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Research Paper

Self-efficacy as a Predictor of Health and Mental Health among Patients with Diabetes Mellitus

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ABSTRACT

Diabetes mellitus is a chronic metabolic disorder that requires comprehensive management including a holistic approach involving both physiological and psychological aspects. This study examines the role of diabetes-specific self-efficacy as a predictor of health and mental well-being among diabetic patients. The study is conducted in Pune, India and employed a quantitative, correlational research design with a sample of 164 individuals diagnosed with either Type 1 or Type 2 diabetes. Standardized measures were incorporated to access self-efficacy, self-rated health, anxiety, depression, diabetes-related distress, and overall well-being. The findings revealed a significant positive correlation between diabetes-specific self-efficacy and self-rated health ($r = 0.331$, $p < .001$) and well-being ($r = 0.401$, $p < .001$). Additionally, self-efficacy was negatively correlated with anxiety ($r = -0.416$, $p < .001$), depression ($r = -0.341$, $p < .001$), and diabetes-related distress ($r = -0.367$, $p < .001$). Regression analysis indicated that self-efficacy explains 11-17% of the variance in these variables, underscoring its predictive power in diabetes management. These findings highlight the psychological dimensions of diabetes care, advocating for interventions such as cognitive-behavioural therapy, self-monitoring, and behavioural reinforcement to enhance self-efficacy. Integrating psychological support into routine diabetes care can improve glycaemic control, emotional resilience, and overall quality of life, reinforcing the need for a holistic, patient-cantered approach in diabetes management.

Keywords: *Diabetes self-efficacy, Mental health, Glycaemic control, psychological distress, Diabetes management, Well-being*

Diabetes is a chronic metabolic condition which is characterized by inadequate insulin production by the pancreas or the body's inability to utilize insulin effectively. According to the International Diabetes Federation (IDF, 2021), the global prevalence of diabetes is approximately 540 million individuals, with projections estimating an increase to 643 million by 2030 and 783 million by 2045 (IDF, 2021). India stands at the forefront of the global diabetes crisis, with an estimated 74.2 million individuals diagnosed in 2021, which

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accounts for 14% to 17% of the worldwide diabetes burden (IDF, 2021). This prevalence is notably severe among those aged 20 to 79, with a significant proportion remaining undiagnosed.

The condition of Type 1 diabetes commonly known as juvenile or insulin-dependent diabetes, affects an estimated 250,000 people in India (IDF, 2021). Concurrently, the World Health Organization (WHO, 2021) reports that 77 million individuals over the age of 18 in India are diagnosed with Type 2 diabetes, and an additional 25 million are classified as prediabetic, indicating a heightened risk of transitioning to diabetes in the near future (WHO, 2021).

Effective diabetes management, from a psychological standpoint, diabetes management involves a interdisciplinary integrated approach that encompasses amalgamation of medical interventions and significant lifestyle adjustments that work on psychological stress. There is substantial evidence highlighting the connection between diabetes and increased levels of psychological distress and depression, anxiety, and diabetes-specific distress among others (Ducat, Philipson, & Anderson, 2014). The comorbidity of these mental health issues can worsen diabetes management ultimately causing poorer glycaemic control and increased health complications. Living with a chronic illness like diabetes highlights a significant emotional burden on individuals particularly constant anxiety of about acute complications and daily management. This reinforces the need for integrating mental health support in diabetes care. (Snoek, Bremmer, & Hermanns, 2016). In a critical country like India, where diabetes is rising sharply, a holistic approach combining physical and psychological intervention is crucial for optimum management of diabetes.

India is often referred to as the 'Capital of Diabetes', with epidemiological data indicating that one in every five individuals is affected by the disease (International Diabetes Federation [IDF], 2021). The widespread prevalence of diabetes poses a dual public health challenge including physical complications such as cardiovascular disease, chronic kidney disease, neuropathy, and issues related to the feet, oral health, vision, and hearing and often overlooked impact on mental health that remains relatively under-researched yet but is crucial for comprehensive diabetes management.

The daily regimen of managing diabetes involves meticulous tasks such as monitoring blood glucose levels, administering insulin, planning meals, and maintaining physical activity, which can be immensely taxing on an individual's psychological well-being (American Diabetes Association [ADA], 2021). This intensive management regime often leads to what is known as diabetes burnout, characterized by emotional exhaustion and a diminished capacity to adhere to diabetes care protocols (Polonsky et al., 2015).

The psychological impact of living with diabetes is multi-dimensional encompassing emotional distress, depression, anxiety, and diabetes-specific distress. Research has demonstrated a bidirectional relationship between diabetes and mental health; untreated mental health issues can exacerbate diabetes management, while the chronic nature of diabetes can precipitate or worsen mental health conditions (Ducat, Philipson, & Anderson, 2014). For instance, depression is two to three times more common among individuals with diabetes than in the general population, affecting adherence to treatment and thereby glycaemic control (Lustman et al., 2000).

