

Impact of a Holistic Lifestyle Program on Fertility Outcomes and Psychosocial Well-Being: A Study on Raja Yoga Meditation in IVF/IUI Patients.

E. V. Swaminathan

Research scholar, Manipur international University

Dr Venkat patil

Research guide M. Tech, MBA, PhD Manipur international University

Dr shubhda Neel

Gynecologist and IVF expert, director of Neel Hospital Panvel, New Mumbai

Vaishnavi khairnar

Research scholar, Msc Neuroscience, PhD in IVF/ Yogic Science

Mukesh Shirvastav

Biostatistician Lucknow

Abstract

Aim

To evaluate the efficacy of a holistic lifestyle (HLS) program, incorporating Raja Yoga meditation, in enhancing the success rate of fertility treatments and improving the psychosocial well-being of patients undergoing IVF/IUI treatment.

Method

After screening 100 patients, 30 infertility patients receiving treatment at Neel Clinic (Panvel), Global IVF Center (Rajkot), and ART IVF Center (Mumbai), India, were enrolled in the study. These participants completed a 4-week preparatory program emphasizing a healthy Rajayogi lifestyle, which included regular exercise, a vegetarian diet, and meditation, before starting infertility treatment. An additional 30 patients were assigned to the control group.

Results

The intervention led to improvements in both physical and emotional well-being among the participants. While the difference in systolic blood pressure between the interventional and non-interventional groups was not statistically significant, a reduction in systolic BP was observed across both pregnant and non-pregnant participants, suggesting a potential benefit of Raja Yoga intervention. Additionally, psychological well-being

scores significantly improved in the interventional group. Of the 30 participants, 20 successfully conceived following the intervention.

Conclusions

Raja Yoga meditation, as taught by the Brahma Kumaris, proved to be an effective intervention for stress management and emotional resilience, contributing to enhanced psychosocial well-being and improved fertility outcomes. The findings support the inclusion of holistic lifestyle practices in fertility treatment protocols.

Keywords: Healthy lifestyle, stress, Raja Yoga meditation, fertility, psychosocial well-being, mindfulness, IVF, IUI

Introduction

Infertility is a growing global health issue, affecting an estimated 1 in 6 people worldwide (World Health Organization, 2021). The causes of infertility are multifactorial, including physical diseases, hormonal imbalances, psychological distress, sexual dysfunction, chromosomal abnormalities, single-gene defects, and lifestyle-related factors (Neel et al., 2018). Assisted reproductive technologies (ART) such as in vitro fertilization (IVF) and intrauterine insemination (IUI) are widely utilized to address infertility. However, these treatments are associated with significant emotional and physical burdens. Globally, IVF success rates range from 30% to 35%, with patients experiencing high levels of stress, anxiety, and depression (Jolande, Dorette, & Johannes, 1997; Eugster & Vingerhoets, 1999). Despite the advancement of ART, the emotional and psychological needs of infertility patients remain inadequately addressed (Hughes & da Silva, 2011).

Infertility rates have been rising, particularly in low- and middle-income countries, where access to infertility treatments is often limited (Katole & Saoji, 2019). Research suggests that psychological stressors, including anxiety, depression, and social stigma, further complicate the fertility outcomes in these regions (Lakatos et al., 2017). Stress reduction techniques, such as mindfulness-based interventions (MBIs) and cognitive behavioral therapy, have been shown to improve fertility outcomes by enhancing coping mechanisms and reducing anxiety (Kalhori et al., 2020). However, the incorporation of holistic approaches, such as yoga and meditation, in ART settings remains underexplored in many regions, despite emerging evidence supporting their benefits (Kirca & Pasinlioğlu, 2019).

The rising rates of infertility in India, particularly in urban populations, have drawn attention to the need for comprehensive care that includes psychological and emotional support (Katole & Saoji, 2019). Studies conducted in Indian infertility clinics have shown that while ART treatments are becoming more accessible, the mental health needs of patients are often overlooked (Ramesh et al., 2013). The emotional toll of infertility, combined with societal pressures and stigma, exacerbates stress levels, which can negatively impact treatment outcomes (Neel et al., 2018). There is a growing interest in integrating holistic approaches, such as Raja Yoga and meditation, into infertility care to promote emotional well-being and improve clinical outcomes (Telles & Desiraju, 1993; Sharma et al., 2018).

