Quality of Life in Elderly Diabetic: Comparison between Home and Nursing Home

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Abstract- Research and planning to improve the quality of life for elderly seems to be essential, as the population of this age group has shown an increasing trend. Any chronic disease including diabetes has an impact on lifestyle of the patient. The objective of this study was to compare the quality of life between two groups of elderly diabetic patients who were residence of home as well as nursing home. A descriptive-analytical random study was conducted during 2010-2011 on two groups of 93 elderly diabetic patients, who were living in Kahrizak nursing home of Tehran (Iran), and home residents as well by interview for their demographical information and one standard questionnaire provided by world health organization. SPSS 16 was employed for data analysis. Significant differences were found in physical, psychological and social domains between two groups (*P*<0.05). In physical and social domains the elderly diabetic patients of nursing home had a higher mean score but in psychological domain the result was in contrast. Regarding the difference between scores in two studied groups it is necessary to study the weak points of each group individually and try to resolve the problems.

Introduction

In today's developed countries, elderly population has an increasing rate as a result of progress in human medicine and health knowledge. This is the reason for enhancing the motive and average of life expectance in different communities (1). The noticeable growth of elderly population around the world is a phenomenon started in 20th century and continues after that. A study in 2000 has been shown 13% of population of the world was elder peoples and 1.8% of this group had more than 84 years old (2). The United Nations (UN) has estimated 700 million capita were old in 2006, and it is expected to reach to 20% of the world's population by 2040 (2). The standard of UN indicated 60 years as the starting point for old age (3). It is important to accept that the chronological age is not an accurate index for changes that are accompanied by elderly. There are high differences in the status of health, partnership rate, and independence/dependence levels among the same age old peoples (3). The Iranian male and female elderly peoples in 1995 were 6 and 5.7%, respectively; and it is estimated to increase to 9.4 and 9.1%, by 2020 (4). These data show a high growth rate for this age group in the country. Today's knowledge notices not only on increasing the duration of life, but also more peace and physico-psychological health in the increased years to life. Scientific advances for longer life will be resultless and dangerous, if the above mentioned conditions do not provide (5).

Quality of life (QoL) is a concept that covers a broad range of the human experience. It is one of indices for determining the necessities and health problems for elderly and their improving as well (6). At present there are more than 100 descriptions for QoL in the scientific texts, but this phenomenon has described by domains such as mental health, self-steam, happiness, health and life satisfaction (7). There is both sides correlation

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between chronic diseases and QoL. The first aim of treatment of chronic diseases is to improve the QoL via reduction of the disease effects. Therefore, the survey on QoL situation in these patients is one of the important treatment and care indices around the world (8). When a person feels satisfaction and happiness in his/her life, and has no disagreement with weakness, he/she has more energy for care of him/herself and so will feel better day to day and will stay more healthy. Therefore the QoL in such a person will be better and this positive auto-amplifying cycle will continue (9). Missing something or become affected with different diseases will have not the same results in two peoples. It can produce different feeling in everyone as loss of function.

Diabetes as one of these diseases is a main global health problem, the 7th reason for mortality in United States, and has increasing rate especially in developing countries (10). Beside mortality, diabetes will result to disability and reduce the QoL. The risk of becoming diabetic after 65 years old is 30% (11). Elderly patients comprise about one-half of the diabetic population (12). It is the most common endocrine system disease with a prevalence of 4.2-15.9% in Iran (13). The guideline for diabetic patients emphasized on QoL as one of the primary evidences for treatment of those patients (14). The diabetic patients have numerous problems in dimensions of QoL and their individual, social and economic situation are affected by this disease (15). In Iran the depression rate of diabetic patients is reported three times more than others (16). An important point for life of all elderly peoples, especially who have chronic diseases, is their residence place. Chronic diseases and handicap impose economic and emotional burden to patient and family, so that they may transfer to nursing homes.

With due attention to increasing rate of diabetic old peoples in Iran the objective of this study was to compare the QoL between elderly diabetic patients who are living in nursing home and personal homes as well, to find the strong and weak point(s) of each group for planning a relevant care system for diabetic geriatrics in future.

