Research Article

The Effect of Sleep Disturbance on Quality of Life in Pregnant Women

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Abstract

Background: Most women are at risk for some degree of sleep disturbance (insomnia) during pregnancy because of the hormonal and physical changes, which may negatively affect women's quality of life.

Aim: This study was carried out to determine the sleep disorders of pregnant women and to examine the effect of these disorders on their quality of life.

Method: This cross-sectional and descriptive study conducted in a State University Hospital Obstetrics Clinic in Ankara, Turkey. In the collection of data, Individual Information Form, Pittsburgh Sleep Quality Index and SF-36 Quality of Life Scale were used. To analyze the collection data, Man Whitney U test, Kruskall Wallis test and Pearson correlation test were applied.

Results: 68.5% of women experienced insomnia. Insomnia was linked to a lower quality of life (p < 0.05). Advanced age, low education, low income, obesity, co-morbidity, multi-parity, multi-gravida, advanced gestational age, in-sufficient antenatal care and social support, sedentary life-style, drinking of tea and cigarette habit has been associated with poor sleep quality (p < 0.05).

Conclusion: Women suffered from insomnia during pregnancy, which affects quality of life adversely. Therefore, assessment of sleep should be an integral part of prenatal care. Further research is required to determine quality of life effect on sleep.

Keywords

Pregnancy, Sleep quality, Sleep disorder, Insomnia, Quality of life

Introduction

Definition of the problem

Pregnancy is the most enjoyable and most sensitive period of a women's life. Even in uncomplicated pregnancies, this period is associated with hormonal, metabolic, physiological, anatomical, and psychological changes, which may negatively affect the quality of life [1-4]. Insomnia is very common in all stages of pregnancy, which is defined both as a symptom and as a disorder [5-13]. Pregnancy-related issues such as frequent urination, nausea, vomiting, anxiety, stress, heartburn, nasal congestion, back pain, fatigue, leg cramps, abdominal discomfort, and growing fetus can contribute to sleep problems and can also impair a pregnant woman's quality of life [2,9,14-21].

Insomnia in pregnancy is treatable condition with pharmacological interventions, also alternative methods or behavioral strategies may alleviate sleep disturbance. Minimizing modifiable factors for insomnia and increasing sleep quality play an essential role to avoid adverse pregnancy outcomes such as maternal-fetal morbidity, mortality, anxiety,

depression, and cognitive impairments [22-26]. Despite all these potential adverse effects, few studies have focused on insomnia as a contributing factor to the deterioration of quality of life.

Aim

This study was conducted to investigate insomnia in pregnant women and its effect on quality of life.

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Hypotheses

H_i: The quality of life in pregnant women with insomnia changes negatively.

H_0: There is no change in the quality of life of pregnant women with insomnia.

Materials and Methods

Study type, design, setting, period, population, and sample size

This descriptive and cross-sectional study was conducted during June-July 2015 in a State University Hospital, Obstetric Clinic in Ankara, Turkey. The universe of the study consisted of 1000 women who applied to the obstetric clinic of the hospital for routine control (in the last year). The sample of the study was determined according to the formula "calculating the sample size in case of a known universe" (n = $t^2.p.q/d^2$) the sample size was determined as 267 pregnant women (95% CI, alpha = 0.05) [27].

Sampling selection criteria

1) Those who volunteer to participate in the study, 2) Who do not have an auditory or mental disability, 3) Who were open to cooperation and able to understand in Turkish language, 4) Who do not have a health problem requiring hospitalization, 5) Pregnant women applying to the polyclinic for routine control, and 6) Who do not have twin or triplet pregnancies.

Dependent and independent variables

Dependent variables; sleep quality and quality of life scores.

Independent variables; 1) Socio-demographic characteristics of pregnant women (age, educational status, employment status, working status before pregnancy, income status, presence of social security, family type), 2) Medical and pregnancy-related characteristics (weight, height, weight before pregnancy, regularly used drugs, pregnancy week, existence of chronic disease, whether pregnancy is planned, number of pregnancies, number of living children, status of receiving social support, status of getting ready for childbirth education and health problems that occur with pregnancy, 3) Habits (smoking, alcohol, tea-coffee consumption, and exercising regularly).

