

The correlation between spirituality and adherence in diabetes mellitus type 2 patients

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Original Article

ABSTRACT

ARTICLE INFO

Keywords:

Spirituality,
Obedient,
Type 2 DM

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DOI: 10.20885/JKKI.Vol13.Iss2.art3

History:

Received: October 15, 2021

Accepted: July 13, 2022

Online: August 31, 2022

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Background: The adherence of type 2 diabetes mellitus (DM) patients plays an important role in therapeutic management. In carrying out every activity, a Muslim must make spirituality as a reference. Therefore, it is necessary to study the relationship of spirituality in type 2 DM patients with diabetes mellitus medication adherence.

Objective: Estimate the correlation between spirituality and patients' type 2 DM adherence.

Methods: This study was observational with a cross-sectional design at PKU Muhammadiyah Gamping Hospital. Subjects were patients with type 2 diabetes mellitus. The level of spirituality was obtained using the Holistic Health Care (HHC) questionnaire and adherence was using the Summary of Diabetes Self-Care Activities (SDSCA) questionnaire. There were 70 subjects between 35-73 years, 40 women and 30 men. The data were analysed using the Somers' D test to determine the correlation.

Results: From 70 subjects, the spirituality level was 68.6% nirvana, guide 14.3%, sorrow 12.9% and revive 4.3%. The acceptance score obtained was 82.0% positive and 17.1% negative. The obedient score obtained was 72.9% positive and 27.9% negative. The level of patient adherence was very high at 44.2%, high at 12.9%, moderate at 20%, low at 10%, and very low at 12.9%. There was no correlation between acceptance scores and patient adherence level ($r = 0.185$, $p\text{-value} = 0.299$), on the contrary, there was a correlation between obedient scores and patient adherence levels ($r = 0.34$, $p\text{-value} = 0.021$). There is a significant correlation between the total spirituality score and patient adherence ($r = 0.262$, $p\text{-value} = 0.035$).

Conclusion: There is a correlation between spirituality and type 2 DM patients' adherence.

Latar Belakang: Kepatuhan pasien diabetes mellitus (DM) tipe 2 merupakan faktor penting dalam pengelolaan pasien DM tipe 2. Bagi seorang Muslim, spiritualitas seharusnya menjadi acuan dalam mendorong dan mengarahkan seluruh aktivitasnya agar memiliki nilai. Oleh karenanya, diperlukan suatu kajian mengenai hubungan spiritualitas pasien DM tipe 2 terhadap kepatuhan dalam pengelolaan.

Tujuan: Mengetahui korelasi antara spiritualitas dan kepatuhan pada pasien DM tipe 2.

Metode: Penelitian ini merupakan penelitian observasional dengan desain potong-lintang yang dilaksanakan di Rumah Sakit PKU Muhammadiyah Gamping. Subyek merupakan pasien yang mengidap penyakit DM tipe 2. Tingkat spiritualitas didapatkan dengan menggunakan kuesioner Holistic Health Care (HHC) dan

tingkat kepatuhan menggunakan *The Summary of Diabetes Self-Care Activities Questionnaire (SDSCA)*. Diperoleh 70 subyek dengan rentang umur antara 35-73 tahun, perempuan 40 dan laki-laki 30 orang. Data dianalisis menggunakan uji Somers' D untuk menetapkan korelasi.

Hasil: Dari 70 subyek didapatkan tingkat spiritualitas berturut-turut nirvana 68,6%, guide 14,3%, sorrow 12,9% dan revive 4,3%. Skor acceptance didapatkan 82,0% positif dan 17,1% negatif. Skor obedient didapatkan 72,9% positif dan 27,9% negatif. Tingkat kepatuhan pasien didapatkan sangat tinggi 44,2%, tinggi 12,9%, sedang 20%, rendah 10%, dan sangat rendah 12,9%. Tidak didapatkan korelasi antar skor acceptance terhadap tingkat kepatuhan pasien ($r = 0,185$, nilai $p = 0,299$), sebaliknya, didapatkan korelasi antara skor obedient dan tingkat kepatuhan pasien ($r = 0,34$, nilai $p = 0,021$). Terdapat korelasi bermakna antara skor total spiritualitas dan kepatuhan pasien ($r = 0,262$, nilai $p = 0,035$).

