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Evaluation of happiness levels and sleep quality of women practicing yoga: A pre-test post-test study

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Abstract

This study evaluated the happiness levels and sleep quality of women practicing yoga. Fifty-four women participated in a 4-week yoga program with 60-minute sessions three times weekly. Data were collected using a Socio-Demographic Form, the Happiness Scale (HS), and the Cumhuriyet Subjective Sleep Quality Scale (CSSQS) before and after the program. Mean HS scores increased significantly from 14.44±3.94 to 17.50±4.28 after yoga ($p<0.05$). Mean CSSQS scores decreased significantly from 25.07±7.90 to 16.66±9.75, indicating improved sleep quality ($p<0.05$). Differences were also significant across age, education, marital status, income, employment, and smoking status ($p<0.05$). These findings suggest that yoga is a promising intervention to improve happiness and sleep quality among women. *(Afr J Reprod Health 2025; 29 [11]: 154-162).*

Keywords: Yoga, Women, Happiness, Sleep Quality

Résumé

Cette étude visait à évaluer les niveaux de bonheur et la qualité du sommeil des femmes pratiquant le yoga. Cinquante-quatre femmes ont participé à un programme de yoga de 4 semaines comprenant des séances de 60 minutes, trois fois par semaine. Les données ont été recueillies à l'aide d'un formulaire sociodémographique, de l'Échelle de Bonheur (HS) et de l'Échelle Subjective de Qualité du Sommeil de Cumhuriyet (CSSQS), avant et après le programme. Le score moyen du HS a augmenté significativement de 14,44±3,94 à 17,50±4,28 après le yoga ($p<0,05$). Le score moyen du CSSQS a diminué significativement de 25,07±7,90 à 16,66±9,75, indiquant une amélioration de la qualité du sommeil ($p<0,05$). Des différences significatives ont également été observées selon l'âge, le niveau d'éducation, l'état civil, le revenu, l'emploi et le tabagisme ($p<0,05$). Ces résultats suggèrent que le yoga constitue une intervention prometteuse pour améliorer le bonheur et la qualité du sommeil des femmes *(Afr J Reprod Health 2025; 29 [11]: 154-162).*

Mots-clés: Yoga, femmes, bonheur, qualité du sommeil

Introduction

Globally, sleep disorders have become a widespread public health problem. It is known that more than 30% of adults worldwide experience insomnia symptoms and their sleep quality decreases.[1] Factors such as stress, anxiety, gender differences, hormonal changes, cultural and geographical differences, screen addiction and digitalization, lifestyle and routine changes can be effective in the deterioration of individuals' sleep quality.[2,3] Sleep plays a central role in the synthesis and regulation of the release of neurotransmitters such as serotonin, dopamine and noradrenaline. Serotonin and dopamine are hormones associated with happiness.[4,5] Sleep quality is closely related to individuals' subjective well-being and happiness level. Happiness is a fundamental component of mental health and is among the priority targets of nations to increase the general well-being of society.[6] Yoga has become widespread around the world in recent years and is used in many areas as a method of increasing health and happiness.[7] People generally develop conscious awareness and experience relaxation with yoga practice.[8] In addition, yoga movements can be arranged for each age group, body type and physical ability level.[9] Yoga, which literally means to unite or integrate, is a mind-body practice that develops the individual's awareness of their own body, breath, and environment through the combination of body, mind, and soul.[10] Yoga, which includes breathing exercises, postures that strengthen and stretch muscles and relaxation sessions, has increasing

importance as the key to a healthy and happy life.[11] Numerous scientific studies are proving the health-protective, therapeutic and rehabilitative power of yoga.[12-14] It is emphasized that yoga improves symptoms associated with chronic health conditions[15], reduces inflammation, improves the immune system[16], enhances sleep quality[14,17], reduces depression and anxiety[18] and enhances joy and happiness.[12,19] Mindfulness, an important component of yoga, described as a conscious physical activity improves sleep disorders by increasing melatonin levels, reducing overstimulation, and eliminating stress-related heart and respiratory abnormalities.[13]

