SPIRITUALITY ASSOCIATED WITH MANAGEMENT OF TYPE 2 DIABETES MELLITUS AMONG PEOPLE LIVING WITH DIABETES IN EKITI STATE

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Abstract

This study explored the association between spirituality and the management of type 2 diabetes mellitus (T2DM). It aimed to assess the respondents' knowledge of T2DM and investigate the impact of spirituality on managing the condition. The research questions focused on the level of knowledge about T2DM and the influence of spirituality on its management, while the hypothesis posited no significant relationship between diabetes knowledge and spirituality. A quantitative methodology was employed, targeting patients and healthcare workers in endocrinology clinics across three hospitals in Ekiti State, Nigeria. Using Taro Yamane's formula, a sample size of 242 was determined from a population of 615, with data collected via a structured questionnaire. The questionnaire assessed socio-demographic characteristics, knowledge of diabetes, and spirituality, using the Duke University Religion Index (DUREL) and the FACIT-SP spiritual well-being scale. The study revealed a generally good understanding of diabetes among respondents, with high awareness of risk factors and management practices. A substantial proportion reported strong spiritual beliefs, which played a significant role in coping with stress and adherence to treatment. However, regression analysis showed no significant relationship between knowledge of diabetes and spirituality, with only 10% of variance in spiritual scores explained by knowledge domains. The findings suggest that while spirituality is integral to many patients' lives, it does not significantly influence diabetes management knowledge, failing to reject the null hypothesis. These results highlight the need for further research into other factors affecting the role of spirituality in managing chronic conditions like T2DM.

Keywords: Spirituality, Management, Diabetes Mellitus, Type 2 Diabetes

Introduction

Diabetes mellitus (DM) is a non-communicable disease which has a definite psychological impact on the affected individuals and by extension their relatives. It is among the chronic diseases that plague the victims throughout their lives (Kalra *et al*., 2020). World Health Organization (2021), described diabetes as a metabolic disorder with hyperglycaemia (high blood glucose) means when there is too much sugar in the blood because the body lack enough insulin (Inzucchi *et al.*, 2020) and it occurs when the pancreas is no longer able to make insulin, or when the body cannot make good use of the insulin it produces. Diabetes accounts for increased mortality from comorbid diseases such as cardiovascular disease, stroke, chronic kidney disease, chronic liver disease, cancer and non-traumatic lower limb amputations.

The worldwide prevalence of the lifelong disease has continuously increased from 422 million in 2014 to 463 million people in 2019, and causes about 10% of United States annual expenditures on the adult population (WHO, 2020). The global challenges of diabetes mellitus has undoubtedly changed the landscape of health care over the past decades and continues to be a major problem to individuals affected due to its health-related complications (Cho *et al.*, 2018). This disease has shown a tremendous increase in prevalence with a demographic transition in its epidemiology in recent years. The latest prevalence figure published by the International Diabetes Federation (IDF) is 425 million persons living with DM worldwide, with nearly 50% of these undiagnosed. The developing economies of Africa and Asia contribute a significant fraction of this figure. There is also a rising burden from the complications of DM alongside the ever-increasing prevalence of the disease.

In Nigeria, the current prevalence of DM among adults aged 20–69 years is reported to be 1.7% (Osuji, et al., 2019). The study of Osuji, et al. (2019) indicates that the significant risk factors of Type2 diabetes in Nigeria is associated with unhealthy eating behavior rate (8.0%), old age (6.6%), and urban dwelling (6.0%), obesity (5.3%), physical inactive (4.8%), family history of diabetes (4.6%), and cigarette smoking (4.4%). Examining the prevalence by 5 geographical zone indicates that the South-South region has the highest prevalence (9.8%), South-West (5.5%), North-East (5.9%), South-East (4.6%), North-Central (3.8%), and North-West (3.0%), (Okoronkwo et al., 2019). The prevalence of Type 2 diabetes in Nigeria is extensively spreading out, higher in urban areas than in rural areas (Okoronkwo et al., 2019; Osuji, et al.,2019). Despite our understanding of the existing risk factors of Type 2 diabetes, studies have revealed that information on the prevention of Type 2 diabetes is not reaching populations at risk of developing Type 2 diabetes. A low level of knowledge among the general public about diabetes has been reported in a study from developing nations (Kayyali et al., 2019). Patients' knowledge about diabetes and how to live is required to achieve better compliance with diabetes prevention and care for those already with the disease (Herath et al 2017).

