

Correlation between Spirituality and Coping Strategy in Patients with Type 2 Diabetes Mellitus

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Keywords: Type 2 Diabetes Mellitus, Spirituality, Coping strategy.

Abstract: Patients with type 2 Diabetes Mellitus (DM) experience changes related to self-care management. This condition can lead to a negative psychological reaction such as stress. People deal with stress depending on their coping strategy. One of the factors affecting coping strategy is spirituality. This study aimed to analyse the correlation between spirituality and coping strategy in type 2 DM patients. This research applied an observational analytic design with cross-sectional approach. A total of 84 respondents were enrolled in this study by using consecutive sampling technique. Data collection was conducted by administering questionnaires of Daily Spiritual Experience Scale (DSES) and Cope Inventory. Data were analysed by using Spearman correlation test with significance level of 0.05. The result showed that the mean value of spirituality was 70.25 and coping strategy was 75.88. There was a significant positive correlation between spirituality and coping strategy (p-value: 0.001; r: 0.616). The correlation is strong and positive which means the higher the level of spirituality the better the coping strategy. This study suggests the importance of assessing the aspect of spirituality to optimize coping strategy in patients with type 2 DM.

1 INTRODUCTION

Diabetes Mellitus (DM) is one of the world's health problems with an increasing prevalence every year. The global prevalence of DM was 8.8% in 2015 and it is predicted to increase to 10.4% in 2040. Adult people with diabetes will rise from 405 million people in 2015 to 642 million people by 2040. In 2015 Indonesia ranked seventh of the top ten countries with the highest number of adults with diabetes in the world. The number of adult people with DM in Indonesia was 10 million people by 2015 and it is estimated to reach 16.2 million by 2040 (International Diabetes Federation, 2015). The prevalence of DM increased from 1.1% in 2007 to 2.1% in 2013 (Indonesia Ministry of Health, 2013).

Diabetes causes lifestyle changes and complications that negatively affect the health and social life of the patients (Young and Unachukwu, 2012). DM also results in a negative psychological response or emotional disorders such as stress, anxiety, and depression (Chew, Ghazali and Fernandez, 2014). When a person is diagnosed with DM, they should adopt an adaptive coping strategy immediately in order to perform proper therapeutic management. However in reality, not all of DM patients have an adaptive coping strategy (Saputra *et*

al., 2017). A study of 201 patients with type 2 diabetes showed a maladaptive coping strategy that focused on emotions (17.9%) and avoidance (72.1%) (Moasheri *et al.*, 2017).

Coping skill is important in the management of diabetes because effective coping improves self-management, better blood sugar control, and decreases complications (Grey, 2000). One of the factors that influence coping is spirituality belief (Stuart, 2013). Spirituality is mentioned as a process of discovering the meaning and purpose of one's life by relying on God, the relationship to the universe, and peace (Graham *et al.*, 2001). Research of spirituality in 200 persons with DM resulted in 86 people (43%) had moderate spirituality and 114 people (57%) had high spirituality (Zareipour *et al.*, 2016).

Spirituality is used as a source of emotional support, a positive influence on health and a role in life satisfaction (Samuelhodge *et al.*, 2000). Spirituality becomes a source for better problem solving and self-adaptation. Faith and religion are used to accept the reality of the disease, to manage conditions patiently and tolerantly, to hope calmly, and to be confident for a good future (Shahrbabaki *et al.*, 2017). The practice and belief of spirituality

become a coping mechanism that can relieve physiological and psychological stress such as pain and helplessness (Harvey and Silverman, 2013). The more important the spirituality for an individual the greater the individual's coping ability towards the problem (Graham *et al.*, 2001). Spirituality plays an important role in one's central life in facing challenges by prioritizing strength and hope (Gupta and Anandarajah, 2013). Spiritual factor contributes positive activity to behavioural changes and individual motivations that impact on lifestyle changes in achieving blood glucose control (Wibisono, 2012).

