# Effects of Online Prenatal Yoga on Anxiety Level and Quality of Life Among Third Trimester Pregnant Women in North Cikarang District

Bambang Amelia Fajriati Urbaningrum[1*], Akhmad Yogi Pramatirta[2], Puspa Sari[3], Hadi Susiarno[2], Vita Murniati Tarawan[4], Shelly Iskandar[5]

[1]Master Program of Midwifery, Faculty of Medicine, Padjadjaran University, Bandung, Indonesia
[2]Department of Obstetrics and Gynecology, Padjadjaran University, Hasan Sadikin General Hospital, Bandung, Indonesia
[3]Department of Public Health, Faculty of Medicine, Padjadjaran University, Jawa Barat, Indonesia
[4]Department of Biomedical Sciences, Faculty of Medicine, Padjadjaran University, Jawa Barat, Indonesia
[5]Department of Psychiatry, Faculty of Medicine, Padjadjaran University, Hasan Sadikin General Hospital, Bandung, Indonesia

*Email correspondence : bambang23002@mail.unpad.ac.id

**Track Record Article**

Revised: 03 November 2025
Accepted: 20 December 2025
Published: 31 December 2025

**How to cite :**
Urbaningrum, B. A. F., Pramatirta, A. Y., Sari, P., Susiarno, H., Tarawan, V. M., & Iskandar, S. (2025). Effects of Online Prenatal Yoga on Anxiety Level and Quality of Life Among Third Trimester Pregnant Women in North Cikarang District. *Contagion : Scientific Periodical of Public Health and Coastal Health*, 7(3), 231–245.

***Abstract***

*The third trimester of pregnancy, is a vulnerable period for anxiety due to physical changes, sleep disturbances, hormonal shifts, and concerns about childbirth. According to statistics from the WHO, up to 10% of pregnant women and 13% of postpartum women suffer from mental health problems, among which the prevalence of prenatal anxiety is as high as 15%. These conditions may impair maternal and fetal health and reduce quality of life. Prenatal yoga, especially movements targeting the psoas muscle, has been proposed to alleviate stress and anxiety. This study aimed to examine the effects of prenatal yoga on anxiety levels and quality of life among women in the later stages of pregnancy in North Cikarang District. A total of 64 participants took part in this quasi-experimental study. They were allocated into two groups based on health centers: an intervention group (n=32), which received eight online prenatal yoga sessions, and a control group (n=32), which continued routine antenatal care. To assess the impact of the intervention, anxiety levels were evaluated both before and after the treatment using the "Perinatal Anxiety Screening Scale (PASS)", and quality of life was measured using the "World Health Organization Quality of Life Scale-Brief (WHOQOL-BREF)". Data analysis was performed using the Wilcoxon and Mann-Whitney statistical tests. The findings revealed a significant decrease in anxiety levels among participants in the intervention group compared to those in the control group ($p < 0.001$). Furthermore, participants who engaged in prenatal yoga experienced notable enhancements in their quality of life, encompassing physical, psychological, social, and environmental aspects ($p < 0.001$). Overall, the study concludes that prenatal yoga serves as an effective approach to alleviating anxiety and enhancing the overall quality of life for women in the later stages of pregnancy in North Cikarang District*

***Keywords: Anxiety, Third-Trimester Pregnancy, Quality of Life, Pregnant Women, Online Prenatal Yoga***

## INTRODUCTION

A study by Hadfield reported that pregnancy is a vulnerable moment for mom because it can increase the risk of mental health problems (Hadfield et al., 2022). This report has been supported by the World Health Organization too. They estimated about 10% of pregnant women have a mental health disorder and approximately 15% develop antenatal anxiety (WHO., 2022). Women during pregnancy are found to be anxious for their maternal health, fetal well-being, body image, finances and social issues and the process of becoming a mother

(Chauhan & Potdar, 2022). These anxiety symptoms peak in the third trimester of pregnancy. The data showed that 18.2% experienced anxiety in the first trimester, and this number increased to 24.6% in their third trimester (Godleski et al., 2022). These causes several effects, including greater maternal morbidity, preterm delivery, miscarriage, low birth-weight, some impairment in infant neurocognitive development, poorer mother-infant interaction, and lower level of quality of life (Hadfield et al., 2022; Bodunde et al., 2025).

