

Analysis of the Effect of Sleep Quality on the Life Quality of Irritable Bowel Syndrome Patients

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Abstract

Purpose: This study was conducted as a descriptive study to evaluate the sleep quality, to determine the factors which can be related to sleep quality and to confirm the relation between sleep quality and life quality in individuals with Irritable Bowel Syndrome (IBS).

Methods: The research was conducted with 40 IBS patients who visited the gastroenterology outpatient's clinic of a training and research hospital between September 2014 and January 2015. IBS Quality of Life Questionnaire (IBS-QOL), Pittsburg Sleep Quality Index (PSQI) and the identification form for IBS individuals developed by the researcher based on the literature were used as data collection tools.

Results: It was determined that 55% of the IBS individuals who participated in our research were women. 23.3% of them smoked, 12.5% of them used herbal medicines and 57.5% of them consumed coffee. It was seen that the average score of IBS-QOL was good with \bar{x} :122.52 \pm 31.44. It was determined that the IBS patients had bad sleep according to results obtained with the PSQI average score \bar{x} :8.77 \pm 4.57.

Conclusions: In consequence, it was determined that sleep quality of IBS patients was poor and the life quality of IBS patients whose sleep quality was decreased was also disrupted.

Keywords: Irritable bowel syndrome; Life quality; Sleep quality; Nursing

Introduction

Irritable Bowel Syndrome (IBS) is a chronic functional disease of the digestive system which is characterized with pain or discomfort in the abdomen, distention and change in defecation without any examination or laboratory anomalies [1-4]. In the course of the disease, abdominal pain as cramps, change in the bowel habits, distention and discomfort in the abdomen and insomnia are in the foreground [4].

It was determined that the IBS prevalence in the world was between 5% and 20% and it was between 2.7% to 19.1% in the studies conducted in Turkey [5-7].

IBS is a common illness which can affect the patients physically, socially and economically in relation to the significantly disrupted life quality and decreased labor productivity [8]. Sleep disorders observed in IBS patients decrease the life quality of the patient. Chronic insomnia causes day sleepiness, cognitive disruption, increase in accident risk, mood disorders and disruption of life quality [9,10].

To prepare a relaxing environment for the patient and to enable to fulfil his sleep and other physiological needs are important nursing functions. Evaluating the problems which the patients experience about sleep, their sleep quality and illnesses affecting their sleep will make planning the nursing care easier. In consequence of it, the problems which can occur due to sleep will be prevented and the life quality of the patients will be affected positively [9,11]. Because of this reason, the purpose of this study is to evaluate the sleep quality in IBS individuals, to determinate the factors which can be related to sleep quality and to search the relation between sleep quality and life quality.

Research Design and Methods

This study is a descriptive research. Permission of the ethics committee was taken from Izmir Katip Celebi University Non-Invasive Clinic Researches Ethics Committee. Also the permissions of the institution and the IBS patients were taken.

Sample

This study was conducted with 40 IBS patients who visited the gastroenterology outpatient clinics of a research and training hospital from September 2014 to January 2015. The diagnosis of IBS was made by Rome III criteria and the assessment of a single gastroenterology specialist, which was accepted as 'the gold standard'. The validation of Rome III criteria for IBS was made by Uran et al. [12]. Forty patients who accepted participate in the study voluntarily formed the sample according to the data obtained at 95% confidence interval with 5% error margin [13].

Measures

IBS individual identification form: 15 questions formed by searching the related literature by the researcher such as age, gender, educational level, marital status, job, etc. [2,6,7].

Pittsburgh Sleep Quality Index (PSQI): Developed by Buysse et al. [14] in 1989 whose validity and reliability test for Turkey was made by Agargun et al. [15]. The PSQI is a 19 item self-report instrument that consists of 7 components (perceived sleep quality, time required to initiate sleep, sleep duration, sleep efficiency, sleep disruptions, use of hypnotic medications, and daytime sleepiness) which are individually

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scored from 0 to 3 and then summed to yield a global score. PSQI scores range from 0 to 21, scores greater than 5 are sensitive (89.6%) and specific (86.5%) to identify persons with poor sleep from persons with good sleep. The PSQI has high internal consistency with a reported Cronbach's alpha of 0.83; the Cronbach's alpha in our sample was 0.70.