Public Health Center (PHC) of Jenggawah ranked sixth in terms of the highest number of DM patient visit in 2016 of all PHC in Jember Regency. Preliminary study on 10 patients with type 2 diabetes in the area of PHC of Jenggawah showed an average value of spirituality of 59.7 from the maximum value of 90. The average value of coping strategy was 60.8 from the maximum value of 112. Three people who had spirituality in high category said that they did not feel worried and they did not obedient in doing a healthy lifestyle such as diet. The reason they did not follow the recommended diet because they think the fate has been determined by God and healthy or illness is destiny from God. Seven people who had spirituality in moderate category said that even though they had performed worship activities but sometimes they feel worried and afraid of the illness. They said that the illness is the result of their own mistakes for not taking care of their health in the past, however, they said they are living with the spirit and they do not forget to pray. Based on this background, this research was conducted to analyse the correlation between spirituality and coping strategy in type 2 DM patients.

2 METHODS

This study was a quantitative, observational analytic study with cross-sectional approach. The independent variable was spirituality and the dependent variable was coping strategy. The population of this study was all of type 2 DM patients recorded in PHC of Jenggawah Jember from January 2016 until September 2017; that was 295 people. The sample was determined by G* Power 3 application (α error probability: 0.05, power (1- β error probability): 0.80, effect size: 0.30) and obtained a sample of 84. Consecutive sampling technique was applied in this study. The sample was determined based on the order of names of type 2

diabetes patients recorded at PHC of Jenggawah from January until September 2017. The inclusion criteria included patients who have been diagnosed with type 2 DM for at least 3 months, able to communicate well, and willing to participate. The exclusion criteria were patients who have severe physical disorders or conditions that are not possible to participate in the research, have physical limitations such as blindness or deafness, have severe mental disorders such as Alzheimer's or dementia assessed by Mini-Mental State Examination (MMSE).

Spirituality was assessed by using Daily Spiritual Experience Scale (DSES) questionnaire ((Underwood, 2006); (Underwood and Teresi, 2002)). Face validity test of Indonesian translation of DSES in 20 DM patients showed that all of the respondents could easily and did not have difficulties when filling DSES questionnaire (Mu'in and Wijayanti, 2015). The value of Cronbach's Alpha of Indonesian translated DSES was 0.79 (Karomah, 2015). The minimum score of spirituality is 15 and the maximum score is 90. The minimum value for each indicator is 1 and the maximum value is 6. Coping strategy was measured using Cope Inventory questionnaire ((Carver, Scheier and Weintraub, 1989); (Rahmaturrizqi, 2012)). Indonesian translated questionnaire has been tested for its validity and reliability and it showed a value of 0.791 (Rahmaturrizqi, 2012). The minimum score of coping strategy is 28 and the maximum score is 112. The minimum score for each indicator is 1 and the maximum score is 4.

Data collection was conducted in December 2017. The researcher visited each respondent's house based on the name and address of patients recorded at PHC of Jenggawah. Respondents who agreed to participate in this study were asked to sign the consent. This research was conducted after obtaining approval from Research Institute of University of Jember (No: 7003/UN25.3.1/LT/2017), Department of Political Unity for the Protection of the Public (No: 072/4530415/2017), and the District National Health Department (No: 440/54136/311/2017).

Univariate analysis was performed to describe the respondent characteristic, spirituality, and coping strategy. Spirituality was categorized as follows: low (score 15-40), moderate (score 41-65), and high (score 66-90). Before conducting bivariate analysis, Kolmogorov Smirnov was used to test the normality of the data. Based on the result of normality test, data were analyzed by Spearman correlation test with significance level of 0.05.

3 RESULTS

3.1 Characteristics of Respondents

Table 1 reveals that the average age of respondents was 54.38 years old. The mean of diabetes duration was 3.92 years. All of the respondents were Moslem. The number of female (63.1%) was more than male (36.9%). The last education level of most respondents was an elementary school (35.7%). All of respondents were married. Most of the respondents were still working (88.1%).