Instruments

Three separate data collections: Individual Information Form, Pittsburgh Sleep Quality Index (PSQI) and SF-36 Quality of Life Scale (QLS) tool was applied by the researchers using face-to-face interview method. It took an average of 5-10 minutes to complete.

Individual information form: This form was prepared by the researchers based on the literature review [1-19]. The form consists of 3 parts and 32 questions.

1. Socio-demographic characteristics such as age, education, employment, income, social security and family type etc.

2. Medical and pregnancy-related characteristics such as BMI, co-morbidity, regularly used drugs, gestational age, planned pregnancy, gravida, parity.

3. Sleep characteristics and other habits such as cigarette/alcohol habits, drinking tea and coffee, regular exercise during pregnancy, sleep problems in the past and current pregnancy, receiving health services, and cope with their sleep problems.

Pittsburgh sleep quality index-PSQI: The PSQI was developed by Buysse, et al. [28] to assess sleep quality in 1988. It was adapted to in this study, the reliability coefficient of the scale was found to be 0.86. In scoring the PSQI, the measure consists of 19 individual items, and seven component scores are derived. Each scored 0 (no difficulty) to 3 (severe difficulty) that produce one global score ranging from 0 to 21, where lower scores denote a healthier sleep quality. The cut-off point is five, and sleep quality is classified as good (0-4 points), sleep quality as poor (5-21 points).

The SF-36 quality of life scale-QLS: The SF-36 QLS was developed by Rand Corporation in 1992 to measure of health status. Crohnbach's alpha reliability coefficient of the scale was found to be 0.89 [29]. In this study, the reliability coefficient of the scale was found to be 0.94. The scale has 36 question items and eight sub-dimensions; physical function (10 items), social function (2 items), physical role function (4 items), emotional well being (3 items), mental health (5 items), energy/vitality (4 items), pain (2 items) and general health perception (5 items). The scale is evaluated considering the last 4 weeks. The lowest score that can be obtained from the scale is 0 and the highest score is 100. According to the original scale the higher the score, the higher the quality of life.

Ethical approval

Ethical approval was obtained for the conduct of this study from the Research and Ethics Committee of the hospital. (No: KO11/00). The researcher introduced the questionnaire to participants and explained the coverage of the material. Participants completed an informed consent form in which they were assured of the confidentiality of their responses following which they provided informed consent that participation was voluntary and anonymous. Rules specified in the Helsinki Declaration were observed in the data collection phase.

Data analyses

Descriptive statistics were calculated for all variables. In the evaluation of the data, besides the number, percentage, mean and standard deviation representations of the variables, the Mann-Whitney U test was used when the data was not normally distributed in the two-group comparisons, the Kruskall-Wallis test was used in the comparisons with three or more groups, and the Pearson correlation test was used to examine the relationship between the two scales. A value of $P < 0.05$ was considered statistically significant.

Results

The average age of patients was 27.5 ± 4.9 years

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Table 1: Distribution of socio-demographic and habits characteristics.

Socio-demographic-habits characteristics	n	%
Age (Mean = 27.5 ± 4.9 years, min: 17, max: 42).		
17-24	81	30.3
25-29	90	33.7
≥ 30	96	35.9
Education		
Primary school	114	42.7
High school	109	40.8
University and above	44	16.5
Employment		
Working	86	32.2
Housewife	181	67.8
Income		
Poor	74	27.7
Moderate	152	56.9
Good	41	15.4
Body mass index (kg/m²) pre-pregnancy		
Normal (17-24.9)	90	33.7
Overweight (25-29.9)	122	45.7
Obesity (30-34)	55	20.6
Family type		
Extend	73	27.3
Nuclear	194	72.7
Smoker (pre-pregnancy-n = 45, 16.9%)		
Yes (still in pregnancy)	15	5.6
No	252	94.4
Regular exercises		
Yes	78	29.2
No	189	70.8
Regular drinking coffee		
Yes	40	15
No	227	85
Regular drinking tea		
Yes	219	80
No	48	20
Regular used medication		
Yes	53	19.9
No	214	80.1
Total	**267**	**100.0**

Table 2: Distribution of pregnancy-related characteristics.