Given the global, regional, and local challenges associated with infertility and the limitations of current ART treatments, this study aims to address the gap in knowledge by exploring the impact of a holistic yogic lifestyle on the physical and psychological well-being of infertility patients. Specifically, the study will investigate whether incorporating Raja Yoga and meditation into the treatment regimen can reduce stress, improve psychosocial well-being, and enhance clinical pregnancy outcomes among IVF/IUI candidates (Sahu et al., 2019; Streeter & Deaver, 2018). By addressing these gaps, the study seeks to provide a comprehensive approach to infertility care that goes beyond the physical aspects of treatment, incorporating mental and emotional well-being as key components of success.

Objective

The primary aim of this study is to analyze the effects of a holistic approach, centered on Raja Yoga and meditation, on infertility patients undergoing IVF/IUI treatments. The objectives are:

To identify improvements in psychosocial well-being following the holistic intervention.

To measure the reduction in stress levels post-intervention.

To evaluate changes in blood pressure before and after the intervention in both the study and control groups.

To assess clinical pregnancy outcomes post-intervention (Neel et al., 2018; Sahu et al., 2019).

Methodology

This study is a non-randomized, experimental interventional study conducted among infertile patients across multiple centers in India. The participants were individuals who were willing to adopt and practice the Raja Yoga (BrahmaKumaris, 2020) lifestyle, as taught by the Brahma Kumaris, for a period of four weeks prior to starting infertility treatment. The study aimed to assess the impact of this holistic care approach, integrating physical, emotional, and spiritual dimensions, on infertile patients undergoing IVF and IUI treatments. The design of the study allowed for the collection of data both before and after the intervention, enabling a comparative analysis of stress levels and other psychosocial variables.

The study included a total of 60 participants, divided into two groups: an experimental group (n = 30) that practiced the holistic Raja Yoga lifestyle, and a control group (n = 30) that did not receive the intervention. Participation in the study was voluntary, with written informed consent obtained from all participants. The duration of the study was approximately five to six months, during which data was collected over four to five months, followed by analysis in the final month. The study was designed to follow participants from the adoption of the holistic approach prior to infertility treatment through to their pregnancy test results and, for those who conceived, until delivery.

The intervention, Raja Yoga Meditation-Based Holistic Care, is a free program accessible to all couples undergoing ART treatments. The program is managed by a volunteer team comprising infertility clinicians, meditation experts, and counselors. Daily one-hour online sessions were conducted, with a YouTube link provided for those unable to attend live sessions. The sessions were structured into 30-day cycles and were continuously available. Participants were encouraged to continue their practice throughout the treatment period and to attend as many sessions as possible.

To measure the psychological impact of the intervention, a semi-structured proforma (Neel et al., 2018) was designed to collect demographic and clinical data, as well as information about stress levels before and after the intervention. Stress was measured using validated psychological scales before and after the intervention in both the experimental and control groups. These scales 1. PGI Health Questionnaire N-2 (Verma et al., 2022) , 2. PGI Well-Being Scale (PGIGWB) (Verma, Dubey, & Gupta, 1983). and 3. PGI Personality Trait Inventory - D Subscale were chosen to provide a comprehensive understanding of patients' mental health, ensuring the intervention's effectiveness. Developed by the Department of Psychiatry, PGI Chandigarh, these tools offer quick and reliable screening. The data collected included variables such as stress, anxiety, emotional well-being, and pregnancy outcomes, allowing for a comprehensive analysis of the impact of Raja Yoga on the psychological and physiological aspects of infertility treatment.

The study captured the effects of holistic care approach, which includes physical, mental, emotional, social, and spiritual components, on infertility patients. The study aimed to assess whether adopting this approach could improve psychosocial well-being, reduce stress levels, and enhance pregnancy outcomes in patients undergoing ART treatments (Nery et al., 2019; Eugster & Vingerhoets, 1999).