Sleep is one of the most fundamental parts of human life. It is considered one of the most important energy sources because it provides energy restoration in a way that no other process can.[17] When the need for sleep, which is among the most basic needs of humans and is closely related to the level of happiness, is not met on time and adequately, physical and mental problems can occur. Happiness is the feeling of satisfying important desires and wishes. It indicates that a person enjoys his life physically, mentally, cognitively, and socially.[20] The inadequacy of basic life needs of an individual is the main factor affecting their happiness.[21] Sleep is one of them. In many living beings, not only the quantity but also the quality of sleep affects life satisfaction.[22] Sleep problems are closely related to a significant decline in daily functioning and work performance, as well as increase in health care costs. The female population at certain stages of their lives may be more vulnerable to insomnia. These periods are puberty, pregnancy, postpartum and menopause, when hormonal changes such as follicle-stimulating hormone (FSH), luteinizing hormone (LH) and progesterone occur.[13] The fact that women constitute the majority of the population in this period is often cited as an indication that sleep problems are approximately 1.41 times more common in women than in men due to related sociocultural and biological factors.[23] On the other hand, it is known that happiness plays an important role in maintaining mental and physical health. Research into the relationship between happiness and health is developing rapidly, exploring the possibility that impaired happiness is not only a consequence of ill health but also a potential contributor to disease risk. Therefore, yoga is important in reducing women's sleep problems and increasing happiness by improving their quality of life.[24]

Recently, it has been emphasized that yoga, which has been proven to have positive effects on women's health by many studies, is safe and effective in improving sleep quality and increasing happiness levels.[7,16] When the literature is examined, there is no research examining the sleep quality and happiness levels of women doing yoga in the Turkish sample population. Therefore, the research findings aim to fill this gap in the literature, address the yoga practice that individuals resort to feel better, stay healthy, and lose weight, and examine how it impacts happiness and sleep quality. This study was conducted as pre-test-post-test applied research to evaluate the happiness levels and sleep qualities of Turkish women doing yoga.

H0- There is no relationship between happiness level and sleep quality in women who do yoga.

H1-There is a relationship between happiness level and sleep quality in women who do yoga.

Methods

This study was conducted with Turkish women. The pretest-posttest method was used in the study. This method allows for the control of individual differences and the direct effect of yoga practice to be observed, while reducing the variation caused by individual differences and allowing us to measure the effect of the intervention more precisely. In addition, with the pretest and posttest measurements, changes before and after yoga practice could be directly compared. In the literature, this design is frequently preferred in areas such as yoga and psychological well-being.

Research design

The research was conducted as a semi-experimental study in a single group in accordance with the pre-test and post-test research design.

Research population and sample

Data were collected between 15 March -June 2024. The research population consisted of 86 women who attended a yoga course at a center established within a university's continuing education center. The study did not select a sample and was conducted with 54 women who attended a yoga course between the dates the study was conducted, met the study criteria, and agreed to participate.

The inclusion criteria

The women between the ages of 18-49, not menopausal, not pregnant, not physically impeding yoga, not exercising regularly or doing yoga (at least 3 days a week for 1 hour), not having a diagnosed mental health problem, not using a medication that causes insomnia, and being open to communication.

The exclusion criteria

The women who did not regularly attend yoga classes (at least 10 classes), who wanted to withdraw from the study at any stage, who became pregnant during the course, who experienced a life or situational crisis during the study (death of relatives, divorce/separation, job change/loss, serious illness, etc.), and women who had babies under the age of 3, as they may experience sleep disruptions at night.

Data collection tools

The sociodemographic data form, Happiness Scale (HS), and Cumhuriyet Subjective Sleep Quality Scale (CSSQS) were used as data collection tools in the study. Permission was obtained from the relevant authors via e-mail for the use of the scales.

Socio-demographic data form: This form, consisting of 6 questions aimed at determining the socio-demographic characteristics of women, includes questions about women's age, education level, marital status, income status, employment status, and smoking status.

HS: The scale developed by Demirci and Ekşi (2018) is one-dimensional and consists of 6 items. There is no reverse item in the scale. The scale created in a five-point Likert scale represents the expressions 1=Does Not Suit Me at All, 2=Does Not Suit Me, 3=Suits Me Somewhat, 4=Suits Me Quite, 5=Suits Me Completely. A high score obtained on the scale indicates a high level of happiness. The Cronbach's alpha internal consistency coefficient of the scale was calculated to be 0.83. The total score correlations of the items in the scale are between .45 and .65. The fit index values: χ^2 (9, N = 450) = 23.83 (p<.001), SRMR = .029, NFI = .98, CFI = .99, NNFI = .98, RMSEA = .061. The reliability coefficient from retesting the scale on 62 participants at three-week intervals was determined as .73 [25].

