

PSYCHOSOCIAL ISSUES AND DIABETES SELF-MANAGEMENT AMONG ELDERLY DIABETES PATIENTS WITH POOR GLYCAEMIC CONTROL IN MALAYSIA

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ABSTRACT:

Background: Type 2 diabetes is a major global public health issue. For example, it significantly affects health-related quality of life, social support, and distress level among the elderly.

Methods: The purpose of this study was to determine the health-related quality of life and to examine the relationship between social support, distress level, and diabetes self-management towards quality of life among the diabetic elderly who had poor glycaemic control. Two hundred sixty-one respondents were recruited from three hospitals in Malaysia, from March 2013 until March 2014. Data were obtained by self-administered questionnaire and clinical characteristics were gathered from patient's records.

Results: The respondents had a good quality of life based on a mean of physical component scores-12 which was 68.25 (SD = 8.42), and the mental component scores-12 which was 67.76 (SD = 8.39). Social support gave a significant positive affect towards quality of life (B = 2.023, p < 0.05). However, distress (B = -2.620, p < 0.05) and diabetes self-management (B = -1.051, p < 0.05) gave significant negative affects towards quality of life. The respondents with good quality of life had better social support and lower distress level. Even so, respondents with good quality of life had lower self-management, that is, they do not appear to have managed their diabetes optimally. Meanwhile, the respondents with good quality of life had poor/ bad / lower/ diabetes self-management (they do not manage themselves (related to diabetes management) appropriately).

Conclusions: The findings indicate that more research is needed on how to improve social support and distress level in elderly diabetes type 2 patients, in order to further improve their quality of life. Further research on the role of diabetes self-management on quality of life is also needed in this group.

Keywords: Type 2 diabetes, Quality of life, Social support, Distress level, Diabetes self-care management, Elderly, Malaysia

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INTRODUCTION

Diabetes is a very common metabolic disorder, especially among the elderly, resulting in an altered level of glucose in the bloodstream. Increasing number of the elderly with diabetes is mainly due to the increasing prevalence of diabetes occurrence and indirectly people are living longer [1]. The number

of the elderly with diabetes is expected to be more than 82 million in developing countries in the year 2030 [2]. Majority of diabetes deaths occur in low and middle-income countries [3, 4]. In Malaysia, the highest diabetes prevalence came from the Indians (27.3%), followed by the Malays (15.9%), and Chinese (11.7%) [5]. In Wong and Rahimah [6] reported 59-72% of patients with diabetes had poor glycaemic control.

Common characteristics of diabetic patients include polyuria, polydipsia, weight reduction,

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polyphagia, and blurred vision. These result in temporary and long-lasting side effects ranging from brain damage to amputation, and heart disease [7]. Long term complications are retinopathy with likely loss of vision, nephropathy leading to renal dysfunction, peripheral neuropathy with potential foot ulcers, amputation, and sexual dysfunction [8, 9]. Diabetic Ketoacidosis and hyperglycemia hyperosmolar non-ketotic syndrome (HHS) are two acute conditions of uncontrolled hyperglycemia [10].

Managing diabetes wisely had become one of the health conscious topics among health care teams and the elderly with diabetes. Better diabetes self-management is closely related to the patients' level of quality of life [11]. However, factors associated with diabetic patients that may affect glycaemic control include older age [12], cost of treatment, complexity of medical therapies, poor family dynamics, poor patient-provider relationship and psychiatric disorders [13], attitudes, health belief, and self-confident [14]. To the best of our knowledge, there were least publications about health-related quality of life, social support, distress and self-management specifically among the elderly with poor glycaemic control in Malaysia. This research would like to contribute new findings related to this issue. In the future, this study finding may give place for a further study which can reduce the disease burden by implementing a therapeutic caring process for this population. Therefore, this research was conducted to determine the health-related quality of life and to examine the relationship between social support, distress level, and diabetes self-management towards quality of life among the elderly with poor glycaemic control.

METHODS

Design, setting, and sample selection

A cross sectional study was carried out from June 2013 to March 2014 to collect the data from three main government hospitals in Kelantan, Malaysia (Machang, Kuala Krai, and Gua Musang). The reason of selecting these study setting were due to the prevalence (11.7%) of diabetes in this area [15]. The preferred target population for this research was the elderly with Type 2 Diabetes aged 60 years and above who were undergoing regular appointments at Diabetic Clinic and admitted in Medical Wards at the selected hospitals.