Spiritual beliefs are invaluable in the management of diabetes and other chronic health conditions. Spirituality refers to the meaning or purpose in one's life, a search for wholeness, and a relationship with a spiritual being or reality and it involves the search for meaning and purpose through which one establishes his/her relationship with time, oneself, others, and God (Choi & Hastings, 2019). Individual's spiritual beliefs may be expressed through religion or

religious involvement, involving participation in an organized system of beliefs, rituals, and cumulative traditions. Spiritual beliefs and activities can impact the management of chronic conditions through two different pathways. it can assist in coping with chronic illnesses by providing support, confidence, and hope, and second, it can interfere with coping resources, especially when patients neglect self-care activities and rely on prayer and/or meditation to manage their illness (Faghani *et al.,* 2018).

The significance of championing the cause for advocacy guideline development also must be entrenched across all levels of health care for optimal care delivery. In light of this, health advocacy is needed to build awareness, education, prevention and care about diabetes worldwide in order to reduce stigma, increase access to resources, and ultimately improve the lives of people living with diabetes.

The study examined spirituality associated with management of type 2 diabetes mellitus. The study specifically:

1. assess the level of knowledge of the respondents about Type 2 diabetes mellitus.
2. investigate the effect of spirituality on the management of Type 2 diabetic patients.

Research Questions

1. What is the level of knowledge of the respondents about Type 2 diabetes mellitus?
2. What is the impact of spirituality on the management of T2DM patient?

Research Hypothesis

1. There is no significant relationship between knowledge of diabetes and Spirituality.

Research Methods

This study adopted a quantitative data collection method. Quantitative research is the process of collecting and analysing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider population (Bhandari, 2022). It deals in numbers, logic, and an objective stance. Quantitative research focuses on numeric and unchanging data and detailed, convergent reasoning rather than divergent reasoning i.e., the generation of a variety of ideas about a research problem in a spontaneous, free-flowing manner (Brians, 2011).

The target population for this study were people living with diabetes, including the healthcare worker, the patient care giver attending endocrinology (MOP) clinic in Federal Teaching Hospital, Ido, Ido Local Government, Ido Ekiti, Ekiti State University Teaching Hospital and Afe Babalola multi system hospital, Ado Ekiti Local Government Area, Ekiti State. The study

areas for this research were selected from Federal, State and private Hospitals in Ekiti, Ekiti State Nigeria.

A sample consists of the group of people participating in a research study from which data is obtained (Stephanie, 2019). The sample size, denoted as (n), was determined using Taro's Yamane formula (1967) and proportional sample size computation, resulting in 242 valid responses. The appropriate sample size is essential for statistically meaningful results (Rafeedali, 2014). Given a population size (N) of 615 and a precision level (e) of 0.05, the sample size (n) was calculated to be 242. The sample was distributed among hospitals as follows: EKSUTH (116), FEITHI (102), and AMSH (24).

The study employed a multistage sampling procedure to select three healthcare facilities from the sixteen local government areas in Ekiti State. This involved three steps: first, multistage cluster sampling was used to draw samples from smaller groups within the population, taking advantage of hierarchical grouping to create a cost-effective and time-efficient sample. Second, simple random sampling was employed to select units at various stages, focusing on type 2 diabetes patients attending endocrinology clinics at the selected healthcare facilities. Third, purposive sampling was used to select type 2 diabetes mellitus respondents at Ekiti State University Teaching Hospital, Federal Teaching Hospital, and Afe Babalola Multisystem Hospital, based on accessibility and patient load.