Materials and Methods

Study design

A descriptive-analytical study was conducted on two groups of diabetic elderly patients who were living in nursing home of Kahrizak and their personal home in Tehran, the capital city of Iran during 2010-2011. Sample size was calculated as 93 for each group using the following formula:

$$d = \frac{\mu_2 - \mu_1}{\delta\sqrt{2}}$$

(μ = mean of the community, δ = standard deviation)

The patients who had the study conditions were selected in random. The conditions were as follows:

1.   Age of more than 60 years
2.   Diabetes with need to treatment
3.   Absence of cognitive and perceptual problems
4.   A history of at least 6 months residence in nursing home for old people who were in this group
5.   Non-severe chronic diseases, except diabetes, which can affect quality of life

The demographical data were recorded while WHOQoL questionnaire was filled out as well by interviewing the studies geriatrics. The WHO questionnaire has been used in more than 38 countries around the world and is translated to more than 20 languages (17). It includes 26 questions and has been standardized in Iran, resulted to a reliability degree of 0.7 (18). There are physical, psychological, social and environmental domains included in this questionnaire.

Statistical analysis

Data analysis was conducted using t-test and ANOVA ($P<0.05$) in SPSS 16.

Results

The mean of age in nursing home group was 74.2 with maximum and minimum of 89 and 60 years, respectively. In this group 63.4% were female and 36.6% were male. This mean was calculated 67.17 in the group of home residents with 86 and 60 years as maximum and minimum, respectively. Males and females were 58.1% and 41.9% in this group. The marriage status of the nursing home group revealed that partner of 63.4% of respondents was dead, in 2.2% of cases both partners were residents of nursing home and, in 4.3% of cases only one was living in the nursing home (Table 1).

In home residence group of diabetic elderly patients 72% were married and there was no case of living far from partner.

The scores of QoL in all domains are showed in table 2. The average of scores for environmental domain is lower in home residence cases than nursing home, but for other domains the results were in contrast. The mean of overall QoL was higher in home residents group (Table 2).

Marital status	Nursing home		Home	
	No.	%	No.	%
Single	25	26.9	3	3.2
Married	2	2.2	67	72
Divorced	3	3.2	4	4.3
Dead couple	59	63.4	19	20.4
Married separated couples	4	4.3	0	0
Total	93	100	93	100

The gender variable in physical and social domains had significant difference ($P<0.05$) within the nursing home residents(Table 3). On the other hand, the mean of scores for physical domain was higher in males, while in social domain females were better. This variable had a significant different for psychological domain in home residents ($P<0.0$) with a higher score in males.

Marriage status had only a significant difference in social domain of both groups ($P<0.05$). In nursing home group the lowest mean was in divorced individuals and the highest mean observed in couples who live in the same nursing home. This variable also showed significant difference in home residents group ($P<0.05$) with the highest mean score in cases who their partner is dead, and the lowest for divorced patients (Table 4).

The place of residence has been affected the QoL in physical, psychological and social domains (Table 5), so that the total score was significantly higher in nursing home residents ($P<0.05$). As it showed in table 5, only physical domain had higher mean of score in nursing home.

Type of treatment had no significant difference in all domains of nursing home group (Table 6), while it was higher in physical and social domains of home residents ($P<0.05$). In these two domains the mean of QoL was higher in diabetic patients who used pills rather Insulin injection. In conclusion, the score level of both groups was found to be under the middle, so that in nursing home group the mean score was almost half of the total. It was a little bit higher in the home residents group.

Table 2. Scores of quality of life domains in elderly diabetic patients of the studied groups, Tehran, Iran, 2010-2011.

Quality of life domains	Nursing home				Home			
	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD
Physical	8	17	11.89	2.194	6	18	14.06	2.714
Psychological	7	16	10.97	2.474	9	19	12.73	2.332
Social	5	17	9.77	2.634	4	16	11.66	2.895
Environmental	7	15	10.75	1.943	5	16	11.35	2.297
Quality of life	7.30	14.30	10.95	2.017	7	16.75	12.43	1.84

SD: Standard deviation, Min: Minimum, Max: Maximum

Table 3. Scores of quality of life in different domains based on gender of elderly diabetic patients of the studied groups, Tehran, Iran, 2010-2011.

Quality of life domains	Nursing home		P-value	Home		P-value
	Mean			Mean		
	Male	Female		Male	Female	
Physical	11.36	12.82	0.017	13.62	14.39	0.176
Psychological	10.92	11.06	0.430	12.03	13.24	0.012
Social	9.98	9.41	0.001	11.10	12.06	0.118
Environmental	10.80	11.20	0.327	11.59	11.19	0.405
Total	10.80	11.20	0.677	12.147	12.634	0.209

Table 4. Scores of quality of life in different domains based on marital status of elderly diabetic patients of the studied groups, Tehran, Iran, 2010-2011.

