

EDUCATION EFFECTIVENESS OF BOOKLET MEDIA IN QUALITY OF LIFE OF DIABETES MELLITUS TYPE 2 OUTPATIENTS IN ANWAR MEDIKA HOSPITAL

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EDUCATION EFFECTIVENESS OF BOOKLET METHOD IN QUALITY OF LIFE OF DIABETES MELLITUS TYPE 2 OUTPATIENTS IN ANWAR MEDIKA HOSPITAL

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Abstract

Diabetes Mellitus (DM) is a group of metabolic diseases with the characteristics of hyperglycemia that occurs due to abnormal insulin secretion, insulin action or both. There are 4 pillars in DM planning, namely education, medical, physical nutrition therapy and pharmacological therapy. DM management is expected to improve the quality of life of patients because the quality of life is the end result of each intervention so that it becomes a benchmark for the success of therapy. One improvement in the quality of life can be through providing education. The purpose of education is to support patients in increasing knowledge related to DM and improve their skills in managing DM therapy. In providing education the booklet method can help deliver information about the problem of activities. In this study using One - Group Pretest Post Test Design. This study aims to determine the quality of life before and after giving education to outpatients in Anwar Medika Hospital from November 2017 to January 2018 with a sample of 109 patients. Measurement of an increase in knowledge scores was measured by the Diabetes Quality of Life (DQOL) score which has 4 domains, namely satisfaction domain, the impact of DM concerns due to DM and physical, psychological and social concerns. Quantitative analysis carried out using the Wilcoxon signed rank test showed that there were differences in the quality of life with the significance of 0.000 ($p < 0.005$) from each domain so that in this case education could play an important role in improving quality of life.

Key words: DM type 2, Education, Booklet, and Quality of life

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INTRODUCTION

Diabetes Mellitus (DM) is a group of metabolic diseases characterized by hyperglycemia due to decreased insulin secretion, insulin action, or both¹. WHO predicts an increase in diabetes sufferers by 2-3 times in Indonesia, namely: 8.4 million sufferers in the year 2000 to 21.3 million in 2030. This is in line with the estimates of the International Diabetes Federation (IDF) which predicts an increase in DM patients in Indonesia in 2035 to reach 14.1 million². Based on the Hospital's 2012 annual report (per 31 May 2013) in East Java, the number 2 highest number of cases of outpatients in public hospitals government type B and C are type 2³. Diabetes mellitus type 2 diabetes generally occurs when lifestyle patterns and behavior have been formed. Empowerment of people with type 2 diabetes requires active participation from patients, families and the community. The health team assists patients in making healthy behavioral changes. To achieve successful behavior change, comprehensive education and efforts to increase motivation are needed. Management of poor DM can lead to a decrease in quality of life so that education needs to be given to increase patient self-management. Education can also improve the quality of life in the form of patient welfare by reducing anxiety and depression⁴. Diabetes education has been an important component of diabetes management since 1930. Education in Type 2 DM patients aims to regulate glycemic control, prevent microvascular and macrovascular complications and improve quality live by influencing knowledge, attitudes, behavior to be healthy⁵. In outpatient services, with limited time it is necessary to have a media that can assist in the implementation of education, namely booklets, early level educational material in booklets can be DM pathophysiology, blood sugar control, pharmacological interventions, non-pharmacology until management of hypoglycemia.

From the results of research conducted by Faria et al. (2012) stated that the quality of life of people with diabetes mellitus before being given education and after being given an education showed significant results ($p < 0.005$). According to Rubin and Peyrot (1999), the Quality of life is a result health that is important by itself, represents the ultimate goal of all health interventions so it is important to conduct research related to the effectiveness of education in changing the quality of life of patients with type 2 DM in Anwar Medika Hospital.

