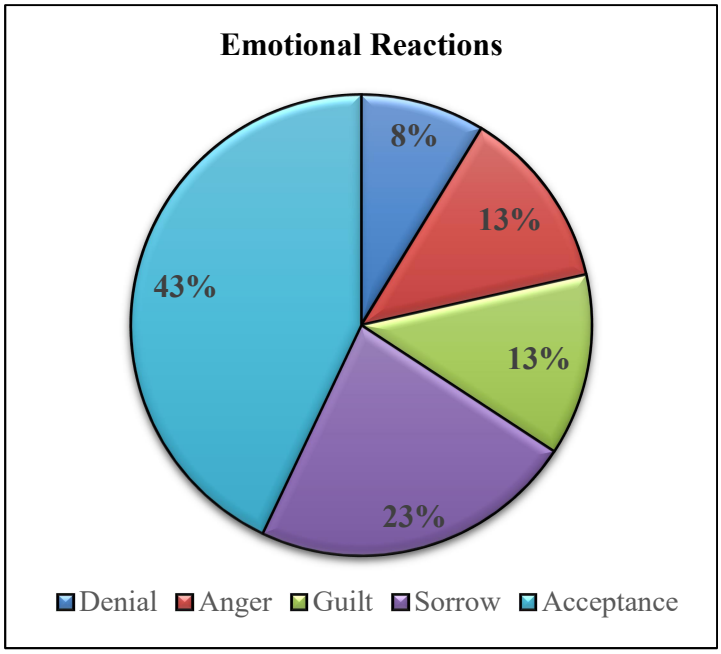
Part – 2: Psychological Health Concerns

Table 2: Psychological comorbidities of the respondents (N = 120) (Discrete Variable)

Variables	Mean	Std. Deviation
Presence of Psychological Comorbidities	1.3667	.48391
Prevalence of Diabetes Distress	1.4583	.50035
PrevalenceofCognitiveDysfunctions	1.6417	.48152

Table 2 represents psychological comorbidities of the respondents. The presence of Psychological Comorbidities (M = 1.37) indicates that a substantial portion of participants reported the presence of psychological comorbidities. Mean Prevalence of Diabetes Distress is 1.46, indicating that approximately 46% of the respondents experienced diabetes distress, a common emotional response to living with a chronic condition. The prevalence of Cognitive Dysfunctions (Mean = 1.64), indicates that a larger proportion of participants (likely around 64%) experienced cognitive difficulties.

Figure 2: Emotional reactions of the respondents to Diabetes Diagnosis (N = 120) (Descriptive Variable)



The emotional response patterns of the participants indicate a dual presence of acceptance and distress. While a majority (53.33%) demonstrated psychological adjustment and acceptance of their diabetic condition, a considerable proportion experienced negative emotional states such as sorrow (28.33%), anger (15.83%), and guilt (15.83%). These findings emphasise the importance of psychosocial support and emotional counselling during the initial and continuing phases of diabetes management.

Figure 3: Psychological Comorbidities (N = 120) (Descriptive Variable)

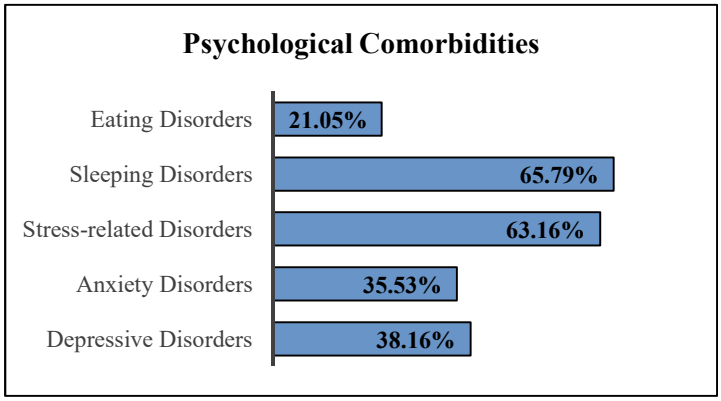


Figure 3 represents Psychological Comorbidities among the respondents, where 65.79% reported having Sleeping Disorders, 63. 16% reported having stress-related Disorders, 38.16% reported having Depressive Disorders, 35.53% reported having anxiety disorders, and 21.05% reported having Eating Disorders.