Pregnancy-related characteristics	n	%
Gestational age		
I. Trimester (1-13. wk)	33	12.4
II. Trimester (14-26. wk)	67	25.0
III. Trimester (27-41. wk)	167	62.6
Planned pregnancy		
Yes	195	73.0
No	72	27.0
Gravida		
1	97	36.3
2	100	37.5
≥ 3	70	26.2
Parity		
0	100	37.5
1	110	41.2
2	46	17.2
≥ 3	11	4.1
Receiving social support		
Yes	219	82.0
No	23	8.6
Partially	25	9.4
Receiving antenatal education		
Yes	71	26.6
No	196	73.4
Pre-pregnancy diseases		
Yes[*]	18	6.7
No	249	93.3
Pregnancy-related complaints (n = 80%)		
Tiredness-fatigue	186	69.7
Frequent urination	157	58.8
Nausea-vomiting	153	57.3
Leg cramps	150	56.2
Nervousness	121	45.3
Back-pain	107	40.1
Swelling-gas	90	33.7
Respiratory distress	82	30.7
Restless leg syndrome	22	8.3
Pregnancy-related diseases		
Yes[**]	26	9.7
No	241	90.3

[*]Thyroid 38.9%, asthma 16.7%, diabetes 16.7%, hepatitis B 16.7%, rheumatism 11.2%; [**]Thyroid 53.8%, hypertension 17.3%, migraine 15.3%, and diabetes 11.5%.

(min: 17, Max: 42). Some socio-demographic and medical characteristics and habits of pregnant women are presented in Table 1. 62.6% of the pregnant women were in their third trimester, 37.5% had their second pregnancy, 41.2% had a living child, 73% had a planned pregnancy, 82% received support from their spouse or social environment, 26.6% had received antenatal training, and 9.7% had pregnancy-related

disease during this period. Reported diseases were as follows, thyroid (53.8%), hypertension (17.3%), migraine (15.3%), and diabetes (11.5%). Women declaring pregnancy-related

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complaints more commonly suffered from fatigue (69.7%), frequent urination (58.8%), nausea-vomiting (57.3%), leg-cramps (56.2%), tension-nervousness (45.3%), back-pain (40.1%), abdominal swelling (33.7%), respiratory distress (30.7%) and restless leg syndrome (8.3%), (Table 2).

In Table 3, it was seen that 2.2% of pregnant women had insomnia in the past, 53.9% of them had insomnia (subjective) in their current pregnancy, and 6.2% of those who applied to health institutions for sleep problems. The most common reasons for insomnia were as follows, advanced gestational age (20.5%), bodily pain (15.6%), baby movements (12.5%), stress (9.4%), gastrological problems (reflux) (8.3%), fever (7.3%), and weight gain (7.8%). Pregnant women frequently

Table 3: Distribution of sleep-related characteristics.

Sleep-related characteristics	n	%
Insomnia in the past		
Yes	6	2.2
No	261	97.8
Insomnia during pregnancy (self-reported)		
Yes	144	53.9
No	123	46.1
Reasons for insomnia (n = 144)		
Advanced pregnancy week	39	20.5
Back-pain	30	15.6
Baby movements	24	12.5
Stress	18	9.4
Stomach problems (reflux)	16	8.3
Weight gain	15	7.8
Fever	14	7.3
Frequent urination	13	6.8
Tiredness	13	6.8
Respiratory distress	6	3.1
Irritability	4	2.0
Receiving health service for insomnia		
Yes	9	6.2
No	135	93.8
Persistence of insomnia		
Yes	128	87.7
No	16	12.3
Dealing with sleep problems		
Take a warm shower	53	36.8
Watch TV	45	31.3
Drinking warm milk	42	29.2
Reading books	17	11.8
Listen to music	14	9.7
Drinking herbal tea	2	1.4
Increasing the number of pillows	2	1.4
Not doing anything	51	35.4

used a warm shower (36.8%), watching television (31.3%) and drinking a warm milk to cope with insomnia (29.2%). Some of them were doing nothing (35.4%).