METHOD

TOOLS. In measuring the quality of life using the DQOL questionnaire that has tested the validity and reliability

METHOD

This research uses One - Pretest group - Post Test Design. The research was conducted at Anwar Medika General Hospital, Krian, Sidoarjo

A. Research Instruments

The Quality of life research instruments uses the Diabetes Quality Of Life (DQOL) questionnaire, this questionnaire has 30 questions with positive and negative questions, DQOL has 4 domains, namely satisfaction, impact of DM, worries about DM, concerns about physical, psychological and social. The questionnaire was modified by Tyas from Munoz and Thiagaraj. 6 Answers uses a Likert scale where

positive questions on satisfaction, scale: 4 = very satisfied; 3 = satisfied; 2 = not satisfied; 1 = very dissatisfied. For positive questions about the scale's impact: 1 = never; 2 = rare; 3 = often; 4 = at any time. Meanwhile for negative questions has a score, namely: 4 = never; 3 = rare; 2 = often; 1 = at any time. The validation results show $r > 0.444$ with a reliability of 0.967 in 20 patients. Category data from the quality of life questionnaires are low, medium and high ranges, by searching for mean values and standard deviations (SD) then analyzed by descriptive method. All the data were processed by SPSS program. The data scale is the ratio scale tested by t pair test if the data is normal. If data is abnormal then tested with Wilcoxon sign rank test.

Sampel

Sampling by consecutive sampling method, in this method each patient who meets the research criteria is included into the study until a certain period of time, so that the number of required patients are fulfilled. The number of samples in this study was 109 obtained from the Slovin formula because the population in this study was known, Inclusion Criteria, namely type 2 diabetes mellitus patients from November 2017 to January 2018 with an age limit of 18-60 years, able to communicate, with or without complications and be patient. Exclusion criteria were patients with type 1 diabetes mellitus, who had comorbidities that burdened type 2, pediatric and geriatric diabetes were unable to communicate. The Drop Out criteria are patients who cannot be contacted again and dead.

B. Procedure

Patients at the first meeting were given an informed concern and pre-test the DQOL questionnaire, the second, third and fourth meeting patients received education for 15 minutes with a booklet that was standardized by the National Institute of Diabetes and Digestive and Kidney Diseases. Educational materials for each meeting were different, the second meeting were given material about giving education about laboratory results related to the diagnosis of type 2 diabetes, pathophysiology of DM, knowledge of DM drugs used, management in case of hypoglycemia, the third meeting was given material about non-pharmacological therapy and the fourth meeting was given material about complications.

RESULT AND DISCUSSION

A. Demography.

Based on the table 1, it was found that most people with DM were at the age above 45 years old. This is consistent with the study of Smeltzer et al., Which states that the majority of patients with type 2 diabetes are most experienced by people 40 years old and over. This because at the age of 40 years old and above insulin retention in type 2 DM will increase in addition to the history of heredity and obesity⁷. According to the study of Gratia (2013) there is a relationship between age and incidence of type 2 DM in which at the age of > 45 years old has higher risk of developing type 2 diabetes than the age < 45 years old. The more age increases, the physiological function of the organs decreases, one of them is the endocrine system, decreased function of pancreatic beta cells to produce insulin. In addition, in older individual there is a decrease in mitochondrial activity in muscle cells by 35%.