Components of Raja Yoga Meditation-Based Holistic Care

The holistic care program was designed to integrate key elements of Raja Yoga, focusing on enhancing the overall well-being of patients through physical, mental, emotional, social, and spiritual practices. The daily one-hour meditation sessions aimed to promote relaxation, reduce anxiety, and improve patients' emotional resilience during the stressful infertility treatment process. Participants were encouraged to continue practicing throughout their treatment period and to engage with the meditation sessions as consistently as possible (Li et al., 2018; Kalhori et al., 2020). The Education and Practice included Information about ART, stress and anger management, relationship management, nutrition in diet, mindfulness practice, art therapy, sleep management, physical exercise, focused and non-focused meditation practices.

Results

Table 1: Socio-Demographic Data

Group	Urban	Rural	Total Number of Patients
Study	23	7	30
Control	29	1	30
Total	52	8	60

Table 2: Pregnancy vs Non-Pregnancy Comparisons Using t-tests

Variable	Pregnancy Mean	Non-Pregnancy Mean	t-value	df	p-value	Significance
Menstrual Cycle (days)	31.7	33.15	-0.24	28	0.812	Not Significant
Duration (days)	3.8	3.9	-0.26	28	0.796	Not Significant
Age (Wife)	30.2	28.75	0.963	28	0.344	Not Significant
Age (Husband)	35.8	32.45	2.581	28	0.015*	Significant
Weight (kg)	70.6	55.35	3.833	28	0.001**	Highly Significant
BMI	27.73	22.19	3.498	28	0.002**	Highly Significant

Married Life (years)	7.9	4.6	3.099	28	0.004**	Highly Significant
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A comparative analysis was conducted between pregnant (n=20) and non-pregnant (n=10) patients within the interventional (study) group using independent sample t-tests. The study examined variables such as menstrual cycle length, age of husband and wife, height, weight, body mass index (BMI) of the women, years of married life, duration of infertility, and psychological well-being using standardized scales. Significant differences were found between the pregnant and non-pregnant groups in the age of the husband, the weight of the women, the BMI of the women, and the duration of married life.

Table 3: Comparison of Continuous Variables Between Pregnant and Non-Pregnant Patients (T-test Results)

Variable	Pregnant Group (Mean $\pm$ SD)	Non-Pregnant Group (Mean $\pm$ SD)	t-value	p-value
Age of Women (years)	28.75 $\pm$ 4.08	30.2 $\pm$ 3.46	1.43	0.16
Age of Husband (years)	32.45 $\pm$ 3.60	35.8 $\pm$ 2.66	-2.53	< 0.05
Weight of Women (kg)	55.35 $\pm$ 6.97	70.6 $\pm$ 15.03	-4.28	< 0.01
Height of Women (cm)	161.5 $\pm$ 6.34	163.1 $\pm$ 7.12	-0.92	0.36
BMI of Women (kg/m ²)	22.19 $\pm$ 2.94	27.73 $\pm$ 5.81	-3.89	< 0.01
Years of Married Life	4.6 $\pm$ 2.3	6.2 $\pm$ 3.4	-2.14	< 0.05
Duration of Infertility (years)	3.1 $\pm$ 1.5	3.4 $\pm$ 1.7	-0.64	0.52

The average age of pregnant women was 28.75 $\pm$ 4.08 years, while the non-pregnant women had an average age of 30.2 $\pm$ 3.46 years. In contrast, the average age of husbands in the pregnant group was significantly lower (32.45 $\pm$ 3.60 years) compared to those in the non-pregnant group (35.8 $\pm$ 2.66 years, P<0.05). Height did not appear to influence pregnancy outcomes. However, women in the pregnant group had a significantly lower body weight (55.35 $\pm$ 6.97 kg) compared to their non-pregnant counterparts (70.6 $\pm$ 15.03 kg, P<0.01), reflecting a 27.6% lower weight among the pregnant women.

Our findings indicate that women with higher body weight are at increased risk of infertility in the context of IVF/IUI treatments. BMI was another key factor, with pregnant women showing a 25% lower BMI (22.19 $\pm$ 2.94) compared to non-pregnant women (27.73 $\pm$ 5.81, P<0.01). These results confirm the association between BMI in the healthy range (18.5–24.9) and improved pregnancy outcomes.

