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Investigation of the Relationship of Yoga Transformation Effect on Levels of Depression, Anxiety, Stress and Mindfulness in Individuals Playing Yoga

Yoga Yapan Bireylerde Yoga Dönüşüm Etkisinin Depresyon, Anksiyete, Stres ve Mindfulnes Düzeyleri Üzerine İlişkisinin İncelenmesi

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Abstract: Nowadays, it is seen that individuals often do yoga as a way to improve their physical and psychological health with the pursuit of feeling good. In this study, it was aimed to examine the relationship of yoga transformation effect on depression, anxiety, stress and mindfulness (Conscious Awareness) in individuals who practice yoga. A total of 236 subjects voluntarily participated in the study, 36 males and 200 females, with an average age (36.25 years), height (166.40 cm) and body weight (60.06 kg), respectively. The Mindful Attention Awareness Scale (MAAS), the Yoga Self-Efficacy Scale (YSES) with three sub-dimensions (Body, Mind and Breath) and the Depression-Anxiety and Stress Scale (DASS-21) were administered to the participants. In addition, with the personal information form, it was questioned how many years yoga was practiced, whether meditation and breathing exercises were done. SPSS 22.0 package program was used for statistical analysis. In the analysis of the data, t test, ANOVA and Pearson Correlation analysis were used to determine the relationship between the variables. In addition, multiple linear regression analysis was applied to determine the effect of yoga transformation effect on depression, anxiety, stress and mindfulness. As a result of the analyses, significant differences were found between YSES and its sub-dimensions (p<.01), Depression and MASS (p<.05) according to whether the participants meditate or not. Significant results were obtained in YSES and its sub-dimensions, and in MASS, depending on whether or not they did breathing exercises (P<.01). According to the participants' yoga practice history, there were statistically significant differences in the YSES and its sub-dimensions and MASS as the years of practicing yoga increased. In the correlation results, there was a positive relationship between YSES and its sub-dimensions and MASS, while there was an inverse relationship between DASS-21 and its sub-dimensions both with YSES and its sub-dimensions and with MASS. In the established regression model, it was determined that YSES was significant for MASS and explained 28% as positive predictors. In addition, it was observed that Breath scores were negative predictors of Anxiety (11%), Stress (12%) and Depression (10%) and explained it at low levels. As a result, it was determined that the yoga transformation effect was associated with both conscious awareness levels and depression, stress and anxiety levels in individuals who practice yoga.

Keywords: Yoga, mindfulness, depression, anxiety, stress.

Özet: *Günümüzde sıklıkla bireylerin iyi hissetme arayışı ile bedensel ve psikolojik sağlığına iyi gelen bir yol olarak yoga yaptıkları görülmektedir. Bu nedenle çalışmada; yoga yapan bireylerde yoga dönüşüm etkisinin depresyon, anksiyete, stres ve mindfulnes (Bilinçli Farkındalık) üzerine ilişkisinin incelenmesi amaçlanmıştır. Çalışmaya sırasıyla yaş (36,25 yıl), boy uzunluğu (166,40 cm) ve vücut ağırlığı (60,06 kg) ortalamalarında 36 erkek ve 200 kadın olmak üzere toplam 236 denek gönüllü olarak katılmıştır. Katılımcılara Mindful Attention Awareness Scale (MAAS), üç alt boyutu olan (Body, Mind ve Breath) Yoga Self-Efficacy Scale (YSES) ve Depression-Anxiety and Stress Scale (DASS-21) uygulanmıştır. Ayrıca kişisel bilgi formuyla kaç yıldır yoga yaptığı, meditasyon ve nefes egzersizleri yapıp yapmadığı sorgulanmıştır. İstatistiksel analizde SPSS 22.0 paket programı kullanılmıştır. Verilerin analizinde; t testi, ANOVA ve değişkenler arasındaki ilişkiyi belirlemek için Pearson Korelasyon analizi yapılmıştır. Ayrıca yoga dönüşüm etkisinin, depresyon, anksiyete, stres ve mindfulnes üzerindeki etkisini belirlemek için de çoklu doğrusal regresyon analizi uygulanmıştır. Analizler sonucunda; katılımcıların meditasyon yapıp yapmama durumlarına göre; YSES ve alt boyutları arasında (p<.01), Depresyon ve MASS arasında (p<.05) anlamlı farklılıklar tespit edilmiştir. Nefes egzersizleri yapıp yapmama durumlarına göre de; YSES ve alt boyutlarıyla birlikte MASS de anlamlı sonuçlar elde edilmiştir (P<.01). Katılımcıların yoga yapma yıllarına göre YSES ve alt boyutlarıyla birlikte MASS de yoga yapma yılı arttıkça olumlu yönde istatistiksel açıdan anlamlı farklılıklar olduğu görülmüştür. Korelasyon sonuçlarında; YSES ve alt boyutları ile MASS arasında pozitif yönlü ilişki bulunurken; DASS-21 ve alt boyutlarının hem YSES ve alt boyutlarıyla hem de MASS ile aralarında ters ilişki olduğu bulunmuştur. Kurulan regresyon modelinde ise; YSES' nın MASS için anlamlı olduğu ve pozitif yordayıcıları olarak %28'ni açıkladığı tespit edilmiştir. Ayrıca Nefes skorlarının; Anksiyetenin (%11), Stresin (%12) ve Depresyonun (%10) negatif yordayıcısı olduğu ve düşük düzeyde açıkladığı görülmüştür. Sonuç olarak; yoga yapan bireylerde yoga dönüşüm etkisinin hem bilinçli farkındalık düzeyleriyle hem de depresyon, stres ve anksiyete düzeyleriyle ilişkisi olduğu belirlenmiştir.*