Irritable Bowel Syndrome Life Quality Questionnaire (IBS-QOL): Developed by Patrick et al. [19] and adapted to Turkey by Ozgursoy [6] in 2010 were used as data collection tools.

The IBS-QOL scale consists of 34 items and 8 subgroups (dysphoria, prevention of activities, body image, health worries, food avoidance, social reaction, sexual, social relationship), and before it was used, full analyses about its psycholinguistic and psychometric features were made. In the Likert scale there are 5 answer choices for each question. The individual cases were asked to select one of the following choices: "1: Never", "2: Some", "3: Medium", "4: Much", "5: Too much".

The minimum possible point is 34 and the maximum is calculated to be 170. An increase in points on the scale indicates an increase of life quality of those experiencing the disease.

Variables	n	%	
Sex	Female	22	55
	Male	18	45
Age Group	18-25	2	4.7
	26-33	7	16.3
	34-41	8	18.6
	42-49	4	9.3
	50-57	10	23.3
	58-65	7	16.3
	66 years and over	2	4.7
Length	1.50-1.69	27	62.8
	1.70 and over	13	37.2
Weight	50-65	12	27.9
	66-84	17	39.5
	85 and over	11	25.6
Education	Illiterate	1	2.3
	Primary Education	22	51.2
	High School	10	23.3
	University	4	9.3
Marital Status	Married	30	69.8
	Single	10	23.3
Socioeconomic Status	Very Good	1	2.3
	Good	8	18.6
	Middle	23	53.5
	Bad	8	18.6
Job	Working	14	35
	Not Working	26	65
Smoking	Yes	10	23.3
	No	23	53.5
	I used to, but I left	7	16.3
Alcohol Use	Yes	2	4.7
	No	31	72.1
	I used to, but I left	1	2.3
	Sometimes	6	14
IBS in Family	Yes	5	12.5
	No	35	87.5
Herbal Drug Use	Yes	5	12.5
	No	35	87.5
Body Mass Index	Mean ± ss	27.42 ± 4.97	

Table 1: Descriptive characteristics of patients (n:40).

IBS QOL SUBSCALES	SUBSCALES ITEM	X±SS	Min	Max
Dysphoria	8	29.30 ± 8.02	15	42
Activity	7	24.52 ± 6.89	12	35
Body Image	4	14.87 ± 4.39	6	20
Health Concern	3	10.00 ± 3.45	4	15
Food Avoidance	3	10.00 ± 3.32	3	15
Social Reaction	4	14.30 ± 4.15	4	20
Sexuality	2	8.15 ± 2.44	2	10
Social Relationship	3	11.60 ± 3.21	5	15
Total	34	122.52 ± 31.44	65	170

Table 2: IBS-QOL total and subscales averages (n:40).

PSQI Subscales	χ ± SS	Min	Max
Sleep Quality	1.45 ± 0.78	0	3
Latency to Sleep	1.77 ± 0.91	0	3
Sleep Time	0.92 ± 1.11	0	3
The usual Sleep Event	0.65 ± 1.00	0	2
Sleep Disorders	1.5 ± 0.78	0	3
Sleep Medication Use	0.27 ± 0.81	0	3
Sleep Dysfunction	0.75 ± 0.70	0	3
Total	8.77 ± 4.57	1	18

Table 3: PSQI total and subscales averages (n:40).

Statistical Analysis

The statistical analyses of the study results were evaluated using SPSS (Statistical Package for Social Sciences) 20.0 statistics package software. The relation between the number, percentage analysis, frequency analysis, sleep quality and the IBS-QOL subparameter scores were analysed with Pearson correlation analysis, Mann Whitney U test and Kruskal Wallis test. The results were given in 95% confidence interval.

Results

When the definitive characteristics of the IBS patients participated in our study were analysed, it was determined that 55% of them were women, 45.0% of them were men, 23.3% of them were between 50 to 57 age range, 51.2% of them were primary school graduates, 69% of them were married and 53.5% of them had a moderate financial status. It was determined that the 23.3% of them smoked and 4.7% of them drank alcohol, 35.5% of them were employed, 12.5% of them used herbal medicines, 57.5% of them consumed coffee and 10.0% of them used laxatives. There was IBS in the families of 12.5% of them and there was colon cancer in the families of 5.0% of them (Table 1).