That case is related to an increase in fat levels in the muscles by 30% and triggers insulin resistance⁸. In the sex characteristics of most type 2 DM patients are women with a percentage of 58.7%, this is in accordance with the research of Adikusuma (2010) which states women are more suffered from type 2 diabetes, this is also supported by research ¹⁷ in the United States that the incidence of type 2 DM is mostly suffered by women, because physically more women have the opportunity to increase the body mass index, excessive fat deposits in the body can result in resistance⁹. In postmenopausal women after the ovary stops producing hormones, the estrogen hormone is produced exclusively from androstenedione produced by the adrenal gland and undergoes aromatization to estron in the process of converting peripheral extraglands. This transformation occurs mainly in fat tissue, causing postmenopausal women to have more fat tissue and changes in body composition in menopausal women. Fat accumulation of visceral, which is mainly central abdominal fat in menopausal women, affects the production of reduced adiponectin protein. Adiponectin works by making body cells more sensitive to insulin action. Low serum adiponectin levels are associated with insulin resistance conditions that can increase blood glucose levels and eventually develop into type 2 DM¹⁰. The results showed that 48.6% of patients were housewives. Patients admitted at home only doing makeshift work and watching TV more so that reduced activity coupled with never doing sports, patients who had little activity tended to be at greater risk of developing DM, this was supported by research conducted in 13 European countries by Balkau et al. (2008), the study states that physical activity in daily life is the main factor that determines ² insulin sensitivity, so the less activity carried out, the less ²¹ insulin sensitivity, resulting in a risk of triggering Type 2 DM. The most ¹⁶ results in the education category are an elementary school with a percentage of 60.5%, low education will lead to a lack of understanding of the risk factors for DM Type 2 disease, this is in line with the research of Dedi Irawan (2010) which states that education levels have an influence on DM Type 2¹¹. Disease incidence the higher one's education level, the better one's knowledge in preventing diseases including Type 2 diabetes mellitus. Long suffering from DM in this study 77.1% were at <10 years this is likely to cause 62.4% have no complications. Duration of DM is calculated from the beginning of ¹⁵ the patient at the diagnosis of the doctor having type 2 DM and according to Issa & Baiyewu (2006) that the quality of life in Type 2 DM patients in Nigeria experiences a better quality of life with longer DM under 8 years¹².

¹² B. Education Effectiveness to the quality of life

The results of the total quality of life before and after education showed significant results with $P < 0.005$ (Table 2), the quality of life questionnaire had 30 questions with 4 domains which were positive satisfaction, positive and negative DM impacts, negative DM concerns and negative physical, psychological and social concerns. Of the four overall domains it shows significant of $p = 0,000$ (Table 2). On questions with satisfaction domains, the value of a low classification question is found in DM knowledge, satisfaction, and sleep quality satisfaction (Table 3). Knowledge of Type 2 DM's satisfaction is important because patients who get adequate knowledge will improve their understanding and impact on their behavior. According to Bloom's theory to change the attitude of patients due to education, the patient must experience the stages from knowing to

understanding that have an impact on behavior changes so that to improve changes in attitudes should be given continuous education. The question of sleep quality satisfaction results in low points because someone who suffers from Type 2 diabetes usually feels discomfort due to symptoms or signs and symptoms of the disease that affects the patient's sleep quality. In patients with neuropathy complications, extremity pain is a disorder that causes patients to wake up frequently. This complaint is a common complaint in patients with Type 2 diabetes, especially in chronic patients with poor glucose control¹³. In addition to pain feelings, sleep disorders are also caused by nocturia at night which interferes with sleep and the sleep cycle. If blood sugar levels reach above 160-180 mg/dL, glucose will reach urine. If the levels are even higher, the kidneys will throw away additional water to dilute a large amount of lost glucose. Because the kidneys produce excessive amounts of urine, sufferers often urinate in large amounts. As a result, sufferers feel excessive thirst, this can disrupt the patient's sleep at night because they often wake up to drink¹³. In the domain questionnaire about the impact of DM the lowest score on the question whether the patient feels good and about the feeling of going to the bathroom more often than normal people (Table 4), for good feelings the results of the study show that the patient has a low score because according to Noerhayati (2014) the quality of life is poor experienced by people with type DM 2 is caused by the perception of the sufferer of the illness he has not experienced in terms of his recovery. This relates to negative feelings about type 2 DM that patients suffer, based on the theory (King & Hinds, 2007) a decrease in physical function in patients with Diabetes Mellitus will indirectly affect their psychological state such as the emergence of feelings of sadness, disappointment, anxiety, and depression thus reducing overall good feelings¹⁴. Patients who have negative feelings such as despair, anger, shame, and feel they do not care about improving their health will affect the quality of life that sufferers have 15 for questions about feeling going to the bathroom more often than normal people is caused by wrong one symptom of DM disease is polyuria, polyuria occurs because blood glucose increases to exceed the absorbency of the kidneys, causing osmotic diuresis, the nature of glucose is to draw water reabsorption by the kidney tubules resulting in large amounts of water coming out with glucose in the form of urine¹⁶. In the domain of concern for low score type 2 DM, there are questions about the concerns about complications (Table 5), patients feel that the disease can worsen and cause other comorbidities, according to Nugroho and Purwanti (2010) patients who know that they are diagnosed with diabetes mellitus, there will be concern in her about what they will experience in the future. This condition causes anxiety that can eventually cause stress and can aggravate the condition of DM¹⁷. while in the domain of concern in the physical, psychological and social aspects the lowest results on the question of job loss concerns (Table 6), DM gives psychological effect and physiological as well. At the physical level it can be stressful to manage self-care such as diet, physical activity, coping with symptoms, and treatment. At the psychological level, stress in the form of rejection, worry, feelings of helplessness and bad stigma about disease¹⁸. Patients in this study feel fear if their physical abilities are reduced so that they cannot carry out activities such as work and will influence to lose a job because they feel type 2 diabetes suffered will affect the physical and activities.