Anahtar Kelimeler: *Yoga, bilinçli farkındalık, depresyon, anksiyete, stres.*

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INTRODUCTION

The Sanskrit word "yoga" comes from the root yug (to join), or yoke (to bind together or to concentrate (Garfinkel and Schumacher 2000). Yoga, which means "control, unity or integrity of the body and mind", is one of the personal development methods that trains the body, soul and mind and returns the individual to his/her inner world (Little at al 2017). Yoga comes from an oral tradition where its teaching is passed on from teacher to student. Known as the "Father of Yoga", the Indian sage Patanjali compiled this oral tradition in his classic work "The Yoga Sutras", a 2000-year treatise on the philosophy of yoga. Patanjali defines yoga as an eight-stage system blended with physical, spiritual, mental and ethical teachings (Garfinkel and Schumacher 2000). These eight steps are the steps one must reflect upon, comprehend, and be able to implement in order to guide one's journey back to one's essence. These are yamas, niyamas, asanas as posture, pranayama as breath, prathayara, dhrana, dhyana, and samadhi. These eight steps emphasize a more psychological approach to healing and self-actualization (Iyengar 1993). Yoga, in which strength and flexibility exercises are predominantly applied, is an alternative type of physical activity that is increasingly being practiced to protect health. The philosophy of yoga is based on body balance, physical, mental and emotional health (Vinoski et al 2017). Today, yoga, which is a popular practice in the world, is mostly practiced in western societies with its bodily aspect, while it is seen that they are more interested in its mystical aspect in eastern regions.

The effects of yoga, one of the oldest practices in the world, on body, mind and mental health have been researched for many years. In terms of physical health, it is reported that when people with many ailments such as cancer, spine, obesity, asthma, etc. are made to practice yoga, there are

mostly positive improvements (Šumec et al 2015, Grabara and Szopa 2015, Field 2016, Önen and Karabudak 2021, Ross and Thomas 2010, Van Puymbroeck et al 2013, Pascoe et al 2017). In studies on mental development and health, there are positive studies in the data obtained by the measurement of brain waves (Gothe et al 2019, Desai et al 2015), as well as studies in which there is no change (Breedvelt et al 2019, Verma et al 2014). Likewise, when studies on mental health are examined, there are studies that show positive results (Gard et al 2014, Lin et al 2011, Büssing et al 2012), as well as studies that give neutral results (Szabo et al 2017, Riley and Park 2015).

Depression, anxiety, and stress are phenomena that are associated or confused with each other. But they are emotions that each has separate effects and reactions. Depression is defined as psychological depression, unwillingness and worthlessness (Türkçapar 2004). Anxiety includes feelings such as worries about the future, anxiety, expectation of disaster, and fear (Li and Goldsmith 2012). Stress, on the other hand, is a set of physical and emotional reactions that the individual cannot cope with psychologically and physically (Chong et al 2011). Since yoga is a method that facilitates the spiritual dimension in connecting with a spiritual perception area for mental health problems, it is emphasized that high spirituality is important in the treatment of psychological problems in increasing psychological well-being (Snaith et al 2018, Gaiswinkler and Unterrainer 2016). The physical posture movement, which is done at the same time with the feelings and thoughts felt in yoga postures, gives information about the inner world of the individual. Sincere knowledge plays a positive role in coping skills by feeling the emotional and intellectual awareness of the person here and now (Cramer et al 2013, Salmon et al 2009).

Jon Kabat-Zinn (2015), who has been conducting scientific studies on mindfulness for many years, defines mindfulness as focusing on the present by paying close attention to the thoughts and feelings that are in our minds and are not repeated without judgment and in a very sincere way. He also states that mindfulness practices have a healing effect on individuals in somatic symptoms such as chronic pain of patients with anxiety disorders (Kabat-Zinn, 2015). As studies on yoga and mental health have gained importance in recent years, new practices such as mindful yoga have emerged. Mindfulness-based yoga is an application that aims to increase focus and awareness in the individual, applied by combining meditation and yoga practices (Tang et al 2012, Zelazo and Lyons 2012). When the studies compiled from articles investigating the effects of mindfulness on depression, anxiety and stress are examined, it is stated that mindfulness has positive effects on these parameters (Hofmann et al 2010).

When the literature was examined, it was seen that the common features of the studies were comparisons with parameters such as depression, anxiety or mindfulness in individuals who did and did not do yoga. However, no joint research has been found on the level of yoga transformation effect and how it affects the levels of depression, stress, anxiety and mindfulness. In this study, the effect of yoga transformation on individuals who regularly practice yoga was examined and its relationship with other parameters was examined. In addition, while collecting the research data, not only the asana but also the breathing and meditation status of the participants in their yoga practices and the duration of yoga were determined. The effect of yoga transformation in individuals who practice yoga was determined with the "Yoga Self-Efficacy Scale" and the relationship between depression, anxiety, stress, and mindfulness levels in individuals was investigated.

METHODS

Research Model: Relational screening model, one of the quantitative research methods, was used in the research. The relational screening model is defined as a method that aims to determine the degree and variation of the relationships between two or more variables (QuestionPro. 2022).

Research Group: Determination of the number of subjects in the study was made with the G*Power 3.1 program. According to the power analysis result, the minimum number of samples was found to be 107 with a margin of error of 0.05 and a power of 0.95, and an effect size of 0.15. However, it is aimed to reach the maximum number of participants by considering the possibility of incorrect or incomplete filling of the participants. The study included 236 (200 female, 36 male) participants who were randomly selected, living in Ankara/Turkey and practicing yoga.

Data Collection Tools: Data were collected from yoga studios in Ankara and members of yoga education institutions through Google Forms and documents created by the researcher. In addition to the "Personal Information Forum" created by researchers, "Yoga Self-Efficacy Scale (YSES)", "Depression-Anxiety and Stress Scale (DASS-21)" and "Mindful Attention Awareness Scale (MAAS)" were used in order to determine the characteristics of the study group in the research.

Yoga Self-Efficacy Scale (YSES): The scale developed by Gurjeet S. Birdee et al. in 2016 (Birdee et al 2015) was adapted into Turkish by Küçükelci, D.T (Kucukelci 2018). In the study of validity and reliability, according to the results of Confirmatory Factor Analysis, the reliability value of the 11 items remaining YSES was found to be (.889). In the sub-dimensions, it was determined as (.845) in the 4-item Body (BD) dimension, (.823) in the 4-item Breath (BRT) dimension, and (.808) in the 3-item Mind (MND) dimension. Accordingly, it has been reported that all of the total reliability and size-based reliability values are at the "high reliability" level (Kucukelci, 2018). In this study, the YSES Cronbach alpha value was found to be α=0.888 at a high level of reliability.