The inclusion criteria for the study required respondents to be 18 years or older, attending the endocrinology clinic (MOP) during the data collection period, living with diabetes for at least one month, and either healthcare workers, caregivers, or willing participants. Exclusion criteria disqualified diabetic patients not present during data collection, those unwilling to participate, and pregnant women.

The research instrument used for this study was an adapted questionnaire that were designed based on information adapted from several similar studies. Section A of the study covers socio-demographic characteristics, requiring participants to provide information on gender, age, ethnicity, marital status, religion, level of education, occupation, and average monthly income, with a total of 8 items. Section B focuses on the knowledge of diabetes, including 38 questions that measure general knowledge, risk factors, symptoms, complications, and management of type 2 diabetes, using a yes/no scale. Section C assesses spirituality and religiosity using the Duke University Religion Index (DUREL), a five-item scale that measures organizational, non-organizational, and intrinsic religiosity, with the overall score summing these dimensions. The

FACIT-SP spiritual well-being (FACIT-Sp-12) is used to measure participants' spiritual well-being, with higher scores indicating higher spiritual well-being.

The questionnaires were self-administered after thorough explanation of the purpose of the study. The participants were made up of patients attending endocrinology clinic in Federal Teaching Hospital, Ido, Ido Local Government, Ido Ekiti, Ekiti State University Teaching Hospital and Afe Babalola multi-system hospital Ado Ekiti Local Government Area, Ekiti State. All the participants were duly informed about the purpose of the study and instruction were explained to them in simple and clear terms. The study considered a total of two hundred forty-two (242) participants.

The structured questionnaires that answered were obtained, coded and analyzed using Statistical Package for Social Sciences (SPSS) version 26. Descriptive statistics were used to summarize the data and provide clear description of the data from sample using frequency distribution tables, simple percentages, inferential statistics and regression analysis to test the formulated hypotheses at 0.05 level of significance and the result were thereafter be tabularized.

Results

Table 1: Social- Demographic Information of Respondents

		N	%
Age (years)	20 -29	17	7.0
	30 – 39	51	21.1
	40 – 49	45	18.6
	50 – 59	59	24.4
	60 – 69	48	19.8
Gender	Male	79	32.6
	Female	163	67.4
Ethnicity	Yoruba	186	76.9
	Igbo	44	18.2
	Hausa	7	2.9
	Others (Specify)	5	2.1
Highest Educational Qualification	No Formal Education	39	16.1
	Primary Education	15	6.2
	Secondary Education	44	18.2
	Tertiary Education	144	59.5
Occupation	Trading/Business	81	33.5
	Skilled Artisan	19	7.9
	Student	0	0.0

	Unemployed	20	8.3
	Self-employed	17	7.0
	Civil Servant	73	30.2
	Retiree	25	10.3
	Others (Specify)	7	2.7
Marital Status	Single	37	15.3
	Married	198	81.8
	Divorced	2	0.8
	Separated	5	2.1
	Cohabiting	0	0.0
Average Monthly Income	<10,000 naira	11	4.5
	11,000-30,000 naira	90	37.2
	31,000-50,000 naira	28	11.6
	51,000-70,000 naira	32	13.2
	71,000 naira and above	81	33.5
Religion	Christianity	227	93.8
	Islam	15	6.2
	Traditional	0	0.0
	Others	0	0.0

Source: Researcher's Field Survey, 2024

This dataset provides socio-demographic information on age, gender, ethnicity, education, occupation, marital status, income, and religion. It indicates a diverse sample, with a majority of females (67.4%), Yoruba ethnicity (76.9%), and Christianity as the predominant religion (93.8%). Occupationally, trading/business (33.5%) and civil servant roles (30.2%) are common. The age distribution shows a significant portion between 30-59 years old, and the majority have tertiary education (59.5%). Most respondents are married (81.8%), with varying income levels, with a notable portion earning between 11,000-30,000 naira (37.2%).

Research Question 1: What is the level of knowledge of the respondents about Type 2 diabetes mellitus?