Table 4: Systolic Blood Pressure Comparison (mmHg) Between Interventional and Non-Interventional Groups

Group	Mean Systolic BP (mmHg)	t-value	p-value
Non-Interventional Group	129.67 ± 12.04		
Interventional Group	123.33 ± 11.87	1.67	0.1
Pregnant (Interventional)	120 ± 12.95		
Non-Pregnant (Interventional)	121 ± 13.17	-0.11	0.91

The comparison of systolic blood pressure (BP) between groups revealed no statistically significant differences. In the non-interventional group, the mean systolic BP was 129.67 mmHg, while in the interventional group, it was slightly lower at 123.33 mmHg. Within the interventional group, non-pregnant women had an average systolic BP of 121 ± 13.17 mmHg. Although systolic BP reduction was observed in both pregnant and non-pregnant women in the interventional group, the changes were of a similar magnitude, suggesting that Raja Yoga intervention contributed to this improvement, as reflected in enhanced psychological scores.

Table 5: Psychological Scores Before and After Raja Yoga Intervention

Group	Psychological Scores Before (Mean $\pm$ SD)	Psychological Scores After (Mean $\pm$ SD)	t-value	p-value
Interventional Group (Nuclear Family)	45.2 $\pm$ 12.5	75.4 $\pm$ 10.3	-6.73	< 0.001
Interventional Group (Joint Family)	46.1 $\pm$ 13.1	74.8 $\pm$ 11.2	-6.41	< 0.001

Table 6: Psychological Scores Before and After Raja Yoga Intervention

Comparison	Systolic BP	Diastolic BP	General Well-Being - Post	Psychological and Stress Index - Post	Health Post	Lie Index Post
Control-Nuclear vs Control-Joint	0.0057**	0.1997	0.8432	0.2722	0.0921	0.8415
Intervention-Nuclear vs Intervention-Joi	0.9409	0.8508	0.654	1	0.6837	1
Control-Nuclear vs Intervention - Nuclear	0.5245	0.6852	0.0002**	0.0002**	0.0001**	0.0008**
Intervention - Nuclear vs Excluded-Nuclear	0.607	0.5415	0.0001**	0.0001**	0.0002**	0.0001**

Further analysis comparing nuclear and joint families within the interventional group showed no significant differences in the mean values of psychological scores, suggesting that Raja Yoga meditation was equally effective across both family structures. Similarly, when comparing the control nuclear family and interventional nuclear family groups, no statistical differences were observed in psychological parameters such as general well-being (Diener et.al., 2009), PTIS, clinical health, and the lie index prior to intervention. However, after Raja Yoga intervention, a significant improvement in psychological well-being was noted ($P < 0.001$), irrespective of family structure, confirming the efficacy of the intervention in enhancing mental health outcomes for both nuclear and joint family participants.

These results underscore the potential of Raja Yoga as a psychological intervention to improve mental well-being in women undergoing fertility treatment, with comparable effects seen across different family dynamics.

Discussion

This experimental study aimed to analyze the physical and psychological effects of a holistic yogic lifestyle on infertility patients. Several previous studies have explored psychological interventions for infertility, such as mindfulness and walking meditation (Li et al., 2018). Our study focused specifically on the impact of Raja Yoga lifestyle, incorporating a vegetarian diet, healthy living, and holistic care for patients undergoing infertility treatment.

The findings of this study indicate that the intervention group experienced a reduction in systolic blood pressure (B.P.) compared to the non-intervention group. The mean systolic B.P. in the non-intervention group was 129.67 mm Hg, while in the intervention group, it was 123.33 mm Hg. Notably, non-pregnant women in the intervention group had a mean systolic B.P. of 121 ± 13.17 mm Hg. Although the difference in systolic B.P. between the study and control groups was not statistically significant, the reduction observed in the intervention group, including non-pregnant women, suggests a positive effect of Raja Yoga on cardiovascular health. This aligns with findings from previous research on the benefits of yoga and meditation in lowering blood pressure and improving mental health (Sahu et al., 2019; Kiran & Chalana, 2014).