CONCLUSION

From this research can be concluded that education with booklet method can give significant difference before and after being done intervention

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LIST OF TABLE AND PICTURE

Tabel 1. Demographic Characteristics of Research Subjects

| Variable | | Sum | % |
|------------------------|------------------|-----|------|
| 1. Age | 26-35 | 2 | 1,8 |
| | 36-45 | 8 | 7,3 |
| | 46-55 | 57 | 52,3 |
| | 56-65 | 42 | 38,5 |
| 2. Gender | Male | 45 | 41,3 |
| | Female | 64 | 58,7 |
| 3. Occupation | Pension | 5 | 4,6 |
| | Housewife | 53 | 48,6 |
| | Entrepreneur | 17 | 15,6 |
| | Civil servant | 5 | 4,6 |
| | Private employee | 16 | 14,7 |
| | Others | 13 | 11,9 |
| 4. Education | Low (SD-SMP) | 66 | 60,6 |
| | Mid(SMA-DIII) | 18 | 16,5 |
| | Higher (S1-S2) | 25 | 22,9 |
| 5. Period of suffering | < 10 years | 85 | 77,1 |
| | > 10 years | 24 | 22,9 |
| | | | |
| 6. Complication of DM | No | 65 | 62,4 |
| | Yes | 44 | 37,6 |

Tabel 2. Test Results of different Pre and Post Quality of life

| Variable | Score p |
|--|---------|
| | Test |
| Quality of total life | 0,000 |
| Quality of domain satisfaction life | 0,000 |
| Quality of DM impact domain life | 0,000 |
| Quality of DM concerns domain life | 0,000 |
| Quality of social, psychology, and physics life concerns | 0,000 |

Information: *Wilcoxon Signed Rank Test*

Tabel 3. Average Results of Pre Test and Post Test Satisfaction Test Based on DQOL Questionnaire Questions

| Number | Question | Average of Pre Test (x) | Category | Average of Post Test (x) | Category |
|--------|---|-------------------------|----------|--------------------------|----------|
| 1 | Satisfaction about the time spent on treatment | 2,339 | Mid | 3,082 | High |
| 2 | Satisfaction about the treatment that has been done | 2,358 | Mid | 3,110 | High |
| 3 | Satisfaction about diet | 2,330 | Mid | 2,954 | Mid |
| 4 | Being burden for family because of DM | 2,495 | Mid | 2,936 | Mid |

