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Effect of Yoga on Quality of Life of Females with Premenstrual Dysphoric Disorder

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Background: Women with PMDD experience significant negative effects on their daily lives, social interactions, mental and emotional well-being, and physical health. Level of living will be decreases because of symptoms that manifest during the luteal phase of the menstrual cycle. Menstruation disorders are included in the DSM-5 as Premenstrual Dysphoric Disorder (PMDD).
Objective: The primary goal of this research is to investigate the impact of yoga on the quality of life for women experiencing premenstrual dysphoric disorder.
Method: The study was designed as a Pre-Test and Post-Test. This was a quasi-experimental design. To test the stated hypotheses, non-probability sampling method is used in which purposive sampling technique is selected. Two hundred respondents who had been diagnosed with premenstrual dysphoric disorder by a gynecologist were included in the sampling method. Fifteen to twenty-five years old, from Delhi (NCR). WHO-QOL BRIF scales was used for data collection. After that through simple random sampling, data divided into two groups – Experimental group and Control group. Distribution of groups through odd-even method. Yoga Intervention is given to experimental group only not to control group. After intervention post-test data was collected.
Results: Yoga had a significant positive effect on the quality of life of females with Premenstrual Dysphoric Disorder (PMDD). The paired t-test reveals a significant difference in Quality-of-Life scores of females with PMDD before and after yoga intervention ($t=-2.05$, $p=0.041$). The mean difference in QOL scores between pre-test and post-test is -6.328, with a 95% confidence interval ranging from -0.131 to -2.05 and the independent sample t-test assumption of equal variances appears to be satisfied, (Sig. = 0.171 > 0.05). There was a statistically significant difference in QOL ratings between the two groups (experimental and control-group), according to the independent-samples t-test ($t = 11.69$, $df = 198$, $p < 0.001$). With a 95% confidence range of (11.54, 16.22) for the mean difference in Quality-of-life ratings.
Conclusion: The study concluded that the experimental group females with PMDD appeared to have a substantially better quality of life after expose to yoga intervention than the control group. So according to hypothesis, yoga is significantly positive effect on quality of life of females with premenstrual dysphoric disorder and Yoga is effective technique for females to manage PMDD.

Keywords: yoga, quality of life, Premenstrual dysphoric disorder.

1. Introduction

Women are thriving in every aspect of life in this high-tech period, but they face several physical obstacles that keep them from going forward. As a result, one of the key goals of modern health care is women's health. Their social, psychological and economic growth is impacted by it as well as to their nation.

The term Premenstrual Syndrome (PMS), also known as Premenstrual Tension (PMT), PMDD is severe form of PMS. A set of behavioral, cognitive, affective, and physical symptoms known as premenstrual disorders—premenstrual syndrome (PMS) and premenstrual dysphoric disorder (PMDD)—occur during the luteal phase of the menstrual cycle and disappear at the onset of menstruation or within a few days of it. (Braverman, 2007). Even though it's believed that up to 90% of women in reproductive age have premenstrual symptoms to some extent, only those whose lives are seriously impacted by moderate to severe symptoms are diagnosed with PMS or PMDD. (Rapkin & Mikacich, 2006). Premenstrual disorders, as mentioned by Rapkin and Mikacich, most often begin in adolescence, with at least 20% of teenagers reporting moderate-to-severe premenstrual symptoms. They mentioned that research indicates a comparable percentage of teenagers would likewise satisfy PMS/PMDD criteria. (Rapkin & Mikacich, 2006), (Rapkin & Mikacich, 2008). Premenstrual syndrome can lead to a number of challenges for women, such as diminished physical and mental well-being and significant dysfunction in social or professional spheres. (Biggs & Demuth, 2011). Symptoms may negatively impact social connections and academic performance in young adolescents in particular (Rizk et al., 2006). Women with premenstrual problems also have a lower quality of life in terms of their health, according to earlier research (Borenstein et al., 2003), (Rapkin & Winer, 2009).

Somatic complaints and premenstrual mood are prevalent and have a big impact on women's lives. Following menstruation, PMS and PMDD symptoms cease. They arise during the luteal phase of the menstrual cycle in women. Most women have moderate symptoms from premenstrual syndrome (PMS), with little to no impact on their ability to go about their everyday lives. However, severe symptoms of PMS that are clinically important are believed to affect twenty percent of women (Borenstein et al., 2005). With an incidence of 3–9%, premenstrual dysphoric disorder (PMDD) is a severe and incapacitating type of premenstrual syndromes (PMS) (Ismail & Robinson, 2015). An ovulatory menstrual cycle, together with fluctuating amounts of sex hormones, is what causes PMDD. There is a "cluster of affective, behavioural, and somatic symptoms" associated with the condition (M & Anandha Lakshmi S. Priy M, 2011).