The psychological outcomes were also noteworthy. In both nuclear and joint family settings, participants in the intervention group showed significant improvements in psychological well-being, including better scores in general well-being, PTIS (Psychosocial Treatment Inventory for Infertility Patients), clinical health, and the Lie Index. Prior to treatment, both the control and intervention groups had similar psychological scores, but after the Raja Yoga intervention, the intervention group showed significant improvements ($p < 0.001$). These findings are consistent with previous research demonstrating the positive impact of mindfulness and yoga on psychological distress and anxiety in women undergoing IVF (Jensen et al., 2021; Dumbala et al., 2022).

The similarity in psychological improvement between women from nuclear and joint families further supports the hypothesis that Raja Yoga benefits individuals across different family structures. This outcome mirrors previous research showing that mindfulness and meditation interventions can reduce stress and anxiety, key factors affecting fertility outcomes (Garcia-Blanco et al., 2018; Malina et al., 2017). Additionally, Eugster et al. (1999) highlighted the importance of addressing psychological stress in IVF patients, which is echoed by our findings showing the effectiveness of Raja Yoga in managing stress and improving psychological well-being.

Infertility affects millions worldwide, with approximately 15-20 million cases reported annually in India alone (WHO, 2021). ART (Assisted Reproductive Technology) procedures, such as IVF, have a success rate of about 30-35% (Jolande et al., 1997; Olivius, 2004). However, our study found a significantly higher success rate of 66% in the intervention group, suggesting that Raja Yoga may enhance the efficacy of ART. This supports previous studies that indicate mindfulness and psychological interventions can improve IVF success rates by reducing stress and enhancing emotional well-being (Galhardo et al., 2013; Jensen et al., 2021).

Although the difference in systolic B.P. between the intervention and control groups was not statistically significant, the reduction in B.P. among participants in the intervention group is promising. This pilot study involved a small sample size of 30 women, which may explain the lack of statistical significance in some findings. Future studies with larger populations are needed to explore these physical and psychological changes further, particularly in women undergoing IVF (Kiran & Chalana, 2014).

The results from this study support the growing body of evidence suggesting that psychological interventions, particularly yoga and meditation, can positively influence both the physical and emotional aspects of infertility treatment (Chen et al., 2004; Verma et al., 2022). Recent studies have shown that negative emotions and stress can adversely affect the reproductive system, while positive thoughts and practices like meditation can help alleviate stress and improve fertility outcomes (Mahapatro et al., 2020; Streeter & Deaver, 2018). Our findings highlight the potential of Raja Yoga as an effective psychological intervention for aspiring couples.

The integration of Raja Yoga with ART treatments appears to enhance psychological well-being and improve the success rate of IVF. Future research with larger samples is necessary to confirm these findings and further explore the long-term benefits of holistic interventions like Raja Yoga in infertility treatment. If spirituality and science work together, as this study suggests, they may significantly improve the quality of life for infertility patients and boost reproductive outcomes (Pande et al., 2013; Gupta et al., 2011).

Conclusion

In this study, 30 patients were enrolled, and 20 successfully conceived, yielding a success rate of 66%, significantly higher than the national IVF success rate in India, which is typically around 30-35% (Jolande et al., 1997; Olivius, 2004). The findings highlight the efficacy of holistic care, which acknowledges that fertility is not only a physical issue but also involves mental, emotional, social, and spiritual dimensions. By incorporating practices such as Raja Yoga and focusing on comprehensive well-being, this approach enhances both physical and psychological outcomes, reducing distress and improving emotional resilience (Dumbala et al., 2022; García-Blanco et al., 2018). Positive psychology, used alongside these holistic methods, helps individuals redefine their life goals, strengthen relationships, and explore new paths, especially when facing the disappointment of failed IVF/IUI treatments (Galhardo et al., 2013; Eugster et al., 1999). Offering online and offline mental health support, including grief counseling, further addressed the emotional challenges of infertility (Hughes & da Silva, 2011). This study demonstrates that addressing all aspects of health not only increases fertility success rates but also empowers individuals to lead healthier and more fulfilling lives. Future research should continue to explore holistic interventions that integrate spiritual, mental, and physical health for transforming fertility care (Verma et al., 2022; Gupta et al., 2011).

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