3.2 Spirituality

Table 2 indicates that the average value of spirituality was 70.25. The minimum value was 61 and the maximum value was 81. The indicator of spirituality that had the highest value was the presence of God and indicator with the lowest value was accepting others. Table 3 shows that majority of respondents had spirituality in high category (83.3%). Table 4 described that nearly three-quarters of respondents stated that they felt very close to God.

Table 1: Characteristic of type 2 DM patients (n: 84).

Characteristic	Mean	SD
Age	54.38	7.24
Diabetes Duration	3.92	2.32
	n	%
Religion Moslem	84	100
Gender		
Male	31	36.9
Female	53	63.1
Education Level		
None	8	9.5
Elementary	30	35.7
School	22	26.2
Junior High	21	25
School High	3	3.6
Senior High		
School		
University		
Marital status		
Single	0	0
Married	84	100
Employment status		
Employed	74	88.1
Unemployed	10	11.9

Table 2: Mean value of spirituality in type 2 DM patients (n: 84).

Variable	Mean	Median	Min-max
Spirituality	70.25	71	61-81
Indicator of Spirituality			
God's presence	5.33	5	3-6
Connection to all life	4.62	5	3-6
Joy connecting with God	4.87	5	3-6
Strenght in religion/spirituaity	4.71	5	3-6
Comfort in religion/spirituaity	4.70	5	3-6
Deep inner peace	4.67	5	4-6
Ask for God's help	4.67	5	3-6
Guided by God	4.74	5	3-6
Feeling God's love directly	4.58	5	3-6
Feeling God's love through others	4.58	5	3-6
Touched by the beauty of God's creation	4.46	5	3-6
thankful for blessings	4.56	5	3-6
Selfless caring	4.30	4	3-6
Aaccept others	4.20	4	3-6
Desire to be closer or in union with God	4.80	5	3-6

Table 3: Distribution of Spirituality Levels in Type 2 DM patients (n: 84).

Spirituality level	n	%
Low	0	0
Moderate	14	16,7
High	70	83,3

Table 4: Feeling of Closeness to God in type 2 DM patients(n: 84).

Closeness to God	n	%
Not close at all	0	0
Somewhat close	15	17.9
Very close	61	72.6
As close as possible	8	9.5

3.3 Coping Strategy

Table 5 shows the average value of coping strategy was 75.88 with a standard deviation of 6.19. The indicator of coping strategy that had the highest value was religious coping and indicator with the lowest value was the use of emotional support.

Table 5 : Mean value of coping strategy in type 2 DM patients (n: 84).

Variable	Mean	SD
Coping strategy	75.88	6.19
Indicator of Coping		
Self-diversion	2.68	0.53
Active coping	3.01	0.37
Use of help	2.60	0.43
Planning	3.10	0.39
Acceptance	2.68	0.41
Religious coping	3.11	0.40
Humor	2.70	0.65
Positive reinterpretation	2.95	0.34
Denial	2.63	0.43
Substance use	2.85	0.42
Use of emotional support	2,14	0.40
Helplessness	2.51	0.67
Disengagement	2.43	0.75
Self-blame	2.25	0.70

Table 6: Correlation between spirituality and coping strategy in type 2 DM patients (n=84) .

Variable	Coping strategy	
	Spirituality	r
	p value	0.001

3.4 Correlation between Spirituality and Coping Strategy in Type 2 DM Patents

Table 6 shows that Spearman rank correlation test obtained a p-value of 0.001 and r-value of 0.616. It indicates a significant positive correlation between spirituality and coping strategy which means the higher the spirituality the better the coping strategy.

4 DISCUSSION

4.1 Spirituality

The result shows that the average value of spirituality was 70.25 and majority of respondents had spirituality in high category (83.3%). Along with the stage of individual development, it will be followed by the development of spirituality that begins from infants to the elderly (Carson and Koenig, 2008). The stage of development has a close relationship with physical growth and individual spirituality. When entering the age of an adult,

individuals will experience spiritual maturity (Jalaluddin, 2015). The average age of respondents in this study was 54.38 years. This age included in the age of adulthood so that the spirituality develops better along with the increasing age.

