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Research Article

Yoga Reduces Prenatal Depression, Anxiety and Panic Disorders

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ABSTRACT

Twenty-two pregnant women with pre-natal depression were randomly assigned to yoga at an average of 22 weeks of pregnancy. 25-minute group session and 40 minutes of Yoga Nidra practiced by a yoga group for up to 14 weeks, 4 times per week. After 14 weeks, the yoga group reported low summary depression with factorial invariance of the Center for Epidemiological Studies depression scale scores (CES-D), low anxiety scores (STAI) (State Strait Anxiety Inventory Form) and low sleep disorder scores.

Keywords: Anxiety; Prenatal; Depression; Panic disorders; Yoga

INTRODUCTION

Anxiety

Hormonal changes during a healthy pregnancy may affect the chemicals in your brain. The hormonal fluctuations that occur during pregnancy can greatly influence your mood and emotions, resulting in increased susceptibility to worry, stress and anxiety [1]. These levels may intensify as the pregnancy progresses. Being more worried about whether stress or anxiety will affect your fertility or a baby is understandable, but it can also create a vicious cycle of thoughts.

Prenatal depression

The prevalence of prenatal depression has been found to affect almost 60% of pregnant women, including a significant proportion of women from lower income ethnic minority groups [1-3] and unmarried women who are at higher risk of developing prenatal depression [4]. Depression during pregnancy leads to insecurity to increase the cases such as prematurity, later behavioral problems in childhood [5] and adolescence and developmental delays. These issues highlight the importance of prenatal interventions [6].

Conventional therapies

Conventional forms of treatment for prenatal depression have been underutilized for a variety of reasons. For example, antidepressants such as Ashwagandha and Brahmi has been utilized by a minute proportion (1%-8%) of individuals with prenatal depression due to changes in neonatal outcomes [7,8]. Different types of psychotherapy, such as cognitive therapy, come in various forms. There are several variations of psychotherapy, including cognitive-behavioral therapy, have also experienced a combination of positive and negative outcomes. Besides, most women can't afford it [9,10].

Alternative therapies

Conventional therapies/Alternative therapies, including yoga and yoga nidra, have demonstrated remarkable efficacy. For instance, yoga postures with breathing can reduce stress and 20 min of yoga nidra reduced prenatal depression and prematurity [11]. Yoga has the advantage of being cheaper and more portable, as learned and practiced at a yoga center [12].

Yoga

Yoga postures have been reported to have positive health benefits for expectant mothers including anxiety, stress, pain during pregnancy [13], decreases discomfort during pregnancy [14] and obtained less labor time [15] and less work. Comparing yoga with walking, complications such as premature birth and cesarean section [16] and the incidence of pregnancy-induced hypertension and the occurrence of intrauterine growth retardation were found to be lower in the yoga group.

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Doppler abnormalities were additionally diminished, encompassing decreased resistance in the uterine artery. This Doppler abnormalities and decreased resistance decreases the oxygen and nutrients transportation to the fetus that which leads to the intrauterine growth retardation as well low birth weight. Unfortunately, women's physical activity during the third trimester is limited due to the growing fetus.

Other forms of moderate exercise, such as Sukshma Vyayayama, can be explored as a form of exercise in the third trimester when yoga poses are more difficult to perform due to fetal growth. Interestingly, in spite of the fact that stability as well as potentiality both are important treats at the time of pregnancy [17], period due to that pregnancy poses are very type of stability and balance training, the most commonly reported benefits of pregnancy in other yoga trials are increased stability, increased balance [18] and lower falls. One of the research study suggests based on a kinematic analysis, pregnant yoga aspirants should use careful walking plan that included relaxed walking and shorter as well as, slower steps than controls [19].

Studies in non-pregnant adults also suggest that yoga reduces anxiety and stress. Other pregnancy problems that yoga reduced in non-pregnant samples included depression and sleep disturbances. The relaxation-enhancing effects of yoga can be seen in brain waves. Changes to increases vitality and relaxation.

Present study

Present study of yoga with non-expectant mother and yoga with expectant mother. Present experimental information showed positive influence of integrated yoga and pranayama on expectant mother, as well as anxiety and depressive state of mind. A daily (25 min) which contains yoga asanas with short yoga nidra and pranayama is a low budget strategy which practiced daily. This daily schedule is also very interesting in the sense that it integrates with several yoga asanas and pranayama are suitable for expectant mother, which is compatible with previous research application on yoga during pregnancy. The object of this research is to investigate outcomes of the short daily yoga practice on prenatal depression. The outcomes of the daily yoga practices on anxiety and sleep disturbances are significantly associated with antenatal depression.

