Original Article

Investigating the relation between health-related quality of life and sleep quality in the Kurdish elderly of Saqqez

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ABSTRACT

Background & Aim: Quality of life refers to satisfaction or dissatisfaction with various important life domains. Sleep disorder is one of the factors which can influence the quality of life. This study has been conducted in order to investigate the relation between quality of life and sleep quality in the Kurdish elderly of Saqqez County.

Methods & Materials: This correlational study was conducted in 2016 on 292 elderly people in Saqqez County. Data were gathered using, the SF-36 questionnaire and the Pittsburgh Sleep Quality Index. Data analysis was performed by SPSS version 18 and descriptive statistics tests, Kolmogorov–Smirnov test, Spearman's correlation coefficient and Mann–Whitney U test. The statistical significance level was determined as less than 0.05.

Results: The average quality of life score and elderly sleep quality were 48.39 ± 16 and 11 ± 3.6, respectively. Quality of life had a significant correlation with all domains of sleep quality. The educated elderly had higher life and sleep qualities compared to the illiterate ones. Quality of life in men was higher than that of women, but there was no significant difference between them in case of sleep quality.

Conclusion: By enhancing the sleep quality, the quality of life will also be improved. Sleep hygiene education seems to be necessary for improving the quality of life in the elderly.

Introduction

The elderly population has increased during the recent years, due to the improvement of life expectancy, the declining birth rate, health policies and health and medical care progresses (1). The elderly population in Iran has had a rising trend as in 1975 this age range made up 5.4 percent of the whole population in the country and it is predicted that this figure will rise up to 10.5 percent in 2025 (2). Although medical breakthroughs have brought about the longevity of the elderly, the researchers' main concern is not focusing on having a long life, and the new challenge of the century is having a life with high quality (3). The quality of life is a dynamic, multidimensional and mental phenomenon which involves all life domains (4). This term was first introduced in 1960s and was used to indicate the extent to which individuals had capacity in various physical, emotional, psychological, and social domains (5).

Multitudes of factors influence the quality of life in the elderly, such as the socioeconomic status, access to the medical and health care services, and mental relaxation (6). Sleep disorder is one of the factors which can influence the quality of life,

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negatively. Sleep disorder has been linked to health problems such as hypertension, obesity, diabetes mellitus and cognitive performance disorder (7). Even the death rate of the people who sleep more than 8.5 hours or less than 3.5 hours at night, is 15% higher than the others (8,9). One-third of the general health have sleep disorders and one can say that sleep disorder is regarded as one of the major mental disorders (8). Seniors are at the risk of sleep disorders due to their underlying mental and physical illnesses, using medicines and their performance statuses (10). Lou (2013) in a study showed that 41.5 percent of the Chinese older adults have improper sleep quality and this rate was higher among women and increased by aging (9). Sleep disorders such as sleep apnea and restless legs syndrome would increase by aging and seniors are faced with risks such as sleep deprivation, excessive daytime sleepiness, irritability, inattentiveness, and memory disorders which can reduce the quality of their lives (11,12).

The results of the studies investigating the quality of life in individuals with sleep apnea (13) and restless legs syndrome (14,15) showed that the patients with these sleep disorders had lower quality of life. In any of these studies, the relation between quality of life and sleep quality was investigated. Sleep disorder may cause lower performance level and slowed response time leading to motor disability and the risk of falling. The existence of such symptoms in seniors is more concerning than other ages as these symptoms can be misread as the cognitive disorder symptoms (9). The results of a study on Korean elderly showed that people with lower sleep quality, also had lower quality of life (16). Also, a research that was conducted in Nigeria, to investigate sleep quality and adults' quality of life indicated that there was a relation between these two variables (17). Most international studies have investigated these variables in patients and few studies

have been conducted on seniors. In the study conducted by Pandey et al. (2016) on patients with Parkinson's disease, it was shown that patients with lower sleep quality, had higher mental distress and lower quality of life (18). A review of Iranian papers and articles showed that most studies have investigated the quality of life (3,4) or sleep quality (19,20) in Iranian seniors, separately; while, one of these studies has dealt with the relation between these variables in retired employees of Ministry of Education (21) whose results cannot be generalized to the whole elderly population. Considering the limitations of Iranian studies, the present study was conducted to investigate the relation between sleep quality and quality of life in the Kurdish elderly residing in Saqqez County.