When the IBS-QOL general and subscale averages of the IBS patients were regarded, the sub-average of the "dysphoria" subscale was determined as 29.30 ± 8.02. The average of the "activity" subscale was determined as 24.52 ± 6.89 and the average of the "social reaction" subscale was determined as 14.30 ± 4.15 and it was seen that the scores of these subscales were higher than the other subscale scores. It was determined that the average score taken from the general scale was 122.52 ± 31.44 and the life qualities of the patients were determined as good according to it (Table 2).

When the averages of the PSQI general scales and subscales of the patients who were taken within the scope of the study were analysed, the "sleep latency" subscale average was determined as 1.77 ± 0.91. The "sleep disorder" subscale average was determined as 1.5 ± 0.78 and the "sleep quality" subscale average was determined as 1.45 ± 0.78. It was seen that these subscale scores were higher than the other subscale scores. The average score taken from the scale generally was 8.77 ± 4.57 (Table 3).

The subscales of the patients in the IBS-QOL and PSQI scales were analysed separately with socio-demographic characteristics. According to it, it was seen that the relation between the subscales of both scales and the socio-demographic characteristics was not statistically significant relation ($p > 0.05$).

When the relation between the PSQI total scale score and the IBS-QOL subscales and the general total average scores was analysed, a significant negative relation was determined between the PUKI scale total score and each of the parameters. These parameters were “dysphoria” ($r: -0.56$) “activity” ($r: -0.60$), “body image” ($r: -0.47$) and “health concerns” ($r: -0.62$), “food avoidance” ($r: -0.51$), “social reaction” ($r: -0.52$), “sexual score” ($r: -0.24$), “social relations” ($r: -0.44$) and the “IBS-QOL total score” ($r: -0.61$) ($p < 0.05$) (Table 4). Moreover, a negative and quite significant relation ($r: -0.605$) was determined between the IBS total score and the PSQI total score ($p < 0.05$). It was seen that the life quality of the IBS patients whose sleep quality was decreased was also disrupted.

When the relation between the PSQI subscales and the socio-demographic characteristics of the IBS patients taken within the scope of the study was analysed, it was determined that there was a significant relation between sex and the PSQI sleep disorder subscale ($p = 0.01$). A significant relation was seen between the age group and the PSQI sleep function disorder ($p = 0.01$). A significant positive correlation was determined between smoking and habitual sleep activity ($Z_{MU}: 7.705$, $p = 0.02$) and smoking and the use of sleeping pills ($Z_{MU}: 6.521$, $p = 0.03$).

IBS QOL Subscales	PSQI General Average Score	
	r	p
Dysphoria	-0.56	0
Activity	-0.602	0
Body Image	-0.468	0.002
Health Concern	-0.617	0
Food Avoidance	-0.511	0.001
Social Reaction	-0.517	0.001
Sexuality	-0.238	0.14
Social Relationship	-0.44	0.004
Total	-0.605	0

Table 4: Relations between the PSQI and IBS-QOL total scale points averages (n:40).

In spite of that, no significant relation was seen between the PSQI subscales and the education level, marital status, socio-economic status, use of alcohol, occupation, use of herbal medicines, coffee consumption, use of laxatives, IBS patients in the family, colon cancer in the family and body mass index ($p > 0.05$) (Table 5).

A quite significant relation in the negative direction at middle level ($r: -0.60$) was determined between the IBS total score and the PSQI total score of the IBS patients ($p < 0.05$) (Table 6).

Discussion

No studies analysing the effect of the sleep quality on life quality of the IBS patients could be found before in the literature in Turkey and the World made in the process of this research.