Another factor that can affect spirituality is cultural background. In general, individuals will follow the spiritual and religious traditions performed by each family. Traditions can include prayer or other activities related to religion (Hamid, 2008). The results showed the value of spirituality in this study was high, it can be related with traditions to perform obligations in Islamic religious culture such as praying and following other religious activities.

Another factor affecting spirituality is crisis and change (Hamid, 2008). Diabetes is one of the chronic diseases that affect the changes in a person. Spirituality affects the way patients deal with the complications of illness as a mediating factor when adapting to overcome the challenge of change (Baby and Khan, 2015). When an individual faced with death they will have spiritual beliefs as well as a desire in worship and more praying (Hamid, 2008). This factor allows diabetic patients in this study to experience spiritual improvement.

This study shows the indicator of spirituality that has the highest value is the presence of God. This is indicated by the statement "I feel God's presence". In these conditions, respondents feel the presence of God and assert that they are not alone (Underwood, 2006). In addition, the result also indicates that almost three-quarters of respondents stated that they felt very close to God. Spending time with God and awareness of the presence of God will be able to change the perspective of the individual in facing a challenge and consider the difficulty as a trial (Girardot, 2010). The presence of God is a spiritual experience that is used as a lesson to promote a more conducive awareness (Pretorius, 2008).

The indicator of spirituality with the lowest value was accepting others. Accepting others is a feeling of mercy and acceptance of others even when making mistakes (Underwood, 2006). This is shown by the statement "I accept others even when they do things that I think are wrong". Research in diabetes patients revealed a lower value of the dimensions of relationship with others than the religious dimension (Baby and Khan, 2015). Relationships between others can arise from the desire of appreciation and respect for others, the desire to do good things, the need for justice, and the fear of feeling lonely (Ningrum, 2014).

4.2 Coping Strategy

The results showed that the average value of coping strategy is 75.88. In general, a person's experience will be able to increase his role in solving problems and become more capable in overcoming encountered difficulties. As getting older, someone will be faced with many problems. Through this process, an individual can understand the type of coping strategies that are less effective or effective and can achieve its goals in various situations (Aldwin, 1991). A study mentioned that DM patients with the age group of 50 to 69 years are more actively motivated to overcome the problem so that the ability to cope will be better (Hara *et al.*, 2014). The average age of respondents in this study was 54.38 years which included in the group of age that have an active motivation to overcome problems.

There were more women than men in this study. Gender has an influence on a person in overcoming illness, stress, and the use of coping in solving health problems (Yeh *et al.*, 2009). Women reported using more adaptive coping than men (Gentry *et al.*, 2007). Women have more adaptive coping than men because women connect more with belief as the control in dealing with stress (Kelly *et al.*, 2007). Another factor that may affect the coping of respondents is the marital status in which all the respondents in this study are married. DM patients who have good family support will have better coping (Saltzman and Holahan, 2002).

The indicator of coping strategy that has the highest score in this research is religious coping. This value was obtained from the respondent's answer in the statement "after I was diagnosed with diabetes mellitus, I am getting closer to God" and "I do not forget to pray for my recovery". Individuals use religious coping when they are under pressure for various reasons. In this context, religion works as a source of emotional support, media of reinterpretation, and active coping with stressors (Carver, Scheier and Weintraub, 1989). Religious coping is manifested by individual efforts to find spiritual or religious beliefs such as meditation and prayer (Carver, 1997).

Religious beliefs and practices play a role in giving a better sense of control, hope, and adaptation. Common practices such as prayer are the most common forms of coping strategies used in religion (Malhotra and Thapa, 2015). Type 2 diabetes patients use religious coping to manage and understand the disease. This is significantly related to their level of involvement in glucose control activities (Fincham, Seibert and May, 2017).