In Table 4, the mean global score of the PSQI was 6.8 ± 3.6 (95% CI). The mean global score of the SF-36 QLS was 32 ± 12.8, which was below the average of the study population. The subgroups of the scale, respectively, physical function score was 36.9 ± 14.6, role difficulty (physical) score average was 21.6 ± 20.5, pain score average was 33.8 ± 18.5, general health score average was 35.3 ± 9.5, vitality (energy) score average was 34.1 ± 15.3, social function score average was 34.6 ± 14.7, role difficulty (emotional) score was 25.3 ± 20.0, and mental health score was 36.3 ± 10.4. According to the SF-36 QLS, the quality of life of the pregnant women was below the average. There was a negative correlation between the scores of pregnant women from PSQI and the sub-dimension of life quality scale (r = -0.386, p = 0.000), (Table 4). Also, the mean scores of physical function and role difficulties were decreasing as the insomnia increased (Figure 1).

Table 5 shows the total PSQI scores of pregnant women and their subscale scores in the last month. Even though the daily sleep duration of the pregnant women (mean: 7.2 hours ± 3.4) was found to be within normal limits, more than half of them had insomnia, which indicates their low quality of sleep. According to the PSQI, 68.5% of the pregnant women had insomnia. It is seen that the times of falling a sleep of most of the women with insomnia were longer than those with good sleep quality (p < 0.001). Women with good sleep quality have longer periods of sleep (p < 0.001).

In Table 6, several factors were determined to have an independent effect on sleep problems. There was a significant difference between age groups in terms of sleep quality, duration, efficiency and sleep disorder component (p < 0.05). Accordingly, it was observed that the older age group had more sleep problems. Sleep latency (difficulty falling asleep) is significantly higher in low-income groups (p < 0.05). Sleep duration, sleep disturbance, daytime dysfunction, global score were found to be significantly higher in those with co-morbidity than those without the diseases (p < 0.05). A stronger relationship was observed between obesity and insomnia (p < 0.05). As the week of gestation increased, sleep duration decreased, sleep quality decreased (p < 0.05). Women with high parity had difficulty falling asleep (p < 0.05). Sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, daytime dysfunction and global score scores of those who had pregnancy-related problems during pregnancy were found to be significantly higher than those who did not have pregnancy-related problems (p < 0.05). Smoking increased the risk of sleep problems (sleep latency, sleep disturbance and general score) (p < 0.05). Physical activity was associated with decreased sleep problems (sleep quality, sleep efficiency and global score) (p < 0.05). The sleep quality of women receiving antenatal care and social support was found to be high, but who regularly consumed the tea was found to be low (p < 0.05), (Table 6). However, no significant difference was found between insomnia and family type, occupation, and coffee consumption (during pregnancy is very low) (p > 0.05).

Table 4: Descriptive characteristics of PSQI-SF-36 QOL scores and scales correlation.