IBS is usually seen in the young population under 45. However, there are publications which report that it is frequent in the middle aged patients as well as the older patients [16]. As for the study conducted by Ozgursoy in 2010 with 200 patients, the average age of the individuals whose IBS diagnosis was positive was found $\bar{x}: 47.15 \pm 11.70$ [6]. It is consistent with our study. Because the average age of the patients in our study was found $\bar{x}: 46.10 \pm 12.97$

In the study conducted by Ozgursoy, the subscale average score of the IBS patients taken within the scope of the research was determined as $\bar{x}: 79.93 \pm 27.50$. In this study, social relations subscale average scores were determined as $\bar{x}: 60.59 \pm 29.10$. It was determined that the scores of these two subscales were much higher than the scores of the other subscales [6]. Similarly, in our study, the average score of the “dysphoria”, “activity” and “social reaction” subscales of IBS-QOL scale were higher than the other subscale scores of IBS-QOL. So, it was determined that the life quality subscale scores of the IBS patients were good. In consequence of the results, we can think that the patients within the scope of the research were in a socially good situation.

In the study conducted by Ozgursoy et al. [6], when all items of the IBS-QOL were analysed, the individuals took $\bar{x}: 113.13 \pm 34.61$ points and in the study conducted by Patrick et al. [13], they took $\bar{x}: 63.20 \pm 18.50$. It can be expressed that the life qualities of the patients in our study are higher than the other two studies ($\bar{x}: 122.52 \pm 31.44$).

Cognitive and psychological change seen with aging is a result

	Sleep Quality		Latency to Sleep		Sleep Time		The usual Sleep Event		Sleep Disorders		Sleep Medication Use		Sleep Dysfunction		PSQI Total Scale Points	
	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p
Sex	-1.402	0.161	-1.356	0.175	-1.540	0.124	-0.126	0.9	-2.425	0.015	0.379	0.705	-1.659	0.097	-1	0.24
Group of Age	0.021	0.895	-0.109	0.504	-0.012	0.943	0.087	0.594	0.195	0.229	-0.01	0.95	-0.4	0.011	-0.029	0.861
Education	0.883	0.927	1.377	0.848	2.835	0.586	2.513	0.642	6.994	0.136	1.912	0.752	3.427	0.489	1.478	0.831
Marital Status	1.560	0.119	-1.672	0.094	-1.786	0.074	0.199	0.842	-0.27	0.787	-1.360	0.174	1.362	0.173	-1.319	0.187
Socioeconomic Status	2.497	0.476	3.615	0.306	1.282	0.733	1.375	0.711	4.659	0.199	1.697	0.638	2.249	0.522	2.961	0.398
Smoking	0.417	0.812	0.709	0.702	1.932	0.381	7.705	0.021	1.268	0.53	6.521	0.038	0.664	0.718	1.078	0.583
Alcohol Use	3.453	0.178	1.050	0.592	1.223	0.543	1.851	0.396	1.661	0.436	2.553	0.279	1.715	0.424	1.344	0.511
Job	-0.662	0.508	-1.250	0.211	-1.025	0.305	-0.262	0.793	-0.644	0.52	-1.136	0.256	-0.618	0.537	-1.069	0.285
Herbal Drug Use	-0.888	0.375	0	1.000	-0.066	0.947	-0.639	0.523	-0.84	0.401	-0.605	0.545	-1.159	0.247	-0.719	0.472
Coffee	-0.119	0.905	-0.33	0.741	0.605	0.545	-0.443	0.658	-0.104	0.918	-0.858	0.391	-1.431	0.152	0	1.000
Laxative	-1.370	0.171	1.065	0.287	-0.146	0.884	1.774	0.076	-1.316	0.188	-0.864	0.388	-0.688	0.492	-1.427	0.153
Colon Cancer In Family	-1.145	0.252	-1.173	0.241	-1.339	0.18	1.077	0.281	-1.778	0.075	-1.729	0.084	-0.676	0.499	-0.998	0.318
Ibs In Family	-1.154	0.248	-0.515	0.606	-0.618	0.537	-0.568	0.57	-0.84	0.401	-0.605	0.545	-0.134	0.894	-0.432	0.666
Body Mass Index	-0.033	0.841	0.058	0.724	0.052	0.749	0.126	0.44	0.082	0.616	0.172	0.288	-0.101	0.536	0.07	0.668

Table 5: Distribution and relationship of subscales of PSQI by descriptive characteristics (n:40).

