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Factors Associated with Anxiety among Patients with Type 2 Diabetes Mellitus at Depati Bahrin Regional Hospital

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ABSTRACT

Introduction: Diabetes mellitus is a chronic non-communicable disease characterized by persistent hyperglycemia and increasing prevalence worldwide, including in Indonesia. The rising number of cases has led to various physical and psychological complications, with anxiety being a common problem among patients with type 2 diabetes that can affect treatment adherence and quality of life. Preliminary observations at Depati Bahrin Sungailiat Regional Hospital indicated that many patients experienced anxiety related to complications, long-term treatment, and lifestyle changes. Therefore, this study aimed to identify factors associated with anxiety in patients with type 2 diabetes.
Objective: This study aims to determine the association between quality of life, spirituality, and family support and anxiety levels among patients with Type 2 Diabetes Mellitus at Depati Bahrin Regional Hospital, Sungailiat, in 2025.
Method: This study used a cross-sectional design. The research was conducted by distributing questionnaires to 73 respondents at Depati Bahrin Regional Hospital, Sungailiat, from November 26 to November 28, 2025. The collected data were then analyzed using univariate and bivariate analysis with the chi-square test.
Result: The results of this study show that there is a relationship between quality of life and anxiety (p-value = 0.000 < 0.05), spirituality (p-value = 0.000 < 0.05), and family support (p-value = 0.000 < 0.05) and the incidence of anxiety in Type2 DM patients at Depati Bahrin Regional Hospital, Sungailiat, in 2025.
Conclusion: It is expected that Depati Bahrin Regional Hospital can adopt a holistic approach to the prevention and management of Type 2 DM. The institution needs to provide anxiety management programs that include psychological counseling, cognitive-behavioral therapy, and relaxation activities such as yoga and meditation to help reduce anxiety.

Keywords: family support, quality of life, spirituality

Introduction

Diabetes mellitus (DM) is a non-communicable disease (NCD) characterized by high blood glucose levels (hyperglycemia) (Siahaan et al., 2022). The history of diabetes began with Artaeus of Cappadocia in the 2nd century. Artaeus first coined the term diabetes, which in Greek means "siphon," meaning water that exits through the human body or excessive urination (Siahaan et al., 2022).

According to the World Health Organization (WHO), in 2021, nearly one in two adults (20-79 years old) with diabetes were unaware of their diabetes status (44.7%; 239.7 million). The highest proportion of undiagnosed diabetes (53.6%) was found in Africa, the Western Pacific (52.8%), and Southeast Asia (51.3%). The lowest proportion of undiagnosed diabetes was observed in North America and the Caribbean (24.2%). Meanwhile, the International Diabetes Federation (IDF) reported in 2021 that Indonesia currently ranks 7th in the world for diabetes prevalence, with a population of 10.7 million. Indonesia is the only Southeast Asian country on this list, thus estimating Indonesia's significant contribution to the prevalence of diabetes in Southeast Asia (International Diabetes Federation, 2021).

The prevalence of diabetes mellitus in Indonesia, according to the 2018 Basic Health Research (Riskesdas), has continued to increase significantly over the past five years. In 2013, the prevalence of diabetes among people aged 15 years and older reached 1.5%. In 2018, it increased to 2.0%. According to the Indonesian Health Survey conducted by the Indonesian Ministry of Health, the prevalence of diabetes increased to 2.2% in 2023, or 638,178 people. The prevalence of diabetes in the Bangka Belitung Islands province, across all ages, reached 2.01%, or 4,763 people (SKI, 2023).