Depression-Anxiety and Stress Scale (DASS-21): The Depression, Anxiety and Stress Scale developed by Morley and Snaith (Morley and Snaith 1995) was adapted into Turkish by Sarıçam (Sarıçam, 2018). As a result of Explanatory and Confirmatory Factor Analysis, the scale, which consists of 21 items and three sub-dimensions, was reported to have an acceptable fit index value in the normal sample, while it had an excellent fit index value in the clinical sample. In criterion validity, the relationship between DASS-42 and DASS-21 was found to be positive. In the clinical sample, Cronbach's alpha internal consistency reliability coefficient was reported to be depression α=0.87, anxiety α=0.85 and stress α=0.81 in sub-dimensions. In this study,

DASS-21 Cronbach's alpha value was found to be α=0.950 at a high level of reliability.

Mindful Attention Awareness Scale (MAAS): The Mindful Attention Awareness Scale, developed by Brown and Ryan (Brown and Ryan 2004), was adapted into Turkish by Özlenen et al. First, the language validity of the scale was tested and it was stated that the results obtained were in positive and significant correlations. The scale was created by the first researcher with 15 one-dimensional items and no changes were made in the dimensions and items as a result of the adaptation to Turkish. It is stated that the item-total correlation varies between .436 and .682. In the study in which Explanatory and Confirmatory Factor Analysis, Validity and Reliability were performed, MASS Cronbach's alpha value was found as α=0.80 and test-repeat correlation as .86. In this study, the MASS Cronbach alpha value was found to be α=0.873 at a high level of reliability.

Data Analysis: In the study, descriptive analyses were conducted to determine the demographic characteristics (gender, age, height, weight) of the participants. In order to determine the statistical techniques to be applied in the research, the distribution characteristics were determined, and the assumptions of the parametric tests were tested. It was determined that the Skewness values were between -.760 and .551 and the values of Kurtosis were between -.11 and .885. It is stated that the values in question are between -1.5 and +1.5, and it is appropriate to perform parametric analyses where the data have normal distribution (Tabaschnick and Fidell 2013). Pearson Correlation analysis was performed to determine the relationship between the variables in the statistical analysis and Multiple Linear Regression analysis was applied to determine the effect of Yoga Transformation on Depression, Stress Anxiety and Mindfulness.

RESULTS

The minimum, maximum, mean, and standard deviation values of the answers given by the participants to the scales are given in Table 1.

Table 1. Descriptive statistics of variables according to gender

Variables	Female n=200		Male n=36		Total n=236	
	Min-Max	Mean (SD)	Min-Max	Mean (SD)	Min-Max	Mean (SD)
Age (years)	20-53	36.48 (9.085)	19-50	34.94 (7.896)	19-53	36.25(8.92)
Height (cm)	152-185	164.35 (5.56)	163-192	177.75 (7.48)	152-192	166.40(7.60)
Body Weight (kg)	46.00-79.00	58.25(7.14)	55.00- 79.00	70.11(6.71)	46.00-79.00	60.06(8.26)
YSES	17-55	42.94(7.07)	34-52	43.97(4.69)	17-55	43.09(6.768)
Body	6.00-20.00	15.77(2.78)	12.00-20.00	15.97(2.22)	6.00-20.00	15.80(2.69)
Breath	4.00-20.00	15.61(3.13)	11.00-19.00	15.97(1.99)	4.00-20.00	15.66(2.97)
Mind	6.00-15.00	11.56(2.38)	4.00-15.00	12.03(2.08)	4.00-15.00	11.63(2.34)
DASS-21	1.00-80.00	36.76(13.83)	6.00-64.00	33.55(14.55)	1.00-80.00	36.27(13.96)
Depression	0.00-28.00	12.17(5.23)	2.00-26.00	11.75(5.66)	0.00-28.00	12.11(5.29)
Stress	0.00-27.00	13.24(5.05)	2.00-23.00	11.89(4.97)	0.00-27.00	13.03(5.05)
Anxiety	0.00-25.00	11.35(4.58)	1.00-21.00	9.9167(5.16)	0.00-25.00	11.13(4.69)
MASS	19.00-89.00	60.60(12.96)	37.00-82.00	60.86(10.71)	19.00-89.00	60.64(12.62)

Looking at the mean values of the data according to the gender variable in Table 1, it was seen that the mean values of the male participants were higher than the female participants in the MASS, along with the YSES and its sub-dimensions. It was determined that the mean values of female participants in DASS-21 and its sub-dimensions were higher than male participants.

Table 2. T-test results in terms of variables according to situations of whether participants meditate or not

Whether to Meditate or Not		n	Mean	Std. Deviation	df	t-Test	p
YSES	Yes	159	44.34	6.054	234	4.208	.000**
	No	77	40.52	7.447			
Body	Yes	159	16.2453	2.45908	234	3.736	.000**
	No	77	14.8831	2.94231			
Breath	Yes	159	16.1195	2.71975	234	3.477	.001**
	No	77	14.7143	3.27212			
Mind	Yes	159	11.9748	2.18148	234	3.308	.001**
	No	77	10.9221	2.50666			
DASS-21	Yes	159	35.0440	13.01768	234	-1.946	.053
	No	77	38.7922	15.50665			
Depression	Yes	159	11.6164	4.93861	234	-2.058	.041*
	No	77	13.1169	5.85117			
Stress	Yes	159	12.5975	4.71346	234	-1.900	.059
	No	77	13.9221	5.60725			
Anxiety	Yes	159	10.8302	4.27564	234	-1.421	.157
	No	77	11.7532	5.42450			
MASS	Yes	159	62.0818	12.48593	234	2.551	.011*
	No	77	57.6623	12.45583			

** P<0.05 **p<0.01*

When Table 2 is examined, according to whether the participants meditate (n=159) or not (n=77), significant differences were found at the p<0.01 level in the YSES ($t_{0.01;234}$=4.208), Body ($t_{0.01;234}$=3.736), Breath (t0.01;234=3.477), and Mind ($t_{0.01;234}$=3.308) values. Considering the averages in terms of YSES and its sub-dimensions, it was seen that the mean values of the participants who meditated were higher than those who did not meditate. As a result of the t-test performed according to whether the participants meditate or not, it was seen that there was a significant difference (p<0.05) between those who meditated ($\bar{x}$=11.62) and those who did not ($\bar{x}$=13.12) in the Depression sub-dimension. In addition, it was observed that the depression averages of the participants who meditated were lower than those who did not. ($t_{0.05;234}$=-2,058).