CSSQS: The scale Sarıçam (2022) developed consists of 18 items and 3 sub-dimensions. The first factor was named Psychosomatic effects (items 1, 2, 5, 13, 16), the second-factor Sleep course (items 3, 4, 8, 9, 11, 12, 14), and the third factor Sleep satisfaction (items 6, 7, 10, 15, 17, 18). The items in the scale are scored with a 4-point rating (0=Never, 1=Very rarely, 2=Sometimes, 3=Very often). Items 3, 10, 11, 15, and 17 in the scale are reverse scored. Increasing scores indicate decreased sleep quality. The Cronbach's alpha internal consistency reliability coefficient of the scale was calculated as α=.91 for the entire scale, α=.84 for the psychosomatic effects factor, α=.87 for the sleep course, and α=.84 for sleep satisfaction. CSSQS is a valid and reliable measurement tool that can be used to evaluate the subjective sleep quality of adults. [22]

The duration of yoga practicing

One of the researchers, Dr. Vasviye EROĞLU, received 200 hours of theoretical and practical "Adult Yoga Instructor Training" for adult yoga instruction. Yoga sessions were conducted face-to-face with women who participated in the yoga course conducted by the researcher within the scope of the Continuing Education Center. The literature reports that a yoga program is applied for 4-24 weeks and should be repeated at least twice a week to obtain effective results [13,14]. In line with this data, it is concluded that at least 8 lessons should be applied. In this study, data were collected from women who enrolled in a 4-week yoga program consisting of 60-minute sessions 3 times a week. Women who participated in at least 10 yoga classes were included in the study. After the study was explained to the women who registered for the

course, the participants who wanted to participate voluntarily filled out the Informed Consent Form. Before the first yoga class, the participants were administered a sociodemographic data form, the HS, and the CSSQS.

Yoga Practice: Yoga, which continued 3 days a week, was performed in different combinations including breathing (10 min), yoga poses (asanas) (35 min), and relaxation (meditation) (15 min). After 4 weeks of yoga practice, the HS and CSSQS were administered to the women participating in the study at the end of the course and the study was completed.

Ethical approval

Before starting the research, permission was obtained from Tokat Gaziosmanpasa University Social and Human Sciences Research Ethics Committee (Date: 12.03.2024/Decision Number: 05/01-51). An online survey link was shared with participants via WhatsApp to collect data before and after yoga practice. Before starting the survey, participants were asked to mark the "I approve of participating in the study" statement if they agreed. The research was conducted according to the principles of the Helsinki Declaration.

Data analysis

Statistical analysis of the data obtained in the study was performed using the SPSS 26.0 program. Descriptive statistical criteria were also used. Since the skewness and kurtosis values of all scales were between -1.50 and +1.50 in the normality analysis, independent samples t tests were performed using parametric tests. Statistics such as numbers, percentages, arithmetic mean, and standard deviation (SD) were used to determine the socio-demographic characteristics of women. A paired samples t test was used to compare the results before and after yoga practice (pre-test and post-test). The significance level was taken as $p<0.05$.

Results

The study sample included 54 women, equally distributed between two age groups: 21–36 and 37+ (50% each). The average age was 35.59 ± 7.27 years (range: 21–48). Most participants held a university (48.1%) or postgraduate degree (40.8%). A majority were non-smokers (75.9%), married (50%), and perceived their financial status as moderate (59.3%). Professionally, most participants were employed (74.1%) (Table 1).

Mean happiness scores (HS) significantly increased following the yoga intervention, rising from 14.44 ± 3.94 to 17.50 ± 4.28 ($p < 0.001$). Meanwhile, CSSQS significantly decreased (indicating improved quality) from 25.07 ± 7.90 to 16.66 ± 9.75 ($p < 0.001$). Each subdimension of the CSSQS (psychosomatic effects, sleep process, sleep satisfaction) showed statistically significant improvements ($p < 0.05$). Cronbach's alpha coefficients demonstrated excellent internal consistency for both instruments, ranging from 0.84 to 0.93 pre- and post-intervention (Table 2).No significant differences were found in HS scores before and after yoga based on sociodemographic variables such as age, education, marital status, income level, employment, or smoking status ($p > 0.05$).

However, post-intervention CSSQS scores showed significant differences between groups based on age, education, marital status, income, employment, and smoking ($p < 0.05$), suggesting that yoga's impact on sleep quality may vary across these demographic variables (Tables 3 - 4).

