Enhancing Self-Care Behaviors in the Ponorogo Diabetic Community: The Effectiveness of Islamic Spiritual Classes

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Abstract. The incidence of Diabetes Mellitus in Indonesia is increasing, one of the causes is associated with inadequate self-care. One effort that can be made to improve diabetes self-care is a diabetes class which is expected to provide adequate information on controlling diabetes. This research aims to determine the effectiveness of the "Diabetes Islamic Spiritual Class" on self-care behavior in the community of Diabetes Mellitus sufferers in Ponorogo. This research method is quasi-experimental research using a pre and post-test design approach. The research involved 180 respondents who were confirmed to be suffering from Type 2 Diabetes Mellitus who were registered as participants in the Chronic Disease Management Program (Prolanis) in Pororogo district. Respondents were divided into two groups, namely the intervention group and the control group (90 respondents each). The research sample was determined using purposive sampling technique. The intervention group was given three intervention sessions in a "Diabetes Islamic Spiritual Class". The measuring tool uses the Summary Diabetes Self-care Activity (SDSCA) questionnaire. The results of the ANOVA test showed that there was a significant difference in the mean scores of each self-care group. The intervention group had significantly higher scores than the control group. This research concludes that the "Diabetes Islamic Spiritual Class" is effective in improving self-care for Type 2 Diabetes Mellitus patients.

Keywords: Self-Care Behaviors, Islamic Spiritual Classes, Diabetes Mellitus patients.

1   Introduction

Diabetes Mellitus (DM) is a metabolic disorder that causes hyperglycemia due to defects in insulin secretion, insulin action, or both [1]. This disease has become a global health issue. The incidence and prevalence of this disease are increasing, particularly in developing countries and those adopting an industrialization culture [2].

According to the Global Diabetes Report (2016), DM killed 1.5 million people in 2012. This illness was responsible for 2.2 million deaths due to an increased risk of cardiovascular and other diseases, for a total of 3.7 million deaths, with 43% dying before the age of 70 [3]. The International Diabetes Federation reported an increase in

cases of DM worldwide between 2013 and 2017. In 2013, approximately 382 million cases of DM were identified, and this figure rose to 415 million cases in 2015 [4,5,6].

It was recorded that the global prevalence rate of people with DM in Southeast Asia in 2017 was 8.5%. This figure is estimated to increase 11.1% in 2045, in which Indonesia ranks 6th after Brazil, China, India, Mexico, and the United States with 10.3 million people with diabetes mellitus [6]. Most cases of the DM in Indonesia are type 2 DM, which reached 90%, and the country is estimated to have 21.3 million people with DM by 2030 [7]. Meanwhile, based on data from the Basic Health Research (Riset Kesehatan Dasar/Riskesdas) of East Java in 2019, 605,974 (2.1%) cases were identified, making the province ranked 5th in Indonesia.

According to the Sample Registration Survey data in 2014, DM is the third leading cause of death in Indonesia, accounting for 6.7% of all deaths, trailing only coronary heart disease (12.9%) and stroke (21.1%). If left untreated, this condition can result in decreased productivity, disability, and death. Patients with this disease are varied in terms of age: less than <40 years old (1,671,000 people), 40 to 59 years old (4,651,000 people), and 60 to 79 years old (2,000,000 people) [7]. A person over the age of 40 is at a high risk of developing type 2 diabetes. This is because insulin resistance in type 2 DM tends to increase in the elderly (aged 40-65 years), in addition to a history of obesity and heredity [8].

DM is generally classified into two types: Type 1, which is caused by heredity; and Type 2, which is attributed to lifestyle. Around 90-95% of diabetic patients are those with Type 2 DM. Type 1 DM is Insulin-Dependent Diabetes Mellitus (IDDM), in which pancreatic beta cells normally produce the insulin hormone, which is then destroyed by an autoimmune process [9]. Conversely, Type 2 diabetes, commonly referred to as non-insulin dependent diabetes mellitus (NIDDM), is brought on by a reduction in the amount of insulin produced or a decline in insulin sensitivity, also known as insulin resistance. Obesity and an unhealthy lifestyle are the key contributing factors, which can be addressed with diet and consistent exercise [10].

DM patients tend to experience hyperglycemia which will cause complications. These complications are classified as microvascular and macrovascular. Microvascular complications include retinopathy (eye), nephropathy (kidney), and dermopathy (skin) while macrovascular complications include heart disease, myocardial infarction, stroke, hypertension, neuropathy, and vascular disease [11].

Researchers perceive many factors that cause the incidence of Type 2 DM, which is still high in Indonesia. One of them is a lack of self-care. Type 2 Diabetes Mellitus as a chronic disease requires self-care in managing the disease. The American Association of Diabetes Educators (AADE) and the American Diabetes Association (ADA) emphasize that self-care behavior for people with type 2 Diabetes Mellitus is the most important part of Diabetes Mellitus care [1]. Self-care for people with type 2 Diabetes Mellitus is a person's ability to carry out self-care to meet their basic needs and maintain their health which is influenced by various factors [12].