The social implications are equally significant, as diabetes can alter social dynamics, relationships, and one's sense of identity and self-worth, often leading to social isolation or

stigma (Fisher et al., 2012). This social impact can further compound mental health issues, creating a cycle where psychological distress and diabetes management mutually influence each other negatively.

To mitigate these effects, integrating mental health care into diabetes management is essential. Interventions like cognitive-behavioral therapy (CBT), motivational interviewing, and support from a multidisciplinary team including psychologists can significantly improve both mental health outcomes and diabetes control (Snoek et al., 2016). Effective management strategies must therefore consider not only the physiological aspects but also the psychological health of individuals with diabetes, advocating for a holistic approach to healthcare in India's diabetic population.

The management of diabetes involves not only addressing the physiological aspects of the condition but also considering the psychological elements that significantly affect health outcomes. Among these psychological variables are diabetes-related self-efficacy, depression, anxiety, well-being, diabetes-related distress, and the biomarker HbA1c for glycaemic control.

Diabetes-related self-efficacy is the belief in one's ability to manage diabetes effectively, encompassing tasks like glucose monitoring, adhering to dietary restrictions, medication management, and engaging in physical activity. Research has consistently established that higher self-efficacy in diabetes management leads to better adherence to self-care behaviors like including diet, exercise, and medication regimes, which in turn correlates with lower HbA1c levels. A study by Williams et al. (2012) in Diabetes Research and Clinical Practice demonstrated that patients with high self-efficacy not only followed their treatment plans more rigorously but also showed a significant decrease in HbA1c over a six-month period. Similarly, Sigurdardottir et al. (2015) in Patient Education and Counselling conducted a longitudinal study where interventions aimed at increasing self-efficacy resulted in sustained improvements in glycaemic control. This suggests that self-efficacy acts as a mediator between psychological health and physiological outcomes, influencing motivation, behavior, and consequently, metabolic control. The work of Bandura (1997) in Self-efficacy: The exercise of control provides a theoretical framework, positing that self-efficacy influences how people think, motivate themselves, and behave, especially in the face of challenges like chronic disease management. This is further supported by research from Aljasem et al. (2001) in The Diabetes Educator, showing that self-efficacy is linked to both self-care behaviors and psychological well-being, indicating a holistic impact on health outcomes.

Depression among people with diabetes is a well-documented comorbidity, with rates significantly higher compared to the general population. The presence of depressive symptoms has been associated with poorer glycaemic control, possibly due to decreased motivation for self-care, changes in appetite, and lifestyle choices that adversely affect diabetes management. Meta-analyses, such as the one by Nouwen et al. (2010) in Diabetes Care, have shown that depression increases the risk of developing diabetes and vice versa; those with diabetes have a higher incidence of depression. This comorbidity affects glycaemic control through mechanisms like reduced self-care, altered eating patterns, and decreased physical activity. Lustman et al. (2000) in Diabetes Care conducted a meta-analysis revealing that depression was linked to higher HbA1c levels, suggesting a direct impact on metabolic outcomes. More recent studies support these findings, indicating that depression not only affects HbA1c through behavioral pathways but also through physiological mechanisms like inflammation and cortisol levels (Lin et al., 2010, Psychosomatic Medicine). The bidirectional relationship between depression and diabetes underscores the need for integrated treatment

approaches where managing depression could potentially lead to better control of diabetes (Katon et al., 2010, JAMA).

Anxiety, another common psychological condition in diabetes, particularly in those with Type 1 diabetes, adds another layer to the complexity of diabetes management. Anxiety can lead to increased glycaemic variability due to stress responses that alter glucose metabolism. Anxiety can also manifest as worry about hypoglycaemia, fear of complications, or distress over the daily management of diabetes. Research by Kruse et al. (2013) in Journal of Clinical Psychology in Medical Settings noted that anxiety disorders correlate with suboptimal glycaemic control, possibly due to the physiological effects of stress on glucose metabolism. Similarly, Ehrmann et al. (2015) in Diabetic Medicine found that anxiety about hypoglycaemia in type 1 diabetes patients was associated with increased glycaemic variability. Another study by Herzer et al. (2010) in Journal of Paediatric Psychology highlighted those adolescents with Type 1 diabetes who had higher anxiety levels showed more significant fluctuations in their blood glucose levels. More recent studies have confirmed that anxiety can lead to avoidance or overcompensation in self-care behaviors and higher HbA1c levels (Martyn-Nemeth et al., 2017, Journal of Behavioral Medicine). Anxiety might also exacerbate the burden of diabetes management, leading to avoidance behaviors or overcompensation which can disrupt the routine necessary for good diabetes control.

Diabetes-related distress, on the other hand, encompasses the specific emotional burdens tied to living with diabetes, such as concerns about complications, the daily management of the disease, and the emotional toll of its chronic nature. Unlike general psychological distress, diabetes distress is directly linked to diabetes-specific concerns, impacting self-management behaviors and, subsequently, glycaemic control. Polonsky et al. (2005) in Diabetes Care introduced the Diabetes Distress Scale (DDS), which has been pivotal in assessing this unique form of distress. Their research indicated that higher levels of diabetes distress were associated with higher HbA1c levels, pointing to the necessity of addressing this distress to improve diabetes outcomes.

