EFFICACY OF ANTENATAL YOGA FOR IMPROVEMENT IN QUALITY OF LIFE – A PILOT STUDY

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ABSTRACT
Pregnancy is a unique phase in the life of a woman. This exciting and vulnerable time initiates many changes at a physical, psychological, and emotional level. The aim of this study was to investigate the efficacy of integrated yogic practices on the quality of life among pregnant women. For this pilot study, we enrolled 20 pregnant women who were between 9 and 25 weeks at gestation. Single group pre-post design was used. An integrated yoga module specially developed for antenatal conditions was administered over a 12-week integrated yoga module to the participants. Quality of Life Scale was used as a tool of assessment. Data was collected at base and at the end of 12 weeks after the protocol was administered. Paired sample T-test was applied using SPSS software to analyze this data. Statistical analysis of the data collected, demonstrated that value of t test was 3.177 which was significant at 0.01 level. The findings showed that yoga intervention was efficacious in improving the Quality of Life. No adverse effects of yoga were observed among those who practiced yoga during pregnancy. The results demonstrate that antenatal yoga may be an effective intervention to enhance quality of life. More rigorous studies over a longer duration with larger sample sizes would be required to establish a definitive connection between yoga intervention and quality of life among antenatal cohort.

Keywords: antenatal, pregnancy, quality of life, integrative yoga protocol

I- INTRODUCTION
Pregnancy is a very special phase in the life of a woman. It is also fraught with many changes and vulnerability at a physical, mental, emotional, and psychological level. During this period of nine months, there are hormonal changes that cause immense fluctuations in the moods and emotions of a pregnant woman. It is common for women to experience physical discomforts, such as back pain, swelling, and nausea during this time. They may also experience a feeling of worry, depression, anxiety, or a general fear of the unknown (Wyszynski et al., 2021). This could often also manifest as mental stress. (Glover et al., 2010) Several mind-body therapies such as progressive muscle relaxation, tai chi, yoga, biofeedback, and guided imagery are used to mitigate maternal and antenatal-related conditions (Oyarzabal et al., 2021). Among complementary therapies, (Adams et al., 2009) yoga practice shows encouraging results. (Pais et al., 2021; Sun et al., 2010). The ancient and rich yoga tradition of India is a complete holistic system that offers a wide spectrum of mechanisms and techniques to support pregnant women. (Rakhshani et al., 2015)

AIM AND HYPOTHESIS:
The aim of this study was to explore the feasibility of integrated yogic practices on improvement in quality of life among pregnant women.

1. Null Hypothesis (H0): Integrated antenatal yoga protocol will not have a significant impact on the overall quality of life among pregnant women.
2. Alternative Hypothesis (HA): Integrated antenatal yoga protocol will have a significant impact on improving the overall quality of life among pregnant women.

PREVALENCE:
According to World Health Organization (WHO) and Ante Natal Care document, health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. According to the WHO, a positive pregnancy experience is defined as maintaining physical and sociocultural normality
maintaining a healthy pregnancy for mother and baby (including preventing and treating risks, illness, and death) having an effective transition to positive labour and birth, and achieving positive motherhood (including maternal self-esteem, competence, and autonomy).

DIMENSIONS OF HOLISTIC HEALTH:
Holistic health does not mean merely physical well-being, rather; it encompasses mental, emotional, social, and spiritual aspects of a person. The Taittiriya Upanishad describes a human being to be having five layers or (Desikaachar, n.d.) Pancha Koshas from gross to subtle comprising of the material or gross body Anamaya Kosha, the vital or instinctual component Pranamaya Kosha, the mental or psychological component Manomaya Kosha, the intellectual component Vigyanmaya Kosha, and the fifth aspect of pure bliss and happiness Anandmaya Kosha.

The yogic and ayurvedic (Frawley & Kozak, 2001) approach to holistic health (Koppikar, 2008; Rasane & Bhangale, n.d.) during pregnancy emphasise harmony and balance in various aspects such as diet, (Girija, 2008; Muktabhant et al., 2015) lifestyle(Caldecott, 2006), sleep (Bacaro et al., 2020), rest, exercise, and breathing. (Telles & Singh, 2013)

INTEGRATED YOGIC PRACTICES FOR PREGNANCY:
The etymological root of the word yoga in Sanskrit is to unite or yoke. According to one of many definitions (Satyānanda, 2009; Vivekananda, n.d.) of yoga, “Samatvam yoga uchchyate” (Bhagavad-Gītā As It Is, n.d.) Yoga means balance and equanimity.