Methods

The present study was a correlational study conducted during the last three months of 2015 and the first three months of 2016, on 292 seniors of Saqqez County. Saqqez is the northernmost city of Kurdistan Province of Iran with a population about 140 thousand people, based on the national census of 2011, and it is the second most populated city of Kurdistan Province, after Sanandaj. Most people of Saqqez are Muslim and their language is Sorani Kurdish. Sampling was conducted in several steps. Firstly, 11 medical and health care units in Saqqez were considered as the clusters, of which four clusters were randomly selected. Then, based on the formula $n = \dfrac{z^2 + \dfrac{3}{4}\ln(\dfrac{1+r}{1-r})}{\dfrac{3}{4}\ln(\dfrac{1+r}{1-r})}$ and considering the significance level of 99 % and correlation coefficient of r=0.1 , the sample size was estimated as 250 people that rose up to 292 people, by considering the cluster sampling effect (1.2).

In order to gather the data, demographic information form, the SF-36 questionnaire

and the Pittsburgh Sleep Quality Index were used. The SF-36 questionnaire on quality of life, includes 36 questions in eight dimensions which its validity and reliability was approved in the study of Ghanei-Gheshlagh et al. (2016) that was conducted on seniors residing in Saqqez (22). The scoring range of two-choice questions is 50 to 100; three-choice questions are scored as 0, 50 and 100; five-choice questions are scored as 0, 25, 50, 75, and 100; while the six-choice questions have scales of 0, 20, 40, 60, 80, and 100 (23). Pittsburgh Sleep Quality Index involves 18 questions and 7 dimensions. The subjective sleep quality dimension is determined with question number 9; the sleep duration is determined by question number 4 and the dimension of using sleep medication is defined with question number 6. The sleep latency dimension is determined with the mean score of question number 2 and Part A of question number 5. By dividing the sum of sleeping hours of the individual by the total hours he/she spends in bed, the habitual sleep efficiency is determined which its score is multiplied by 100. The sleep disturbance dimension is calculated by obtaining the mean scores of questions number 5. Daytime dysfunction is also determined by calculating the mean scores of question number 7 and 8. The point of each question is between 0 to 3 and higher scores indicates poor sleep quality. The reliability and validity of this questionnaire were confirmed in the study of Aliasgharpour et al (2011) on the elderly (19).

After explaining the research goals and gaining subjects' consent to participate in the study, the questionnaires were anonymously distributed among the seniors. This study has been approved by Ethics Committee of Kurdistan University of Medical Sciences under the ethic code of MUK.REC.1394/281. Data analysis was done by SPSS version 18 and descriptive statistical tests (Percentage, Frequency, Measures of Central Tendency and Distribution), and also Kolmogorov–Smirnov test, Spearman's correlation coefficient and Mann–Whitney U test with significance level of P<0.05.

Results

In the present study, 8 questionnaires were discarded due to incomplete data, so the remaining 292 questionnaires were analyzed. The subjects had the mean age range of 68.5± 7.8 and were between 60 and 96 years old. 175 subjects (59.1 %) were female and 202 subjects (69.2 %) were housewives and unemployed. Regarding their education level, 201 subjects (68.8 %) were illiterate.

The mean score of seniors' quality of life was 48.39± 16 and the sleep quality mean score was 11± 3.6. Considering the skewed distribution of quality of life and sleep quality, Spearman's correlation coefficient was used for investigating the correlation between sleep quality and quality of life dimensions. The results showed that all the sleep quality dimensions had a significant correlation with the total score of quality of life and the score of physical and mental dimensions' of quality of life. Considering the fact that higher scores in Pittsburgh Index means poor quality of sleep, the inverse correlation between sleep quality and quality of life scores meant that by increasing sleep quality, the quality of life would be enhanced.

Mann–Whitney U test showed that men's quality of life was higher than that of women (p =0.042); educated seniors had higher quality of life than illiterate seniors (p=0.018); employed seniors had higher quality of life than the unemployed (p=0001) and married seniors had higher quality of life compared to single or widowed seniors (p=0.011). Also, the employed seniors' sleep quality was higher than the unemployed ones (p=0.05), while the same issue in married older adults was better than the single or widowed seniors (p=0.002).