Figure 4: Diabetes Distress (N = 120) (Descriptive Variable)

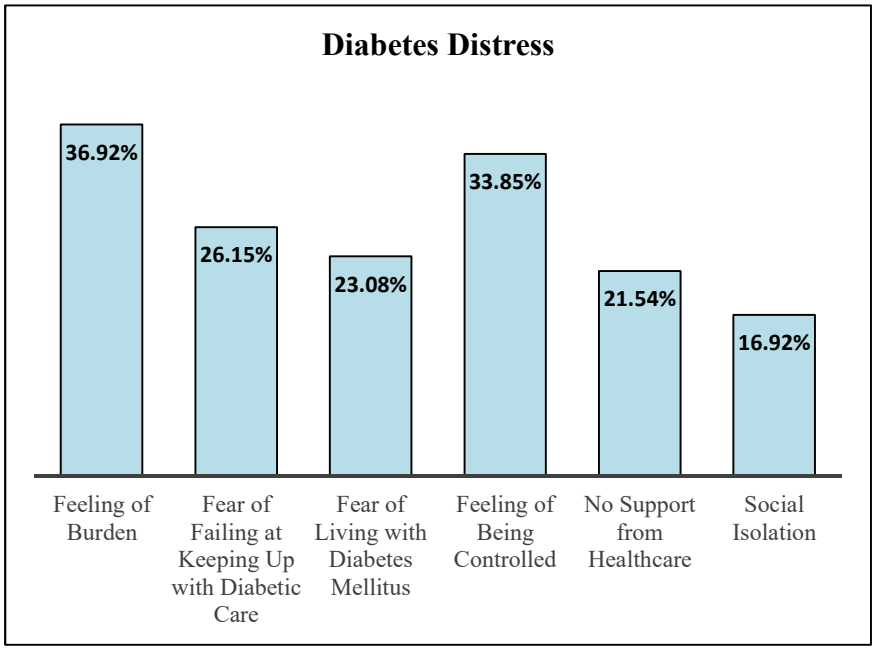


Figure 4 represents Diabetes Distress among the respondents, where 16.92% reported feeling social isolation, 21.54% reported getting no support from healthcare, 33.85% reported feeling controlled, 23.08% people reported fear of living with diabetes mellitus, 26.15% people reported fear of failing at keeping up with diabetes care, and 36.92% reported feeling a burden.

Figure 5: Cognitive Dysfunctions (N = 120) (Descriptive Variable)