Yoga affects the physical and the mental health aspects of a person. (Büssing et al., 2012) (Menezes et al., 2015). Antenatal yoga is a non-pharmacological intervention (Evans et al., 2020), that is cost-effective and is relatively easy to administer. An integrated yoga module for pregnancy consists of five important components: asana (Sengupta, 2014), (Saxena et al., 2017), pranayama, (Mooventhan & Khode, 2014) yoga nidra (Toosi et al., 2014) or deep relaxation, meditation (Chung et al., 2012) and chanting (Frawley, 2010). The above-mentioned aspects provide a framework on which are based the techniques and mechanisms(Oakley & Evans, 2014) that provide a sense of confidence, optimism and balance during pregnancy. (Shim & Lee, 2012)

The antenatal yoga protocols (Corrigan et al., 2019) are designed to keep the safety and well-being of women to be at the forefront. A positive approach to pregnancy (Mangala Gowri et al., 2019) and specifically designed modules taught in a structured manner consistently, tend to improve birth outcomes(Narendran et al., 2005).

II- RESEARCH METHODOLOGY
SUBJECTS: Twenty subjects were recruited for the study from two maternity clinics in Gandhinagar, Gujarat.

INCLUSION CRITERIA
1. Women who tested for positive pregnancy
2. Pregnant women who gave free consent and were willing to participate in the study.
3. Women from nine weeks of pregnancy to twenty-five weeks of pregnancy.

EXCLUSION CRITERIA
1. Patients who were diagnosed as having high risk or those with comorbidities.
2. Those carrying twins or multiple zygotes.
3. Those who were on psychiatric medication.
4. Those living outside Gandhinagar
5. Those beyond twenty-six weeks of gestation.

INFORMED CONSENT: A signed informed consent form in Gujarati, Hindi, and English was obtained from the participants before they were accepted into this study.

DESIGN: The pilot feasibility study was conducted with single group pre post research design. The study was conducted in Gandhinagar. Impact of Intervention was assessed as per the schedule given below:

a. Basal Assessment: 0-day (i.e., onset of the experiment)
b. Final Assessment: 03 months i.e. 90 days

TOOL OF ASSESSMENT: The efficacy of the intervention was assessed by using the Quality of Life Scale by Sarika Sharma and Dr. Nakhat Nasreen from the National Psychological Corporation of India in Agra.
scale is accepted for its validity and reliability. Attributes pertaining to quality of life, such as stress, depression, anxiety, physical wellbeing and happiness are evaluated on this scale.

YOGA PROTOCOL: The integrated yoga module was developed to include asanas, pranayama, meditation, relaxation and chanting specifically suitable for pregnancy. In addition to the protocol, participants of the study also received a lecture on antenatal care, diet, nutrition, and the philosophy of yoga.

INTERVENTION: Participants practiced the integrated antenatal yoga protocol five days a week. The protocol was delivered online via Zoom in one hourly session twice a week and using video tutorials three times a week for 12 weeks consecutively. The online format was adopted due to the prevailing Covid-19 pandemic scenario and in keeping with safety norms of social distancing as stipulated by the government. Another factor in the decision to deliver the protocol online was that some of the participants were not vaccinated and therefore more susceptible to contracting infection. Participants preferred being able to practice from the comfort of their home and compliance was good. The participants also got a copy of the yoga protocol in the form of a handout. Follow-up was done three times a week.

DATA COLLECTON AND STATISTICAL ANALYSIS: Data was collected after participants signed a consent form. The objectives of the study were explained to participants. The paired t test was used to analyse the data that was collected.