IBS QOL Total Score	PSQI Total Score	
	r	p
	-0.605	0

Table 6: PSQI total score relationship with IBS QOL total score.

originating from the normal physiology of age. In the study we conducted, a positive correlation between age and social reactions indicate a normal result. In our study, a positive significant relation at low level was determined between the “age” and “social reactions” subdimensions ($r: -0.35, p < 0.05$).

Also, it can be thought that growing old causes decrease in physical functions in ill individuals as well as healthy individuals [6]. There is a negative correlation between the ages of the individuals and the physical function subscale in our study. The physical function scores of the individuals decrease as their ages increase ($r: -0.06, p > 0.05$).

In the study conducted by Kiper and Sunal in 2008 in patients with rheumatoid arthritis about sleep quality, the total PSQI score of the patients was found $\bar{x}: 10.42 \pm 3.65$ and it was determined that they had poor sleep according to this value [17]. Similarly, in our study, the PSQI general score of the patients was analysed $\bar{x}: 8.77 \pm 4.57$ and they also had poor sleep as patients with rheumatoid arthritis.

An important relation is thought to exist between sleep quality and the life quality of the individuals with chronic illness. The sleep disorder component being poor is an important finding which indicates that the patients have sleep difficulties [18]. Finding the sleep latency of the patients with chronic disease indicate that the patients have difficulties in falling asleep and their time of falling asleep is long. Poor sleep time and habitual sleep activity indicates that the patients do not sleep sufficiently.

In the studies conducted, generally the physiological and psychosocial problems are thought to cause sleep problems in the IBS patients. In the IBS patients, sleep problems especially related to abdominal pain and the feeling of discomfort in the abdomen are seen. There are difficulties in starting and continuing sleep, inability to fall asleep, perpetual interruption of sleep at night, waking up early in the morning, being sleepy during the day and fatigue because of insomnia among the main sleep problems in these patients [19].

Conclusions and Implications

Sleep is very important for the physiological and psychological wellness of the individuals as one of the basic needs of life. Sleepiness during the day, cognitive disruption, increase in accident risk, mood disorders, thus, disruption in life quality occur in the individuals who experience chronic insomnia.

A quite significant relation in the negative direction at middle level ($r: -0.60$) was determined between the IBS total score and the PSQI total score of the IBS patients ($p < 0.05$). According to this result, life quality of the IBS patients whose sleep quality was decreased was also disrupted in conclusion.

Sleep disorders observed in IBS patients also decrease the life quality of the individuals [20]. IBS causes psychosocial results like other chronic diseases. This situation suggests the necessity of analysing the sleep quality together with the life quality specific to the disease for the IBS patients [21].

In the recent years, the identification of the life quality especially in chronic diseases gains importance either in the researches in the field of health and epidemiological studies or clinic practices. Our study's being the first in the literature in this sense will be very important for the management of the IBS patients.

It was observed that if the IBS patients have high sleep quality, their life quality may be high. At the same time, quality of life of IBS increases, sleep quality can also increase. That is, the sleep quality is closely related to the IBS diagnosis of the patients.

Evaluating the problems the patients experience about sleep, diseases affecting their sleep and their sleep quality will both increase the life quality of the patients and will make planning the nursing management easier.

The studies in which the effect of sleep disorders and other factors in IBS patients on their life quality is searched are insufficient in the literature in Turkey and the world. So, we think that this study being conducted in Turkey will make important contributions to the world literature.

These recommendations can be made in accordance with the results obtained from the research;

- Using the sleep observation and evaluation forms daily in clinics and once a month in outpatients clinics by the nurses in order to determine the sleep problems of the IBS patients and the reasons of these problems,

- Since abdominal pain experienced frequently in IBS patients make physical and psychological problems and cause sleep problems, teaching the methods for coping with pain in the IBS patients to all health professionals,

- Providing psychiatric consulting for the IBS patients whose sleep quality is poor in order to bring them the abilities for coping with the problems that occur or developing these abilities,

- Forming training programs for all health professionals for remedying the deficiencies about the symptoms experienced in IBS and the practices of the patients about the symptoms are thought to be useful.

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