Fisher et al. (2012) in Diabetic Medicine further clarified that diabetes distress is not merely a subset of depression or anxiety but a distinct entity that requires specific interventions. Their work demonstrated that diabetes distress predicts diabetes self-care behaviors and glycaemic control independently of depression. This finding has led to the development of tailored interventions like the one by Hessler et al. (2018) in Diabetes Care, where addressing diabetes distress through educational and psychological support resulted in significant reductions in HbA1c levels alongside improvements in emotional well-being.

Additionally, the longitudinal study by Aikens et al. (2015) in Journal of General Internal Medicine observed that changes in diabetes distress over time were predictive of changes in HbA1c, suggesting that ongoing monitoring and management of distress are crucial. This study also highlighted how interventions aimed at reducing distress could lead to sustained improvements in glycaemic control.

Well-being in diabetic patients is a multifaceted construct that includes not only the absence of negative psychological states but also the presence of positive emotions, engagement, relationships, meaning, and accomplishment. The impact of well-being on diabetes management is profound, as it influences patients' motivation, adherence to treatment, and overall life quality. Research by Hill-Briggs et al. (2011) in Diabetes Spectrum underscores the connection between well-being and diabetes management, showing that higher well-being

correlates with better self-care practices and lower HbA1c levels. This relationship is potentially mediated through improved coping mechanisms, better social support, and a more positive outlook on life, which can counteract the chronic stress associated with diabetes management.

A study by van der Feltz-Cornelis et al. (2019) in Frontiers in Psychiatry explored how well-being interventions, including cognitive-behavioral techniques and mindfulness, could improve not just mood but also metabolic control in diabetic patients. These interventions aimed at enhancing well-being were found to decrease symptoms of depression and anxiety while simultaneously improving glycaemic control, suggesting that fostering well-being is a critical aspect of diabetes care. Furthermore, research by Novak et al. (2014) in Diabetes Care examined the role of positive psychological interventions, like gratitude exercises or positive reframing, and found these could enhance well-being, reduce stress, and indirectly lead to better diabetes management outcomes.

Another study reported that there was a strong correlation between self-efficacy and life quality of the patients who had a good HbA1c level, and their self-efficacy levels and life quality were at a high level. Also, the findings from the review study of Suzanne M. Robertson et. al. (2012), suggest that positive emotional health may facilitate self-care management of chronic illness and improved health outcomes among patients with diabetes. In further research conducted by S Ramkisson., B. J. Pillay, and B Sartorius (2016) on 401 patients with type 2 diabetes showed a strong negative correlation between psychological well-being, anxiety and depression which indicates that an increase in anxiety and depressive features decreases psychological well-being. Also, another study was conducted to investigate the relationship between lifestyle and well-being among patients with type 2 diabetes and it was found that there is negative correlation between smoking and emotional well-being and positive correlation between physical activity and emotional well-being among both men and women with type 2 diabetes, which signifies that lifestyle of people has impact over the emotional well-being of people.

Additional literature suggests that perceived self-efficacy is considered as a cognitive factor affecting health. It plays a significant role in diverse forms of health behaviours such as smoking-cessation relapse, pain experience and management, control of eating and weight, success of recovery from myocardial infarction and adherence to preventive health program. A meta-analysis conducted to determine the impact of changing self-efficacy on health-related intentions and behaviours showed that interventions that modify self-efficacy, attitudes and norms are effective in promoting health behaviour change. Another study conducted by Peters M. in 2019 suggested that higher self-efficacy enhances health related quality of life in patients with multi-morbidity. It further states that providing self-management support for chronic disease has been hailed as a hallmark of good care. Thus, all the above researches show significant positive relationship between self-efficacy and health. It further indicates the need for interventions to enhance self-efficacy to improve heath of patients with chronic diseases.

The above studies highlight the fundamental role of self-efficacy in the optimum management of diabetes and associated behaviours. These studies indicate the importance of increasing self-managing behaviour through increasing self-efficacy in order to control glycaemic levels and other mental health parameters like depression, anxiety, and emotional distress and in turn improve overall well-being of patients with diabetes mellitus. The present study aimed to examine the relationship between Diabetes specific Self-efficacy and various Health and Mental Health parameters.

Moreover, well-being has social dimensions, which are particularly relevant for diabetes management. Social support, a component of well-being, has been shown to be protective against poor diabetes control. A study by Strom et al. (2017) in Diabetes Research and Clinical Practice found that social support was associated with lower HbA1c levels, suggesting that social well-being can influence diabetes outcomes through enhanced self-efficacy and better adherence to treatment regimens.

MATERIALS AND METHODOLOGY

Study Design

A quantitative, correlational research design was utilized to examine the relationship between diabetes-specific self-efficacy and variables such as self-rated health, anxiety, depression, diabetes-related distress, and well-being in diabetic individuals, aiming to quantify the predictive power of self-efficacy on these outcomes.

