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Quality of Life among Patients with Obstructive Sleep Apnea in King Abdulaziz Medical City in Riyadh, Kingdom of Saudi Arabia

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Abstract

Background: Sleep apnea is a chronic sleep disorder that occur when the person cannot breath or his breath is stopped during sleeping. There are two types of sleep apnea one is obstructive sleep apnea (OSA) and it is when the patient's airway has been blocked. The other type is central sleep apnea, which happens when the brain cannot stimulate the breathing muscles to breath.

Objectives: The aim of this study is to determine Quality of Life (QOL) in OSA in King Abdul-Aziz Medical City (KAMC) and the associations of QOL with co-morbidities and gender.

Methods: A questionnaire to measure QOL called RAND 36-ITEM HEALTH SURVEY (Version 1.0) was distributed among 80 patients (50 male and 30 female) in Sleep Disorders Unit (SDU) at KAMC, Riyadh, KSA**.** This questionnaire has four concepts: physical functioning, emotional well-being, social functioning and energy\fatigue.

Results: The associations of QOL with co-morbidities and gender were significantly obvious. Patients who have co-morbidities of obesity, diabetes, hypertension, smoking, heart attack and stroke are more prone to have impairment in their QOL. Male are more suspected to have impairments in their QOL than female by (62.5%).

Conclusion: The most impairment in QOL was significantly noted in obese patients. Also, male patients are more prone to have impairments.

Keywords: Sleep apnea, breathing, physical functioning, emotional well-being, social functioning and energy\fatigue, sleep disorders Unit (SDU).

Introduction

Sleep apnea is a chronic sleep disorder that occur when the person cannot breathe or his breath is stopped during sleeping.[1] Many factors cause sleep apnea one of them is when the body did not get enough oxygen and when the person could not breath, and this stop of breathing may last for few seconds or for few minutes.[2] There are two types of sleep apnea one is obstructive sleep apnea (OSA) and it is when the patient's airway has been blocked.[3] The other type is central sleep apnea, which happens when the brain cannot stimulate the breathing muscles to breath.[3]

Quality of life (QOL) is the main result variable in choosing and assessing treatment alternative for sleep disorders.[4] However, the number of well approved and adequately responsive QOL in this population is limited.[4]

Yang EH, et al applied a study by using QOL questionnaire to compare QOL between OSA and normal people.[5] The outcome of this study has shown poorer QOL than normal people before treatment.[5] Men are more inclined to the negative effect of comorbid insomnia symptom and OSA on their level of fatigue and QOL than women.[5] Akashiba T, et al. applied a study on patients with OSA.[6] The result showed that OSA patients have excessive daytime sleepiness and mood. [6] Lacasse Y, et al. have done a study to describe the impact of OSA on patients' life. [7] The impact of OSA on QOL seen in excessive daytime sleepiness, limitation of activities and interpersonal relationships.[7] Reimer WW had done a study to prove that OSA can affect the QOL, but the severity of effect is not related to the severity of OSA.[8] WV McCall applied a study had been done to diagnose moderate to severe OSA [9] The result revealed that depression in men with OSA is less severe than in women with OSA.[9] Ye L, et al. applied a study in China to assess the daytime sleepiness, depression and health-related QOL.[10] The result revealed that the strongest predictor was anxiety.[10] Bahammam AS, et al. had done a study on Saudi women in 2007.[11] The result revealed that every ten middle-aged Saudi women there are four at high risk of OSA.[11]

A cross-sectional study was applied on patients to evaluate the severity of depression and anxiety in adult sleep apnea patient over 18 years. [12] The result showed that OSA was not associated with severity of depression and anxiety symptoms. [12] OSA independently effects on several QOL domains for different age, gender, body mass index, and co-morbidity. [13] A study had done by Naveen D, Ashok K, Prasanta R, Anup K on adult patients to investigate the relationship between sleep apnea and insomnia. [14] The result revealed that there is no relationship between active sleep apnea and the severity of insomnia. [14] In addition to that, men had low depression than women. [14] A prospective cohort study was applied on patients with OSA to evaluate the prevalence of persistent depressive symptoms after long-term continuous positive airway pressure (CPAP). After 529 days of CPAP treatment, 125 patients presented resistance depressive symptoms and the mean score was decreased. [15] Based on the study of OSA and anxiety, anxiety was noted on thirty-four out of 36 patients by using anxiety and depression scale significant effect of treatment on anxiety. [16] A cross-sectional study applied on 7,955 patients. [17] By using age, marital status, gender, educational level, occupation, and smoking domains, 15.7% of the men and 9.8% of the women were at high risk of OSA. [17] A comprehensive study to distinguish the relationship between asthma and OSA, the data were collected from articles from 1990 to 2015. [18] The study showed that OSA and asthma are related to each other.[18] A cross-sectional study showed that snoring is common among Saudi population and the consanguinity is one of the risk factors to snoring.[19] A measurement from centers for Medicare & Medicaid services to improve QOL and cardiovascular outcomes was conducted & the results showed a reduced cardiovascular risk, an improved disease detection and categorization can improve QOL.[20] A recent study to distinguish the relationship between OSA and pulmonary hypertension in people living in high altitude proved that pulmonary hypertension is associated with sleep apnea and hypoxemia.[21]

