

The Diabetes Mellitus-Related Problems among Diabetic Elderly

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ABSTRACT

Diabetes mellitus (DM) is one of the main cause of death and disability in the elderly. We aimed to evaluate the diabetes mellitus-related problems in elderly participants attended the diabetes clinic of Ardabil.

In a cross-sectional analytical study, 91 elderly participants were randomly enrolled. Standard Problem Area in Diabetes scale was used. Data were obtained through interview and analyzed using SPSS version 22 by descriptive and analytical methods.

The mean and standard deviation of the Total Problems Related to Diabetes Mellitus was 31.51 ± 15.37 . There were significant relationships between Total Problems Related to DM and marital status ($P=0.02$), the score of depression-related problems and gender ($P=0.04$) and the score of treatment barriers with the family composition ($P=0.009$) and marital status ($P=0.005$). Elderly with further chronic illness have had additional treatment barriers ($P=0.02$).

Most of the elderly are suffering from various DM-associated problems. They needed to be taken into account in promotion planning sex, family composition, and numbers of chronic diseases.

Key words: Elderly, Diabetes Mellitus, Problem Areas in Diabetes

ABBREVIATIONS:

DM: Diabetes mellitus

PAID: Problem Area in Diabetes

SD: Standard Deviation

INTRODUCTION

With the progress in medical sciences and increase in life expectancy, the global population is ageing. Currently, more than half of the elderly in the world are living in developing countries [1]. The disability and mortality caused by chronic diseases among the elderly would be more than those by acute diseases [2]. By ageing, the risk of chronic diseases among the elderly increases significantly [3]. Recent studies have shown that 80% of the elderly have at least one chronic disease with a higher risk of disability and death [4]. Almost 40% of the elderly in society experience some of the constraints of chronic diseases [5]. Since the ability of people reduces by ageing and nearly 58% of people above 65% require special care, the importance of care for this group is highlighted [6].

Diabetes mellitus (DM) as one of the chronic diseases in human societies, affects the quality of life of patients as well as their families [7]. DM involves all aspects of people's lives and the treatment requires basic changes in the patients' lifestyle [8]. According to World Health Organization, the number of adults with DM would reach 300 million people by 2025 and

it is predicted that, in some races, 50% of the population would suffer from this disease. The prevalence of DM is increased by ageing so that the prevalence of this disease in the elderly is 8%, which is three times the younger age [6]. In the United States, 10% of people above 20 years old and 23% of people above 60 years old are suffering from DM. However, DM in 11% of people between 60 and 74 years old is not still diagnosed [9-11].

Prevalence of DM is worrying and rapidly increasing so that, during the last decade, it is increased by 50% [5]. Prevalence of DM in the elderly and high health costs lead to an increase in the economic burden caused by this disease [12]. In the United States, DM is the seventh cause of death and the major cause of non-traumatic amputation, blindness and complete lack of renal function [13]. Elderly people with DM might have problems in the treatment and follow-up of complex therapeutic regimens [14]. Today, despite the progress in medical sciences and the emergence of specialized elderly sciences, many of the personal and psychological aspects of the elderly remain unknown and most of the psychological and physical problems remain unresolved [15].

In 2016, 6.1% (4.8 million people) and 9.2% (7.4 million people) of the Iranian population were ≥ 65 years and ≥ 60 years old [16]. In recent years, with the increased level of DM and ageing population in Iran, the need for planning for all the physical and mental aspects of this group has become significant [17]. Moreover, the major effective issue in meeting the physical and mental needs is how to care for the elderly [18]. This need for care in the elderly with chronic diseases such as DM is highly important [19]. It becomes clear that uncontrolled DM leads to mental problems, including depression and anxiety; therefore, this aspect of problems of DM is highly important [20]. Therefore, in the pre-set study, we investigated the problems areas related to DM among the diabetic elderly in Ardabil. The results of this study could be used to design interventions and promoting programs for diabetic elderly.

MATERIALS AND METHODS

Participants

This is a descriptive-analytical cross-sectional study on elderly patients with DM referring to Diabetes Clinic, Ardabil University of Medical Sciences, Ardabil, Iran. The sample size was 91 patients using the Cochran formula with certain population size and standard deviation of 1.2 and an accuracy of 0.4. The inclusion criteria of random sampling method (per day and hour) were age >60 years old, suffering from DM and need for medical treatment, lack of cognitive or perception problems and lack of effective chronic diseases on quality of life including severe heart diseases, stroke, severe neurological disorders and dialysis patients.