### III- RESULTS

<table>
<thead>
<tr>
<th>PHASE</th>
<th>MEAN</th>
<th>S.D.</th>
<th>DEGREE OF FREEDOM (df)</th>
<th>SEM</th>
<th>T VALUE</th>
<th>LEVEL OF SIGNIFICANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Experiment</td>
<td>109.15</td>
<td>7.60</td>
<td>19</td>
<td>1.70</td>
<td>2.82</td>
<td>Significant at 0.01 level</td>
</tr>
<tr>
<td>Post Experiment</td>
<td>113.95</td>
<td>4.90</td>
<td>19</td>
<td></td>
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The mean value at basal assessment was 109.15, after the yoga intervention module, the mean value increased to 113.95. Standard deviation before experiment was 7.60 and post experiment was 4.90. The standard error of mean was 1.70 before yoga protocol was administered and 1.10 after the three month yoga intervention. Standard error of difference was 1.511

The value of t test is 2.82 which is significant at 0.01 level (P < 0.01). The result shows that there is a statistically significant difference in quality of life after integrated yoga practice among pregnant women.
IV- DISCUSSION

There were no adverse effects observed during or after the practice. This feasibility study and its results could form the basis of a more detailed investigation on the psychological impact and wellbeing of an integrated yoga protocol on pregnant women. The practical application of it could have broader ramifications. The design and mechanisms of this study could be replicated by other researchers. Results of this pilot study could be useful to policy makers, healthcare professionals, yoga teachers and allied stakeholders, in addition to pregnant women.

Evidence-based research points to asana (Sengupta, 2014), breathing and exercise during pregnancy being associated with health benefits for both the mother to be, and the unborn child. (Babbar & Chauhan, 2015; Bungum et al., 2000; Gong et al., 2015) Yoga enhances physical health (Bojja & Jayashree, K. and Vijayaraghavan, R., 2019)and mental health(Evans et al., 2020) during pregnancy. Women with a normal pregnancy are recommended to engage in at least 30 minutes of moderate exercise on most if not all days of the week. (ACOG Releases Updated Guidance on Exercise in Pregnancy and Postpartum, Includes Recommendations for Athletes, n.d.) Studies indicate that a combination of both aerobic and muscle strength (Bhardwaj & Nagandla, 2014) physical activity supports the recommendation for regular strength training to be included for pregnant and postpartum women. (Bull et al., 2020)

The practice of Yoga is shown to be effective in managing common conditions(Carlson et al., 2004) such as back pain during pregnancy (Crow et al., 2015; Hu et al., 2020; P. A. Kinser et al., 2017; Pennick & Liddle, 2013; Wang et al., 2005) Antenatal yoga shows improved relaxation(Smith et al., 2011; Toosi et al., 2014), reduction in stress (Bershadsky et al., 2014; Field et al., 2013), depression(Davis et al., 2015; Kinser & Masho, 2015), (Bhartia et al., 2019; Chen et al., 2017), better delivery outcomes(Wadhwa et al., 2020) (Campbell & Nolan, 2019; Chuntharapat et al., 2008); and management of labour pain (Bolanthakodi et al., 2018)(Styles et al., 2019). Yoga during pregnancy is associated with a lowered risk of preeclampsia, hypertension and gestational diabetes mellitus.(Smith et al., 2020) Even in the case of high-risk pregnancies, yoga has been found to be a beneficial therapeutic tool (Dangel et al., 2020), (Deshpande et al., 2013), (Mooventhan, 2019).

This analysis supports the theory that antenatal yoga is efficacious in enhancing the quality of life. The findings of this pilot feasibility program demonstrate consistency with similar other studies done in this area. In one study (Rakhshani et al., 2010) yoga practice significantly improved quality of life domains such as physical domain (P = 0.001), psychological domain (P < 0.001), social domain (P = 0.003), and environmental domains (P = 0.001) compared to those who did not get yoga intervention. In another review of 13 studies done on quality of life, (Liu et al., 2019) found that yoga significantly brought about an improvement in QOL compared to other forms of exercise such as aerobics and resistance training.

V- CONCLUSION

As the p-value is below the significance level (0.01), it demonstrates that the observed difference in the quality of life after the integrated yoga module practice is unlikely to have occurred by chance alone. Based on the analysis of data sets, the p-value indicates that there is evidence to reject the null hypothesis and confidently support the alternative hypothesis that the integrated yoga practice had a significant effect on the quality of life among pregnant women.

In conclusion, the results of this pilot study show that an integrated yoga module developed for the antenatal cohort is viable, feasible, and may be effective as a holistic, non-pharmacological intervention in the enhancement of quality of life.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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