Kesimpulan: Terdapat korelasi antara spiritualitas dan kepatuhan pasien DM tipe 2.

INTRODUCTION

The WHO report mentioned in Al-Majed *et al.* suggests that the adherence level of type 2 diabetes mellitus (DM) patients is worrying.¹ Increasing community adherence to treatment has greater benefits than developing new medical treatments. Alshehri *et al.* reported that type 2 DM patient adherence to treatment reduces the risk of morbidity and mortality.² However, the percentage of overall medication adherence in type 2 DM patients is less than optimal for several reasons. Most diabetic patients started medication obediently, but adherence decreased the following year and they even became fed up.³

Oakley *et al.* suggest that one of the factors in controlling type 2 DM is spiritual improvement.⁴ Spiritual awareness should be considered as an effort to increase spirituality. Efforts to increase spiritual awareness are carried out through routine religious activities.⁵ In general, spirituality and religiosity have a role in drug consumption adherence and self-management of DM patients.^{6,7} This is in line with studies which suggest that spirituality has an effective effect on increasing adherence of DM patients.⁸

The majority of Indonesia's population is

Muslim. Thus, a holistic approach to managing type 2 DM through spirituality is appropriate. A study that examines the correlation between spirituality and adherence to type 2 DM patients is essential to be carried out as the basis for its development and application.

METHODS

Study design

Analytical observations with a cross-sectional approach were used in this study. All type 2 DM patients at PKU Muhammadiyah Gamping Hospital, Yogyakarta, both outpatients and inpatients, became respondents. A purposive sampling technique was applied.

Subjects/Participants

Subject inclusion criteria were patients of type 2 DM with compos mentis awareness and cooperative behaviour. Exclusion criteria were applied if acute complications could potentially interfere with the general consciousness.

Instrument

Two questionnaires were used in this study: the Holistic Health Care (HHC) and the Summary of Diabetes Self-Care Activities (SDSCA).^{9,10} The HHC questionnaire assesses the patient's spiritual level to measure his acceptance of illness (acceptance) and adherence to worship (obedient). Each aspect of acceptance and compliance has 3 questions, with the highest score of 12 and the lowest score of 3. The assessment of acceptance and compliance aspects is divided into 2, positive results if the score is between 9-12 and negative results if the score is between 3-8. In the table of 2x2, global categorisation includes A. SORROW (miserable): Acceptance (-) and Obedience (-). B. GUIDANCE (guidance): Acceptance (+) and Obedience (-). C. REVIVE (up): Acceptance (-) and Obedience (+). D. NIRVANA (full of meaning): Acceptance (+) and Obedience (+). This questionnaire was adapted from Psychospiritual Health Care (*Buku Pendamping Panduan Dakwah Rumah Sakit Muhammadiyah – Aisyiyah*). The validity and reliability of the data have been tested.

Adherence to type 2 DM patients was measured using the Diabetes Self-Care Activity Summary Questionnaire. Measurements are based on individual dimensions such as diet, special diet, physical activity, blood sugar check, foot care, and medication. The calculation was done by calculating the average number of days per week on a scale of 0-7, adding the number of days, and then dividing by the number of items. The higher the average score, the better the patient performs self-care, so it can be said that the patient is more obedient in self-care. The adherence category was divided into moderately high, high, moderate, poor, and very poor. This questionnaire has been tested for the validity and reliability of the data.

Data collection

This study was conducted within the period of 2 months, from May to June 2021, after obtaining study ethics and permits.

Data Analysis

The data used in this study was primary. Furthermore, the data were analysed using SPSS

15 program. A univariate analysis was used to determine the description of respondents, while a bivariate analysis was carried out using Spearman's correlation to determine the correlation between spirituality scores and adherence scores. In addition, categorical data were analysed using the Somers' D test to determine the relationship between spirituality and adherence. The relationship considered statistically significance if p-value < 0.05.

Ethical consideration

Approval Ethic was from the Health Research Ethics Committee of the Faculty of Medicine and Health Science, Universitas Muhammadiyah Yogyakarta. Written informed consent was obtained from all subjects. Interviews and data collection were carried out by trained medical schools and nurses.