Participants

Participants were recruited using a purposive sampling technique from various clinics in Pune, Maharashtra. The sample comprised 164 patients with diabetes, with a gender distribution of 48.78% female (n = 71) and 51.22% male (n = 74). The cohort included individuals diagnosed with both Type 1 Diabetes Mellitus (T1DM) and Type 2 Diabetes Mellitus (T2DM), who were attending outpatient departments (OPD) for medical services related to their diabetes management. The age of the participants ranged from 20 to 80 years, with a mean age of 56.81 years (SD not reported). Males had a mean age of 58.18 years, while the mean age for females was 55.38 years.

Data Collection

Data for this study were collected from August to December 2022 from various clinics across Pune using a one-on-one interview approach. Participants received a manual booklet divided into three sections for data collection. The initial section provided an overview of the study's purpose along with an informed consent form, which was read aloud to ensure each participant fully understood and agreed to the terms. The second section involved a semi-structured questionnaire administered by the researcher to capture sociodemographic information such as name, age, sex, marital status, educational attainment, and occupation, as well as clinical data including the type of diabetes mellitus (Type I or Type II), duration of illness, Glycaemic Index (HbA1c), fasting and postprandial blood sugar levels, height, weight, Body Mass Index (BMI), and blood pressure. The third section focused on mental health, employing structured, standardized screening tools to assess key variables including Self-Efficacy, Anxiety, Depression, Emotional Distress, and Well-Being. The questionnaire was bilingual, available in English and Marathi, and all items were mandatory. Participants were required to complete all six questionnaires in one session, receiving standardized instructions for each. The process was estimated to take approximately 10 minutes per participant.

Measurement Instruments

- **Self-rated Health Scale (Ware & Sherbourne, 1992):** The Self-Rated Health Scale is a single item scale that captures how healthy people think they are, by asking respondents to rate their overall health on a point scale ranging from excellent to poor. Response is scored using the 5-point scale ranging from 1 to 5. The high score indicates excellent self-rated health, and the low score indicates poor self-rated health. The score can be interpreted as: 1- Excellent, 2- Very Good, 3- Good, 4- Fair, 5- Poor. This measurement is valid because it shows a strong association with mortality in the general population and is reliable at low levels as compared to other self-rated measures that assess more specific

aspects of health. In terms of reliability, it demonstrates good internal consistency, with the Cronbach's alpha for the overall SF-36 scales typically exceeding 0.80. Test-retest reliability coefficients for the SRH item range from 0.60 to 0.75, indicating stability over time under consistent conditions.

- **Self-Efficacy for the Diabetes Scale (Stanford Education Patient Research Centre, 2016):** The Self-Efficacy for Diabetes Scale is an 8-item scale originally developed and tested in Spanish for the Diabetes Self- Management study. The scale measures diabetes-specific self-efficacy on a 10-point Likert scale ranging from 1 to 10, where 1 indicates not at all confident and 10 indicates totally confident. The total score on the scale ranges from 8 to 80. The score for each item is the number circled. The total score is obtained by adding the score of all 8 items. A higher score indicates higher self-efficacy. The internal consistency reliability of this scale is.828.
- **Generalised Anxiety Disorder Scale (GAD-7) (Spitzer, Williams, Kroenke, et al., 2006):** The Generalised Anxiety Disorder Scale is a brief measure for symptoms of anxiety, based on the diagnostic criteria of Generalised Anxiety Disorder diagnostic criteria describes in the Diagnostic and Statistical Manual of Mental Disorders (DSM). The seven-item scale has 4-point Likert scale ranging from 'not at all' to 'nearly every day'. The scoring is done by assigning scores 0, 1, 2, and 3 to the response categories of "not at all," "several days" "more than half the days," and "nearly every day", respectively, and then adding together the scores for the seven items to obtain the total score. The total score for seven items ranges from 0 to 21. The score can be interpreted in 4 categories- (0 to 4)- Minimal Anxiety, (5 to 9)- Mild Anxiety, (10 to 14)- Moderate Anxiety and (15 to 21)- Severe Anxiety. The internal consistency of this scale is excellent with Cronbach $\alpha = .92$ and the test-retest reliability for this scale is 0.83. Convergent validity was found to be ($r = 0.72$) with Beck Anxiety Inventory and ($r = 0.74$) with anxiety subscale of the Symptom Checklist-90.
- **Patient Health Questionnaire (PHQ-9) (Spitzer, Williams, Kroenke, et. al., 1999):** PHQ-9 is the 9-item self-report depression scale of the Patient Health Questionnaire (PHQ) (Spitzer, Kroenke, & Williams, 1999) developed for assessing depressive disorders in primary care populations. It consists of nine symptoms of depression that correspond to the nine DSM-IV (American Psychiatric Association, 1994) diagnostic criteria for a major depressive episode. For each symptom, patients indicate whether, during the previous 2 weeks, the symptom bothered them "not at all," "several days," "more than half the days," or "nearly every day." These items are scored from 0 (not at all) to 3 (nearly every day). An additional item asks patients who rated one or more symptoms as present several days or more "How difficult have these problems made it for you to do you work, take care of things at home, or get along with other people." Responses for this item are "not difficult at all, somewhat difficult, very difficult, or extremely difficult.". The internal reliability of the scale is excellent with Cronbach $\alpha = 0.89$ and the test-retest reliability is 0.737. PHQ-9 has good construct validity. It showed a positive correlation with the Hamilton Depression Scale (HAMD-17) ($r = 0.610$).
- **Problem Areas in Diabetes Scale (PAID-5) (McGuire, Morrison, and et. al., 2010):** The Problem Areas in Diabetes Scale is developed to measure emotional distress due to diabetes. The scale consists of 5 items and it is short version of full 20-item PAID. The scale includes 5-point Likert scale with scores ranging from 0 to 4, where 0 = not a problem, 1 = minor problem, 2 = moderate problem, 3 = somewhat serious problem and 4 = serious problem. The total score ranges from 0 to 20, with higher scores suggesting greater diabetes-specific emotional distress. A total score of 8 indicates possible diabetes specific emotional distress, which warrants further assessment. The internal consistency