In the statistical comparison of mindful awareness and whether or not to meditate, the MASS averages of those who meditated ($\bar{x}$=62.0818) were found to be higher and statistically significant compared to those who did not meditate ($\bar{x}$=57.6623) ($t_{0.05;234}$=2,551).

Table 3. T-test Results in terms of Variables According to Situations of Participants Doing Breathing Exercises or Not

Situations of Doing Breathing Exercises or Not		n	Mean	Std. Deviation	df	t Test	P
YSES	Yes	141	44.51	6.508	234	4.046	.000**
	No	95	40.99	6.629			
Body	Yes	141	16.2624	2.57916	234	3.268	.001**
	No	95	15.1158	2.73614			
Breath	Yes	141	16.2482	2.83135	234	3.793	.000**
	No	95	14.7895	2.99253			
Mind	Yes	141	12.0000	2.30217	234	2.998	.003**
	No	95	11.0842	2.30015			
DASS-21	Yes	141	34.8723	12.50991	234	-1.880	.061
	No	95	38.3368	15.70581			
Depression	Yes	141	11.6241	4.77724	234	-1.712	.088
	No	95	12.8211	5.92143			
Stress	Yes	141	12.5248	4.59904	234	-1.881	.061
	No	95	13.7789	5.59289			
Anxiety	Yes	141	10.7234	4.18519	234	-1.634	.104
	No	95	11.7368	5.31800			
MASS	Yes	141	62.7730	12.34872	234	3.226	.001**
	No	95	57.4737	12.41725			

***p<0.01*

In Table 3, t-test values are given in terms of YSES, DASS-21 and MASS variables according to whether the participants do breathing exercises or not. In the YSES ($t_{0.01;234}$=4,046), Body ($t_{0.01;234}$=3,268), Breath ($t_{0.01;234}$=3,793) and Mind ($t_{0.01;234}$=2,998) values of the participants who did breathing exercises (n=141) and those who did not (n=95), significant differences were detected at the p<0.01 level. In terms of these four variables, when the mean values are examined according to whether they do breathing exercises or not, it is seen that the mean values of those who do breathing exercises are higher than those who do not.

No statistically significant results were found in DASS-21 and its sub-dimensions, depending on whether they did breathing exercises or not (p>0.05). Considering the mindful awareness ($t_{0.01;234}$=3,226) levels according to whether they do breathing exercises ($\bar{x}$=62,7730) or not ($\bar{x}$=57,4737), it was determined that there was a significant difference at p<0.05 level according to the t-test results.

When Table 4 is examined, according to the years of yoga practice of the participants, a statistically significant difference was found at the p<.01 level between YSES (F=7,989), Body (F=8.442), Breath (F=5.560), Mind (F=3.570), and MASS (F=3.611). In general, as the number of years of practicing yoga increased, there was a positive increase in YSES and its sub-dimensions.

In the body sub-dimension, the highest average was found in those who practiced yoga for 6 years or more ($\bar{x}$=17.72), while the lowest average was found in those who did yoga for 1 year ($\bar{x}$=14.42). According to the Tukey test, statistically significant results were found between those who practiced yoga for 6 years or more and those who practiced yoga for 1 year, 2 years and 3 years, as well as between those who practiced yoga for 1 year and those who practiced yoga for 4 and 5 years.

Considering the breath sub-dimension, a statistically significant difference was found between those who practiced yoga for 6 years or more, with the highest average ($\bar{x}$=17.56), and those who practiced yoga for 1 year, 2 years and 3 years. In addition, a significant difference was found between those who practiced yoga for 5 years and those who practiced yoga for 1 year and 2 years (p<.01).

In the mind sub-dimension, it was determined that there was a significant difference at the p<.01 level between those who did yoga for 6 years or more with the highest average ($\bar{x}$=12.56) and those who did yoga for 1 year with the lowest average ($\bar{x}$=10.89).

In the statistical evaluation results made in the comparison of YSES scores according to the years of practicing yoga. It was found that there was a statistically significant difference between those who practiced yoga for 6 years or more and those who practiced yoga for 1,2 and 3 years, as well as between those who practiced yoga for 5 years and those who

practiced yoga for 1 and 2 years, and those who practiced yoga for 4 years and those who did yoga for 1 year (p<.01).

In the statistical analysis of the participants between the MASS and the years of practicing yoga, it was determined that the highest average was in those who practiced yoga for 6 years or more ($\bar{x}$=65.40), and the lowest average was in those who practiced yoga for 1 year ($\bar{x}$=55.96). According to the Tukey test, which examines which group the difference stems from and according to the ANOVA results, statistically significant differences were found between those who practiced yoga for 6 years or more and those who practiced yoga for 1 year, and between those who practiced yoga for 5 years and those who practiced yoga for 1 year (P<0.01).

Table 4. ANOVA and post hoc results in terms of variables according to years of yoga practice of participants