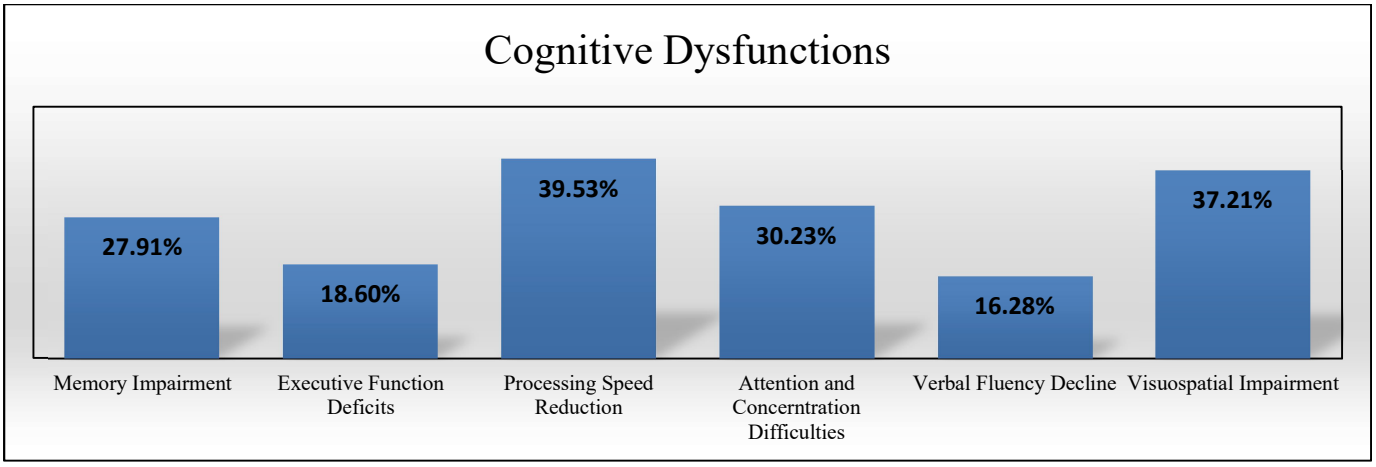


Figure 5 describes Cognitive Dysfunctions among participants.Processing Speed Reduction was reported as most commonCognitive Dysfunction by 39.53% participants, reflecting nearly 4 in 10 participants experience difficulty in processing information quickly, which can affect comprehension and response times.Second most commonCognitive Dysfunction was Visuospatial Impairment, reported by 37.21%, suggesting participants may struggle with spatial orientation, depth perception, or visual-motor coordination. Attention and Concentration Difficulties was reported by 27.91%, reflecting nearly 1 in 3 individuals, causing trouble in sustaining focus, especially during tasks requiring mental effort. Memory Impairment was reported by 27.91%, likely affecting both short-term and working memory.Verbal

Fluency Decline was reported by 16.28% participants, marking as difficulty finding words, slower speech, or impaired language expression may be present.

SECTION III: Social Implications

Table 3: Social Implications of Diabetes Mellitus (N = 120) (Discrete Variable)

Variables	Mean	Std. Deviation
Presence of Discrimination or Stigma	2.1167	.66337
Prevalence of Social Challenges	1.3833	.48824
Effect of DM on Relationships	1.6250	.48615
Prevalence of Support System	1.4167	.76239

Table 3 represents the Social Implications of Diabetes Mellitus of the respondents. The data show that social challenges are a commonly reported concern among individuals with diabetes mellitus, as reflected by a mean score of 1.38. The prevalence of support systems was also relatively high (M = 1.42), although variability suggests inconsistency in perceived support. The effect of diabetes on relationships (M = 1.63) was moderately acknowledged, while experiences of stigma and discrimination were less commonly reported (M = 2.12), indicating that most individuals either did not perceive stigma or were unsure.

Figure 6: Social Challenges (N = 120) (Descriptive Variable)

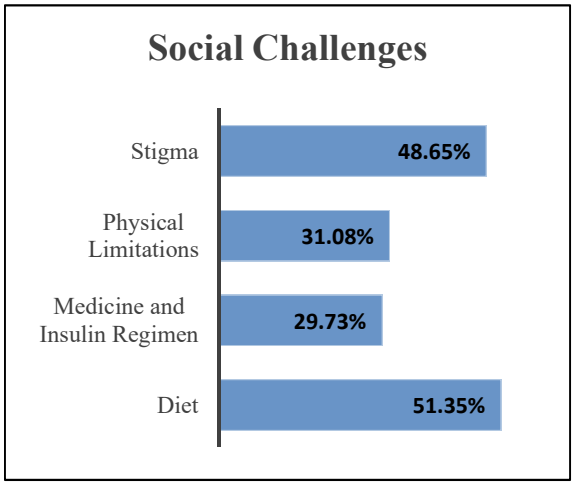


Figure 6 represents the Social Challenges faced by respondents suffering from Diabetes Mellitus. Over half of the respondents (51.35%) reported difficulties in managing their diet. This is the most common social challenge, indicating that following dietary restrictions required for diabetes management is hard to maintain in social or cultural contexts (e.g., festivals, eating out, family meals). A large proportion of participants (48.65%) feel stigmatised due to their condition. This may include feeling judged, socially excluded, or discriminated against, leading to emotional and social isolation. Nearly one-third of the respondents face physical restrictions that affect their social life or activities. This could