Table 2: General Knowledge of Diabetes

Items	Yes	No	Mean (Average)	Std	Overall and Remark
Diabetes cannot be cured	116 47.9	126 52.1	1.48	0.501	Low Knowledge (LK) = 0
Fasting blood sugar of 210 is too high	214 88.4	28 11.6	1.12	0.321	Moderate Knowledge (MK) = 125

Diabetes is a condition of high blood sugar	230 95.0	12 5.0	1.95	0.218	High Knowledge (HK) = 117
Insulin is required for some diabetic patients	220 90.9	12 5.0	1.91	0.288	Average = 6.45

Table 2 presents the general knowledge of the respondents on diabetes. Responses (116 Yes, 47 No for curability; 214 Yes, 28 No for blood sugar; 230 Yes, 12 No for definition; 220 Yes, 12 No for insulin). The **average** score (likely calculated as 1 for "Yes" and 0 for "No") was 0.501 for curability, 0.321 for blood sugar, 0.218 for definition, and 0.288 for insulin. The results indicate a generally good understanding of diabetes. The vast majority answered correctly regarding high blood sugar being a characteristic (214 Yes) and the role of insulin in some cases (220 Yes). Nearly everyone (230 Yes) identified the correct definition. The statement on incurability (116 Yes) had the most variation in responses, though a majority still answered correctly. Standard deviation values suggest some variation in understanding about curability (0.501), but strong consistency for the other statements (between 0.218 and 0.321). This data suggests a good baseline understanding of these diabetes facts among the tested group.

Table 3: Knowledge of Risk Factors, Symptoms of diabetes, and Complications

Knowledge of Risk Factors	Yes	No	Mean Average	Std	Overall And Remark
Obesity can cause diabetes	235 97.1	7 2.9	1.97	0.168	LK =4 MK =0
Diabetes can be inherited	235 97.1	7 2.9	1.97	0.168	HK = 238 Mean = 5.87
Anybody above 40 years can have diabetes	224 92.6	18 7.4	1.93	0.263	
Knowledge of Symptoms of diabetes	**Yes**	**No**	**Mean**	**Std**	LK =0
Diabetes cause s constant feeling of thirst	231 95.5	11 4.5	1.95	0.209	MK =10 HK = 232
Diabetes causes frequent urination	222 91.7	20 8.3	1.92	0.276	Mean = 11.634
Diabetes causes weight loss	223 92.1	19 7.9	1.92	0.270	
Diabetes causes blurred vision	226 93.4	16 6.6	1.93	0.249	
Diabetes causes slow healing of cuts and wound	230 95.0	12 5.0	1.95	0.218	
Diabetes causes tiredness and weakness	232 95.9	10 4.1	1.96	0.199	
Knowledge of Diabetes complications	**Yes**	**No**	**Mean**	**Std**	LK =0
Decay limbs that require removal	236	6			MK =4

(amputation)	97.5	2.5	1.98	0.156	HK = 238
Eye Problems	235	7			Mean = 11.52
	97.1	2.9	1.97	0.168	
Kidney Problems	229	13			
	94.6	5.4	1.95	0.226	
High blood pressure	227	15			
	93.8	6.2	1.94	0.242	
Heart attack	208	34			
	86.0	14.0	1.86	0.348	
Loss of sensation in the arm and legs	201	41			
	83.1	16.9	1.83	0.376	

The data reveals respondents' knowledge regarding risk factors, symptoms, and complications associated with diabetes. A significant majority, 97.1%, recognize that obesity can cause diabetes, indicating a high level of awareness. Similarly, the belief that diabetes can be inherited is acknowledged by 97.1% of respondents, reflecting a strong understanding of familial risk factors. Additionally, 92.6% of respondents acknowledge that individuals above 40 years old can have diabetes, suggesting a notable awareness of age-related risk factors. Among respondents, 4 individuals demonstrate low knowledge (LK) in this regard, while none exhibit moderate knowledge (MK), suggesting that the majority possess either low or high levels of understanding. A substantial majority of 238 respondents showcase high knowledge (HK) regarding diabetes risk factors.