	Year of Doing Yoga	n	Mean ($\bar{x}$)	SD	F	P	Tukey HSD
YSES	1 year (a)	57	40.23	6.73	7.989	.000	f >a, f >b, f >c, e >a, e >b, d >a
	2 years (b)	43	40.98	5.89			
	3 years (c)	46	42.76	7.45			
	4 years (d)	33	44.97	5.13			
	5 years (e)	32	45.87	5.81			
	6 years and above (f)	25	47.84	5.74			
Body	1 year (a)	57	14.42	2.82	8.442	.000	f >a, f >b, f >c, e >a, d >a,
	2 years (b)	43	15.16	2.29			
	3 years (c)	46	15.86	2.77			
	4 years (d)	33	16.57	1.90			
	5 years (e)	32	16.71	2.63			
	6 years and above (f)	25	17.72	2.03			
Breath	1 year (a)	57	14.91	2.84	5.560	.000	f >a, f >b, f >c e >a, e >b,
	2 years (b)	43	14.79	2.85			
	3 years (c)	46	15.13	3.44			
	4 years (d)	33	16.21	2.47			
	5 years (e)	32	16.87	2.62			
	6 years and above (f)	25	17.56	2.24			
Mind	1 year (a)	57	10.89	2.46	3.570	.004	f >a
	2 years (b)	43	11.02	1.95			
	3 years (c)	46	11.76	2.33			
	4 years (d)	33	12.18	2.22			
	5 years (e)	32	12.28	2.14			
	6 years and above (f)	25	12.56	2.48			
MASS	1 year (a)	57	55.96	12.36	3.611	.004	f >a d >a
	2 years (b)	43	60.67	12.67			
	3 years (c)	46	59.10	12.36			
	4 years (d)	33	65.09	11.53			
	5 years (e)	32	62.81	13.40			
	6 years and above (f)	25	65.40	10.58			
Depression	1 year (a)	57	12.11	5.85	1.532	.181	-
	2 years (b)	43	13.74	4.70			
	3 years (c)	46	10.91	4.56			
	4 years (d)	33	11.54	5.22			
	5 years (e)	32	12.68	5.56			
	6 years and above (f)	25	11.48	4.95			
Stress	1 year (a)	57	12.63	5.84	.819	.537	-
	2 years (b)	43	14.25	4.08			
	3 years (c)	46	13.00	5.25			
	4 years (d)	33	12.60	4.79			
	5 years (e)	32	13.31	4.63			
	6 years and above (f)	25	12.08	5.11			
Anxiety	1 year (a)	57	11.17	5.81	1.777	.118	-
	2 years (b)	43	12.60	3.43			
	3 years (c)	46	10.54	4.71			
	4 years (d)	33	10.57	4.14			
	5 years (e)	32	11.72	4.52			
	6 years and above (f)	25	9.56	4.08			
DASS-21	1 year (a)	57	35.91	16.31	1.409	.222	-
	2 years (b)	43	40.60	11.04			
	3 years (c)	46	34.45	13.79			
	4 years (d)	33	34.73	13.22			
	5 years (e)	32	37.72	13.80			
	6 years and above (f)	25	33.12	13.42			

Table 5. Correlation test results between YSES, DASS-21 and MASS

	1	2	3	4	5	6	7	8	9
1. Body	1								
2. Breath	.644**	1							
3. Mind	.496**	.543**	1						
4. YSES	.854**	.885**	.782**	1					
5. Depression	-.245**	-.343**	-.212**	-.322**	1				
6. Stress	-.240**	-.347**	-.227**	-.327**	.789**	1			
7. Anxiety	-.261**	-.357**	-.137*	-.309**	.779**	.814**	1		
8. DASS-21	-.267**	-.376**	-.209**	-.344**	.926**	.934**	.926**	1	
9. MASS	.437**	.487**	.442**	.541**	-.450**	-.421**	-.444**	-.472**	1

When the correlation table in Table 5 was examined, it was seen that all variables were related to each other. It was determined that there was a negative relationship of DASS-21 and its sub-dimensions, both with MASS and with YSES and its sub-dimensions. A positive correlation was observed between YSES and its sub-dimensions and MASS.

Table 6: Multiple linear regression results between YSES and DASS-21 and MASS

		B	Standard Error	β	t	p
MASS	Constant	17.607	4.532	-	3.885	.000
	Body	.732	.346	.157	2.115	.035
	Breath	1.131	.324	.267	3.489	.001
	Mind	1.182	.364	.219	3.250	.001
	R=0.543, R^2=0.286, $F_{(3.232)}$=32.378, p=0.000					
Anxiety	Constant	19.877	1.865	-	10.657	.000
	Body	-.134	.143	-.077	-.938	.349
	Breath	-.567	.133	-.360	-4.245	.000
	Mind	.192	.150	.096	1.286	.200
	R=0.368, R^2=0.124, $F_{(3.232)}$=12.107, p= 0.000					
Stress	Constant	22.993	2.023	-	11.368	.000
	Body	-.030	.155	-.016	-.195	.846
	Breath	-.524	.145	-.309	-3.617	.000
	Mind	-.111	.162	-.051	-.683	.495
	R=0.350, R^2=0.111, $F_{(3.232)}$=10.818, p= 0.000					
Depression	Constant	22.409	2.122	-	10.559	.000
	Body	-.064	.162	-.033	-.396	.693
	Breath	-.545	.152	-.307	-3.586	.000
	Mind	-.065	.170	-.029	-.384	.701
	R=0.346, R2=0.108, $F_{(3.232)}$= 10.494, p= 0.000					

Table 6 presents the results of multiple linear regression analysis to determine whether the Yoga Transformation Effect is a significant predictor of MASS and DAS-21.

The results of the one-way ANOVA test showed that the established regression model was significant for MASS (R^2=0.286, $F_{(3.232)}$=32,378, p=0.000). As a result of regression analysis, it was determined that Body (β= .157) Mind (β=.267) and Breath (β=.219), which are the sub-dimensions of yoga transformation effect, were positive predictors of MASS, and Body, Breath and Mind scores explained 28% of MASS. According to the standardized regression coefficient, the relative importance of the predictor variables on the MASS is as Mind, Breath, and Body.

According to the results of the ANOVA test, the regression model established was found to be significant for Breathing in Anxiety (R^2=0.124, $F_{(3.232)}$=12.107, p= 0.000), Stress (R^2=0.111, $F_{(3.232)}$=10,818, p= 0.000), and Depression (R2=0.108, $F_{(3.232)}$= 10.494, p= 0.000)

It was determined that Breath scores (β=-.360), which is the sub-dimension of the yoga transformation effect, was a negative predictor of Anxiety scores and explained 12%. On the other hand, it was seen that Body (β = -.077) and Mind (β=.096) scores, which are sub-dimensions of Yoga transformation effect, did not significantly predict Anxiety scores.

Breath scores (β=-.309), a sub-dimension of the yoga transformation effect, were found to be a negative predictor of stress scores and explain 11% of it. However, it was observed that the Body (β=-.016) and Mind (β= -.051) sub-dimensions negatively affected the Stress scores but did not predict it significantly.

Considering the depression scores, it was seen that the Breath sub-dimension (β=-.307) was a negative predictor of Depression and explained 10% of it. However, although the sub-dimensions Body (β=-.033) and Mind (β=-.029) negatively affect Depression scores, they did not predict significantly.

In general, it was determined that Body and Mind sub-dimensions, which are sub-dimensions of yoga transformation effect, did not significantly predict Depression, Anxiety and Stress scores, but Breath sub-dimension predicted them significantly and negatively.