involve fatigue, neuropathy, or complications that limit mobility or participation in events. About 30% of the respondents face difficulties in maintaining a regular medication or insulin regimen. Social settings might not always accommodate timely medication, storage for insulin, or privacy for injections.

Figure 7: Effects of Diabetes Mellitus on Social Relationship (N = 120) (Descriptive Variable)

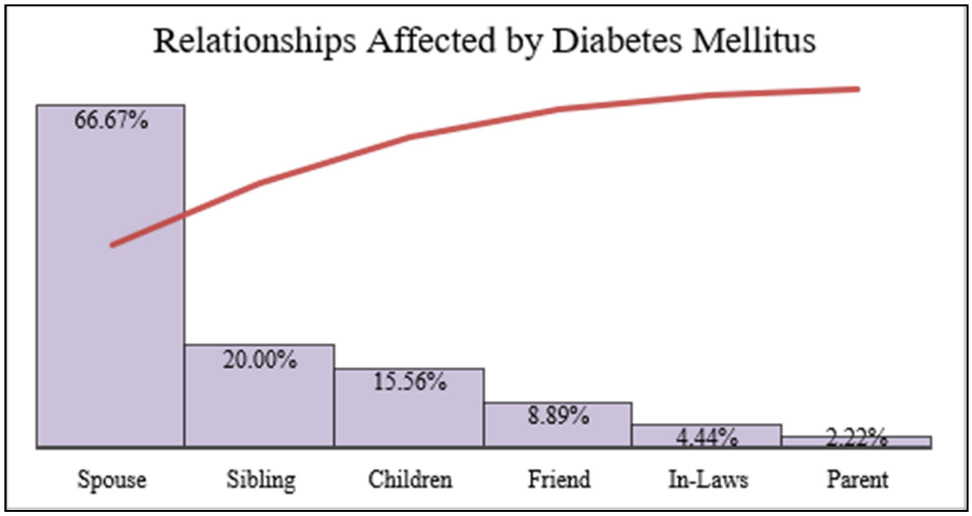


Figure 7 represents the Effects of Diabetes Mellitus on Social Relationships. Spousal relationships are most impacted, indicating the need for couple-based interventions, psychoeducation, and support groups. Other family and social ties (siblings, children, friends) are moderately affected, suggesting broader social strain.

Figure 8: Presence of Support System (N = 120) (Descriptive Variable)

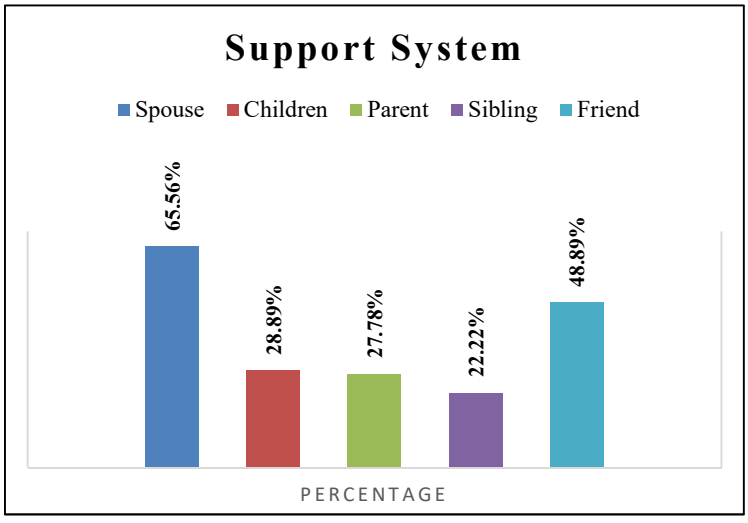


Figure 8 reflects the Presence Support System for the respondents suffering from Diabetes Mellitus. Spouses and friends form the core support system for most individuals. The extended family (children, parents, siblings) also contribute, but to a lesser degree. This reflects a mixed support system with both familial and social sources, highlighting the importance of interpersonal relationships in chronic illness management.