MATERIALS AND METHODS

Sample participants

The study included a total of 22 participants who were recruited from two ultrasound clinics. These participants were pregnant women who were clinically depressed. They were randomly assigned to either a yoga treatment group (n=11) or a control group (n=11), as outlined in the recruitment scheme. To be eligible for the study, participants had to meet certain criteria:(1) They had to meet the diagnostic criteria for depression based on the Structured Clinical Interview for Depression (SCID), (2) They had to be pregnant with one child, (3) They had to have an uncomplicated pregnancy without any medical problems, (4) They had to be under 38 years of age and (5) They could not be taking any medication. It is worth noting that previous samples recruited from these clinics had a very low proportion of prenatal depression treatment (*i.e.*, psychotherapy or antidepressants) ranging from 3% to 5%, so this was not considered an exclusion criterion. The sample consisted of women aged 18-37 years, with a mean age of 26.6 years (SD=5.5). The participants were predominantly from low-income backgrounds and had a high school education. The group means for various variables such as age and marital status can be found.

Procedures

The women who were part of the yoga group took part in a 25-minute class every week for a total of 14 weeks. The class was led by a trained yoga instructor and was specifically designed for women who were in their second and third trimesters of pregnancy. The control group, which followed the same weekly schedule, attended yoga classes at the end of the treatment period. Both the yoga group and the control group had the same number of participants and were paid 2,000 for each session to cover expenses related to childcare and transportation. Assessments were conducted at 22 weeks of gestation at the beginning of the treatment period and at 34 weeks of gestation at the end of the treatment period.

Measures

Structure Clinical Interview for Depression (SCID): This SCID (research version) was administered to every woman participating in the study at the outset in order to identify anxiety and depression and rule out other conditions such as bipolar disorder, schizophrenia and other psychotic illnesses.

The Center for Epidemiological Studies-Depression scale (CES-D): CESD-D was performed between 22 and 32 weeks into pregnancy. The CES-D is a questionnaire consisting of 20 items that individuals complete to evaluate the frequency of their depressive symptoms over the past week. The specific symptoms it targets are "depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, loss of energy and disruptions in sleep and appetite. “A Likert frequency rating includes most often (6-7 days), sometimes (3-4 days), sometimes (1-2 days) and rarely (less than a day). Individuals must rate each item on a scale of 0-3, indicating how often they experienced such feelings. Higher scores indicate a higher impact. Executive summary can range from 0 to 60, with a score of 16 or more associated with clinical levels of depressive symptoms. Sub scores are obtained for depression, positive effect, somatic/vegetative symptoms and various demographic variables, such as geographic location, level of education, age, race, ethnicity (including Black, White, Hispanic, Asian, and European) and language. A study conducted on a group of high-risk women with prenatal depression demonstrated a strong internal consistency (Cronbach's alpha) ranging from 0.88 to 0.93.32. Furthermore, the test-retest reliability of the study showed consistent results over time (*i.e.*, at intake, 2 weeks and 4 weeks), along with statistically significant ($p>0.01$) convergent validity when compared to other scales measuring depressive symptoms. The CES-D scores also proved to be sensitive in detecting reductions in depressive symptoms resulting from massage therapy, making it an appropriate measure for this study's sample and design (Figure 1).

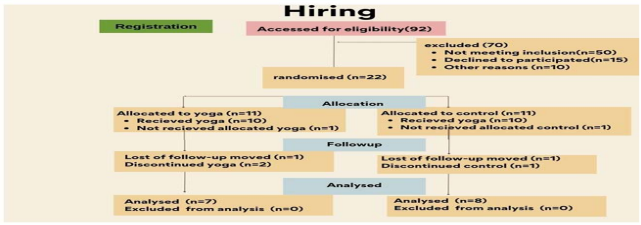

Figure 1: Participant flowchart for randomized yoga and control group hiring study.

The State Anxiety Inventory (STAI)

STAI consist 20 elements that evaluate severity of anxiety. The values are different that which starts from 20-90 and a score of 48 or higher indicates high anxiety. Multiple research studies have demonstrated that the STAI exhibits adequate concurrent validity and internal consistency. Consequently, it has been extensively employed in various research investigations that encompass pregnant women.

Sleep disorders

Responses on this 15-point scale are evaluated using a visual analog that is linked to effective sleep reactions, for example, ("Didn't wake up") ("Didn't have trouble falling asleep") and at the other end by inadequate sleep reactions, for example, "Remained awake throughout the night "for 10 hours.("Difficulty falling asleep"). Participants mark the point on the answer line that best describes their sleep the previous night. The reliability coefficient for this scale is reported to be 0.82. The subscale of sleep disturbances was used in this study.

RESULTS

Table 1 presents the results of ANOVAs conducted on demographic variables. The findings indicate that there were no significant group differences in terms of mother's age. However, the yoga group had lower levels of education and socioeconomic status compared to the other group. In addition, chi-square experiments announced that there is no significant variance in the dealing of ethnicity and marital status in between the two different groups of the women.