The indicator of coping strategy that has the lowest score in this research is the use of emotional support. This score was obtained from the answer to the statement "when I was diagnosed with diabetes mellitus I received support from my family" and "although I have diabetes mellitus I gain comfort and acceptance in my family". Similar results also suggest that DM patients in Turkey use lower emotional support (Tuncay, Musabak and Kutlu, 2018). The use of emotional support is manifested by activities such as talking to others about feelings, trying to gain support from friends or relatives, discussing feelings with others, and gaining the sympathy and understanding of others (Carver, Scheier and Weintraub, 1989). Support from family affects the health of DM patients. Unsupportive behavior is associated with poor treatment, one of which is characterized by poor glucose control. Diabetic patients need emotional support as a support system in order to develop an adaptive coping. DM patients who do not get support from family members will have an impact on the patient's non-compliance with DM treatment (Mayberry and Osborn, 2012).

4.3 Correlation between Spirituality and Coping Strategy

The result reveals a significant positive correlation between spirituality and coping strategy in patients with type 2 DM. This indicates that the higher the spirituality of patients the better the coping strategy. Patients with type 2 diabetes look for meaning in their diagnosis. They assume that illness is a trial from God that is similar to the other problems they face during life. They think that they should be patient and tolerant of this God-given test. Spirituality gives meaning to disease and increases coping in overcoming stress caused by the diagnosis of DM. Patients with type 2 DM become more oriented to spirituality after diagnosis of the disease. They consider spirituality as a powerful source to overcome the illness. Spirituality can make patients more focused, strong, dynamic and help them in overcoming the problem of the disease (Aghamohammadi, 2017). Spirituality can help humans in searching for meaning and purpose in life to gain hope, love, inner peace, comfort and support (Saad and Medeiros, 2012).

Coping strategy can be done through practice and belief as part of spirituality. Spirituality is also integrated into reasoning and problem-solving techniques through an approach that serves as a coping strategy for managing disease and reducing

potential stress such as pain and helplessness (Harvey, 2008). Spiritual needs are assessed in the context of health such as finding meaning and purpose in life and recognizing the importance of good relationships with others, transcendent strength and the natural environment (Greenstreet, 2006). Spiritual factors contribute positive activity to behavioral changes and individual motivations that impact on lifestyle changes in achieving blood glucose control (Wibisono, 2012). Controlled blood glucose levels will prevent further complications of DM (Kurniawan, 2010).

Awareness of the positive meaning gained from every situation and the awareness of God's power indicates that the individual has good spiritual integrity. This awareness makes a stable emotional state and a symbol of positive behavior. Good emotional state has a negative correlation with depression, anxiety, and other psychological distress due to health problems (Newlin *et al.*, 2003).

DM patients mentioned that they ultimately decided to make efforts to improve behavior due to consciousness from a religious point of view. Patients stated that the motivation of worship made them aware and tried to improve their lifestyle (Wibisono, 2012). DM patients who were desperate and did not care about their diet changed after reading the warning from the holy book (Salehi, Ghodousi and Ojaghloo, 2012). There is a negative relationship between belief in God, religious guidance and the power of prayer with the incidence of depression. This indicates that spiritual influence changes in motivation and behavior of patients (Doolittle and Farrell, 2004).

The belief systems and religious beliefs play an important role in spiritual development. Patients with type 2 diabetes believe that sickness and health are God's will. Based on religious tradition, God loves His creation, therefore, people must be patient when facing the problem including the disease. Spiritual belief can affect mental and physical balance in DM patients (Aghamohammadi, 2017). Spiritual practices such as prayer and visiting places of worship can provide coping support in self-management (Polzer and Miles, 2005). Patients who are obedient to faith have good welfare and show more positive coping strategy (Dehning *et al.*, no date). Adaptive coping can improve glucose control and prevent complications (Turan *et al.*, 2002).

5 CONCLUSIONS

There is a significant positive correlation between spirituality and coping strategy in patients with type 2 DM. The higher the spirituality of patients the better the coping strategy. Assessing spiritual aspect of patients and adding spiritual approach in caring DM patients is required to optimize the coping strategy of type 2 DM patients.

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