| Num ber | Question | Average of <i>Pre</i> <i>Test</i> (x) | Category | Average of <i>Post</i> <i>Test</i> (x) | Category |
|--------------------|-------------------------------------|--|-----------------|---|-----------------|
| 5 | Satisfaction of DM knowledge | 2,119 | Low | 2,835 | Low |
| 6 | Quality of total sleep | 2,193 | Low | 2,872 | Low |
| 7 | Satisfaction to a social relation | 2,651 | High | 3,037 | Mid |
| 8 | Sense about social activity | 2,486 | Mid | 2,954 | Mid |
| 9 | Satisfaction in daily activities | 2,257 | Mid | 2,954 | Mid |
| 10 | Sense about performance | 2,550 | High | 3,018 | Mid |
| 11 | Satisfaction of time doing exercise | 2,394 | Mid | 2,917 | Mid |
| 12 | Satisfaction of relaxing time | 2,394 | Mid | 3,082 | High |
| 13 | Satisfaction to the whole of life | 2,220 | Low | 3,064 | Mid |

Tabel 4. Average Results of Pre Test and Post Test Domains Impacts of DM based on DQOL Problem

| Num Ber | Question | Average of <i>Pre</i> <i>Test</i> (x) | Category | Average of <i>Post</i> <i>Test</i> (x) | Category |
|--------------------|---------------------------|--|-----------------|---|-----------------|
| 14 | Sense of pain | 2,303 | Mid | 3,083 | Mid |
| 15 | Shame sense because of DM | 3,101 | High | 3,725 | High |
| 16 | Normal blood sugar | 2,669 | Mid | 3,321 | Mid |

| Num Ber | Question | Average of <i>Pre Test</i> (x) | Category | Average of <i>Post Test</i> (x) | Category |
|----------------|--|---------------------------------------|-----------------|--|-----------------|
| 17 | Unable to sleep at night | 2,312 | Mid | 3,174 | Mid |
| 18 | Boundary to friendship | 2,936 | High | 3,596 | High |
| 19 | Total good feeling | 2,303 | Mid | 2,927 | Low |
| 20 | Being limited by diet | 2,523 | Mid | 3,312 | Mid |
| 21 | Boundary of exercising because of DM | 2,615 | Mid | 3,312 | Mid |
| 22 | Unable to do activities | 2,394 | Mid | 3,339 | Mid |
| 23 | Relaxing activity is disturbed because of DM | 2,385 | Mid | 3,468 | Mid |
| 24 | Able to tell about DM to others | 2,431 | Mid | 3,128 | Mid |
| 25 | Frequently going to the bathroom | 2,229 | Low | 3,027 | Low |

Table 5. Average Results of Pre Test and Post Test Domain Concerns Due to DM Based on DQOL Questionnaire Questions

| Num Ber | Question | Average score of <i>Pre Test</i> | Category | Average score of <i>Post Test</i> | Category |
|----------------|----------------------|---|-----------------|--|-----------------|
| 28 | Fear of passing away | 2,358 | Mid | 3,495 | Mid |

| Num Ber | Question | Average score of <i>Pre Test</i> | Catego ry | Average score of <i>Post Test</i> | Category |
|----------------|--------------------------------|---|------------------|--|-----------------|
| 29 | Fear of body looking different | 2,761 | High | 3,633 | High |
| 30 | Fear of occurring complication | 2.229 | Mid | 3,358 | Mid |

Tabel 6. Average Results of Pre Test and Post Test Domain Physical, Psychological and Social Concerns Based on DQOL Questionnaire Questions

| Num Ber | Question | Average score of <i>Pre Test</i> | Categor y | Average score of <i>Post Test</i> | Catego ry |
|----------------|--|---|------------------|--|------------------|
| 26 | Fear of losing job | 2,367 | Mid | 3,495 | Mid |
| 27 | Fear of being unable to go far or travelling | 2,615 | High | 3,651 | High |

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