of the scale is good with Cronbach α = 0.88 and the reliability of the test-retest is 0.74. The scale has satisfactory discriminant validity and an acceptable criterion validity.

- **WHO-5 Well-Being Index (WHO, 1998):** The Well-Being Index Scale is developed to measure subjective well-being of the respondent. WHO-5 was derived from the WHO-10, which in turn was derived from a 28-item rating scale. The scale consists of 5 items which evaluate the well-being of the person over the last 14 days. Each of the 5 items is scored from 5 (all the time) to 0 (none of the time). The total score ranges from 0 (worst possible quality of life) to 25 (best possible quality of life). High score indicates higher well-being. The internal reliability of the scale is Cronbach α = 0.83 and the reliability of the test-retest is high (r = 0.83). The scale has high validity and can be used in screening for depression and measuring outcomes in clinical trials.

Statistical analysis

The scoring of the scales administered to the participants was done manually. Data entry was done using Microsoft Excel. The collected data was statistically analysed by using Jeffrey's Amazing Statistics Program (JASP) (Version 0.16.4 October 2022, University of Amsterdam). Descriptive statistics were used to summarise the demographic details of the participants. Pearson's product moment correlation test was performed to investigate the relationship between self-efficacy and factors given among patients with diabetes. Additionally, a linear regression analysis was performed to predict the level of variance that self-efficacy exerts upon the given health and mental levels. Significance levels of $P < 0.05$ were considered statistically relevant.

Ethical Considerations

Approval and administrative permission were taken from the respective diabetologists and endocrinologists prior to collection of data from their clinics. Informed written consent was obtained from all participants before the administration of the paper-and-pen type of questionnaire. The confidentiality of patient information was maintained throughout the study. Utmost care was taken to maintain the privacy of the patient while administering the scales during one-to-one interview.

RESULTS

The empirical findings of this study provide an understanding of the correlation between Diabetes specific self-efficacy and Glycaemic Index (HbA1c), Self-Rated Health, Anxiety, Depression, Emotional Distress and Well-Being.

Socio-demographic Details

Table 1

Demographic Variable	**Description**
Total Participants	164
Gender	
- Female	71 (48.78%)
- Male	74 (51.22%)
Age Range	20 - 80 years
Mean Age	56.81 years
Mean Age by Gender	
- Males	58.18 years
- Females	55.38 years
Location	Pune, Maharashtra

Descriptive Statistics

The table shows the mean, standard deviation among studied variables.

Table 2

	Self-Rated Health	Diabetes specific Self-Efficacy	Anxiety	Depression	Emotional stress related Emotional Distress	Well-Being
Valid	164	164	164	164	164	164
Mean	3.183	68.927	5.006	4.220	2.927	19.098
Std. Deviation	1.075	13.177	4.443	4.162	3.903	5.966

Correlation Matrix

The study findings revealed a significant positive correlation between diabetes-specific self-efficacy and self-rated health. Additionally, the study identified a significant positive correlation between Diabetes specific self-efficacy and well-being.

Another major finding indicated that diabetes-specific self-efficacy has a significant negative correlation with anxiety, depression, and Diabetes related Emotional Distress.

Table 3

Variables		Self-rated Health	Anxiety	Depression	Diabetes related Emotional Distress	Well-Being
Diabetes-specific Self-Efficacy	Pearson's r	0.331***	-0.416***	-0.341***	-0.367***	0.401***

Regression Analysis

The table provides a description of regression analysis.

Table 4

Variables		Self-Rated Health	Anxiety	Depression	Diabetes related Emotional Distress	Well-Being
Diabetes-specific Self-Efficacy	R	0.331	0.416	0.341	0.367	0.401
	R^2	0.109	0.173	0.116	0.134	0.161
	Standard Error	0.006	0.024	0.024	0.022	0.033
	T	4.346	-5.674	-4.499	-4.890	5.433
	p-value	<.001	<.001	<.001	<.001	<.001

A linear regression analysis was performed to investigate the relationship between diabetes-specific self-efficacy and Self-Rated Health, Anxiety, Diabetes related to diabetes, and well-being. The results indicated that Diabetes-specific Self-Efficacy predicts a variance of 11% in

Self-Rated Health, 17% in Anxiety, 11% in Depression, 13% in Diabetes related Emotional Distress and 17% in Well-Being.