OSA affects the QOL in people which can even lead to mortality. Hence the purpose of this study is to find out the association between QOL and co-morbidities with demographic data in those OSA patients. Moreover, the study also focuses on the total number of patients with OSA during the data collection period who visits the sleep disorder unit in King Abdul-Aziz Medical City (KAMC), Riyadh.

Materials and Methods

This study was conducted after getting approval from Institutional Review Board (IRB). The study took place in Sleep Disorders Unit (SDU) at KAMC, Riyadh, KSA. The purpose of this study was to find out the associations of QOL and co-morbidities with demographic data in those OSA patients. Moreover, the study also focused on the total number of patients with OSA during the data collection period who visits the SDU in KAMC, Riyadh. We used a questionnaire to determine QOL called (RAND 36-ITEM HEALTH SURVEY Version 1.0). This questionnaire has four concepts: physical functioning, emotional well-being, social functioning and energy\fatigue. We distributed this questionnaire among 80 patients who was diagnosed with OSA. After data collection, we used SPSS to for the statistical analysis.

Results

The aim of this study is to determine QOL by using the RAND 36-Item Health Survey (Version 1.0) which include physical functioning, emotional well-being, social functioning and energy\fatigue among patients with OSA in KAMC.

We found a significant difference in gender between male and female, 50 male about (62.5%) and 30 females about (37.5%) participated.

Table 1 Gender

		Frequency	Percent
Valid	female	30	37.5%
	Male	50	62.5%
	Total	80	100.0%

The mean score of domain 1 who has good physical life was 50.19 (n=48) and 60% have co-morbidities, with 58.78 (n=32) of poor life and 40% does not have co-morbidities. (Table2, 3)

Table 2

			Physical domain		
			poor QOL	good QOL	Total
Gender	female	Count	10	20	30
		% within physic_QOL	31.2%	41.7%	37.5%
	male	Count	22	28	50
		% within physic_QOL	68.8%	58.3%	62.5%
Total		Count	32	48	80
		% within physic_QOL	100.0%	100.0%	100.0%

Table 3

			Physical domain		
			poor QOL	good QOL	Total
Co-morbidities	No	Count	2	8	10
		% within comorbidities	20.0%	80.0%	100.0%
	Yes	Count	30	40	70
		% within comorbidities	42.9%	57.1%	100.0%
Total		Count	32	48	80
		% within comorbidities	40.0%	60.0%	100.0%

Also, the mean score of domain 2, has good social life was 51.27 (n=62) and 77.5% who have co-morbidities, with 61.72 (n=18) of poor social life and 22.5% does not have co-morbidities. (Table 4, 5)

Table 4

			Social domain		
			poor QOL	good QOL	Total
Gender	female	Count	7	23	30
		% within socialQOL	38.9%	37.1%	37.5%
	male	Count	11	39	50
		% within socialQOL	61.1%	62.9%	62.5%
Total		Count	18	62	80
		% within social QOL	100.0%	100.0%	100.0%

Table 5

			Social domain		
			poor QOL	good QOL	Total
Co-morbidities	No	Count	1	9	10
		% within comorbidities	10.0%	90.0%	100.0%
	Yes	Count	17	53	70
		% within comorbidities	24.3%	75.7%	100.0%
Total		Count	18	62	80
		% within comorbidities	22.5%	77.5%	100.0%

In addition, the mean score of domain 3 who has good emotional life was 51.49 (n=55) and 68.8% have co-morbidities., with58.32 (n=25) who has poor emotional life and 31.2% does not have co-morbidities. (Table 6, 7)

Table 6

			Emotional domain		
			poor QOL	good QOL	Total
Gender	female	Count	9	21	30
		% within Emotional_QOL	36.0%	38.2%	37.5%
	male	Count	16	34	50
		% within Emotional_QOL	64.0%	61.8%	62.5%
Total		Count	25	55	80
		% within Emotional_QOL	100.0%	100.0%	100.0%

Table 7

			Emotional_QOL		
			poor QOL	good QOL	Total
Co-morbidities	No	Count	2	8	10
		% within comorbidities	20.0%	80.0%	100.0%
	Yes	Count	23	47	70
		% within comorbidities	32.9%	67.1%	100.0%
Total		Count	25	55	80
		% within comorbidities	31.2%	68.8%	100.0%

The mean score of domain 4 who has good energy and fatigue was 50 (n=44), and 55.5% have co-morbidities with 58.06 (n=36) who has poor energy and fatigue life and 45.0% does not have co-morbidities. In total of 80 patients, 87.5% (n=70) has co-morbidities, and 12.5 (n=10) who does not have any co-morbidities. (Table 8, 9).