Residence	Quality of life domains	Married separated (4)	Divorced (3)	Dead (59)	Married (2)	Single (25)	*P*-value
Nursing home		Score (Mean)	Score (Mean)	Score (Mean)	Score (Mean)	Score (Mean)	
	Physical	13.50	10.67	11.56	14	12.40	0.103
	Psychological	12.50	11.67	10.80	13	10.88	0.495
	Social	12.50	8.33	10.02	13	8.68	0.009
	Environmental	11.50	10.33	10.71	14	10.52	0.151
	Total	12.50	9.76	10.95	13.50	10.60	0.123
Home		Married separated (0)	Divorced (4)	Dead (19)	Married (67)	Single (3)	
	Physical	-	15	13.16	14.18	16	0.238
	Psychological	-	11	13.21	12.60	15	0.106
	Social	-	8	13.16	11.48	11	0.006
	Environmental	-	9	11.47	11.43	12	0.207
	Total	-	11.5	12.49	12.42	13.5	0.565

The correlation between chronic diseases and the QoL in elderly has showed peoples with chronic diseases had lower QoL than others (19-22). Based on results of our study, there are significant differences in physical and social domains of QoL with gender of the studied patients who are living in the nursing homes (*P*<0.05). The males of this group had also better situation in physical domain. But about cases living in home, the psychological domain in males was significantly better than females. Ahangari *et al.* (23) have been also found the same trend in physical and psychological domains. Other studies reported score of males was higher in some/all domains (22-29). This may be due to natural differences, existing sexually discrimination in the culture, physical pressures on women, as well as their lower movement and exercise.

The results of this study show significant differences between marital status and physical domain of QoL in both groups. In diabetic elderly patients of nursing home, the married cases obtained the highest score in social domain, while divorced ones got the lowest. Alipour *et al.* (28) have reported that the score of QoL in married old ladies was higher than others.

Type of treatment had no difference in all domains of nursing home group, but it was significant in physical and social domains of home residents. In these two domains the mean of QoL was higher in patients who used pills rather insulin injection. This may be due to the difference of care levels in the studied communities.

Table 5. Scores of quality of life based on the residency place of elderly diabetic patients of the studied groups, Tehran, Iran, 2010-2011.

Quality of life domains	Mean of scores		*P*-value
	Nursing home	Home	
Physical	14.88	11.06	0.000
Psychological	10.97	12.73	0.000
Social	9.77	11.66	0.000
Environmental	10.75	11.35	0.055
Total	10.95	12.43	0.000

A survey in Australia on 1290 diabetic-II patients showed persons who were under insulin therapy has better quality of life (30). This difference with our study may be due to insufficient awareness of patients from the needed cares after injection of insulin and possibility of some problems like hypoglycemia and pain.

It should be concerned both living in home and nursing home have benefits and defects. But it is possible to improve the quality of life in both groups with some modifications and so help to decreasing the problems of the disease. Kim (31) has reported elder people who are living alone have more susceptibility to physical and psychological diseases than they are living with their family members. Although aging of community is a positive result of health facilities, but it will bring side-effects and negative subsequent, if we will not ready for managing them.

Table 6. Scores for correlation between type of treatment and quality of life of elderly diabetic patients of the studied groups, Tehran, Iran, 2010-2011.

Quality of life domains	Nursing home			Home		
	Oral medication (85)	Insulin injection (8)	*P*-value	Oral medication (70)	Insulin injection (23)	*P*-value
Physical	11.93	11.50	0.599	14.54	12.61	0.003
Psychological	11.01	11.50	0.579	12.70	12.83	0.823
Social	9.73	10.25	0.597	12.70	11.31	0.047
Environmental	10.64	12.00	0.076	11.37	11.30	0.904
Total	10.89	11.58	0.362	12.45	12.36	0.831

Change in family structure from extended to nuclear and economic activities of the women out of the home, makes the lower capacity for families to support and care from the old members. Family supports of elderly diabetic patients who are living in home, regarding to their maximum independency and reducing the problems of their special needs is suggested by the using such methods as: multipurpose senior centers, telephone check-in, community-based adult day care, and respite care.

Acknowledgements

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