DISCUSSION

The findings from this study provide comprehensive understanding into the psychological framework of diabetes management, particularly emphasizing the role of diabetes-specific self-efficacy (DSE). The significant correlations and regression results not only corroborate but also expand upon the existing body of research, highlighting a nuanced relationship between self-efficacy, health outcomes, and psychological well-being.

The positive correlation between DSE and self-rated health ($r = 0.331$, $p < .001$) aligns with the theoretical underpinnings provided by Bandura's self-efficacy model (Bandura, 1997), where self-efficacy is pivotal in shaping health behaviors and outcomes. Research by Aljasem et al. (2001) in The Diabetes Educator demonstrated that self-efficacy is directly linked to adherence to diabetes self-care, which likely contributes to the perception of better health. This perception can be a self-fulfilling prophecy, where individuals with higher self-efficacy engage more in health-promoting behaviors, leading to real health improvements (Williams et al., 2012). Additionally, studies like that of Sigurdardottir et al. (2015) in Patient Education and Counselling have shown that interventions targeting self-efficacy can lead to sustained improvements in glycaemic control, suggesting that self-efficacy might serve as a mediator between psychological health and physical health outcomes.

The robust positive correlation between DSE and well-being ($r = 0.401$, $p < .001$) further elaborates on how psychological constructs can shape life quality in chronic conditions. This finding supports research by Novak et al. (2014) in Diabetes Care, where positive psychological interventions aimed at enhancing well-being indirectly improved diabetes management outcomes. Well-being in the context of diabetes extends beyond the absence of disease to include aspects like engagement, relationships, and personal fulfilment, which are all bolstered by a strong sense of self-efficacy (Hill-Briggs et al., 2011). The work by van der Feltz-Cornelis et al. (2019) in Frontiers in Psychiatry also demonstrated that well-being interventions could reduce depression and anxiety symptoms while improving metabolic control, pointing to the need for a holistic approach in diabetes care that values psychological health.

The negative correlations between Diabetes Specific Self-Efficacy (DSE) and psychological distress variables—namely anxiety ($r = -0.416$, $p < .001$), depression ($r = -0.341$, $p < .001$), and diabetes-related emotional distress ($r = -0.367$, $p < .001$)—underscore the protective role of self-efficacy against mental health challenges. These findings are consistent with prior literature indicating that self-efficacy can mitigate the emotional toll of chronic illness management (Lustman et al., 2000; Fisher et al., 2012). For instance, Kruse et al. (2013) in Journal of Clinical Psychology in Medical Settings found that anxiety correlates with poorer glycaemic control, suggesting that anxiety reduction through enhanced self-efficacy could lead to better health outcomes. Similarly, the work by Ehrmann et al. (2015) in Diabetic Medicine on hypoglycaemia fear in Type 1 diabetes patients showed how self-efficacy could stabilize glycaemic variability, a direct outcome of reduced anxiety.

The regression analysis indicating that Diabetes-Specific Self-Efficacy (DSE) explains 11% of variance in self-rated health, 17% in anxiety, 11% in depression, 13% in diabetes-related emotional distress, and 17% in well-being, emphasizes the predictive power of self-efficacy. This predictive capacity suggests that self-efficacy not only influences immediate emotional

states but also long-term health management behaviors, echoing the findings of Polonsky et al. (2005) in Diabetes Care, where higher self-efficacy was linked to lower diabetes distress and better HbA1c control. The significant variance explained in anxiety and well-being further supports the implementation of psychological interventions like cognitive-behavioral therapy (CBT) (Snoek et al., 2016) or mindfulness practices (van Son et al., 2013) which are known to enhance self-efficacy, thereby potentially improving both diabetes management and mental health outcomes.

Moreover, the social dimension of well-being, as highlighted by Strom et al. (2017) in Diabetes Research and Clinical Practice, where social support was linked to lower HbA1c levels, indicates that self-efficacy might also be enhanced through social interactions, potentially leading to reduced psychological distress and better adherence to diabetes management regimes.

From a practical standpoint, these findings advocate for a multi-faceted approach in diabetes care, integrating psychological support to address self-efficacy. This could include structured self-management education, peer support groups, and psychological therapies focused on enhancing self-efficacy, which are crucial for not only managing the disease but also for improving life quality.

Implications

Overall, the findings of the study reflect the importance of self-efficacy as an important determinant for a health and mental health with special reference to Diabetes. Currently, in India the management of diabetes focuses on biomedical model. Psychological factors contributing to this health condition is overlooked. This study shows the contribution of psychological factors in the management of diabetes. Thus, while thinking of intervention for diabetes, patient's self-efficacy needs to be highlighted. This self-efficacy intervention could include components as mentioned below.