PSQI - Subscales (0-21)		Mean	Min	Max	SD*
1.	Sleep quality	1.2	0.0	3.0	0.9
2.	Sleep latency	1.4	0.0	3.0	0.9
3.	Sleep duration	0.6	0.0	3.0	0.8
4.	Habitual sleep efficiency	0.7	0.0	3.0	1.1
5.	Sleep disturbance	1.6	1.0	3.0	0.5
6.	Use of sleeping medication	0.0	0.0	1.0	0.1
7.	Daytime dysfunction	0.9	0.0	3.0	0.8
Global Score		6.8	0.0	17	3.6
SF-36 QOL- Subscales (0-100)		**Mean**	**Min**	**Max**	**SD**
1.	Physical function	36.9	0.0	66.7	14.6
2.	Role difficulty (physical)	21.6	0.0	62.5	20.5
3.	Pain	33.8	0.0	81.8	18.5
4.	General health	35.3	0.0	60.0	9.5
5.	Vitality (energy)	34.1	0.0	66.7	15.3
6.	Social function	34.6	0.0	80.0	14.7
7.	Role difficulty (emotional)	25.3	0.0	50.0	20.0
8.	Mental health	36.3	0.0	63.3	10.4
Global Score		32.4	0.0	74.3	12.8

		Physical Function	Role difficulty Physical	Pain	General health	Vitality	Social Function	Role difficulty Emotional	Mental Health
PSQI	r	-0.322*	-0.280*	0.386*	0.116	0.140*	-0.098	-0.251*	0.027
	p	0.000	0.000	0.000	0.059	0.022	0.109	0.000	0.656

*SD; standard deviation; **Pearson correlation analysis, p < 0.05

Table 5: Distributions of PSQI subscales scores.

PSQI - Subscales	Quality sleep Good (n = 84)		Quality sleep Poor (n = 183)		Total (Analysis)*	
	n	%	n	%	n	%
Sleep quality						(U = 11.75, p < 0.001)
Very good (0 pn)	55	65.5	12	6.6	67	25.1
Very bad (3 pn)	0	0.0	24	13.1	24	9.0
Sleep latency						(U = 7.32, p < 0.001)
< 15 min (0 pn)	46	54.8	11	6.0	57	21.3
> 60 min (3 pn)	0	0.0	37	20.2	37	13.9
Sleep duration (Mean: 7.2 ± 3.4)						(U = 8.51, p < 0.001)
≥ 7 hours (0 pn)	72	85.7	81	44.3	153	57.3
< 5 hours (3 pn)	0	0.0	12	6.6	12	4.5
Sleep efficiency						(U = 9.22, p < 0.001)
> 85% (0 pn)	71	84.5	60	32.8	131	49.1

< 65% (3 pn)		0	0.0	42	23.0	42	15.7
Sleep disturbance						(U = 7.49, p < 0.001)	
No (0 pn)		0	0.0	0	0.0	0	0.0
≥ 3 times a week (3 pn)		0	0.0	11	6.0	11	4.1
Sleep medication						(U = 6.33, p < 0.001)	
No (0 pn)		84	100.0	182	99.5	266	99.6
≥ 3 times a week (3 pn)		0	0.0	0	0.0	0	0.0
Daytime dysfunction						(U = 6.80, p < 0.001)	
No (0 pn)		70	83.3	27	14.8	97	36.3
≥ 3 times a week (3 pn)		0	0.0	9	4.9	9	3.4

*Mann Whitney U test, p < 0.05

Table 6: PSQI score distribution according to some characteristics of pregnant women.