Table 8

			Energy and Fatigue domain		Total
			poor QOL	good QOL	
Gender	female	Count	11	19	30
		% within Energy_fatigue_QOL	30.6%	43.2%	37.5%
	male	Count	25	25	50
		% within Energy_fatigue_QOL	69.4%	56.8%	62.5%
Total		Count	36	44	80
		% within Energy_fatigue_QOL	100.0%	100.0%	100.0%

Table 9

			Energy and Fatigue domain		Total
			poor QOL	good QOL	
Co-morbidities	No	Count	2	8	10
		% within comorbidities	20.0%	80.0%	100.0%
	Yes	Count	34	36	70
		% within comorbidities	48.6%	51.4%	100.0%
Total		Count	36	44	80
		% within comorbidities	45.0%	55.0%	100.0%

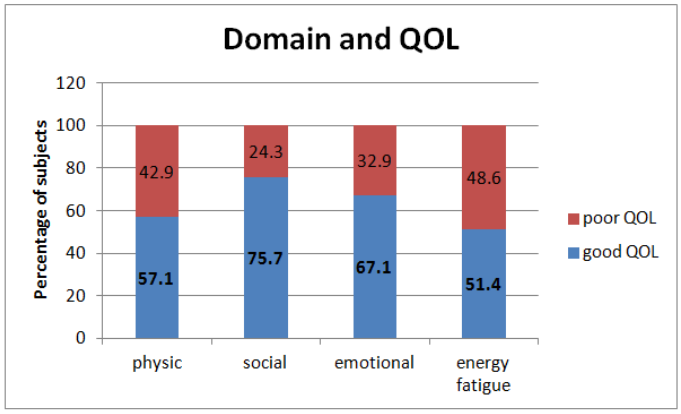
We found that the highest co-morbidity is obesity represented by 35.7% (n=25), while the second co-morbidity is diabetes 18.6 (n=13), hypertension by 17.1 (n=12), then smoking by 11.4 (n=8), heart attack by 10.0 (n=7) and finally stroke by 7.1 (n=5). (Table 10).

Table 10

Comorbidities specified (n= 70)

		Frequency	Percent
Valid	heart attack	7	10.0
	History of diabetes	13	18.6
	hypertension	12	17.1
	Obesity	25	35.7
	Smoker	8	11.4
	Stroke	5	7.1
	Total	70	100.0

Figure 1



Discussion

In our study, we determined the outcomes for all OSA patients in our 80 sample from KAMC in Riyadh, and counted who has a good and poor QOL associated with co-morbidities and demographic data. We found that the highest co-morbidity is obesity represented by 35.7% (n=25), while the second co-morbidity is diabetes 18.6 (n=13), hypertension by 17.1 (n=12), then smoking by 11.4 (n=8), heart attack by 10.0 (n=7) and finally stroke by 7.1 (n=5). With a significant difference in gender between male and female, 50 (62.5%) male and 30 females about (37.5%) participated. The mean score of domain 1 who has a good physical life was 50.19 (n=48), with 58.78 (n=32) of poor life. Also, the mean score of domain 2, has a good social life was 51.27 (n=62), with 61.72 (n=18) of poor social life. In addition, the mean score of domain 3 who has a good emotional life was 51.49 (n=55), with58.32 (n=25) who has a poor emotional life. The mean score of domain 4 who has good energy and fatigue was 50 (n=44), with 58.06 (n=36) who has poor energy and fatigue life. Most of the patients have decreased in domain 4 (energy and fatigue) in association with sleep apnea. In compare with another study, sleep apnea and quality of life. [13] Their result was, after controlling for age, gender, body mass index, and number of co-morbidities conditions, the association between sleep apnea and QOL was significant in the domains of physical functioning and role limitation due to physical health problems. [13]

Conclusion

Associations between QOL and demographic data with the highest number of co-morbidities in OSA patient were significantly obvious. The OSA patient suffering from energy and fatigue domain which is the most domains has higher poor QOL. And the highest co-morbidities association in OSA patient is obesity, and then a history of diabetes. Also, we found the Male are more suspected to have impairment in their QOL than female.

Limitations

This study has some limitations. One of the limitations is the time of sleep disorders clinic there is only one day per week and limitation of the number of patients who come to the clinic in this day. Another limitation that we faced is response rate and answering the questionnaire to the females due to differences in cultures. Another limitation was the difficulty of elderly patients to read the questions.

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