Premenstrual symptoms damage a woman's physical and mental well-being and severely hinder her social and professional functioning, among other issues. Symptoms may negatively impact social connections and academic performance in young teens in particular. Additionally, it may lead to an unhealthy lifestyle, low self-esteem, and feelings of inadequacy and unhappiness. Women with premenstrual issues also have a lower quality of life in terms of their health, according to earlier research. Premenstrual dysphoric disorder (PMDD) has been shown to negatively affect health-related quality of life to a disabling degree, especially regarding interpersonal relationships with family members and partners. Parkin and Winer conducted a thorough review of the literature and concluded that "for women with PMDD, the

symptoms can be as disabling as major depressive disorder." (Rapkin & Winer, 2009).

As a complement to a healthy lifestyle, yoga offers a moderate level of physical activity and toning for the body. Young females who experience physical hardship may miss college. Yoga has been shown to benefit female students' well-being and increase their productivity at work (Bharati, 2016). Yoga fortifies and enhances the flexibility of these muscles, which are also slowly extended to reduce discomfort during premenstrual syndrome (Kamalifard et al., 2017). The control of emotional behaviour is attributed to the regulation of leptin during the menstrual cycle, which rises during premenstrual syndrome, according to the research. Premenstrual syndrome psychological symptoms are linked to elevated levels of leptin in the blood. Blood levels of leptin are known to drop during exercise. There are significant distinctions and parallels in physical symptoms between yoga poses and physical workouts. For the majority of results, yoga poses are just as good as or better than physical workouts. It has been shown that practicing yoga reduces PMS symptoms more effectively than aerobic exercise (Nirav Vaghela et al., 2019). Yoga has been shown to significantly improves sleep quality (Ghaffarilaleh et al., 2019), (Nandia et al., 2022). Acetylcholine, L-tryptophan, norepinephrine, and serotonin are hormones that influence sleep. Sleep quality in PMS is affected by a decrease in serotonin levels caused by a dip in estrogenic levels during the luteal phase (Nandia et al., 2022). During the menstrual cycle, a woman's body can withstand variations in hormone levels, which can cause physical, emotional, and behavioral problems.

According to research, females are more likely to experience depression, anxiety, low self-esteem, and decreased energy during the premenstrual syndrome (Nisar, 2008). Females' considerable deterioration in interpersonal relationships, reduced work performance, and increased absences from work, education, or college are reported by those with PMS (Raval, 2016). In addition, family abuse and children's disturbing effect were taken into consideration in the PMS patient groups. Thus, PMS may affect not only the woman but also her family and the community (Bakhshani, 2009)

Yoga poses considerably reduced the detrimental effects and reduced ability to focus. Enhancing overall well-being and assisting in releasing stress and anxiety in women suffering from PMS (Ęiġek, 2018). Yoga poses stimulate and modulate the function of muscles, viscera, glands, and the neurological, circulatory, and lymphatic systems. Increased circulation guarantees the nerves' access to oxygen and nourishment. Aerobic exercise improves fatigue, poor concentration, disorientation, and most other premenstrual symptoms. Intervention studies show that it also lowers levels of prolactin, oestrogen, and progesterone and raises hemoglobin, red cell count, and platelet count.

Objective- To examine the effect of yoga on quality of life of females with premenstrual dysphoric disorder.

Hypothesis- There will be significant effect of yoga on quality of life of females with premenstrual dysphoric disorder.

2. Methodology: -

Pre- and post-test designs were used for this investigation. With two groups—a pre-post intervention group and a control group—it was a quasi-experimental design. A gynecologist's

diagnosis of PMDD was considered when selecting research participants who were Delhi (NCR) women aged between 15 and 25 years. In the current study, 200 female participants had premenstrual dysphoric disorder. Data was collected by World Health Organization Quality of Life (WHOQOL)-BREF scale. It is a thorough, standardized tool with 26 items created by the World Health Organization to measure quality of life. The four dimensions of the scale are physical health (seven items), psychological health (six items), social connections (three items), and environmental health (eight items), and offer an indication of an individual's perceived quality of life. It also asks two questions on general health issues and overall quality of life. Higher scores indicate a greater quality of life, as indicated by the positive scaling of domain scores. For every domain, the ratings ranged from 4 to 20. First, scores were transformed into a range of 4–20, and second, domain scores were transformed into a range of 0–100.