Self-care is one of the most important components of the remedial process and control of type 2 DM, and many sufferers face challenges to accomplish their goals [13]. Various studies reported the low self-care level of type 2 DM patients in Indonesia. Natalansyah's and Mansyah's research at the Internal Medicine Department of Regional

Public Service Agency (Badan Layanan Umum Daerah/BLUD) of RSUD dr. Doris Sylvanus Palangkaraya, Central Kalimantan, recorded that out of 35 respondents, 23 (66%) had poor self-care and 12 (34%) had good self-care [14]. Meanwhile, the research of Putra et al (2020) at the Bayongbong Public Health Center, Garut Regency, West Java, reported that from 39 samples, 21 (70%) patients had poor self-care while 9 (30%) patients demonstrated good self-care [15]. The results of the research by Rumbay T.G, et al (2021) regarding self-care of patients with DM in the Batu Public Health Center Work Area, South Likupang Sub-district showed that 19 (37.26%) fell into the poor category, while 30 (58.8%) people fell into the moderate category and 2 (3.9%) people the good category [16]. Alfianto et al (2022) researched the people's self-care levels in the working area of the Bantur, Pamotan, and Pakis Health Centers, Malang Regency, East Java, and concluded that from 149 respondents, 82 (55%) respondents had poor self-care and 67 (45%) respondents had a self-care [17].

DM patients need proper medication. The management of Type 2 DM in Indonesia still refers to the 5 pillars according to WHO: 1) education, 2) diet planning, 3) physical exercise, 4) pharmacological intervention, and 5) blood sugar examination, only emphasizing the biological, psychological, and social aspects. DM medications specifically directed to improve the spiritual aspect of patients have not been given attention.

DM affects a sufferer's life, including the biological, psychological, social, and spiritual dimensions. However, the spiritual dimension has not become the main focus. This dimension is related to belief in several things such as nature, science, religion, or a higher power, that help humans achieve life goals, including morals, values, and ethics that a person has [18]. Spirituality generally produces peacefulness so that a person can indirectly cope with problems. In some chronic diseases such as DM, it has been identified that the disease cannot be controlled naturally so patients need to use spiritual coping [19]. Chronic patients need spiritual well-being to be able to improve both physical and psychosocial coping [20].

Diabetes mellitus disrupts the patient's life not only in their biological dimension, but also their psychological, social and spiritual dimensions. So far, the spiritual dimension has not been a major concern, but this dimension is very important to note. This dimension is related to beliefs in some respects like, nature, science, religion or a higher power that might help humans achieve their goals of life including morals, values and ethics [18]. In general, spirituality generates a feeling of peace, so it can indirectly overcome the coping focused on problem. In some chronic diseases such as diabetes mellitus, a fact indicates that the disease cannot be naturally controlled, so patients use spiritual coping (Carver, 2011), chronic patients need spiritual welfare as a requirement of coping both physically and psychosocial [20].

Researchers consider that treatment of type 2 Diabetes Mellitus must be carried out comprehensively, emphasizing all existing aspects, namely biological, psychological, social and spiritual aspects. Therefore, in this study, researchers developed the idea of providing a "diabetes spiritual class" to type 2 Diabetes Mellitus patients. The aim of this Islamic spiritual guidance is to provide spiritual support and motivation to patients and foster an adaptive spiritual response, providing knowledge and understanding of pain from their perspective. Islam, and how to behave correctly when sick according to Islam. Apart from that, Islamic spiritual guidance aims to make patients calmer and

more patient in undergoing trials and to motivate patients to remain confident in undergoing tests from Allah SWT. With this guidance, it is hoped that patients will develop changes in thinking patterns, develop adaptive responses so that they can increase patient compliance with treatment, carry out self-care, and comply with blood glucose control, which will ultimately improve the quality of type 2 Diabetes Mellitus patients in Indonesia.

2 Methods

This study employed a nonequivalent control group pre-posttest design in a quasi-experimental research design. Patients with type 2 diabetes mellitus who were registered as participants in the Jaminan Kesehatan Nasional (JKN) comprised the study's population. Program Penggelolaan Penyakit Kronis at Ponorogo Regency. The sampling technique for this research is a non-probability technique with purposive sampling type, with a sample size of 90 for the intervention group and 90 respondents for the control group. The research sample criteria are as follows: Type 2 Diabetes Mellitus patients, willing to be research subjects, aged between 18 years to 65 years, able to read and write, Muslim, diagnosed with diabetes mellitus at least one year ago, undergoing Diabetes Mellitus treatment program (taking oral anti-diabetic medication), not suffering from mental disorders. The research instrument used was SDSCA (Summary Diabetes Self-care Activity). This research was conducted by measuring the self-care of Type 2 DM patients before intervention. Diabetes classes are given once a month and carried out for 3 months with a duration of 90 minutes per session. The material presented includes basic diabetes material, Islamic spiritual guidance and self-care efforts for diabetes mellitus. Every week patients are reminded of self-care behavior via WhatsApp or SMS messages. After administering the intervention, self-care measures were carried out for type 2 DM patients at the third and sixth months.