Based on a report from the Bangka Belitung Islands Provincial Health Office, the number of diabetes sufferers in 2022 was 28,555 cases, in 2023 it was 28,559 cases, in 2024 it was 29,995 cases (Bangka Belitung Islands Provincial Health Office, 2025). According to the District Health Office report, the number of DM cases in 2025 (January-July) was 974 at Sungailiat Community Health Center, 180 at Sinar Baru Community Health Center, 516 at Kenanga Community Health Center, 513 at Pemali Community Health Center, 240 at Bakam Community Health Center, 668 at Belinyu Community Health Center, 162 at Gunung Muda Community Health Center, 378 at Riau Silip Community Health Center, 322 at Baturusa Community Health Center, 256 at Puding Besar Community Health Center, 527 at Petaling Community Health Center, and 152 at Penagan Community Health Center (Bangka Regency Health Office, 2025).

Based on cases at Depati Bahrin Sungailiat Regional Hospital (RSUD), in 2024, 190 patients were diagnosed with diabetes, followed by 632 patients in 2023, 338 patients in 2022, and 237 patients in 2021 (RSUD Depati Bahrin Sungailiat, 2024). Complications arising from diabetes mellitus include: when the disease is not properly managed, complications develop that can threaten health and endanger life. Acute complications are a significant contributor to mortality, costs, and poor quality of life. Abnormally high blood sugar can have life-threatening consequences if it triggers conditions such as diabetic ketoacidosis (DKA) in types 1 and 2, and hyperosmolar coma in type 2. Low blood sugar can occur in all types of diabetes and can lead to seizures or loss of consciousness. This may occur after skipping meals or exercising more than usual, or if the dosage of anti-diabetic medication is too high (Rehman & Kazmi, 2021). Diabetes can damage the heart, blood vessels, eyes, kidneys, and nerves, increasing the risk of heart disease and stroke. Such damage can result in reduced blood flow, which, combined with nerve damage (neuropathy) in the feet, increases the risk of foot ulcers, infections, and the need for amputation. Diabetic retinopathy is a major cause of blindness

and occurs as a result of accumulated long-term damage to the small blood vessels in the retina.

Diabetes mellitus is a leading cause of kidney failure. The primary cause of kidney damage in DM patients is poor microcirculation. This disorder often occurs in conjunction with vascular disorders in the eyes. Another cause is chronic hypertension, which ultimately damages the kidneys. Most patients have no prior kidney problems (Rehman & Kazmi, 2021).

Based on a preliminary survey conducted by researchers on five type 2 diabetes patients at Sungailiat Regional General Hospital (RSDH), all five (100%) respondents showed signs of anxiety. Of these, four (80%) expressed concerns about potential complications such as slow-healing wounds, kidney damage, or the risk of amputation. Furthermore, three (60%) experienced anxiety related to the disease and its treatment process, such as fear of uncontrolled blood sugar levels despite taking medication, anxiety about having to undergo long-term, lifelong treatment, and worry about the costs of routine check-ups, laboratory tests, or purchasing antidiabetic medications.

Regarding quality of life, four (80%) reported physical limitations, such as fatigue, difficulty with activities, or a rapid decline in energy. Meanwhile, three (60%) experienced psychological impacts in the form of frustration and anxiety related to their treatment and their condition. This frustration arose because some patients felt they had tried their best but their blood sugar levels remained difficult to control, some felt burdened by the daily routine of taking medication, and still felt fed up with the constant changes in diet. Some patients also expressed despair when new symptoms emerged or when their condition did not improve as expected.

On the other hand, spirituality was a source of comfort for all respondents (100%), although only two (40%) practiced it consistently. The majority of respondents, four (80%), reported significant family support in managing their illness, while one (20%) felt a lack of support, leading to greater anxiety and psychological distress. Based on the explanation above, the researchers were interested in conducting a study entitled "Factors Associated with Anxiety in Type 2 Diabetes Patients at Depati Bahrin Sungailiat Regional Hospital."

Objective

This study aims to determine the association between quality of life, spirituality, and family support and anxiety levels among patients with Type 2 Diabetes Mellitus at Depati Bahrin Regional Hospital, Sungailiat, in 2025.