Data collection

The researcher completed the demographic and Problem Area in Diabetes scale (PAID) questionnaires via a face-to-face interview. Demographic characteristics including age, gender, education, marital status, family composition, type of DM

therapy (oral or injectable) and economic status were obtained. PAID is a self-report instrument including 20 questions, which describes the negative emotions associated with DM such as fear, anxiety and anger that is widely experienced by the patients with this disease. Arzaghi and colleagues introduced its three aspects as psychological distress in relation to DM management; depression-related problems; and treatment barriers [7]. Each question contains 5 items, which are scored from 0 to 4 represents no problem to problem is serious. The total score is multiplied by 1.25 and the total score would be in the range of 0 and 100. The score of 40 and above represents more perceived problems.

Statistical Analysis

The data collected in SPSS-22 were analyzed using descriptive (mean, standard deviation, number and percentage) and analytical (ANOVA and t-test) methods. $P < 0.05$ was considered a significant difference.

RESULTS

Forty-five of 91 referred diabetic patients were male. The mean age of the participants was 70.32 ± 7.87 years with the range of 60-90 years old. Also, 71 patients (78%) were married and 54 ones (59.3%) were illiterate. The survey of the economic situation indicated that 71 patients (78%) had an independent income. In terms of family composition, 57 patients were living with families (62.6%), 23 patients with spouses (25.3%) and 11 by themselves (12.1%). Furthermore, 64 (70.3%) and 27 (29.7%) patients were undergoing oral and injection treatment, respectively. In addition to diabetes, 70 patients also had at least one other chronic illness. Total ad gender-specific mean scores of problem areas in DM are shown in Table 1. As demonstrated, women had a significantly higher mean score of depression-related problems than men ($P=0.046$).

Table 1: Mean and standard deviation (range) and range of total ad gender-specific scores of problem areas in DM among the diabetic elderly

Problem areas in DM	Mean \pm SD	Gender		P
		Male	Female	
Treatment barriers	10.17 \pm 6.46 (0-31.25)	9.33 \pm 6.39	11.00 \pm 6.50	0.220
Psychological distress in relation to DM management	9.34 \pm 5.52 (0-21.25)	8.83 \pm 5.44	9.83 \pm 5.61	0.389
Depression-related problems	11.99 \pm 6.66 (0-27.50)	10.58 \pm 6.56	13.36 \pm 6.53	0.046
Total	31.51 \pm 15.37 (2.50-70.00)	28.75 \pm 15.04	34.21 \pm 15.38	.090

A statistically significant difference was seen in the mean of total problems related to DM and treatment barriers with marital status ($P < 0.05$) so that those with dead spouses had more problems than married

people. Evaluation of relationships between different scores of diabetic problems and family composition showed a significant relationship with a score of

treatment barriers ($P=0.009$) and those who were living alone had more treatment barriers (Table 2).

In investigating the relationship between different Problem areas in DM and the “number of chronic diseases”, there was a statistically significant

Table 2: Mean and standard deviation of problem areas in DM among the diabetic elderly in Ardabil (by marital status)

Problem areas in DM	Marital status		P	Family composition			P
	Married (N=71)	Widow/widower (N=20)		Alone (N=11)	With family (N=57)	With spouses (N=23)	
Treatment barriers	9.19±5.96	13.68±7.11	0.005	15.34±7.56	9.97±5.92	8.20±6.19	0.009
Psychological distress in relation to DM management	8.92±5.44	10.81±5.70	0.179	10.00±6.59	9.73±5.25	8.04±5.70	0.428
Depression- related problems	11.44±6.78	13.93±5.96	0.140	12.72±7.02	12.54±6.41	10.27±7.09	0.361
Total	29.55±14.62	38.43±16.32	0.022	38.06±18.17	32.25±14.92	26.52±14.19	0.102

Table 3: Mean and standard deviation of problem areas in DM among the diabetic elderly in Ardabil (by Number of chronic diseases)

Problem areas in DM	Number of Chronic Diseases					P
	0 (N=11)	I (N=16)	II (N=26)	III (N=22)	≥ IV (N=16)	
Treatment barriers	5.41±4.61	8.82±5.67	10.81±6.35	11.81±6.84	11.48±6.86	0.060
Psychological distress in relation to DM management	4.65±4.64	8.51±4.35	11.25±5.64	8.75±5.72	11.09±4.89	0.008
Depression- related problems	8.86±6.76	10.70±6.99	12.83±7.13	11.98±6.26	14.06±5.69	0.292
Total	18.97±13.56	28.04±14.08	34.90±15.66	32.55±14.48	36.64±14.73	0.020