PSQI-Subscales[**]									
Variables (analysis)		1	2	3	4	5	6	7	**Global Score**
Education	z	0.33	2.18	1.78	3.01	0.85	1.44	0.56	1.13
	p	0.847	0.335	0.408	0.223	0.652	0.484	0.754	0.566
Age	z	6.57*	4.07	5.71*	8.17*	7.96*	2.60	4.86	6.10*
	p	0.034	0.252	0.074	0.042	0.046	0.456	0.182	0.011
Social support	U	4.98*	0.85	1.09	1.81	1.90	0.47	0.44	1.21
	p	0.045	0.652	0.579	0.403	0.385	0.788	0.801	0.545
Income	z	1.28	9.23*	5.9*	1.75	1.05	0.75	0.84	5.05
	p	0.526	0.009	0.004	0.415	0.591	0.685	0.655	0.069
Chronic diseases	U	-1.80	-0.91	-2.30*	-1.72	-2.47*	-0.61	-2.59*	-2.63*
	p	0.072	0.363	0.021	0.085	0.014	0.540	0.009	0.008
Obesity	z	5.83*	0.80	6.16*	9.86*	5.87*	1.18	2.19	7.14*
	p	0.050	0.668	0.046	0.007	0.005	0.55	0.333	0.019
Gestational age	z	20.37*	6.30*	9.53*	11.06*	14.76*	2.98	6.84*	19.83*
	p	0.0001	0.041	0.009	0.004	0.0001	0.225	0.044	0.0001
Gravida	z	0.14	6.35*	3.22	1.67	1.57	2.81	2.08	4.06
	p	0.147	0.042	0.201	0.433	0.45	0.245	0.352	0.135
Parity	z	3.24	7.72*	5.33	4.67	0.88	2.69	2.47	5.76
	p	0.125	0.021	0.063	0.126	0.65	0.261	0.291	0.052
Pregnancy Relatedproblems	z	-8.45*	-7.00*	-5.64*	-5.76*	-7.20*	-1.08	-6.45*	-9.31*
	p	0.0001	0.0001	0.0001	0.0001	0.0001	0.279	0.0001	0.0001
Smoking	U	-1.72	-2.58*	-1.36	-0.63	-2.26*	-0.45	-1.87	-2.05*
	p	0.085	0.010	0.174	0.527	0.024	0.653	0.062	0.040
Drinking Tea	U	7.86*	5.75	0.62	5.35	3.96	2.29	6.83	6.60
	p	0.050	0.190	0.892	0.152	0.266	0.513	0.077	0.086
Exercises	U	-2.46*	-0.26	-1.50	-2.24*	-1.23	-0.64	-1.22	-1.98*
	p	0.014	0.797	0.133	0.025	0.220	0.521	0.221	0.048
Antenatal care	U	13.00*	4.655	9.422*	5.838	8.221	2.81	4.702	11.804*
	p	0.005	0.199	0.024	0.121	0.140	0.497	0.195	0.006

*Mann Whitney U and Kruskall Wallis analysis, p < 0.05; **PSQI subscales; 1 = Sleep quality; 2 = Sleep latency; 3 = Sleep duration; 4 = Sleep efficiency; 5 = Sleep disturbance; 6 = Sleep medication; and 7 = Daytime function.

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Discussion

Pregnancy is a physiological challenge to virtually every organ system, in particular, the respiratory system. Thus, women are vulnerable to sleep disturbance during the perinatal period. A variety of sleep problems may worsen quality of life of the pregnant women [1-11]. In our study, it was determined that 68% of the women had insomnia. Recent studies also found that insomnia was common in the majority of pregnant women. These were as follows, Sedov, et al. (2018) 46%, Kızılırmak, et al. (2012) 52.2%, Coban and Yanıkkerem, et a. (2010) 54%, Rezai, et al. (2013) 58%, Dorheim, et al. 62%, Kennelly, et al. (2011) 68%, Lopez, et al. 70%, Mindell, et al. (2015) 76%, Smyka, et al. (2020) 77%, Madevea, et al. (2014) 78%, Wolyncyk-Gmaj, et al. (2017) 84.2%, and Skoczlats, et al. (2014) 94.3%, respectively.

Modifications in sleep pattern result from high circulating hormone levels and physical changes associated with pregnancy such as increased sympathetic activity, pulse rate, blood pressure and respiratory frequency with augmented alveolar oxygen gradient. All these changes contribute to the tiredness, fever, congestion, and respiration problems by the pregnant women [26,29-34]. We found that the most common reasons of insomnia were fatigue (being obliged to continue their traditional roles in the family), back-pain, growing their fetus, reflux, irritability, stress, fever, nausea, leg cramps and frequent urination. Similarly, previous studies showed that sleep problems were frequently associated with polyuria, fetal movements, uncomfortable position while sleeping, pain, breathing problems, and restless legs, respectively [8,21,22,26,35-37].