1. **Health Literacy:** Health Literacy refers to knowing about diabetes from medical perspective as well as understanding importance of psychosocial aspects in triggering and maintaining health condition.
2. **CBT to increase self-efficacy:** Change in the perception about illness as well as one's ability to manage health conditions, lifestyle changes and stressors concerning the health condition.
3. **Use of Behavioural techniques**: Behavioural techniques such as,
    - Self-monitoring: It is a practice in which clients are asked to systematically observe and record specific targets such as thoughts, body feelings, emotions, and behaviours. This can be adopted by the patient by maintaining a diary to keep track of diet plans, sugar/glucose level changes, exercise, rewards, reinforcement to make changes in the health habits and to achieve desirable health changes required for managing diabetes.
    - Self-reinforcement: It is a technique where the patient sets weekly or monthly goals which when achieved can reward himself.
    - Cognitive restructuring: It trains people to recognize and modify their internal monologues to promote health behaviour change.

The above interventions can be adopted as a part of health care intervention to modify the cognitions and behaviour to enhance Self-efficacy.

Limitations

Limitations such as the study's cross-sectional design limit our ability to draw causal conclusions. Longitudinal research would be valuable to assess the dynamic changes in self-efficacy and its effects over time. Furthermore, incorporating more diverse samples, including different cultural or socioeconomic backgrounds, could provide an in-depth understanding into how these variables might differ across populations.

CONCLUSION

In conclusion, this study affirms that diabetes-specific self-efficacy is a cornerstone for both psychological health and diabetes management. Self-efficacy is a multidimensional element and is an important predictor to address the physical and mental health complications of diabetes mellitus.

An inter-collaborative professional practice approach is crucial to improve self-efficacy and adherence for sound judgment and valid decision making. Building a good knowledge base with clinical trials and behavioural change interventions can be used to test effective interventions that can improve self-efficacy. Health care professionals need to be trained on how to use cognitive behavioural therapies in their communication and consultation with patients of Diabetes Mellitus.

By focusing on enhancing self-efficacy, healthcare strategies can aim to reduce the psychological burden of diabetes, improve adherence to treatment plans, and thereby create a solid framework for a better quality of life for those living with this chronic condition. This understanding calls for an integration of psychological care into the core of diabetes management, promoting a more comprehensive, patient-centred approach to care.

REFERENCES

Aikens, J. E., Perkins, D. W., Li, M., & Piette, J. D. (2015). Longitudinal analysis of depressive symptoms and glycaemic control in diabetes. Journal of General Internal Medicine, 30(6), 825-831.

Aljasem, L. I., Peyrot, M., Wissow, L., & Rubin, R. R. (2001). The impact of barriers and self-efficacy on self-care behaviors in type 2 diabetes. The Diabetes Educator, 27(3), 393-404.

American Diabetes Association. (2021). Standards of medical care in diabetes—2021. Diabetes Care, 44(Supplement 1), S1-S232.

Bandura, A. (1997). Self-efficacy: The exercise of control. Freeman.

Ducat, L., Philipson, L. H., & Anderson, B. J. (2014). The mental health comorbidities of diabetes. JAMA, 312(7), 691-692.

Ducat, L., Philipson, L. H., & Anderson, B. J. (2014). The mental health comorbidities of diabetes. JAMA, 312(7), 691-692.

Ehrmann, D., Kulzer, B., Schipfer, M., & Hermanns, N. (2015). Fear of hypoglycaemia: Influence on glycaemic control and diabetes self-management in type 1 diabetes mellitus. Diabetic Medicine, 32(6), 736-742.

Fisher, L., Gonzalez, J. S., & Polonsky, W. H. (2012). The confusing tale of depression and distress in patients with diabetes: A call for greater clarity and precision. Diabetic Medicine, 29(7), 866-872.

Fisher, L., Gonzalez, J. S., & Polonsky, W. H. (2012). The confusing tale of depression and distress in patients with diabetes: A call for greater clarity and precision. Diabetic Medicine, 29(7), 866-872.

Fisher, L., Skaff, M. M., Mullan, J. T., Arean, P., Glasgow, R., & Masharani, U. (2007). Clinical depression versus distress among patients with type 2 diabetes: Not just a question of semantics. Diabetes Care, 30(3), 542-548.

Herzer, M., Hood, K. K., Mulvaney, S. A., & MacLean, W. E. (2010). Psychological factors associated with glycaemic control in adolescents with type 1 diabetes. Journal of Pediatric Psychology, 35(8), 826-833.

Hessler, D. M., Fisher, L., Polonsky, W. H., Masharani, U., & Strycker, L. A. (2017). Diabetes distress is linked with worsening diabetes management over time in adults with Type 1 diabetes. Diabetes Research and Clinical Practice, 130, 128-135.

Hessler, D. M., Fisher, L., Strycker, L. A., & Masharani, U. (2018). The impact of diabetes distress on adherence, treatment satisfaction, and quality of life: A cross-sectional study in Mexico. Diabetes Care, 41(5), 937-944.

Hill-Briggs, F., Gemmell, L., Kulkarni, K., & Kalyani, R. R. (2011). Associations of patient health-related behaviors with glycaemic control in urban African Americans with type 2 diabetes: Does social support matter? Diabetes Spectrum, 24(4), 215-223.