DISCUSSION

In this study, it was aimed to examine the relationship of the yoga transformation effect with the levels of depression, anxiety, stress and mindfulness according to the variables of yoga time, breathing and meditation, and years of yoga practice. In this study, it was seen that individuals with high yoga transformation effect had lower levels of depression, anxiety and stress, and higher levels of mindfulness. It was determined that DASS-21 and its sub-dimensions had a negative relationship with both MASS and YSES and its sub-dimensions, and there was a positive relationship between MASS and YSES sub-dimensions. It was seen that YSES explained 28% as significant and positive predictors for MASS, and Breath scores, one of the sub-dimensions of YSES, were also negative predictors of Anxiety (11%), Stress (12%) and Depression (10%) and explained them at a low level.

According to the results of the research, it was determined that the mean values of male participants in the yoga transformation effect and sub-dimensions, as well as the sub-dimensions of mindfulness, were higher than the female participants, while the mean values of the female participants in the depression, anxiety and stress sub-dimensions were higher than the male participants. In the study they conducted in 2021, Vural and Okan stated that the average of mindfulness of men is higher than that of women (Vural and Okan 2021). Kozak et al., in their study in 2021, in which they compared the mindfulness levels of men and women, stated that women's mindfulness levels were higher than men's (Kozak et al 2021). In the studies of İmiroğlu et al. 2021, Tingaz 2020 and Acar 2019, it was stated that there was no difference between both genders in mindfulness levels (İmiroğlu et al 2021, Tingaz 2020, Acar 2019). It has been reported in the literature that depression causes significant distress or impairment in physical, social, occupational and other basic functional areas, women are approximately twice as likely to experience depression than men, and in this respect, psychosocial factors probably mediate the risks of depression due to the biological effects (Stewart et al 2004). In our study, although both men and women are individuals who practice yoga, the high average depression, stress and anxiety in women can be interpreted as the result of biological effects in women as stated in the literature (Stewart et al 2004).

In this study, when the variables were examined according to whether the participants meditated or not, it was seen that the mean scores of the participants, who meditated, in MASS, YSES and sub-dimensions, were higher and statistically significant than those who did not meditate. In addition, it was determined that the mean values of the participants who meditated in DASS-21 and its sub-dimensions were lower than those who did not meditate. In the literature, it has been emphasized that meditation is a focus of awareness for the present moment and the practitioner reaches a state of deep relaxation, and thus, physiological changes such as respiratory rate, blood pressure, pulse, oxygen consumption, muscle tension, changes in brain waves are experienced as a result of the sympathetic nervous system calming down (Arambula et al 2001, Murata et al 2004, Telles et al 2000). Due to these physiological changes and the current main mental focus, it has been stated that meditative practices can help increase awareness levels and reduce stress levels in the practitioner (Brisbon and Lowery 2011). In another experimental study on stress reduction, it was reported that a 3-month meditation program in 22 individuals with panic attack caused significant improvements in patients (Kabat-Zinn et al 2015). There is a study stating that breathing and meditation are both easy and effective solutions for mental problems such as stress, anxiety and depression, but have not yet been applied directly as a treatment method (Jerath et al 2015). It is stated in the literature that meditating can increase the yoga transformation effect and mindfulness levels, and in parallel, decreases in depression, stress and anxiety levels can be observed, which is in line with our study.

In our study, significant results were obtained in mindfulness with YSES and its sub-dimensions, depending on whether the participants did breathing exercises or not, while there was no statistical difference in DASS-21 and its sub-dimensions. Kabat-Zinn, the founder of mindfulness, has included breathing exercises in mindfulness practices (Kabat-Zinn 2015). Breathing practices are believed to remove toxins and negative "karmic air", cleanse the body, and increase oxygenation to strengthen the physical body. It is stated that breathing, visualization, mantra and movement are used to clear the way to enlightenment or to realize the truth, and to control the mind and body powers (Brown & Gerbarg 2009). In yoga, asanas are quite uncomfortable for the body and therefore attention is given to the breath. In the literature, mindfulness with breathing exercises has been found to be higher in individuals who do yoga than those who do not (Güldere, 2020). Brown et al. (2005), in their study examining the effect of yoga breathing on depression, anxiety and stress, stated that breathing exercises had a positive effect on depression, anxiety and stress. They also emphasized that their study is a scientific article that serves as a guide in yoga breathing practices (Brown et al 2005). In the review study conducted by Li et al. (2012), experimental studies with yoga were discussed and it was emphasized that yoga is an important predictor of stress and anxiety treatments (Li et al 2012). In this study, it can be said that breathing exercises have an effect on both yoga transformation and mindfulness values and show parallelism with the literature. In addition, according to the multiple regression model, it was seen that Breath scores were low-level negative predictors of Anxiety (11%), Stress (12%) and Depression (10%) and explained them.

In our study, there was no difference in the DASS-21 and depression stress and anxiety levels according to the years of practicing yoga, while significant increases were observed in the MASS values along with the YSES and sub-dimensions as the years of yoga practice increased. In a study by Brisbon and Lowery (2009) in which the levels of mindfulness and perceived stress of individuals who practice Hatha Yoga at the beginning (under 5 years) and advanced level (over 5 years) were examined, it was found that the advanced group had higher levels of mindfulness and lower levels of perceived stress than the beginning group (Brisbon and

Lowery 2009). In our study, it was determined that the levels of individuals who practiced yoga for 6 years or more were higher in terms of variables compared to other years, and it was statistically significant. Therefore, it can be stated that as the years of practicing yoga increase, the yoga transformation effect and mindfulness levels may increase, and the levels of depression, stress and anxiety may decrease.

In this study, when Table 5 is examined, it is seen that DASS-21 and its sub-dimensions have a negative relationship with both MASS and YSES and its sub-dimensions, and there is a positive relationship between MASS and YSES sub-dimensions. YSES (body, breath, mind) and MASS affect each other positively, and as the transformation effect of yoga increases, the level of mindfulness also increases. In addition, with the effect of yoga transformation, as MASS values as well as YSES and its sub-dimensions increase, DASS-21 levels with its sub-dimensions are also negatively affected and decreased.