3 Results and Discussion

Table 1. Comparison Treatment Score Self Every Group Based on Time (Time Effect)

Comparison	Group intervention		Group control	
	MD (95% CI)	mark p	MD (95% CI)	mark p
Month 0 – Month 3	-17.67 (-18.88, -16.45)	< 0.001	-1.37 (-1.97, -0.76)	< 0.001
Month 3 – Month 6	-13.98 (-14.89, -13.07)	<0.001	-1.09 (-1.77, -0.41)	0.001
Month 0 – Month 6	-31.64 (-32.68, -30.61)	< 0.001	-2.46 (-3.06, -1.85)	< 0.001

* Size repeated deep ANOVA analysis group applied followed with comparison pair with adjusted 95% confidence intervals with Bonferroni correction; MD = average difference

Based on analysis time-effect, exists significant difference from average value in every group based on time (F = 115.74, p < 0.001). Then, comparison pair with confidence

interval adjustments done. Research result show that there is significant difference score maintenance self between comparison at month 0 and month 3, comparison between month 3 and month 6, and comparison between month 0 and month 6 in the group intervention ($p < 0.05$) as well as in groups controls ($p < 0.05$) (Table 1). As for effects intervention, group intervention owns more score tall in a way statistic significant than group controls ($p < 0.001$) regardless from time (Table 2).

Table 2. Overall mean differences score maintenance self between group interventions and groups control (Effect intervention)

Comparison	Mean difference (95% CI)	F statistic (df)	p - value *
Group intervention – Group control	16.96 (15.75, 18.18)	7897.93 (1)	<0.001

* Size repeated ANOVA analysis between groups applied.

Table 3. Comparison score maintenance self between different groups based on time (Effect treatment time)

Time	Group	Average score	95%CI
Month 0	Group intervention	19.30	18.64, 19.96
	Group control	17.50	16.84, 18.16
Month 3	Group intervention	36.97	35.90, 38.04
	Group control	18.87	17.80, 19.94
Month 6	Group intervention	50.94	49.88, 52.00
	Group control	19.96	18.90, 21.02

* Size repeated ANOVA between group analysis related with time applied.

About intra-inter analysis group, when the average for One group No overlapping overlap with appropriate confidence intervals with group otherwise, the average value is different in a way significant between group in time measurement certain (Table 3). As for assessment maintenance self, there is difference significant score between two different groups based on time (Fig. 1).
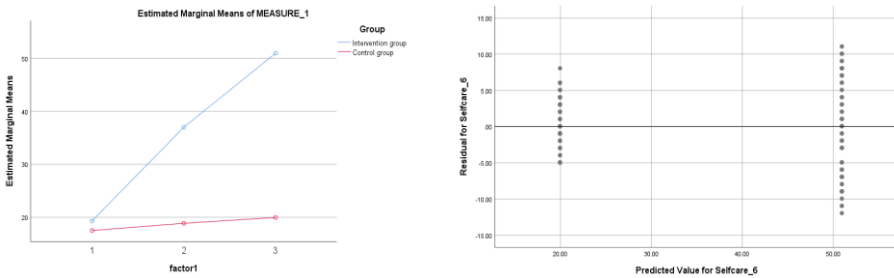

Fig. 1. The difference between group based on time

The results of the study show that Islamic spiritual intervention is effective in improving self-care among type 2 Diabetes Mellitus patients in Ponorogo Regency, East Java, Indonesia. The results of this research support previous research conducted by Widiyawati that there is an influence of Hu Care spiritual therapy (Husnul Khotimah

Care) with statistical differences in the mean results of pre-test and post-test self-care for type 2 DM patients at Nur Hidayah Hospital, Bantul Yogjakarta [21].

These results also prove that research subjects who were given Hu Care therapy (experimental group) experienced a significant increase in self-care scores than research subjects who were not given Hu Care therapy (control group). This is also in line with research conducted by Kusnanto that Spiritual-based self-management of diabetes sufferers showed differences in self-care pre-test scores in the treatment group [22].

The spirituality therapy carried out by researchers uses religious coping as a model path. The starting point for coping is that the patient is guided in his thinking so that he is able to use religion as a strategy to overcome problems. Religion is a way to maintain personal stability in the face of loss, unwanted impulses, fear of death, and guilt. Pain is one of the unwanted impulses.