RESULTS

There were 40 respondents, divided into 40 women and 30 men. Characteristic of respondent based on gender, age, and glucose level was demonstrated in Table 1.

Table 1. Characteristic of respondents

Characteristic	n	%
Gender		
Male	30	57.1
Female	40	42.9
Age		
31 – 40 years	2	2.85
41 – 50 years	14	20.00
51 – 60 years	27	38.57
61 – 70 years	24	34.29
71 – 80 years	3	4.29
Total	70	100.0
Glucose Level (Mean±SD)	9.25±2.44	

Table 2. Respondents' level of acceptance

Acceptance category	n	%
Positive	58	82.90
Negative	12	17.10
Total	70	100.0

Table 2 demonstrates the respondents' level of acceptance. Tables 3, 4, and 5 demonstrate respondents' spirituality based on the HHC questionnaire. Most respondents had positive acceptance that 58 people (82.90%), but 12 people (17.10%) had negative acceptance. Fifty-one respondents were positive obedient (72.90%) and 19 negative obedient (17.10%).

The respondents' spirituality category was the sorrow category for as many as 9 people (12.90%), the guide category for 10 people (14.30%), revive category for 3 people (4.30%), and the nirvana category for 48 people (68.60%). Based on the SDSCA questionnaire, the level of adherence is shown in Table 5.

Table 3. Respondents' obedient

Obedient Category	n	%
Positive	51	72.90
Negative	19	27.10
Total	70	100.0

Table 4. Spirituality category of respondents

Spirituality Category	n	%
Sorrow	9	12.9
Guide	10	14.3
Revive	3	4.3
Nirvana	48	68.6
Total	70	100.0

Table 5. The level of respondents' adherence

Adherence level	n	%
Extremely poor	9	12.9
Poor	7	10.0
Moderate	14	20.0
High	9	12.9
Extremely high	31	44.2
Total	70	100

The respondents' adherence levels were as follows: 9 people (12.9%) had extremely poor, 7 people (10.0%) had poor, 14 people (20.0%) had moderate, 9 people (12.9%) had high, and 31 people (44.3%) had extremely high categories. The correlation between spirituality from the aspect of acceptance, obedience, and overall patient adherence levels can be seen in Table 6.

Based on the Somers' D test, it was demonstrated that there was no correlation

between acceptance scores and patient adherence levels, with $r = 0.185$ and $p\text{-value} = 0.299$. The correlation analysis between obedient score and patient adherence level resulted in a significant correlation with $r = 0.34$ and $p\text{-value} = 0.021$. Furthermore, the correlation analysis between total spirituality categories and patients' adherence resulted in a significant correlation with $r = 0.262$ and $p\text{-value} = 0.035$ (Table 6).

Table 6. The correlation between acceptance, obedient, and spirituality categories with adherence level among type 2 DM patients

	Adherence level					Total	p
	Extremely poor	Poor	Medium	High	Extremely high		
Acceptance							
+	7(10.0%)	5(7,1%)	11(15,7%)	8(11,4%)	27(38,6%)	58(82,9%)	0.299
-	2(2,9%)	2(2,9%)	3(4,3%)	1(1,4%)	4(5,7%)	12(17,1%)	
Obedient							
+	5(7,1%)	4(5,7%)	8(11,4%)	8(11,4%)	26(37,1%)	51(72,9%)	0.021
-	4(5,7%)	3(4,3%)	6(8,6%)	1(1,4%)	5(7,1%)	19(27,1%)	
Spirituality							
Sorrow	2(2,9%)	1(1,4%)	3(4,3%)	1(1,4%)	2(2,9%)	9(12,9%)	0.035
Guide	2(2,9%)	2(2,9%)	3(4,3%)	0(0%)	3(4,3%)	10(14,3%)	
Revive	0(0%)	1(1,4%)	0(0%)	0(0%)	2(2,9%)	3(4,3%)	
Nirvana	5(7,1%)	3(4,3%)	8(11,4%)	8(11,4%)	24(34,3%)	48(68,6%)	
Total	9(12,9%)	7(10,0%)	14(20,0%)	9(12,9%)	31(44,3%)	70(100%)	

DISCUSSION

Acceptance of illness is very important because acceptance is the initial step to making further efforts. It is in line with the study which reported that acceptance is an important step in overcoming distress.¹¹ Also, the RCT study by Gregg, *et al.* in 2007 proved the effectiveness of the "acceptance" intervention for DM patients in improving DM self-management and decreasing HbA1c levels.¹² Those two studies are contrary to this study.