Table 4: Knowledge on the treatment and management of diabetes

Items	Yes	No	Mean Average	Std	Overall And Remark
Insulin injection are available for the control of diabetes	232 95.9	10 4.1	1.96	0.199	Low Knowledge = 0 Moderate = 11 High = 231 Mean = 34.4
Tablets and capsules are available for the control of diabetes	204 84.3	38 15.7	1.84	0.365	
Diabetic patient should carry sugar when they are out	171 70.7	71 29.3	1.71	0.456	
Diabetic patient should exercise regularly	238 98.3	4 1.7	1.98	0.128	
Diabetic patient Should have good weight control	232 95.9	10 4.1	1.96	0.199	
Diabetic patient should go for regular eye check up	240 99.2	2 0.8	1.99	0.091	
Diabetic patient should have a low fat and high fiber diet	219 90.5	23 9.5	1.90	0.294	
Diabetic patient should take care of their toes and feet	235 97.1	7 2.9	1.97	0.168	
Diabetic patient should not consume alcohol	225 93.0	17 7.0	1.93	0.256	

Diabetic patient should not donate blood	161 66.5	81 33.5	1.33	0.473
Diabetic patient should control fruit and vegetable intake	146 60.3	96 39.7	1.60	0.490
Diabetic patient should not smoke	232 95.9	10 4.1	1.96	0.199
Diabetic patient should wear tight shoes	64 26.4	178 73.6	1.74	0.442
Diabetic patient should skip meals when busy	82 33.9	160 66.1	1.66	0.474
Diabetic patient should test for blood glucose	225 93.0	17 7.0	1.93	0.256
Diabetic patient should test for sugar in the urine	219 90.5	23 9.5	1.10	0.294
Diabetic patient should go for counseling section	237 97.9	5 2.1	1.98	0.143
Diabetic patient should go for regular medical check up	234 97.9	5 2.1	1.97	0.179
Diabetic patient should take extra caution when cutting nails	220 90.9	21 8.7	1.91	0.283

A significant majority of respondents, accounting for 95.9%, acknowledge the availability of insulin injections for controlling diabetes. This high agreement level, reflected in the mean score of 4.1, underscores the widespread recognition of insulin as a fundamental treatment option. Conversely, while a majority, encompassing 84.3% of respondents, recognize the availability of tablets and capsules for diabetes control, the mean score of 1.84 indicates a somewhat lower level of agreement compared to insulin injections.

Approximately 70.7% of respondents believe that diabetic patients should carry sugar when they are out. This moderate level of agreement, as indicated by the mean score of 1.71, suggests some variation in perceptions regarding the necessity of carrying sugar for managing low blood sugar levels. Conversely, there is a strong consensus among respondents regarding the importance of regular exercise for diabetes management. A significant majority of 98.3% agree that diabetic patients should exercise regularly, highlighting the widespread recognition of physical activity as a vital component of diabetes care. The mean score of 1.7 further reinforces the unanimous acknowledgment of the role of exercise in diabetes management, emphasizing its significance in maintaining overall health and well-being for individuals with diabetes.

Research Question 2: What is the Spirituality of patients with Type 2 Diabetes Mellitus (T2DM)?

Table 5: Spirituality of patients with Type 2 Diabetes Mellitus (T2DM)

Religious and spiritual	Yes	No	Mean	Std
Did you have any spiritual and religious background	162 66.9	80 33.1	1.33	0.471
Does your spiritual and religion background support you positively	181 74.8	61 25.2	1.25	0.435
Does spirituality or religiosity play any role in your life from child till date	200 82.6	42 17.4	1.17	0.380
Does your spirituality or religiosity help you to cope with stress	192 79.3	50 20.7	1.21	0.406
Are you a member of any religious community that is supportive to your healthcare management	152 62.8	90 37.2	1.37	0.484
Does your clergy know your medical condition	116 47.9	126 52.1	1.52	0.501
Have you discussed your therapy/treatment of your medical condition with your clergy	108 44.6	134 55.4	1.55	0.498
Does your spiritual/religious belief influence the type of therapy you are most comfortable with?	114 47.1	128 52.9	1.53	0.500
Do your belief influence how you feel about taking your medication	151 62.4	91 37.6	1.38	0.485