In the study, sleep quality has reduced significantly with increasing age ($p < 0.05$). According to the previous studies, advanced age was an important factor for insomnia [3,4,8,25,26]. Fatigue and other health problems that increase with age may cause sleep problems. In this study, it was found that uneducated women with poor income had more problems with sleep patterns ($p < 0.05$). Findings of this study are correlated with the literature [3,5,26,37]. However, Coban and Yanıkkerem, et al. (2010) did not detect a relationship between education level and quality of sleep in pregnant women. We found that sleep quality decreased significantly with the increase in the gestational age ($p < 0.05$). The related literature shows that insomnia is more common in the third trimester due to physical and psychosocial changes including anxiety, fetal growing, and respiratory distress [33-35].

In this study, obesity was an important modifier of sleep problems ($p < 0.05$). Obesity accompanied excessive soft tissue may narrow the pharyngeal airway and reduce lung volume. This situation may cause sleep problems along with apnea and snoring. Findings of this study are comparable with those in the literature [24,26,31,33-35].

Mental and physical discomfort caused by pregnancy related problems such as pain, interruption of sleep at night, waking up early in the morning, and being sleepy during the day may cause insomnia [9,11,24,25]. This study detected that the participants who had pregnancy-related complaints had the risk of developing insomnia more than those who did not ($p < 0.05$). However, our study revealed that most women did not go to the doctor for insomnia. Similarly, some authors reported that insomnia significantly linked with pregnancy-related problems [15,16,18,21,25]. Because of the complex and common co-morbid nature of insomnia, even if the problems related to pregnancy are minimized, the insomnia may not improve immediately. Several studies found that massage therapy was the non-pharmacological intervention most commonly preferred to pregnant women with low-back pain such as acupuncture, herbal, relaxation, exercise, yoga, and chiropractic, mindfulness, meditation, and physiotherapeutic counseling [17,36,37].
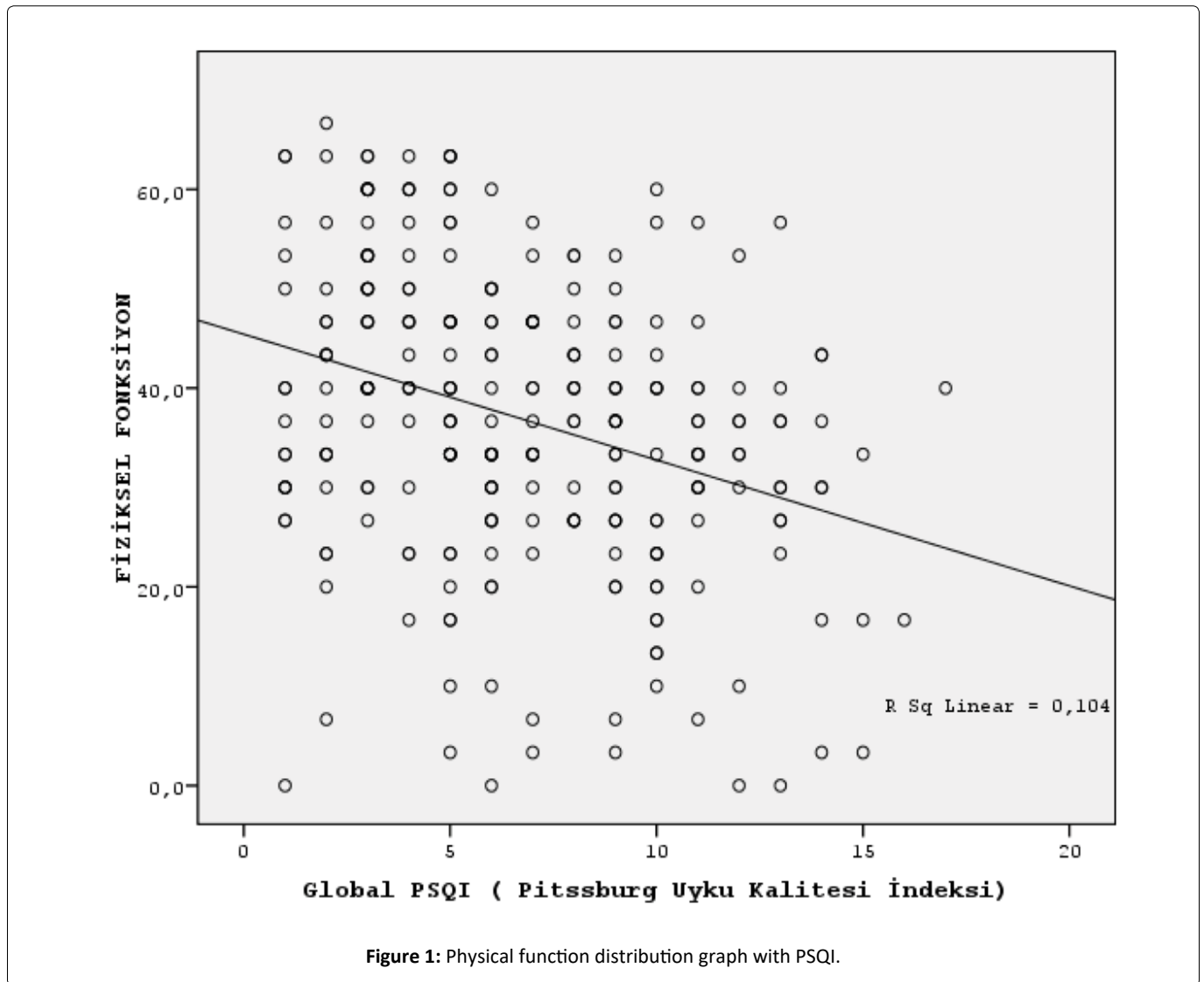
Significant relationship was detected between the state of smoking and insomnia ($p < 0.05$). Some authors identified that smoking pregnant women experienced sleep disturbances two times more frequently than those who did not [26,30,31]. In the present study, the score of sleep quality decreased significantly due to the stimulating effect of drinking tea ($p < 0.05$). The results of this study are consisted with other studies [33-35]. Physical activity is considered as a non-pharmacological approach to alleviating sleep problems [36]. In our study, sleep quality of those who exercise regularly during pregnancy was found to be better ($p < 0.05$). Similar result was obtained in previous studies [37,38].