This study found no relationship between acceptance and adherence in type 2 DM patients. This study is in line with Vanessa, *et al.* in 2018, which reported no relationship between self-acceptance and self-management of diabetes mellitus in Prolanis participants.¹³ However, this finding differs from Fitriani and Muflihin's study in 2020 that reports a relationship between self-acceptance and self-management among DM patients.¹⁴ The difference comes from the high acceptance of self-personality, not religiosity.

The findings in this study indicate that acceptance from a spirituality/religious perspective does not change behaviour. Subjects who had negative adherence were 27.1%. Obedience in implementing worship can be assessed as a reflection of one's commitment.

Type 2 DM patients require a high commitment to the pain management process. Therapeutic commitment is also an important foundation in managing distress.¹¹

The current study demonstrated a weak correlation between overall spirituality and obedience ($r = 0.262$, $p = 0.035$). These results are in accordance with the study conducted by Fitri in 2021, which reported a relationship between spirituality and self-management adherence among type 2 diabetes patients. The weak correlation caused by the acceptance aspect has not contributed to patient adherence ($r = 0.185$, the value of $p = 0.299$), which different from the obedient aspect ($r = 0.34$, p -value = 0.021).¹⁵

This study found a significant correlation between obedience and adherence levels. This result is in line with Heidari, *et al.*, which suggests a positive correlation between ritual activities and self-care for DM patients.¹⁶ In Choi & Hasting's study, spirituality and spiritual practice positively influenced the management of type 2 diabetes in terms of follow-up care, general health, and overall well-being.¹⁷ Although this study has a weak correlation, that indicates that the obedience of Muslim worship is not only manifested in special worship but has an

impact on general worship, namely adherence in the management of DM patients. This weak correlation indicates the need to strengthen the meaning and value of general worship.¹⁸ Ritual worship aims to strengthen character and self-discipline in its role as a human.¹⁹

It was also found that the category of spirituality was not optimal, sorrow (12.90%), guide (14.30%) and revive (4.30%). For patients with the "sorrow" category, interventions are needed in the form of relaxation, developing patient self-awareness by psychologists, religious guidance, prayer motivation and religious deepening by spiritual development officers. The "guide" category needs to be given intervention in the form of worship guidance, prayer motivation, and religious deepening by spiritual development officers. "Revive" category: intervention is needed in the form of relaxation and development of self-awareness by a psychologist. While the category of "nirvana": needs to be given motivation and spiritual strengthening.⁹

According to Latchman's study, spiritual belief has an important role in facing chronic illness, one of which is dealing with DM. Spiritual needs are supposed to be the basic needs of every human being.²⁰ Understanding and applying the spiritual in the patient's daily life increases the ability to face the disease.⁹ A systematic review also has demonstrated evidence of the important role of spirituality/religiosity in managing DM.²¹

DM therapeutic management takes a long time, so it requires behaviour change. It is aimed to increase the level of adherence among DM patients. Adherence in DM patients will impact blood sugar levels within normal limits.²² According to Damayanti, spirituality is the highest commitment and the strongest principle in an individual towards the choices made in his life, and then spirituality will increase self-efficacy.

Self-efficacy is an assessment, belief or confidence to perform certain tasks and organise and carry out a program of actions needed to achieve the desired goals. Self-efficacy is an important determinant of healthy behaviour

and adherence to treatment regimens.²³

CONCLUSION

There is a significant correlation between the obedient aspect of spirituality and the level of adherence of type 2 DM patients. It is necessary to review the aspects of spirituality/religiosity in type 2 DM patients in an integrated manner. The holistic management of type 2 DM patients will support the success of therapy and the value of blessing.

CONFLICT OF INTEREST

None declared.

ACKNOWLEDGEMENT

The authors thank to PKU Muhammadiyah Gamping Hospital for the study area and data provider.

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