Table 5 illustrates the profound influence of spirituality and religiosity within the sacred support system of patients with Type 2 Diabetes Mellitus (T2DM). A substantial majority of respondents report having a spiritual and religious background (66.9%), with a significant proportion indicating positive support from this background (74.8%). Moreover, the enduring role of spirituality or religiosity throughout life is evident, with 82.6% of respondents acknowledging its influence from childhood to the present. Notably, spirituality and religiosity serve as crucial coping mechanisms for managing stress, as reported by 79.3% of respondents. Membership in supportive religious communities (62.8%) and communication with clergy about medical conditions (47.9%) underscore the integration of spiritual beliefs into healthcare management. Additionally, the influence of beliefs on treatment preferences and medication adherence is notable, with 47.1% and 62.4% of respondents, respectively, acknowledging their beliefs' impact.

Faith And Belief	Yes	No	Mean	Std
Do you consider yourself too spiritual/ religious	91 37.6	151 62.4	1.62	0.485
Do you have spiritual belief that help you cope with stress	202 83.5	40 16.5	1.17	0.372
Does faith or belief have importance in your life	218 90.1	24 9.9	1.10	0.300
Have your faith influenced how you take care of yourself in this illness	198 81.8	44 18.2	1.18	0.386
Does your belief play any role in adherence to your treatment	199 82.2	43 17.8	1.18	0.383

The data highlights the significant role of faith and belief in the lives of patients with Type 2 Diabetes Mellitus (T2DM). A considerable proportion of respondents consider themselves spiritual or religious (37.6%), with a majority indicating that spiritual beliefs help them cope with stress (83.5%). Moreover, faith or belief holds importance in the lives of the majority of respondents (90.1%), influencing their self-care practices in managing their illness (81.8%). Additionally, a significant percentage of respondent's report that their faith influences their adherence to treatment (82.2%).

Community	Yes	No	Mean	Std
Is there a group of people you love who are important to you in your care	198 81.8	44 18.2	1.18	0.386

The data indicates that a majority of patients with Type 2 Diabetes Mellitus (T2DM) perceive the presence of a supportive community in their care journey, with 81.8% of respondents affirming the existence of a group of people they love and who are important to them in their care. This finding underscores the significance of social support networks in T2DM management, suggesting that having a supportive community may contribute positively to patients' well-being and adherence to treatment regimens.

Prayer Experiences	Yes	No	Mean	Std
Do you pray	226	16		
	93.4	6.6	1.07	0.249
Do you require assistance or help with prayer	196	46		
	81.0	19.0	1.19	0.393
Do you belief that your prayer work for you in your treatment care	229	13		
	94.6	5.4	1.05	0.226

The data reveals significant prayer experiences among patients with Type 2 Diabetes Mellitus (T2DM), with a large majority reporting engagement in prayer (93.4%). Moreover, a substantial proportion of respondents express a need for assistance or help with prayer (81.0%), indicating the importance of communal or supportive prayer practices within the T2DM care context. Additionally, the majority of respondents believe that their prayers positively impact their treatment care (94.6%), suggesting a perceived efficacy of prayer in their overall health management.

Help	Yes	No	Mean	Std
Do you think anyone or any member of health care team can help you	188	54		
	77.7	22.3	1.22	0.417
Have you discussed spiritual issues or your belief to doctor	109	133		
	45.0	55.0	1.55	0.499

The data suggests that a majority of patients with Type 2 Diabetes Mellitus (T2DM) believe that someone from the healthcare team can offer assistance or support in their care (77.7%). This highlights the perceived importance of healthcare professionals in providing help and guidance to T2DM patients. However, a smaller percentage of respondent's report discussing spiritual issues or beliefs with their doctors (45.0%).

Test of Hypothesis

Ho1: There is no significant relationship between knowledge of diabetes and Spirituality.