The selection criteria were: respondents that were diagnosed with type 2 diabetes and aged 60 years old and above. In addition, the result of poor glycaemic control: glycated haemoglobin (HbA1c) to be more than 6.5% [16] during the last six months

and other aspects were also considered such as physically and emotionally stable during data collection. The clinical data (HbA1c, Fasting Blood Sugar (FBS), Body Mass Index (BMI), and length of diabetes) were traced via patient's folder with permission by the hospital administrative officer. The respondents who did not have result of clinical data and unable to complete the questionnaire were excluded from this study.

Respondents were selected by means of convenience sampling method. There were approximately 700 elderly patients registered in these hospitals within a year. At about 300 respondents were asked to participate in this study, but only 261 of data were analysed.

Instrument

A self-administered questionnaire was used to collect data, which consisted of six sections: demographic data, clinical data, questions related to health-related quality of life, social support, problem areas in diabetes, and diabetes self-care activities. The researcher herself had interviewed the respondents who were unable to read or having difficulty to read the questionnaire.

Health-related Quality of Life Short Form-12 (HRQOL SF-12) includes 12 items to focus on the respondents' level of health and lifestyle practice within the past 4 weeks such as any physical (daily routine), psychological (emotional) issue, and social activities that affect the quality of life [17].

The Medical Outcome Study (MOS) Social Support Survey includes 19 items to evaluate the kinds of respondents' social support. Five subscales measuring the social support were derived: emotional/informational support, tangible support, affectionate support, positive social interaction, and additional item. Higher score indicated a good social support, whereas, lower score indicated poor social support [18].

Problem Areas in Diabetes (PAID) scale includes 20 items to measure the respondents' distress level by focusing the usual problems faced by the respondents, either physically or psychologically [19].

The diabetes self-care activities scale (SDSCA) questionnaire includes 11 items to assess the diabetes self-care, taken 7 days before the survey. It has 5 subscales measuring the following dimensions: diet, exercise, blood sugar testing, medications, and foot care. The score was used to assess whether the respondent practice a positive self-care or vice versa [20].

The reliability of the instruments was tested with Cronbach's alpha. The value of Cronbach's alpha for

Table 1 Summary of respondents' profiles

Respondents profile	n	%
Gender		
Female	113	43.3
Male	148	56.7
Age group (years)		
60-64	86	33.0
65-69	92	35.2
70-74	42	16.1
75-79	25	9.6
80 ≥	16	6.1
Education level		
Do not have education	90	34.5
Primary	120	46.0
Secondary	47	18.0
Tertiary	4	1.5

Table 2 Summary results of Clinical Data

	HbA1C (%)	FBS	BMI	Length of Diabetes
Mean	9.91	9.06	26.21	9.88
SD	1.69	2.08	3.64	7.04
95% CI	9.68, 10.14	8.77, 9.35	25.77, 26.66	9.02, 10.74
Minimum	5.10	4.14	15.90	1.00
Maximum	15.10	18.30	47.80	63.00
n	204	201	261	261

Table 3 Summary of mean scores for Physical Component-12 (PCS-12) and Mental Component-12 (MCS-12)

Summary component	PCS-12	MCS-12
% Mean (SD)	68.25 (8.42)	67.76 (8.39)
95% CI	67.20, 69.30	66.72, 68.81
Minimum (% floor)	38.46 (0.0)	33.33 (0.0)
Maximum (% ceiling)	38.46 (0.0)	90.00 (0.0)

health-related quality of life questionnaire was 0.712. For social support, stress, and diabetes self-management, the Cronbach's alpha were 0.939, 0.944, and 0.779 respectively. These indicate that, the measurement used in this research is at acceptable level reliability due to the lowest Cronbach's alpha was greater than 0.70 (Quality of Life = 0.712) and this value exceeded the minimum cut off point indicating satisfactory result.

Ethical consideration

Ethical approval was obtained from the Research Ethics Committee (REC) (600-FSK (PT.5/2), Universiti Teknologi MARA, as well as the National Medical Research Register, Malaysia (NMRR-12-1342-14274). Permissions from all directors of the selected hospitals were obtained.