Table 1: Means (and standard deviations in parentheses) on demographic variables for depressed wait list control/yoga groups.

Variable	Yoga group	Control group
Mothers		
Age	24.4 (4.7)	26.0 (5.6)
Education	3.8 (4.1)	4.4 (1.3)
SES	4.7 (.9)	4.0 (1.1)
Ethnicity (%)		
Hispanic	60	57
Indo-Christain	38	40
Non-Hispanic white	2	3
Marital status (9%)		
Single	40	30
Boyfriend	46	49
Married	14	21

Moving on to Table 2, repeated measures of group by treatment session ANOVAs were performed, with treatment sessions being treated as a repeated measure. Specifically, the Yoga group exhibited a greater decrease in the values throughout the therapy duration in several areas. These areas include depression, as measured by CES-D. In addition, the yoga group had greater reductions in anxiety, as measured by the scale of STAI, as well as the sleep disturbances, measured by the Snyder-Halpern and Quanto scales.

Table 2: Means scores (and standard deviations in parentheses) on depression, anxiety and sleep disturbances variables for depressed wait list control and yoga groups at beginning and end of the story.

Variable	Yoga group		Control group		P
Depression (CES-D)	**First day**	**Last day**	**First day**	**Last day**	

Affect subscale	26.7 (11.2)	23.9 (11.4)	26.7 (11.2)	23.5 (9.0)	0.001
Somatic/Vegetative	7.2 (3.9)	6.7 (4.5)	7.2 (3.9)	6.3 (3.5)	0.001
Subscale	8.6 (4.6)	7.6 (3.7)	8.6 (4.6)	7.4 (3.4)	0.01
Anxiety (STAI)	47.3 (12.7)	44.3 (11.4)	54.2 (9.2)	46.1 (7.9)	0.01
Sleep disturbances	54.4 (19.7)	62.1 (18.4)	56.6 (20.1)	53.5 (19.5)	0.05

DISCUSSION

It is not surprising that the yoga group experienced a greater decrease in anxiety, depression and sleep disorders throughout the therapy session. This is because yoga has been found to have positive effects on pregnant women, such as reducing stress, pain and discomfort in pregnancy. This positive result naturally leads to decrease in depression and sleep disorders, as observed in this research. The depletion in anxiety in this sample of depressed expectant mother is consistent with previous findings in non-depressed pregnant women. Furthermore, our study's findings of reduced anxiety, depression and sleep disorders are consistent with other yoga studies that have shown similar reductions in anxiety, depression and sleep disorders, in non-depressed and non-pregnant individuals.

The effects observed may be attributed to the heightened vagal activity that occurs as a result of practicing yoga. In a study involving pregnant women, participants were randomly assigned to either a yoga group, a deep relaxation group or a standard prenatal exercise group. The results showed that stress levels decreased by 32% in the yoga group, while increasing by 7% in the control group. Additionally, heart rate variability or vagal activity increased by 64% in the 20th week of gestation and by 150% in the 36th week in the yoga group, indicating a greater state of relaxation. Furthermore, deep relaxation in the 36th week led to a decrease in the low-frequency band of heart rate, which is a measure of stress, in the yoga group. Nevertheless, the observed augmentation in vagal activity implies that the utilization of yoga could potentially yield a substantial reduction in pregnancy-related stress. Consequently, this reduction in stress levels is expected to have a positive impact on the prevalence of anxiety, depression and sleep disturbances among pregnant individuals. The available data and research findings indicate that yoga may offer more favorable outcomes compared to walking, making it a potentially effective exercise option for pregnant women. This is particularly relevant as pregnancy advances and lower-impact exercises are recommended. Additionally, Sukma Vyayama has been observed to result in a decrease in heart rate and an increase in vagal activity. A meta-analysis of various yoga studies further supports these benefits, revealing that practitioners exhibited significantly higher aerobic capacity in at least seven studies.

Depressed pregnant samples should evaluate these variables to ascertain if heightened vagal activity could potentially serve as an underlying mechanism. Additionally, individuals experiencing depression may exhibit flat face articulation and restricted vocal speech pattern as a result of diminished vagal activity. If yoga leads to an increase in vagal activity, it is possible that facial and vocal expressivity may also increase. This implies that future studies should consider assessing these aspects as well.

CONCLUSION

Additional research is required to compare aerobics and yoga in depressed pregnant women, particularly during the third trimester where yoga may prove to be a more efficient exercise method. The primary focus of this research should be on the potential benefits of yoga, such as a decreased likelihood of premature birth and low birth weight. It is crucial to emphasize the significance of measuring these outcomes in future studies involving depressed pregnant women and their engagement in yoga.

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