Model	Coefficients				Anova	
	B	T	Sig	R Adj. R^2	F-statistics	Sig.
Constant	26.909	3.237	0.00	R = 0.102	0.498	0.778

General	-.357	-.748	.451	**Adj. R^2 =**		
Risk	-.312	-.380	.702	0.011		
Symptoms	.033	.069	.942			
Complications	-662	-1.308	.196			
Treatment	.299	1.122	.262			
Dependent variable: Spirituality						

This linear regression analysis examined the relationship between knowledge of various diabetes aspects (general knowledge, risk factors, symptoms, complications, treatment) and the strength of Spirituality (dependent variable). The model exhibits a very weak positive association between knowledge and the Spirituality. The coefficient of determination (R^2) of .102 suggests that only about 10% of the variance in Spiritual scores can be explained by the different knowledge domains included in the model. The extremely low R^2 value suggests that other factors not included in the model likely play a much more substantial role in shaping the spiritual and religiosity. The adjusted R^2 of .011 indicates that this explanatory power is very low and likely due to chance, given the number of independent variables.

The F-statistic (0.498) and its associated significance level (0.778) suggest that the model is not statistically significant ($p > .05$), indicating that none of the knowledge domains in the model significantly affect the spirituality. General knowledge of diabetes (B = -.357, t = -.748, p = .451), knowledge of risk factors (B = -.312, t = -.380, p = .702), knowledge of symptoms (B = .033, t = .069, p = .942), knowledge of complications (B = -662, t = -1.308, p = .196), and knowledge of treatment (B = .299, t = 1.122, p = .262) all show no statistically significant relationships with the spirituality and religiosity .

The findings suggest no statistically significant relationships between knowledge of various diabetes aspects and the strength of spirituality for diabetes management. The model itself was not statistically significant, indicating that the included knowledge domains do not explain a meaningful portion of the variance in the spirituality scores. Thus, we fail to reject the null hypothesis.

Discussion of Findings

The study reveals a generally high level of knowledge (mean = 13.95) among respondents regarding type 2 diabetes mellitus, indicating a solid understanding of treatment options, complications, symptoms, and risk factors. However, general knowledge about diabetes itself

was found to be moderate. This observation aligns with existing literature associating education with diabetes knowledge, as supported by a study from Herath et al., (2017), suggesting that individuals with higher education levels tend to possess better health knowledge and may be more receptive to health information.

Possible explanations for the high knowledge levels observed include inherent characteristics of the sample population or recent public health campaigns or educational initiatives that may have increased awareness. To deepen understanding in this area, further exploration could investigate the representativeness of the sample population, how knowledge translates into behaviors and self-management practices, and the sources of knowledge acquisition among respondents.

While knowledge about specific aspects of diabetes appears robust, there remains a gap in general diabetes understanding. Future efforts could concentrate on developing educational materials that provide a broader foundation in diabetes knowledge. By comprehending the factors influencing knowledge acquisition and addressing these gaps, more effective educational interventions can be devised to empower individuals in effectively managing their diabetes.

The findings also illuminate the significant role of spirituality and religiosity, in the lives of patients with type 2 diabetes mellitus (T2DM). A majority of respondents (66.9%) identified with a spiritual or religious background. Additionally, a significant portion (74.8%) reported positive support from their spiritual/religious background. Spirituality/religiosity served as a coping mechanism for managing stress for nearly 80% of respondents. Many also found support within religious communities (62.8%) and communicated with clergy about their health (47.9%). Furthermore, beliefs influenced treatment preferences for 47.1% and medication adherence for 62.4% of respondents.

The importance of coping mechanisms for managing the stress of a diabetes diagnosis is highlighted by Chen et al., (2019); Chaturvedi et al., (2019). The current study suggests that spirituality/religiosity can be a powerful coping mechanism for some patients. These findings align with Priya and Kalra (2019), who discuss coping as a way to manage stressful situations. The study suggests that spirituality can provide conscious coping strategies, such as self-regulation and emotional regulation, for stress management in T2DM.