Each respondent gave a written consent, and all respondents were given information prior to participation. This was done by providing a written informed consent form, signed, and dated by the respondent, researcher, and witness: a copy of the form was given to the respondents, while the

original signed copy was retained by the researcher.

Data analysis

The data were analysed with Statistical Package for Social Science version 18. The continuous data were presented with mean and standard deviation while the categorical data were presented as frequency and percentage. The multiple regression analysis was used to examine the relationship between social support, distress level, and diabetes self-management towards quality of life among elderly with poor glycaemic control.

RESULTS

Respondents' profiles and clinical data

Two hundred and sixty one respondents were involved in this study. Table 1 shows that the respondents were people that have diabetes disease with poor glycaemic control, which consisted of 113 female (43.3%) and 148 male patients (56.7%). Majority of them (35.2%) aged between 65 to 69 years old, and about 68% of them aged below than 70 years old. Majority of the participants only have

Table 4 Summary for the results of multiple regressions

Variables	B (SE)	beta	t-value	TOL, VIF
DV: Quality of life				
IV : Social support	2.023 (0.727)*	0.187	2.783	0.741, 1.350
IV : Distress	-2.620 (0.772)*	-0.229	-3.392	0.732, 1.366
IV : Diabetes Self-Management	-1.051 (0.350)*	-0.175	-3.001	0.983, 1.017

Initial Model summary: = 0.177, SE of estimate = 6.66, F (3, 249) = 17.640, $p < 0.001$ Max. Mahalanobis distance = 15.669

Note: 1) SE= Standard error, 2) B = Unstandardized coefficients, 3) beta = Standardized Coefficients, 4) DV= Dependent variable, 5) IV=Independent, 6) TOL = Tolerance statistic, 7) VIF = Variance inflection factor value, 8) * = p -value < 0.05

primary education (46.0%), whereas about 1.5% of them have tertiary education level.

Table 2 shows that the mean of HbA1c was 9.91 (SD= 1.69), FBS was 9.06 (SD=2.08), BMI was 26.21 (SD=3.64) and length of diabetes was 9.88 (SD=7.04).

Health-related quality of life

The results showed summary measures mean scores for Physical Component-12 (PCS-12) and Mental Component-12 (MCS-12) (Table 3). The percentage mean score for the PCS-12 was 68.25 (SD = 8.42) and the MCS-12 was 67.76 (SD = 8.39). These indicate that, on average, the respondents in this research have good life quality in both categories, physically and mentally. Percentage of respondents scoring at the lowest level (i.e. floor effect) and at the highest level (i.e. ceiling effect) were almost none (frequency was 1 for each) for both PCS-12 and MCS-12.

Regression analysis for variables

Table 4 shows that only all three factors affect the quality of life, which are social support (B = 2.023, $p < 0.05$), distress (B= -2.620, $p < 0.05$), and diabetes self-management (B= -1.051, $p < 0.05$). Social support gave a significant positive affect towards quality of life. Meaning that, if the patients get more social support, their quality of life will be better. However, distress and diabetes self-management significantly gave negative affect towards quality of life. If distress level increases, the patient quality of life will decrease. The same situation occurs, if the patients are more rigid in their diabetes self-management, their quality of life will not become better. Furthermore, distress was the most influential factor that affected the quality of life due to the highest value of the standardized beta coefficient (beta = 0.229). It is followed by social support (beta = 0.1187) and diabetes self-management (beta = 0.175). On the other hand, the three independent variables accounted 17.7% (R^2 adjusted = 0.177) of variance in quality of life and the data fits the model (F (3,249) = 17.640, $p < 0.001$).

DISCUSSION

Respondents' profiles

Our findings show the number of the elderly with Type 2 diabetes was higher at the age of 65 to 69 years among the male patients. In terms of ethnicity, the majority were Malays, followed by Chinese, and Indian. Our findings have the same results with Mastura et al. [21], which agree that the Malays have the greatest proportion on the prevalence of Type 2 diabetes. Most of the respondents receive primary level of education. The number of respondents that never receive any formal education is also high, followed by secondary level, and tertiary level. This result indicates that the elderly with Type 2 diabetes usually have lower education rank. Mafauzy et al. [22], also agree that most of the patients with Type 2 diabetes have formal education less than 10 years. Another research by Rampal et al., [5] and Chew et al. [23] show different results when two-thirds of the respondents have secondary education and above.