In the study of Prathikanti et al. (2017), it was stated that yoga practices were applied to 38 people diagnosed with major depression twice a week for 8 weeks, and there was a statistically and clinically significant decrease in the severity of depression in people diagnosed with mild-moderate major depression (Prathikanti et al 2017). In a study conducted in South Australia, the relationship between mindfulness, self-understanding, meditation, depression-stress-anxiety and psychological well-being was investigated in 40 yoga teachers and 181 yoga students. As a result of that study, it was stated that a significant positive relationship was found between mindfulness, self-understanding and yoga in those who practiced yoga and meditation for a long time (Snaith et al 2018). In another study conducted in the USA, 166 people practiced yoga 3 times a week for 75 minutes for 15 weeks, and it was stated that doing yoga increased mindfulness in individuals, that sleep quality increased as awareness increased, and that individuals were consciously aware of changes in their mood and perceived stress (Caldwell, ea., 2010).

Conclusion and Recommendations: As a result, there was a positive relationship between yoga transformation effect and its sub-dimensions and mindfulness, while depression, anxiety, stress and sub-dimensions were found to be inversely related to both yoga transformation effect and sub-dimensions and mindfulness. Doing meditation and breathing exercises increases both the transformative effect of yoga and mindfulness. Parallel to this, it seems to decrease depression (significant in meditation), anxiety and stress values, although not statistically significant. When our study is examined according to the years of practicing yoga, it has been shown that as the years of practicing yoga increase, the effect of yoga transformation and conscious awareness also increase. In the established regression model, it was seen that yoga transformation effect explained 28% of mindfulness as a positive predictor, and that breath scores as a yoga transformation effect were negative predictors of anxiety, stress and depression and explained them at a low level.

Under the leadership of this information, it is thought that researchers who want to conduct similar studies should conduct their research on patients with depression, anxiety, etc., using experimental methods, and thus, they will get clearer data. In addition, the collected data can be obtained in two stages, before and after yoga practices, in individuals who do not do yoga, and can be compared with individuals who regularly practice yoga. In this way, it can be seen more clearly whether yoga has a transformative effect. A comparative study can be done with a group doing only breathing exercises and a group doing only meditation. In this way, the effect of two variables on depression or mindfulness can be emphasized more clearly and comprehensibly.

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GENİŞLETİLMİŞ ÖZET

Çalışmanın amacı: Günümüzde sıklıkla bireylerin iyi hissetme arayışı ile bedensel ve psikolojik sağlığına iyi gelen bir yol olarak yoga yaptıkları görülmektedir. Bu nedenle çalışmada; yoga yapan bireylerde yoga dönüşüm etkisinin depresyon, anksiyete, stres ve mindfulnes (bilinçli farkındalık) üzerine ilişkisinin incelenmesi amaçlanmıştır.

Araştırma Soruları: Yoga yapan bireylerde yoga dönüşüm etkisi yüksek olanların depresyon, anksiyete ve stres seviyeleri azalır mı? Ayrıca yoga dönüşüm etkisi yüksek olanların mindfulness (bilinçli farkındalık) düzeyleri yüksek midir? Yoksa tam tersi bir eğilim grafiği mi söz konusudur? Yoga yapma süreleri, cinsiyet, nefes-meditasyon yapma durumları (depresyon, anksiyete, stres ve mindfulness) bu değişkenler üzerinde ne gibi etkileri vardır?

Literatür Araştırması: Literatür incelendiğinde; yapılan çalışmaların ortak özellikleri yoga yapan ve yapmayan bireylerde depresyon, anksiyete veya bilinçli farkındalık gibi parametrelerle karşılaştırmaların olduğu görülmüştür. Ancak yoga dönüşüm etkisinin hangi düzeyde olduğu, depresyon, stres, anksiyete ve bilinçli farkındalık düzeylerini nasıl etkilediğine dair birlikte bir arada yapılan araştırmaya rastlanılmamıştır.

Bu çalışmanın sonuçları ayrı ayrı ele alındığında, yoga dönüşüm etkisi ve alt boyutlarıyla birlikte bilinçli farkındalık düzeyinde erkek katılımcıların ortalama değerlerinin kadın katılımcılardan daha yüksek; depresyon anksiyete ve stres alt boyutlarında da kadın katılımcıların ortalama değerlerinin erkek katılımcılardan daha yüksek olduğu tespit edilmiştir. Yapılmış çalışmalar incelendiğinde, bilinçli farkındalığın cinsiyete göre karşılaştıran araştırmalar, Vural ve Okan erkeklerin bilinçli farkındalık ortalamalarının kadınlardan daha yüksek olduğunu belirtmişlerdir (Vural and Okan 2021). Kozak ve ark. erkek ve kadınların kadınların bilinçli farkındalık düzeylerinin erkeklerden daha yüksek olduğunu ifade etmişlerdir (Kozak et al 2021). İmiroğlu ve ark., Tingaz ve Acar ise her iki cinsiyet arasında bilinçli farkındalık düzeylerinde bir fark olmadığını belirtmişlerdir (İmiroğlu et al 2021, Tingaz 2020, Acar 2019).

Çalışmada katılımcıların meditasyon yapıp yapmama durumları incelendiğinde; meditasyon yapan katılımcıların, meditasyon yapmayanlara göre yoga dönüşüm etkisi ve mindfulness düzeylerinin daha yüksek ve anlamlı olduğu görülmüştür. Ayrıca meditasyon yapan katılımcıların meditasyon yapmayanlara göre DASS-21 ve alt boyutlarında ortalama değerlerinin daha düşük olduğu da tespit edilmiştir. stres indirgemeye yönelik yapılan deneysel çalışmada, 22 panik atak hastalığı olan bireylerde 3 ay uygulanan meditasyon programının hastalarda önemli derecede iyileşmelere neden olduğu bildirilmiştir (Kabat- Zinn et al 2015).