DISCUSSION

As we know, DM not only leads to high economic losses but also its mental and psychological damage to the patients and families is unacceptable. Approximately all life aspects of the patients can be affected by DM [21]. Also, DM in the elderly increases the risk of elderly syndromes such as cognitive impairment, depression, urinary incontinence, fall and damage, numerous drug intake and chronic pain. Also, it is important to understand the priorities of patients or caregivers and adjust the treatment objectives based on the benefit probability [9]. The present study was performed to investigate the problems areas related to DM among the diabetic elderly. We found total problems related to DM as 31.5 that compromised from 9.3, 12 and 10.2 of psychological distress in relation to DM management, depression-related problems and treatment barriers. In a similar study by Nasseh *et al.* in Tehran in 2013, their results showed the mean of total problems related to DM was 25.61±11.77 so that it was 7.34±3.44 for psychological distress in relation to DM management, 7.39±3.85 for depression-related problems and 10.61±6.24 for treatment barriers [20]. Since in PAID questionnaire, a low score indicates better patient status, it is seen that in psychological distress in relation to DM management and depression-related problems, the elderly with DM in Tehran had better conditions. In terms of total mean, the diabetic elderly of Ardabil have reported more problems. It might be

relationship between the domain of “Psychological distress in relation to DM management” and the total score of problems related to DM ($P < 0.05$) and people with more diseases had more treatment barriers (Table 3).

concluded that the diabetic elderly in Tehran had better mental and psychological conditions than those in Ardabil. However, concerning better facilities and conditions in Tehran compared to Ardabil, the results might seem logical. The elderly also had a better situation than other areas, which was also consistent with the study by Nasseh *et al.* [20]. However, the treatment barriers were similar in both studies, which can suggest the problems in terms of regular care programs, access to doctors and complications of the disease.

We found that men had a statistically significant better situation than women in psychological distress in relation to DM management. However, in total problems related to DM, women reported more insignificant problems. Nasseh *et al.* also reported that men had a better situation [20], but in similar research in Brazil [22], women had a better status. It might represent that cultural differences can affect the relationship between gender and problems with DM. However, it seems that due to the cultural conditions of Iranian society and further participation of men in social activities, they had a better situation. In our study, a significant relationship was found between marital status and total problem related to DM. Indeed, married people had fewer problems than those with dead spouses. In terms of treatment barriers, the statistical relationship was significant and the elderly with dead spouses reported more problems. The married elderly certainly benefited from the support of

others for treatment and dealing with the disease. Heydari *et al.* showed that the married diabetic elderly were more supported by their families than the widows and divorcees. Marriage improves compliance with disease conditions. The support of the patient's spouses is the most important source of support in the periods of diseases [19]. Since one of the potential health threats at old age is loneliness and isolation, it is essential to consider the supportive environment and empower the elderly for appropriately dealing with this factor, which was also approved by the results.

Results of this study demonstrated a statistically significant relationship between family composition and treatment barriers. Elderly patients who were living alone reported the maximum problems and those who were living with their spouses reported the minimum problems. However, in total problems related to DM, the problem areas of DM were similar. Loneliness is one of the potential health threats at old age, which reduces the ability for appropriately dealing with the environment. Loneliness among the elderly often causes apathy, anorexia and depression, especially if it is associated with some chronic conditions [23]. It should also be noted that the role of a spouse in the life of an elderly is quite obvious, indicating that a spouse or partner can reduce the problems of diseases.

In investigating the variable of "number of chronic diseases", the results of the study showed that there was a significant difference between the domain of "Psychological distress in relation to DM management" and "total problems related to DM" with the "number of chronic diseases" and the elderly who had no other chronic disease besides diabetes, reported the least problem. In contrast, the elderly who suffered from four or more other chronic diseases in addition to diabetes reported the most problems. Chronic diseases are long-term and often affects a person throughout his life and such a person will need long-term care and that will reduce his quality of life. Each chronic diseases goes through a period of time and it usually comes at an acute stage that the person will need help to perform their activities. Especially in older people who are also physically weaker, this will be more [24]. Since the focus of this study was only on the emotional problems associated with DM, and physical complications and other related problems were not discussed, it is recommended to perform further comprehensive research on complications and problems of the elderly DM. Also, a comprehensive study should be widely in the country and, in the case of similar results, more attention should be paid to the elderly with DM and appropriate measures should be taken into account based on the norms of different regions.

CONCLUSION

Our findings showed that most of the elderly suffer from various problems which were affected by various background variables. Mean score of depression-related problems in elder women was significantly higher than the elder men. Those with dead spouses had more problems related to DM and treatment barriers than married people. Those who were living alone had more treatment barriers. It is recommended to consider these findings in health promotion intervention planning for the studied patients.

ETHICAL ISSUES

The protocol of this study was approved by the Research Ethics Committee, Iran University of Medical Sciences (IR.IUMS.REC 1393.25067). Also, Ethical issues have been completely observed by the authors. Participants were allowed to leave the study in any step and informed consent obtained from them.

CONFLICTS OF INTEREST

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTIONS

Conceptualization, Investigation, Methodology, Project administration, Supervision and Writing, review & editing the paper: MS and AH. Writing the paper: HR B.

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