Table 1. Scores of seniors' sleep quality and quality of life based on the demographic variables

Variable		N	%	Sleep quality	P	Quality of life	P
Gender	Female	175	59.9	11.16 ± 3.65	0.496	46.88 ± 14.55	0.042
	Male	117	40.1	10.76 ± 3.76		50.65 ± 17.86	
Age	Up to 75	242	82.9	11.02 ± 3.64	0.796	48.88± 15.85	0.254
	More than 75	50	17.1	10.88 ± 3.96		46.03 ± 16.89	
Education	Educated	91	31.2	10.70 ± 4.08	0.237	51.86 ± 18.06	0.018
	Illiterate	201	68.8	11.13 ± 3.51		46.89 ± 14.81	
Job	Employed	90	30.8	9.98 ± 3.47	0.002	53.99 ± 17.53	0.0001
	Unemployed	202	69.2	11.45 ± 3.71		45.90 ± 14.70	
Marital Status	Married	203	69.5	10.72 ± 3.70	0.050	50.09 ± 16.26	0.011
	Single	89	30.5	11.62 ± 3.62		44.51 ± 14.89	

Table 2. Mean scores of sleep quality and quality of life in seniors

Sleep quality	Mean ± SD	Quality of life	Mean ± SD
Subjective sleep quality	2.42 ± 0.83	**General health**	44.22 ± 14.74
Sleep latency	2.88 ± 0.38	**Bodily pain**	43.16 ± 23.92
Sleep duration	1.35 ± 1.13	**Social functioning**	56.42 ± 24.31
Sleep efficiency	0.73 ± 1.08	**Mental health**	40.67 ± 15.19
Sleep disorders	1.78 ± 0.75	**Vitality**	45.47 ± 15.93
Consuming sleeping pills	0.69 ± 1.02	**Role-emotional**	57.87 ± 39.11
Daytime dysfunction	1.11 ± 0.94	**Role-physical**	51.45 ± 38.59
Total sleep quality	11 ± 3.69	**Physical functioning**	47.88 ± 30.02
		Total quality of life	48.39 ± 16

Table 3. Correlation between sleep quality and quality of life

Sleep quality ⟍ Quality of life		Subjective sleep quality	Sleep latency	Sleep duration	Sleep efficiency	Sleep disorders	Consuming sleeping pills	Daytime dysfunction
General health	R	-0.152	-0.017	-0.052	-0.162	-0.1	0.065	-0.105
	P	0.009	0.767	0.374	0.006	0.089	0.269	0.074
Bodily pain	r	-0.505	-0.128	-0.198	-0.261	-0.383	-0.192	-0.329
	P	0.0001	0.029	0.001	0.0001	0.0001	0.001	0.0001
Social functioning	r	-0.409	-0.150	-0.148	-0.270	-0.383	-0.217	-0.414
	P	0.0001	0.01	0.011	0.0001	0.0001	0.0001	0.0001
Mental health	r	-0.019	0.059	0.01	0.08	0.033	0.126	0.121
	P	0.747	0.317	0.870	0.173	0.580	0.031	0.04
Vitality	r	-0.132	0.001	-0.102	-0.013	0.028	0.022	-0.043
	P	0.024	0.980	0.082	0.822	0.628	0.704	0.463
Role emotional	r	-0.286	-0.112	-0.169	-0.215	-0.209	-0.199	-0.251
	P	0.0001	0.570	0.004	0.0001	0.0001	0.001	0.0001
Role physical	r	-0.258	-0.115	-0.273	-0.197	-0.155	-0.116	-0.190
	p	0.0001	0.05	0.0001	0.001	0.008	0.048	0.001
Physical functioning	r	-0.340	-0.116	-0.018	-0.168	-0.309	-0.238	-0.346
	p	0.0001	0.047	0.762	0.004	0.0001	0.0001	0.0001
Physical dimension	r	-0.432	-0.143	-0.241	-0.268	-0.321	-0.186	-0.335
	p	0.0001	0.014	0.0001	0.0001	0.0001	0.001	0.0001
Mental dimension	r	-0.393	-0.118	-0.205	-0.238	-0.281	-0.189	-0.232
	p	0.0001	0.043	0.0001	0.0001	0.0001	0.001	0.0001
Total quality of life	r	-0.466	-0.147	-0.234	-0.287	-0.335	-0.212	-0.365
	p	0.0001	0.012	0.0001	0.0001	0.0001	0.0001	0.0001

Mann–Whitney U test showed that the two groups of male and female seniors had no significant difference regarding sleep quality scores and its various aspects. The scores sleep latency (p=0.005) and sleep disorder in illiterate seniors were significantly higher than the educated ones; in other words, the illiterate seniors could go to sleep later and they had more sleep disorders.