The communication with clergy regarding health (47.9%) highlights a potential avenue for

collaboration between healthcare providers and religious leaders to improve diabetes management. Future research could explore the specific spiritual or religious practices that provide support and how they influence diabetes management. Additionally, investigating how healthcare professionals can better integrate with spirituality/religiosity to improve patient well-being is warranted. Spirituality and religiosity play a significant role in the lives of many patients with T2DM. These systems provide meaning, coping mechanisms, and social support, potentially influencing treatment decisions and medication adherence. Further research can help us understand how to leverage spiritual and religious to improve overall diabetes management and patient well-being.

The analysis revealed no statistically significant relationship between knowledge of various diabetes aspects and the strength of spirituality. The R^2 value (0.102) indicates that only 10% of the variance in spirituality scores can be explained by the included knowledge domains. This suggests a very weak positive association at best. The F-statistic (0.498) and its associated significance level (0.778) further confirm that the model itself is not statistically significant ($p > .05$). This implies that none of the knowledge domains (general knowledge, risk factors, symptoms, complications, treatment) have a significant effect on the spirituality.

None of the individual knowledge domains showed statistically significant relationships with the spirituality. This suggests that knowledge of specific diabetes aspects, as measured in this study, may not directly influence the strength of spirituality and religosity. While knowledge might not be the primary driver, the concept of spirituality suggests the potential influence of religious beliefs, cultural practices, and social networks. Future research could explore these factors in more detail. Studies suggest that religious beliefs and practices can influence health behaviors and social support networks (e.g., Zinberg et al., 2019). Investigating how religious beliefs and practices shape the formation and strength of spirituality for diabetes management could be fruitful. Cultural practices and beliefs surrounding illness and healthcare might also play a role. For instance, some cultures might rely heavily on faith healers or traditional medicine alongside conventional medical treatment. Exploring the role of cultural practices in building spirituality would provide valuable insights.

The social network an individual belongs to can significantly impact their access to emotional and practical support. Future research could examine how social networks, including religious communities, influence the development of spirituality for diabetes management.

The study design likely limited the ability to capture the complex and multifaceted nature of

spirituality. The measure of knowledge used might not have adequately assessed the specific knowledge domains relevant to building spirituality. The findings suggest that knowledge of specific diabetes aspects, as measured in this study, does not significantly influence the strength of spirituality. Future research should focus on exploring the potential roles of religious beliefs, cultural practices, and social networks in shaping spirituality for diabetes management. By delving deeper into these factors, we can gain a more comprehensive understanding of how to support individuals with type 2 diabetes through culturally and religiously informed interventions. It would be beneficial to explore the concept of spirituality in more depth, including how individuals define and experience it in the context of diabetes management. Qualitative studies can provide rich data on the lived experiences of individuals with diabetes and how their faith and cultural background influence their spirituality.

Conclusion

Type 2 Diabetes Mellitus is a chronic disease which is the most common type of diabetes and its management requires multifactorial behavioural and pharmacological treatment. Diabetic patients and their loved ones need to be part of the management to ensure quick recovery and avoid complications that may result from it, so, health education is very important for them and their loved ones to be intimated with the nature of the disease and the need to adhere to treatment regimen. Adherence is a major issue in diabetic management as some of the patients were not adhering. The adherence of the patients to treatment regimen is affected by their spirituality and other factors such as forgetfulness, travelling, financial incapacitation, stress, work schedule, secrecy etc. Patient's satisfaction also had influence on their adherence to treatment regimen; their level of satisfaction determines their level of adherence. Therefore, it is germane that psychological screening and development of advocacy guideline be included in the management of Type 2 Diabetes Mellitus.

Recommendations

The following recommendations are made based on the findings of this study:

1. Education on the treatment regimen at each clinic is important to improve the level of the adherence

2. In order to improve quality of care for people living with diabetes, there is need to improve communication through better accessibility to appointment day and to be able to see the preferred doctors.

3. Sensitization needs to be done in various places of worship as adherence to diabetic treatment regimen was discovered to have relationship with level of spirituality.

4. To incorporate training and continuing education programs for healthcare professionals on diabetes care, management and prevent.

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