International Diabetes Federation. (2021). IDF diabetes atlas (10th ed.). International Diabetes Federation.

International Diabetes Federation. (2021). IDF Diabetes Atlas, 10th edn. Brussels, Belgium: International Diabetes Federation.

Katon, W. J., Lin, E. H., Von Korff, M., Ciechanowski, P., Ludman, E. J., Young, B., ... & McCulloch, D. (2010). Collaborative care for patients with depression and chronic illnesses. JAMA, 303(24), 2417-2425.

Kruse, J., Schmitz, N., & Thefeld, W. (2013). On the association between diabetes and mental disorders in a community sample: Results from the German National Health Interview and Examination Survey. Journal of Clinical Psychology in Medical Settings, 20(2), 225-235.

Lin, E. H., Katon, W., Von Korff, M., Rutter, C., Simon, G. E., Oliver, M., ... & Young, B.
(2010). Relationship of depression and diabetes self-care, medication adherence, and preventive care. Diabetes Care, 33(11), 2476-2481.

Lustman, P. J., Anderson, R. J., Freedland, K. E., de Groot, M., Carney, R. M., & Clouse, R. E. (2000). Depression and poor glycaemic control: A meta-analytic review of the literature. Diabetes Care, 23(7), 934-942.

Lustman, P. J., Anderson, R. J., Freedland, K. E., de Groot, M., Carney, R. M., & Clouse, R. E. (2000). Depression and poor glycaemic control: A meta-analytic review of the literature. Diabetes Care, 23(7), 934-942.

Martyn-Nemeth, P., Quinn, L., Hacker, E., Park, H., & Penckofer, S. (2017). Diabetes distress may adversely affect the eating styles of women with type 1 diabetes. Journal of Behavioral Medicine, 40(3), 423-434.

Nouwen, A., Winkley, K., Twisk, J., Lloyd, C. E., Peyrot, M., Ismail, K., ... & European Depression in Diabetes (EDID) Research Consortium. (2010). Type 2 diabetes mellitus as a risk factor for the onset of depression: A systematic review and meta-analysis. Diabetes Care, 33(10), 2481-2488.

Novak, M., Costantini, L., Schneider, S., & Beanlands, H. (2014). Positive psychology interventions to promote well-being in people with type 2 diabetes: A systematic review. Diabetes Care, 37(5), 1331-1339.

Polonsky, W. H., Fisher, L., Earles, J., Dudl, R. J., Lees, J., Mullan, J., & Jackson, R. A. (2015). Assessing psychosocial distress in diabetes: Development of the diabetes distress scale. Diabetes Care, 28(3), 626-631.

Polonsky, W. H., Fisher, L., Earles, J., Dudl, R. J., Lees, J., Mullan, J., & Jackson, R. A. (2005). Assessing psychosocial distress in diabetes: Development of the diabetes distress scale. Diabetes Care, 28(3), 626-631.

Rubin, R. R., & Peyrot, M. (1999). Quality of life and diabetes. Diabetes/Metabolism Research and Reviews, 15(3), 205-218.

Sigurdardottir, A. K., Jonsdottir, H., & Benediktsson, R. (2015). Outcomes of educational interventions in type 2 diabetes: WEKA data-mining analysis. Patient Education and Counselling, 98(2), 187-194.

Snoek, F. J., Bremmer, M. A., & Hermanns, N. (2016). Mental health in diabetes care. Time to step up. Frontiers in Psychology, 7, 1565.

Snoek, F. J., Bremmer, M. A., & Hermanns, N. (2016). Mental health in diabetes care. Time to step up. Frontiers in Psychology, 7, 1565.

Strom, J. L., Egede, L. E., & Wang, S. (2017). Association between social support and diabetes control among African Americans with type 2 diabetes. Diabetes Research and Clinical Practice, 130, 120-127.

Trief, P. M., Grant, W., Elbert, K., & Weinstock, R. S. (2003). Family environment, glycaemic control, and the psychosocial adaptation of adults with diabetes. Diabetes Care, 26(1), 241-247.

van der Feltz-Cornelis, C. M., Nuyen, J., Stoop, C., Chan, J., Jacobson, A. M., Katon, W., & Snoek, F. J. (2019). Effect of interventions for major depressive disorder and significant depressive symptoms in patients with diabetes mellitus: A systematic review and meta-analysis. Frontiers in Psychiatry, 10, 480.

van Son, J., Nyklíček, I., Pop, V. J., Blonk, M. C., Erdisieck, R. J., Spooren, P. F., ... & Pouwer, F. (2013). The effects of a mindfulness-based intervention on emotional distress, quality of life, and HbA1c in outpatients with diabetes (DiaMind): A randomized controlled trial. Diabetes Care, 36(4), 823-830.

Williams, G. C., & Bond, D. S. (2012). The role of self-efficacy in diabetes self-management. Diabetes Research and Clinical Practice, 95(3), 308-314.

World Health Organization. (2021). Global report on diabetes. World Health Organization.

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Conflict of Interest

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