Sample:

To test the stated hypotheses, non-probability sampling method is used in which purposive sampling technique is selected. According to research purposive sampling technique is best suited to focuses only on a well-defined population that is females with PMDD diagnosed by gynecologist between the age range of 15 to 25 years from Delhi (NCR). Purposive sampling is also known as judgmental sampling and convenience sampling. Which means subjects selection is based on researcher judgements or criteria. Also, purposive sampling technique is used in mixed method research. The current study employs 200 females with premenstrual dysphoric disorder After that through simple random sampling, data divided into two groups – Experimental group and Control group. Distribution of groups through odd-even method. Yoga Intervention is given to experimental group only not to control group. After intervention post-test data was collected.

Yoga intervention

A one-month yoga curriculum comprising physically and psychologically interventional yoga postures was designed to assess changes in females with PMDD. The yoga teacher for the research was a qualified and experienced professional with years of experience. To accommodate female participants who might feel self-conscious throughout the exercise program, we chose a female teacher who was familiar with the symptoms of premenstrual dysphoric disorder. The instructor guided each participant's yoga positions meticulously for 50 minutes every evening, five days a week. Each of the five types of yoga was used in our research.

Table 2.1 process of yoga intervention

Sr. No.	Yoga	Timings	Sets
1.	Pranayama	10 Minutes	5
2.	Vajrasana	10 Minutes	10
3.	Janu-Sirsasana	10 Minutes	10
4.	Malasana	10 Minutes	10
5.	Shavasana	10 Minutes	1

Inclusive criteria

• This research will concentrate on obtaining data on women diagnosed with PMDD from a gynecologist.

• The sample comprised 200 females from Delhi (NCR) (under Dr. Savita Parihar, Gynae & Ortho Center, OJAS & SSS medical health care) aged between 15-25 years.

• Females who had attended a minimum of 1,400 minutes in an overall intervention period of one month (Monday-Friday, 50 minutes every day).

Exclusive criteria

The following criteria were considered and excluded from the sample:

• Females with premenstrual dysphoric disorder, which was not diagnosed by gynecologists, were not included in the study.

• Females below the age of 15 and above the age of 25 years were not considered. Females who were not from Delhi (NCR).

• Females who failed to meet the minimum requirement for the overall intervention period.

3. Results and Discussion: -

In statistics the pre- and post- intervention scores for the World health organization- Quality of life BRIF questionnaire were compared using paired t-tests within the intervention and controls groups independently. Between-group differences in pre- and post-intervention scores were analyzed using independent t-tests. The level of significance was set at P <0.05.

Table -1 Quality of Life— Mean, Standard Deviation, and Standard error mean for pre-post test.

	N	Mean	Std. Deviation	Std. Error Mean
QOL pre-test	200	76.93	16.50	1.16
QOL Post-test	200	80.16	10.88	.769

Quality of Life- Figure -1- Bar Graph of Quality-of-Life represented pre-test and post-test mean, N, Standard deviation & Standard error mean.

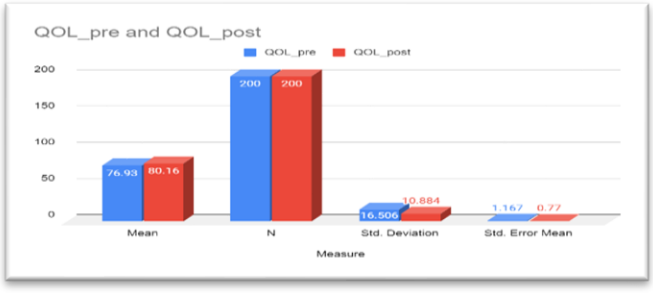

Figure 1- Bar Graph of Quality-of-Life represented pre-test & post-test mean, sample size

(N), Standard deviation & Standard error mean.

Interpretation: The table -1 and bar graph (figure-1) demonstrate that the mean Quality of Life (QOL) score rose from 76.93 at the pre-test to 80.16 at the post-test. Additionally, the standard deviation decreased from 16.50 at the pre-test to 10.88 at the post-test. The standard error of the mean decreased from 1.16 at pre-test to 0.77 at post-test.

Table- 2: Paired t-test for Quality of Life

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	Sig. (2-tailed)
Pair 1	QOL pre-test QOL Post-test	-3.230	22.22	1.571	-6.328	-.131	-2.05	199	.041

Interpretation: The paired t-test reveals a significant difference in Quality-of-Life scores before and after treatment (t=-2.05, p=0.041). The mean difference in QOL scores between pre-test and post-test is -6.328, with a 95% confidence interval ranging from -0.131 to -2.05.