According to Islam, the duty of a sick person is to make an effort and surrender to Allah SWT for his illness. Examples of forms of effort are carrying out treatment efforts, obeying the doctor's orders in the treatment process, and acting or behaving in a healthy lifestyle as a curative measure or prevention of further severity or complications. The efforts made are accompanied by submission to Allah SWT because basically Allah is the one who brings down disease and Allah is also the one who can heal.

Preventive actions or self-care activities are important actions in preventing complications that can arise from unmanaged chronic disease, such as diabetes mellitus. Self-care management is the most appropriate treatment modality for someone suffering from a chronic disease such as diabetes mellitus [23]. Self-care for diabetes mellitus patients is very important because it plays a role in controlling the disease and preventing complications [24]. According to Sigurdardottir, self-care for DM patients focuses on four aspects, namely monitoring blood glucose levels, varying the nutrients consumed every day, regulating insulin, and regular physical exercise [24].

Toobert et al. and Weinger et al. have identified specific self-care activities related to diabetes mellitus such as diet management, physical activity, foot care, adherence to medication, and self-monitoring of blood glucose in diabetes mellitus types 1 and 2 [25, 26]. Evidence shows that self-care in patients with diabetes mellitus can increase self-efficacy, help problem solving, improve health status and health behavior, reduce visits to emergency installations, and improve quality of life.

It is hoped that providing Islamic spiritual guidance will not only provide healing motivation to patients but also foster spiritual intelligence in patients. Research by Kusnanto, et al shows that type 2 DM sufferers who have high spiritual intelligence have good self-management [22]. High Spiritual Intelligence is a respondent who has high levels of patience, trust and endeavor. Good self-management is adhering to diet, OAD treatment, physical exercise, sugar monitoring, and foot care.

The present study's findings are consistent with those of Merati Fashi et al. (2016), who found that individuals with higher levels of spiritual intelligence exhibit more resilience to the stressors associated with chronic illnesses, engage in better self-care practices, and have greater control over their conditions. Research by Rahmanian, Hojat, Jahromi, et al. descriptive cross-sectional study showed a significant relationship between spiritual intelligence and good psychological sense and showed that people with high spiritual intelligence scores could tolerate more problems [28]. In order to

awaken the soul and perform good deeds and actions, a person with great spiritual intelligence, according to Zohar and Marshall, is able to understand life by assigning positive significance to every event, difficulty, and even suffering he suffers [29]. According to Saefullah spiritual intelligence is very important in human life because it will give humans the ability to differentiate good from bad, give humans a sense of morality and give humans the ability to adapt themselves to new rules [30]. Self-management, is the treatment and prevention of complications, mostly the sufferer's willingness to care for themselves in everyday life. DM sufferers are responsible for deciding what food to consume, exercise, OAD treatment, blood sugar control, foot care and adherence to a diabetes regimen to prevent complications. Every self-management process must also be followed by good individuals, in order to produce good quality self-management. Spiritual aspects can influence the self-management of someone suffering from DM.

Spiritual intelligence is the highest intelligence possessed by humans. Spiritual intelligence can control individual behavior to take action according to what is right and good. According to Islam, a person who has good spiritual intelligence will always be patient, endeavor and trust in his condition [31]. Patience is restraining the soul from complaining and anger, restraining the tongue from complaining and restraining the limbs from doing *tasywisy* (not straight), *Ikhtyar* means trying; the meaning is human efforts to fulfill the needs in life, both material, spiritual, health and future so that the goal of prosperity in this world and the hereafter is fulfilled, and *tawakkal* is submitting, relying on and entrusting to Allah SWT for everything he has done. Self-management is a form of positive activity where it is hoped that with the spiritual intelligence of DM sufferers, they can achieve good self-management so that complications can be prevented or resolved. This research shows that there is no significant relationship between the length of suffering and self-management of type 2 DM sufferers. Long-term diabetes mellitus can have psychological effects, where patients show negative attitudes in controlling diabetes mellitus such as not following the programmed diet program, lack of physical activity. and lack of adherence to treatment [32].

4   Conclusion

Based on the findings of their study, researchers in Ponorogo, East Java, Indonesia, determined that Islamic spiritual advice dramatically alters the degree of self-care among patients with Type 2 Diabetes Mellitus. The calculated t value, which is higher than the t table, and the significance value, which is less than 0.05, demonstrate this. The findings indicated that the spiritual component plays a significant impact in modifying patient behaviour. This research undoubtedly makes clear how crucial holistic nursing care—which includes spiritual care—is. In order for the results to be generalised, not only in specific places but also with a combined number of samples from various other regions picked at random, the subsequent researcher should increase the number of study samples.

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