Discussion

The present study was conducted to understand the growing health concerns among persons with Diabetes Mellitus regarding their physical, psychological and social well-being. Respondents were aged

25–55, mostly over 40, with rising cases among young adults, especially women (Xie et al., 2022; Leslie et al., 2021). Both genders participated. Most had higher education; a few had only school-level qualifications. Most were employed across various sectors; some, mainly homemakers, were unemployed, which is linked to higher stress (Aldossari et al., 2022). Respondents were largely middle-class, with some from other economic groups. Most had type 2 diabetes, diagnosed over six years ago. Awareness of diabetes type was higher among women and the educated (Sękowski et al., 2022).

Diabetes mellitus leads to multiple physical and psychological issues. This study found that older age and female gender were linked with higher physical comorbidities such as hypertension, retinopathy, neuropathy, and cardiovascular disease (Li et al., 2021; Chandrasekaran et al., 2021). Poor glycemic control, inadequate care, and low motivation worsened these conditions. Psychologically, many respondents accepted their diagnosis, but some experienced depression, guilt, denial, or anger—especially those recently diagnosed. Common mental health issues included stress, sleep disorders, anxiety, and eating disorders. Diabetes distress (DD) was moderately prevalent, particularly among women and those recently or long diagnosed (Sayed Ahmed et al., 2022). Patients reported feeling burdened, fearful, and unsupported. Some criticised the healthcare system for a lack of empathy and high costs (Nikpour et al., 2022). Social isolation and emotional strain further worsened their distress.

Diabetes affects not only physical and mental health but also social well-being. While stigma was reported at lower levels in this study compared to others (e.g., Taher et al., 2023), it was higher among those over 40 and women, likely due to patriarchal norms. Social challenges—such as dietary restrictions, insulin routines, physical limitations, and stigma—were more common with increasing age. Dietary restrictions were the most reported challenge, followed by stigma. More than half reported no change in social or family relationships due to diabetes. Among those who did, women and older adults were more affected—especially in spousal relationships, due to low libido or fertility-related judgments. Sibling and child relationships were also impacted; friends, parents, and in-laws were less so. Most respondents had a support system, with spouses and friends being the most supportive. Notably, friends were cited as key emotional supports, emphasising the importance of social connections in diabetes care.

Conclusion

Vulnerable groups, such as women, those from lower socio-economic backgrounds, and long-term diabetes patients, should be prioritised for tailored care. Diabetes management must be holistic, addressing physical, psychological, and social well-being. Poor health-seeking behaviour contributes to

physical comorbidities, which in turn impact psychological health. Psychological issues worsen health-seeking behaviour, and social problems like strained relationships and lack of support systems further hinder it. The healthcare system in Kolkata and Purba Barddhaman should focus on educating patients about diabetes complications, prevention, and management strategies.

Number of figures and tables –

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- Figure 7: Effects of Diabetes Mellitus on Social Relationship
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Statements and declarations –

- Funding source: None
- Conflicts of interest: None

Consent to participate –

Written informed consent to participate was collected from each participant.

Ethical Considerations

The study adhered to all research ethics. Before conducting face-to-face interviews, researchers informed participants about the study's purpose and got their verbal consent. Because ethics was central to this study, issues such as confidentiality, anonymity, prior informed consent, non-coercion, and non-manipulation were addressed.

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