Method

This study applied a quantitative approach with an analytic correlational design using a cross-sectional method to identify factors associated with anxiety among patients with Type 2 Diabetes Mellitus. The cross-sectional design enables the simultaneous measurement of independent variables and the dependent variable at a single point in time, allowing the identification of relationships without follow-up observation.

The research was conducted at the Depati Bahrin Sungailiat Regional Hospital, Bangka Regency, Indonesia, in 2025. Data collection was carried out over three consecutive days, from November 26 to November 28, 2025. The target population comprised all patients diagnosed with Type 2 Diabetes Mellitus who received outpatient or inpatient services at the hospital during the study period.

A total of 73 respondents were included as the study sample. Participants were selected using a non-probability sampling technique with an accidental sampling approach, where

patients who met the eligibility criteria and were available during the data collection period were invited to participate. Eligibility criteria included patients diagnosed with Type 2 Diabetes Mellitus, aged 18 years or older, in stable condition, able to communicate effectively, and willing to participate by providing informed consent. Patients with severe cognitive impairment, critical conditions, or incomplete questionnaire responses were excluded from the analysis.

Data were collected using structured, self-administered questionnaires consisting of sections on demographic characteristics, quality of life, spirituality, family support, and anxiety levels. The instruments used in this study were adapted from validated tools commonly used in clinical and nursing research. Prior to data collection, the questionnaire was reviewed to ensure clarity and feasibility for respondents.

Data processing was conducted through editing, coding, scoring, and tabulating to ensure accuracy and completeness. Univariate analysis was performed to describe the frequency distribution and proportion of each variable. Bivariate analysis using the chi-square test was employed to examine the association between independent variables, including quality of life, spirituality, and family support, and the dependent variable, namely anxiety level. The level of statistical significance was set at a confidence level of 95% ($p < 0.05$).

Ethical principles were applied throughout the study, including respect for participant autonomy, confidentiality of personal information, and voluntary participation. Respondents were informed about the purpose of the study and their right to withdraw at any time without consequences to their treatment.

Result

Table 1. Relationship between Quality of Life and Anxiety in Type II Diabetes Patients

Quality of Life	Anxiety						Total		*p-value*
	High		Medium		Low				
	N	%	n	%	n	%	n	%	
Low	26	81.3	6	18.8	0	0	32	100	
Moderate	1	3.3	29	96.7	0	0	30	100	0.000
High	0	0	2	18.2	9	81.8	11	100	
Total	27	37	37	50.7	9	12.3	73	100	

The table shows that respondents with low quality of life were more likely to have high anxiety, at 26 respondents (81.3%), compared to respondents with moderate and high anxiety. Respondents with a moderate quality of life were more likely to have moderate anxiety (29 respondents (96.7%), while respondents with a high quality of life were more likely to have low anxiety (9 respondents (81.8%). Based on the results of statistical tests using Chi-Square, a p-value of 0.000 < 0.05 was obtained, indicating a significant relationship between quality of life and anxiety in patients with type 2 diabetes.

Table 2. The Relationship of Spirituality to Anxiety in Type 2 Diabetes Patients

Spirituality	Anxiety						Total		*p-value*
	High		Medium		Low				
	n	%	n	%	n	%	n	%	
Low	24	68.6	11	31.4	0	0	35	100	
Moderate	3	12.5	21	87.5	0	0	24	100	0.000
High	0	0	5	35.7	9	64.3	14	100	
Total	27	37.0	37	50.7	9	12.3	73	100	

The table shows that respondents with low spirituality were more likely to have high anxiety, at 24 respondents (68.6%), compared to respondents with low and moderate anxiety. Respondents with moderate spirituality were more likely to have moderate anxiety (21 respondents (87.5%) compared to respondents with low and high anxiety). Respondents with high spirituality were more likely to have low anxiety (9 respondents (64.3%). Based on statistical tests using Chi-Square, a p-value of 0.000 < 0.05 was obtained, indicating a significant relationship between spirituality and anxiety in Type 2 DM patients at Depati Bahrin Sungailiat Regional Hospital in 2025.