In this research, majority of the elderly who were diagnosed with Type 2 diabetes have been diagnosed with diabetes for almost 10 years and had high levels of HbA1c and FBS. The respondents were under the overweight category (BMI from 25 - 29.9). Mafauzy et al. [22], also support this result in their previous study that states that Type 2 diabetes mellitus is a complex disorder often associated with obesity.

Health-related quality of life among the elderly with poor glycaemic control

This research has found that, on average, the respondents have good quality of life in both categories, physically and mentally. In contrast, other studies have shown that patients with diabetes have the worst quality of life and also been stated that their quality of life is complex and not well understood [24]. Other findings encompass that better perception in health quality of life in the elderly is associated with the coping strategies used [25].

These strategies may involve physical or behavioural changes such as modifications in diet, physical activity, or drug therapy and may be accompanied by psychological consequences including depression and treatment related frustration or emotional distress [26]. Farzana et al., [27] have stated that, the quality of life will improve or vice versa through the achievement in an effective and culturally oriented education intervention by enhancing adherence.

Association between social support, distress level, and diabetes self-management towards quality of life among the elderly with poor glycaemic control

However, distress and diabetes self-management display contrary results when both significantly gave negative effects towards quality of life. In this research, if the respondents have high distress level, they experience poor quality of life. This study also found that if the patients are more rigid in their diabetes self-management, their quality of life will not get better. In the Malaysian setting, the diabetes management at home usually will be carried out by a relative or caregiver of the elderly. Therefore, the elderly will experience emotionally disturbed if they have to perform the diabetes self-management independently. As indirectly it will effects their quality of life. This feeling may be due to challenging, tough, and complicated task of self-management, and their distress level also increases when there is a restriction on personal relationship or restrain on patient-health care provider relationship [1]. The severity of fatigue, number of somatic symptoms, number of comorbidities, ability to take care of activities of daily living, severity of chronic pain and psychological distress of the patients may impact their quality of life [28].

However, Anderson et al., [29] have distinctive opinion regarding these findings as they proposed that self-management is the main treatment regimen that should be adhered by the elderly. Diabetes self-management that is associated with promoting diabetes under control and psychological consequences can simultaneously improve the patients' quality of life by reducing diabetes-related morbidity and mortality [26, 27, 30-32].

In this study, social support gave a significant positive affect towards quality of life. Similarly, Rahmah and Noraisah [33] stated that the elderly with Type 2 diabetes tend to receive a good social support. This finding proposes that social support and assistance might impose health-related quality of life of the respondents. Personal counselling and formation of a support group from the peers will

result in better outcomes in blood sugar control, quality of life, and self-management among the elderly with Type 2 diabetes [34].

Hence, health care professionals must develop and implement programs to identify the physical and mental needs of the elderly with Type 2 diabetes [24]. Distress level could be managed non-pharmacologically if the respondents were given psychosocial intervention, for instance, talk therapy and collaborative care model [35]. Close relationship between patient-health care providers can establish the patients' trust towards their providers, thus, shown better self-efficacy and outcomes expectations and then lead to an enhanced quality of life [36]. By delivering effective patient-health care providers communication focusing on the patients' self-discipline and achieving a positive mind, adherence among patients with diabetes can be improved [34, 37, 38]. For example, by understanding the patients' psychosocial factors, financial barriers, and providing a rationale for the recommended treatment, both may avoid patients' misunderstanding and eliminating negative attitudes toward diabetes treatment. Salmiah [39] also grant that patients with diabetes will manage themselves properly when they fully understand the benefits of the treatment. Indirectly, this will lead to healthier quality of life.

Limitation of the study

The results of this study should be considered in the following factors: the study has included respondents who seek their treatments from government hospitals only, difficulty in finding an elderly who are 60 years above, some physical disability related to aging may have affected the cooperation of participants, such as hearing problem and unable to understand the question. There are possible individual biases in answering the questionnaires. The cause and effect in this research could not be established by the factors studied using cross sectional study design.

CONCLUSION

This research has established that most of the elderly with diabetes received high quality of life in both physical and emotional aspects. Social support positively correlates with quality of life, meanwhile, distress level and diabetes self-management showed negative relationships with quality of life. Effective intervention should be implemented to improve distress level and self-management towards the quality of life among the elderly with poor glycaemia control.

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CONFLICT OF INTEREST

There are no conflict of interest.

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