Discussion

In recent years, yoga has become a preferred practice to improve individuals' physical and mental health and quality of life. It is known that individuals experience relaxation and comfort with yoga practice. It has been shown that yoga improves symptoms associated with many chronic health problems, reduces inflammation, strengthens the immune system, reduces depression, anxiety, and stress, increases sleep duration, facilitates falling asleep, and improves sleep quality.[12,16] This study was conducted as a pre-test and post-test design to evaluate the happiness levels and sleep quality of women who do yoga. According to the findings obtained from the study, the study revealed that the happiness levels and sleep qualities of women increased after yoga practice.

Sleep quality is the most important determinant of sleep status and is characterized by the frequency of falling asleep, staying asleep, and waking up at night. Studies show that the prevalence rates of insomnia vary between 10% and 30%, and in some cases, increase to as much as 50-60%.

Table 1: Number and percentage distributions regarding the socio-demographic characteristics of women (n=54)

Sociodemographic Characteristics	N	%
Age (years)		
21-36	27	50.0
37 and above	27	50.0
Age Average: 35,59 ± 7,27 (min-max=21-48)		
Educational status		
High school	6	11.1
University	26	48.1
University above	22	40.8
Married status		
Single	27	50.0
Married	27	50.0
Perceived economic status		
Good	13	24.1
Moderate	32	59.3
Bad	9	16.6
Working		
Yes	40	74.1
No	14	25.9
Smoking		
Yes	13	24.1
No	41	75.9
Total	54	100.0

Table 2: Internal validity coefficients and distribution of mean values of HS and CSSQS total and sub-dimensions (n=54)

	Before Yoga		**After Yoga**		**t/p***
	M±SD (min-max)	**Cronbach's Alpha**	**M±SD (min-max)**	**Cronbach's Alpha**	
Happiness Scale	14.44±3.94 (6-23)	0.91	17.50±4.28 (11-24)	0.93	***-3.718/0.000****
Cumhuriyet Subjective Sleep Quality Scale	25.07±7.90 (10-44)	0.84	16.66±9.75 (0-42)	0.90	***4.798/0.000****
Psychosomatic effects	9.09±2.55 (4-15)	0.63	5.87±3.52 (0-14)	0.84	***5.880/0.000****
Sleep course	9.37±3.27 (3-17)	0.67	6.07±4.61 (0-17)	0.87	***4.094/0.000****
Sleep satisfaction	6.61±3.33 (1-14)	0.68	4.72±3.36 (0-12)	0.67	***2.767/0.008****

*t=paired sample t test used. M = Mean, SD = Standard Deviation; *p < 0.05 was considered statistically significant*

Table 3: Comparison of women's before and after yoga HS mean scores according to socio-demographic variables (n=54)

Sociodemographic Characteristics	Happiness Scale						Test value (F*)/p
	Before Yoga M±SD	Test (t/F)	p-value	After Yoga M±SD	Test (t/F)	p-value	
Age (years)		-0.273	0.786		-0.473	0.638	1.022/0.535
21-36	14.29±3.95			17.22±4.59			
37 +	14.59±4.01			17.77±4.02			
Education		1.207	0.308		1.050	0.357	0.815/0.695
High school	14.33±3.55			19.66±4.03			
University	15.26±3.68			16.88±4.03			
Postgraduate	13.50±4.29			17.63±4.60			
Married status		0.205	0.839		-1.378	0.174	0.722/0.771
Single	14.00±3.54			16.70±4.23			
Married	14.33±4.38			18.29±4.25			
Perceived economic status		0.572	0.568	19.23±4.20	1.978	0.149	0.696/0.792
	14.15±3.71			16.59±4.14			
Good	14.87±3.98			18.22±4.43			
Moderate	13.33±4.35						
Bad							
Working	14.37±4.00	0.216	0.830	17.95±4.31	-1.314	0.194	1.156/0.477
Yes	14.64±3.93			16.21±4.06			
No							
Smoking	14.19±3.95	-0.821	0.415	17.29±4.23	-0.628	0.533	0.548/0.903
Yes	15.23±3.98			18.15±4.52			
No							

M = Mean, SD = Standard Deviation. t= Independent sample t-test; F: One-Way ANOVA; F:Repeated Measures Two-Way ANOVA. **p < 0.05 was considered statistically significant*

Table 4: Comparison of women's before and after yoga CSSQS score averages according to socio-demographic variables (n=54)