Table 3. The Relationship of Family Support to Anxiety in Type II Diabetes Patients

Family Support	Anxiety						Total		*p-value*
	High		Medium		Low				
	N	%	n	%	n	%	n	%	
Low	23	82.1	5	17.9	0	0	28	100	
Moderate	3	9.7	25	80.6	3	9.7	31	100	0.000
High	1	7.1	7	50.0	6	72.9	14	100	
Total	27	37.0	37	50.7	9	12.3	73	100	

Based on Table 5.7, it is found that respondents with low family support were more likely to have high anxiety, at 23 respondents (82.1%), compared to respondents with low and moderate anxiety. Respondents with moderate family support were more likely to have moderate anxiety (25 respondents (80.6%) compared to respondents with low and high anxiety). Respondents with high family support were more likely to have moderate anxiety (7 respondents (50.0%). Based on statistical tests using Chi-Square, a p-value of 0.000 < 0.05 was obtained, indicating a significant relationship between family support and anxiety in type 2 diabetes patients at Depati Bahrin Sungailiat Regional Hospital in 2025.

Discussion

Based on the results of this study, it was found that respondents with a low quality of life were more likely to be high-anxiety respondents (26 respondents (81.3%) compared to respondents with moderate and high anxiety. Respondents with a moderate quality of life were more likely to be moderate-anxiety respondents (29 respondents (96.7%) compared to respondents with low and high anxiety. Respondents with a high quality of life were more likely to be low-anxiety respondents (9 respondents (81.8%) compared to respondents with high and moderate anxiety. Based on the results of statistical tests using Chi-Square, a p-value

of 0.000 <0.05 was obtained, indicating a significant relationship between quality of life and anxiety in type 2 diabetes patients at Depati Bahrin Sungailiat Regional Hospital in 2025.

This finding is also supported by a study by Jackson et al. (2023) entitled "Health-related quality of life in adults with type 2 diabetes: A cross-sectional study in primary care." Scientific Reports assessed 420 patients with the EQ-5D-5L instrument and found that 57.6% of participants reported problems on the anxiety/depression dimension. EQ VAS scores and the QoL utility index were also significantly correlated ($p < 0.05$) with sociodemographic and clinical variables reinforcing the finding that anxiety is a common element closely linked to decreased quality of life in people with diabetes. These findings add to cross-national evidence that anxiety often coexists with decreased QoL in patients with type 2 diabetes.

The researchers hypothesize that the relationship between quality of life and anxiety in people with type 2 diabetes occurs because the decline in physical, social, and psychological functioning due to chronic disease can impact a person's emotional well-being. People with type 2 diabetes often face limitations in daily activities, fatigue, complications such as visual impairment, neuropathy, and foot ulcers, as well as lifelong medication requirements; these conditions reduce quality of life and create a feeling of inability to carry out roles and routines as before. When patients perceive their quality of life as poor—for example, feeling unproductive, unable to work optimally, having difficulty moving around, or being dependent on others fear, worry, and pessimism about the future of their health arise, leading to increased anxiety. In contrast, patients with a good quality of life typically have self-control, social engagement, independence, and satisfaction with their physical and emotional well-being, making them better able to cope with the disease without fear. Therefore, a decreased quality of life increases the range of psychological stress and decreases the sense of self-control, ultimately triggering anxiety; conversely, the better a person's quality of life, the lower their anxiety in dealing with type 2 diabetes.

Based on the results of this study, it was found that respondents with low spirituality were more likely to be high-anxiety respondents (24 respondents (68.6%) compared to respondents with low and moderate anxiety. Respondents with moderate spirituality were more likely to be moderate-anxiety respondents (21 respondents (87.5%) compared to respondents with low and high anxiety. Respondents with high spirituality were more likely to be low-anxiety respondents (9 respondents (64.3%) compared to respondents with high and moderate anxiety. Based on the results of statistical tests using Chi-Square, the p-value was 0.000 <0.05, indicating a significant relationship between spirituality and anxiety in Type 2 DM patients at Depati Bahrin Sungailiat Regional Hospital in 2025.