Although motherhood is a natural event, it brings along many difficulties. Thus, women are vulnerable to some problems about individual or family role functions during pregnancy [3,7]. In our study, women's quality of life of score was generally low (32 ± 12.8), particularly in the subscale of physical role function (Figure 1). Furthermore, there was significant inverse related between the quality of life score and insomnia ($p < 0.05$), so the H_1 hypothesis was confirmed. Similarly, recent researches indicated that the quality of life of pregnant women is related to their sleep quality [1,4,6,10,25].

The validity of the findings is dependent on the individual's memory and accuracy in reporting sleep problems. The sample in this study reflects only one area of Turkey and the findings should be limited to this population. However, our findings highlight the importance of considering the socio-demographic, medical, pregnancy-related characteristics and habits for each woman with pregnant to ensure correct approach for alleviating sleep problems. Also, the data of this cross-sectional study were based on clinically prognostic scale of the women by face-to-face interview instead of retrospective patient chart based reports.

Conclusion

Sleep problems was common in the majority of pregnant women. Also, quality of life decreased with increasing insomnia. In line with these findings, women should be thoroughly evaluated for insomnia symptoms including risk factors as part of usual antenatal care and treated timely with effective strategies such as improving sleep hygiene, behavioral therapies, and pharmacotherapy by healthcare professionals. Future research with larger group should examine various factors underlying poor sleep quality during pregnancy to improve women's quality of life.

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Figure 1: Physical function distribution graph with PSQI.

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Conflict of Interest

The authors have no conflicts of interest.

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