Araştırmada, katılımcıların nefes egzersizleri yapıp yapmama durumlarına göre; YSES ve alt boyutlarıyla birlikte bilinçli farkındalıkta anlamlı sonuçlar elde edilirken DASS-21 ve alt boyutlarında istatistiki açıdan fark görülmemiştir. Literatürde nefes egzersizleri ile birlikte bilinçli farkındalık yoga yapan bireylerde yapmayanlara göre daha yüksek bulunmuştur (Güldere, 2020). Brown ve arkadaşlarının, yoga nefesinin depresyon, anksiyete ve stres üzerine etkisini inceledikleri çalışmalarında, nefes egzersizlerinin depresyon, anksiyete ve stres üzerine olumlu yönde etkisinin olduğunu belirtmişlerdir (Brown et al 2005). Li ve arkadaşları yaptıkları derleme çalışmasında; yoga ile yapılan deneysel çalışmaları ele almışlar ve yoganın stres ve anksiyete tedavilerinde önemli bir yordayıcısı olduğunu vurgulamışlardır (Li et al 2012).

Yapılan bu çalışmada yoga yapma yıllarına göre DASS-21 ve alt boyutları olan depresyon stres ve anksiyete düzeylerinde fark bulunmazken; yoga yapma yılı arttıkça YSES ve alt boyutlarıyla birlikte MASS değerlerinde de anlamlı artışlar gözlenmiştir. Brisbon ve Lowery (2009) başlangıç (5 yıl altı) ve ileri düzey (5 yıl üzeri) Hatha Yoga yapan bireylerin bilinçli farkındalık ve algılanan stres düzeylerini incelemişlerdri. Çalışmalarında; ileri seviye grubun başlangıç grubuna göre daha yüksek seviyede bilinçli farkındalıkları olduğu ve daha düşük seviyede algılanan stres düzeyinde olduklarını belirlemişlerdir (Brisbon and Lowery 2009).

Bu araştırmada; DASS-21 ve alt boyutlarının hem MASS hem de YSES ve alt boyutlarıyla negatif ilişkisi olduğu, MASS ile YSES alt boyutları arsında da pozitif ilişki olduğu görülmektedir. YSESS (beden, nefes, zihin) ve MASS birbirini pozitif yönde etkilemekte, yoga dönüşüm etkisi arttıkça bilinçli farkındalık düzeyleri de artmaktadır. Ayrıca yoga dönüşümünün etkisiyle; YSES ile alt boyutlarıyla birlikte MASS değerleri arttıkça alt boyutlarıyla birlikte DASS-21 düzeyleri de negatif etkilenmekte ve azalmaktadır. Prathikanti ve arkadaşlarının (2017) yaptıkları araştırmada; majör depresyon tanısı alan 38 kişiye 8 hafta boyunca haftada 2 kez yoga uygulamaları sonucunda; hafif-orta şiddette majör depresyon tanısı alan kişilerde depresyon şiddetinde istatiksel ve klinik olarak anlamlı yönde azalma olduğunu belirtmişlerdir (Prathikanti et al 2017). Güney Avustralya'da yapılan bir araştırmada ise; 40 yoga öğretmeni ve 181 yoga öğrencisine bilinçli farkındalık, öz-anlayış,

meditasyon, depresyon-stres-anksiyete ile psikolojik iyi oluşları arasında ilişki araştırılmış. Araştırma sonucunda; uzun süre yoga ve meditasyon yapanlarda bilinçli farkındalık, öz-anlayış ve yoga ilişkisinde anlamlı pozitif yönde ilişki bulduklarını belirtmişlerdir (Snaith et al 2018). Amerika'da yapılan başka bir araştırmada; 15 hafta boyunca 166 kişiye haftada 3 kez 75 dakika süreyle yoga uygulaması sonucunda; bireylerde yoga yapmanın bilinçli farkındalığı artırdığı, farkındalık arttıkça uyku kalitesinin de arttığı, bireylerin ruh halindeki ve algılanan stresteki değişikliklerin bilinçli bir şekilde farkında oldukları belirtilmiştir (Caldwell, ea., 2010).

Yöntem: Araştırmada nicel araştırma yöntemlerinden ilişkisel tarama modeli kullanılmıştır. Araştırmaya Türkiye/Ankara'da ilinde yaşayan ve yoga yapan, rastgele yöntemi ile seçilen 236 (200 kadın 36 erkek) katılımcı dâhil edilmiştir. . Katılımcılara Mindful Attention Awareness Scale (MAAS), üç alt boyutu olan (Body, Mind ve Breath) Yoga Self-Efficacy Scale (YSES) ve Depression-Anxiety and Stress Scale (DASS-21) uygulanmıştır. Ayrıca kişisel bilgi formuyla kaç yıldır yoga yaptığı, meditasyon ve nefes egzersizleri yapıp yapmadığı sorgulanmıştır.

Sonuç ve Değerlendirme: İstatistiksel analizde SPSS 22.0 paket programı kullanılmıştır. Verilerin analizinde; t testi, ANOVA ve değişkenler arasındaki ilişkiyi belirlemek için Pearson Korelasyon analizi yapılmıştır. Analizler sonucunda; katılımcıların meditasyon yapıp yapmama durumlarına göre, YSES ve alt boyutları arasında ($p<.01$), Depresyon ve MASS arasında ($p<.05$) anlamlı farklılıklar tespit edilmiştir. Nefes egzersizleri yapıp yapmama durumlarına göre de; YSES ve alt boyutlarıyla birlikte MASS de anlamlı sonuçlar elde edilmiştir ($P<.01$). Katılımcıların yoga yapma yıllarına göre YSES ve alt boyutlarıyla birlikte MASS de yoga yapma yılı arttıkça olumlu yönde istatistiksel açıdan anlamlı farklılıklar olduğu görülmüştür. Korelasyon sonuçlarında; YSES ve alt boyutları ile MASS arasında pozitif yönlü ilişki bulunurken; DASS-21 ve alt boyutlarının hem YSES ve alt boyutlarıyla hem de MASS ile aralarında ters ilişki olduğu bulunmuştur. Kurulan regresyon modelinde ise; YSES' nın MASS için anlamlı olduğu ve pozitif yordayıcıları olarak %28'ni açıkladığı tespit edilmiştir. Ayrıca Nefes skorlarının; Anksiyetenin (%11), Stresin (%12) ve Depresyonun (%10) negatif yordayıcısı olduğu ve düşük düzeyde açıkladığı görülmüştür. Sonuç olarak; yoga yapan bireylerde yoga dönüşüm etkisinin hem bilinçli farkındalık düzeyleriyle hem de depresyon, stres ve anksiyete düzeyleriyle ilişkisi olduğu belirlenmiştir.