Discussion

The results of this study showed that quality of life had a negative and significant correlation with all the dimensions of sleep quality. The highest correlation belonged to the subjective sleep quality and the lowest correlation was for the sleep latency. In the study conducted by Safa et al. (2015), also by improving the sleep quality, the quality of life in Kashani older adults was increased (21). Iliescue et al. (2003) in a study on hemodialysis patients, showed that by enhancing their sleep quality, the patients' quality of life would be improved (24). The results of Gau et al. (2011) who studied on Taiwanese seniors showed that most of the older adults were complaining about sleep latency and sleep latency predicted most of the changes in physical and mental dimensions of quality of life (25). The meta-analysis study results that was conducted to investigate relation between sleep duration and seniors' death (in 27 cohort studies), showed that short and long sleep durations are associated with the elderly's death (26). In the research that was done by Mesas et al. (2011) in Spain it was determined that sleep duration had no relation with quality of life (27). In addition, in another similar study in the same country, it was shown that no relation existed between sleep quality and quality of life (28).

One's health at any age, depends on the quantity and quality of sleep, as the individuals with sleep disorders are institutionalized twice the healthy ones (29). By increasing the risk of depression and reducing stress, reducing cognitive performance, and concentration level, sleep disorder lowers the ability to face the daily tensions and it can finally influence the quality of life (30). Turkmen et al. (2012) showed that sleep disorder was linked to depression and poor quality of life (31). Zisberg et al. (2010) believed that poor quality of sleep in seniors can be linked with background physical and mental comorbidity, polypharmacy, and their functional statuses (10). Zeng et al. (2016), in a systematic review and meta-analysis type of study, investigated the underlying factors for sleep quality of older adults and the results of their study showed that sleep disorder in the elderly with chronic diseases was twice more than other seniors (32).

Considering the 0-100 scale of the health-related quality of life questionnaire, if we consider a mean of 50 and standard deviation of 10 as the acceptable norm indexes of the society, then we see that the mean score of the Saqqezi seniors' quality of life was at the low average level and it was even lower than that of Mashhadi senior's with hypertension (33). The mean score of health-related quality of life in Saqqezi seniors was lower than the older adults living in Markazi Province (6), Kashan City (34), and Kamyaran City (another city in Kurdistan Province) (35). The reason for the difference in the mentioned studies can be attributed to the cultural circumstances and the welfare services provided for the seniors in these areas. In the present study, the male seniors' quality of life was higher than that of the female ones which was compatible with Naseh (2014) results (36). Gender inequality in traditional community of Saqqez can be another reason for such difference. The quality of life of educated seniors was higher than the illiterate ones which was in line with Hekmatpu's and Naseh's studies (3,36). Education can enhance the health-related quality of life by promoting the social class, and rising the financial power and self-confidence. The score of subjects' quality of life in the present study, was higher in the mental health dimension rather than the physical one, which illustrates that aging, suffering from diseases and old age challenges influence the physical aspect of quality of life more.

The mean score of sleep quality in the present study was 11 ± 3.6 which indicates poor quality of sleep in the studies senior subjects. The mean score of sleep quality in the present study was higher than the mean score of sleep quality of Tabrizi seniors who were staying at home (37). The two groups of male seniors and female seniors had no significant difference regarding the sleep quality score and its various dimensions which is compatible with Aliasgharpour (2011) results (19). The educated and illiterate older adults had no difference regarding the total score of sleep quality which was in line with the results of Aliasgharpour (2011) and Safa studies (2015) (19,20).

One of the limitations of the present study was that it did not investigate the background diseases and conditions that can influence sleep quality and quality of life in the subjects. It is suggested that in addition to background diseases, other prevalent sleep disorders such as sleep apnea, restless legs syndrome and their relation with seniors' quality of life should be investigated in future studies. Considering the positive correlation between quality of life and sleep quality, it could be said that it seems necessary to introduce and teach methods for improving sleep quality to the elderly to improve their quality of life.

Acknowledgement

Conflict of Interest

The authors declare that they have no conflicts of interest

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