Sociodemographic Characteristics	Cumhuriyet Subjective Sleep Quality Scale						Test value (F*)/p
	Before Yoga M±SD	Test (t/F)	p-value	After Yoga M±SD	Test (t/F)	p-value	
Age (years)					-1.090		***22.892/0.000*** **
21-36	25.11±8.17	0.034	0.973	15.22±9.72		0.281	
37 +	25.03±7.79			18.11±9.74			
Education							
High school	23.00±9.23			17.33±11.48			***12.429/0.001*** **
University	24.88±8.15	0.315	0.731	15.69±11.25	0.245	0.783	
Postgraduate	25.86±7.52			17.63±7.45			
Married status							***22.940/0.000*** **
Single	24.03±6.92	-0.963	0.340	17.22±8.63	0.415	0.680	
Married	26.11±8.79			16.11±10.88			
Perceived economic status							
Good	26.76±9.01		0.579	11.30±8.90			***25.272/0.000*** **
Moderate	24.15±7.37	0.552		18.56±8.66	2.792	0.071	
Bad	25.88±8.55			17.66±12.55			
Working							
Yes	25.97±8.02	-1.429	0.159	16.60±9.26	0.084	0.933	***12.265/0.000*** **
No	22.50±7.22			16.85±11.40			

Smoking						***15.875/0.000*** **
Yes	23.07±7.47	1.046	0.301	15.15±11.78	0.638	0.526
No	25.70±8.02			17.14±9.12		

M = Mean, SD = Standard Deviation. t= Independent sample t-test; F: One-Way ANOVA; F:Repeated Measures Two-Way ANOVA. ** $p < 0.05$ was considered statistically significant*

Sleep disorders are particularly common among women and individuals with medical and mental health problems.[26] Physical activities such as yoga are thought to improve sleep quality by prolonging the sleep phase and shortening the latent period of sleep (the time between the onset and the first stage of sleep).[27] In this study, sleep quality scores (CSSQS) significantly improved after yoga, from 25.07 ± 7.90 to 16.66 ± 9.75. These findings align with Halpern *et al*. who reported enhanced sleep and emotional well-being following a 12-week yoga program. Another study concluded that yoga improved sleep quality in individuals with chronic low back pain, but this difference was insignificant.[28] However, it was reported that individuals who practiced yoga slept more comfortably after yoga.[29] In this study, it was found that the mean sleep quality scale score of women before yoga practice was 25.07±7.90, while it was 16.66±9.75 after yoga. There was a significant difference between the scores before and after yoga practice. Accordingly, women have better sleep quality after yoga practice.

Inadequate sleep quality affects physical, psychological, and social life, influencing the individual's happiness level.[20] Breathing practices and meditation in yoga can calm the mind and help individuals develop greater awareness and reduce anxiety, thus resulting in a higher quality of life.[30] Happiness equates to subjective well-being and is considered an indicator of good health in mental and psychological terms. Many internal and external factors such as sadness, stress, pressure, loneliness, loss, health, and economic problems cause unhappiness.[31] However, internal factors are known to constitute the majority of happiness. Yoga practices activate the brain and facilitate the secretion of happiness hormones (dopamine, oxytocin, serotonin, etc.). Happiness hormones increase the individual's sense of relaxation and make him or her happy.[31] When the literature is examined, studies indicate that individuals who do yoga feel happier.[7,31] One study confirmed that yoga increases the happiness of housewives[32], and another study demonstrated that it is effective in reducing women's anxiety.[33] In our study, women's happiness levels were higher after yoga than before yoga, which is consistent with the literature. A growing body of research confirms yoga's benefits in improving happiness and reducing anxiety, especially among women. Evidence also supports its effectiveness in enhancing the psychological well-being of homemakers and in mitigating daily stress-related anxiety. The present findings are in line with these previous results.

Concluding summary

The findings suggest that yoga has a positive influence on both sleep quality and subjective happiness in women. This supports the integration of yoga into broader strategies aimed at promoting women's well-being.

Conclusion

This study, conducted with 54 female participants, showed that yoga significantly improves both sleep quality and happiness levels. However, the limited sample size and reliance on self-reported data restrict the scope of generalization. Future research should involve randomized controlled trials with larger, more diverse populations. The inclusion of objective measures — such as physiological indicators, sleep tracking devices, and hormonal assessments — would offer deeper insight into the mechanisms involved. Moreover, evaluating the long-term impact of yoga could help provide a more comprehensive understanding of its benefits on mental health and overall well-being.

Author contributions

Vasviye Eroğlu: Conceptualization; data curation; formal analysis; resources; investigation; writing–original draft; methodology; validation; visualization; writing – review and editing; software.

Ayşe Çataloluk: Conceptualization; data curation; formal analysis; writing–original draft; methodology; validation; visualization; writing – review and editing; software.

Conflict of interest statement

The authors declare no conflicts of interest.

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