Table -3 Independent Samples t-test for Quality of Life (QOL):

Independent Samples t-Test

		t	df	P	Mean difference	SE difference	95% Confidence Interval	
							Lower	upper
QOL	Equal variances assumed	11.69	198	<0.001	13.88	1.187	11.54	16.22
	Equal variances not assumed	11.69	197.37	<0.001	13.88	1.187	11.54	16.22

*Levene's test is significant (Sig. = 0.171 > 0.05) suggests that the assumption of equal variances is met.

The independent sample t-test is shown in Table 3: The assumption of equal variances appears to be satisfied, according to Levene's Test for Equality of Variances (Sig. = 0.171 > 0.05). There was a statistically significant difference in QOL ratings between the two groups, according to the independent-samples t-test (t = 11.69, df = 198, p < 0.001). With a 95% confidence range of [11.54, 16.22] for the mean difference in QOL ratings, the experimental group appeared to have a substantially better quality of life than the control group.

Discussion

This study sees the effect of yoga on Quality of life of females with premenstrual dysphoric disorder (PMDD). Severe form of Premenstrual syndrome is known as premenstrual dysphoric disorder which severely effects females' psychological health, physiological health, social - relationships, etc. at the reproductive age of females. Now, this study was designed as a Pre-Test and Post-Test. This was a quasi-experimental design. Two hundred respondents who had been diagnosed with premenstrual dysphoric disorder by a gynecologist were included in the sampling method. Age range between Fifteen to twenty-five years old, from Delhi (NCR).

According to inclusive and exclusive criteria of study data was collected. World health organization-Quality of Life BRIF (WHO-QOL BRIF) scales was used for data collection from experimental and control group.

Now here firstly, we were discussing results of descriptive statistics in which we were including Mean, Standard deviation and Standard Error for pre-test and post-test. The table-1 and bar graph (figure-1) shows descriptive statistics demonstrate that the mean Quality of Life (QOL) score rose from 76.93 at the pre-test to 80.16 at the post-test, indicating a noticeable improvement in the quality of life. Additionally, the standard deviation decreased from 16.50 at the pre-test to 10.88 at the post-test, suggesting a more consistent distribution of QOL scores after the yoga intervention. The standard error of the mean decreased from 1.16 at pre-test to 0.77 at post-test, indicating a more accurate representation of the true mean QOL score. Additionally, this decrease in the standard error of the mean suggests that the sample mean is a more reliable estimator of the true population mean QOL score, as the variance of the sample mean decreases from pre-test to post-test.

In statistics the pre- and post- intervention scores for the World health organization- Quality of life BRIF questionnaire were compared using paired t-tests within the intervention and controls groups independently. Between-group differences in pre- and post-intervention scores were analyzed using independent t-tests. The level of significance was set at $P < 0.05$.

The paired t-test reveals a significant difference in Quality-of-Life scores of females with PMDD before and after yoga intervention ($t=-2.05$, $p=0.041$). The mean difference in QOL scores between pre-test and post-test is -6.328, with a 95% confidence interval ranging from -0.131 to -2.05. and the independent sample t-test is shown in Table 3: The assumption of equal variances appears to be satisfied, according to Levene's Test for Equality of Variances (Sig. = $0.171 > 0.05$). There was a statistically significant difference in QOL ratings between the two groups (experimental and control-group), according to the independent-samples t-test ($t = 11.69$, $df = 198$, $p < 0.001$). With a 95% confidence range of (11.54, 16.22) for the mean difference in Quality-of-life ratings, the experimental group females with PMDD appeared to have a substantially better quality of life after expose to yoga intervention than the control group. So according to hypothesis, yoga is significantly positive effect on quality of life of females with premenstrual dysphoric disorder.

4. Conclusion

This study has clearly demonstrated the beneficial effects of yoga intervention on the quality of life as well as the environment, social interactions, physical health, and psychological well-being of females with premenstrual dysphoric disorder. The study concluded that the experimental group females with PMDD appeared to have a substantially better quality of life after expose to yoga intervention than the control group. So according to hypothesis, yoga is significantly positive effect on quality of life of females with premenstrual dysphoric disorder and Yoga is effective technique for females to manage PMDD. Daily practice of yoga for fifty minutes reduces stress, anxiety, depression, body aches, migraines, abdominal pain, and negative emotions. It also enhances positive emotions and self-awareness, which aid in the management of daily tasks. Social and familial relationships are also improved, which helps

to boost the self-esteem and confidence of female PMDD patients.

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