According to the researchers' assumption, the relationship between spirituality and anxiety in patients with type 2 diabetes occurs because spirituality serves as a source of inner peace, self-acceptance, and meaning in life, thereby reducing the psychological distress caused by chronic illness. Patients with type 2 diabetes face various stressors, such as the demands of lifelong treatment, fear of complications, unstable blood sugar levels, and concerns about the ability to carry out daily activities; these conditions can trigger ongoing anxiety. When patients have a high level of spirituality for example, through the practice of worship, prayer, a sense of surrender to God, the belief that illness is part of life's trials, and the support of a religious community they tend to be better able to manage negative emotions, accept their illness, and view the healing process more positively. Spirituality also helps increase hope and optimism, which can reduce fear and anxiety about disease progression. Furthermore, spiritual activities have been shown to reduce nervous tension and physiological stress, thus contributing to a decrease in anxiety both biologically and

psychologically. Therefore, the higher a person's spirituality, the stronger their coping ability to deal with the emotional stress of type 2 diabetes, and this explains why spirituality is significantly related to anxiety levels in these patients.

Based on the results of this study, it was found that respondents with low family support were more likely to have high anxiety (23 respondents (82.1%) compared to respondents with low and moderate anxiety). Respondents with moderate family support were more likely to have moderate anxiety (25 respondents (80.6%) compared to respondents with low and high anxiety). Respondents with high family support were more likely to have moderate anxiety (7 respondents (50.0%) compared to respondents with high and low anxiety. Based on the results of statistical tests using Chi-Square, the p-value was 0.000 <0.05, indicating a significant relationship between family support and anxiety in type 2 diabetes patients at Depati Bahrin Sungailiat Regional Hospital in 2025.

In line with research by Roza et al. (2021) entitled "The Relationship between Family Support and Anxiety Levels in Type 2 Diabetes Mellitus Patients," in 66 type 2 diabetes mellitus patients, a significant relationship between family support and anxiety levels was found. Using the Hensarling Diabetes Family Support Scale and the Zung Self-Rating Anxiety Scale, researchers reported that 42 patients (63.6%) received "insufficient" family support, while 24 patients (36.4%) received "supportive" support. Regarding anxiety levels, 35 patients (53.0%) experienced mild anxiety, 16 patients (24.2%) moderate, and 15 patients (22.7%) severe. A chi-square analysis yielded a p = 0.003, leading the authors to conclude that low family support was significantly associated with varying levels of anxiety in patients with type 2 diabetes.

According to the researchers' assumption, the relationship between family support and anxiety in patients with type 2 diabetes arises because family members serve as a source of emotional comfort, practical assistance, and motivation during long-term treatment, which requires high levels of discipline. Patients with type 2 diabetes face various pressures, such as routine blood sugar control, diet management, physical activity, medication dependence, and concerns about complications that can hinder daily activities. When family members provide attention, support, and assistance in managing their illness for example, reminding them of medication schedules, accompanying them to health check-ups, helping them choose food, or providing emotional support when they feel tired patients feel safer, understood, and less alone in their illness; this can significantly reduce anxiety levels. Conversely, when family support is low, patients tend to feel burdened, less motivated to care for themselves, and view their illness as something difficult to deal with, which can increase anxiety due to fears of worsening health conditions.

Conclusion

There were significant relationships between quality of life, spiritual level, and family support and anxiety among patients with Type II diabetes mellitus at the Depati Bahrin Sungailiat Regional Hospital in 2025.

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Authors' contribution

Each author contributed equally in all the parts of the research. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this paper. This research was conducted independently without any financial, commercial, or personal relationships that could be construed as a potential conflict of interest. All processes, including study design, data collection, analysis, and manuscript preparation, were carried out objectively and without external influence.

Ethical consideration

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