Another study explains that someone's quality of life can reflect on his/her feelings. It includes four dimensions: physical, mental, social and environmental well-being (Wu et al., 2021). There are not so many results that have shown the trend in the quality of life decline during a pregnancy, but at least trends have been discovered showing the lowest score in the third trimester (Wu et al., 2021; Legey & Höfelmann, 2022). In addition, a worse quality of life during late pregnancy is linked to postpartum complications, depression, and adverse birth outcomes (Boutib et al., 2022).

However, physical activity had a robust association with quality of life during pregnancy. Therefore, during the third trimester, it is important for mom to engage insport and exercise activities to improve her well-being (Krzepota et al., 2018). Prenatal yoga is one tpye of exercise that is proven to be effective for the psychological well-being of pregnant women; however, standardized intervention strategies are limited. Villar-Alises et al. (2023) in their study reported that pregnancy yoga can effectively benefit mental health.

Prenatal yoga involves of mild activity, respiration, and relaxation techniques to help decrease stress, sleep better, feel more comfortable and promote holistic health (Miha Lučovnik et al., 2020; Tandi Bara et al., 2025). Additionally, prenatal yoga is considered effective to improve musculoskeletal activity and promote flexibility (Villar-Alises et al., 2023). Even though many studies explained benefits of prenatal yoga during pregnancy, such as to reduce anxiety and improve life quality, there is still a debate on it due to differences in the intervention protocol, and demographic characteristics of participants (Corrigan et al., 2022). For example, results from some studies show a significant decrease in anxiety and an increase in quality of life, meanwhile the results for other show no positive effects (Wulandari, 2024; Julisafrida et al., 2024; Salimi et al., 2024).

In this regard, it cannot be denied that exercise is still important for pregnancy women. Thus, additional evidence is needed. This study focuses on women in the third trimester, the stage with the most frequent anxiety and lowest Quality of Life (QoL) scores, which nevertheless tends to be overlooked in existing reports. In this study, prenatal yoga intervention was laid out according to the Frequency, Intensity, Time and Type (FITT) principle with

emphasis on sequences promoting psoas muscle release linked to stress and anxiety. Our study also measures 2 primary outcomes at the same time point, which are maternal anxiety and quality of life. This technique provides a greater understanding of how the intervention affects subjects. Therefore, this study aims to evaluate the influence of prenatal yoga on anxiety and quality of life in third-trimester pregnant women.

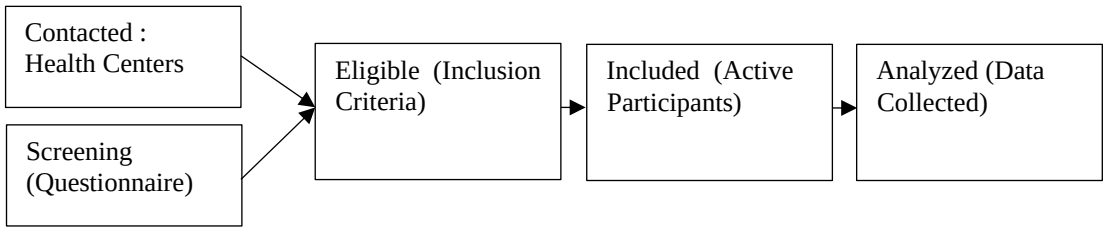
## METHODS

This quantitative study used a quasi-experimental two group pretest – post-test design. Quasi-experimental design was chosen for the present study as it is feasible to use in evaluating real-world interventions without randomization. Such a design could also address ethical issues, since all women would have the opportunity to be exposed to helpful practices (yoga) even if in a non-intervention group relation. It demonstrates ecological validity by investigating anxiety and quality of life in a real-world context, and the outcome difference between those who joined online prenatal yoga and those who did not will allow an examination of the intervention's effectiveness.

The prenatal yoga intervention in this study was designed based on the FITT (frequency, intensity, time, and type) principle and was a 4-weeks program with two sessions per week for 45 minutes each. The timeframe of sessions was 10 minutes pranayama (breath control), 5 minutes warm-up, 15 minutes core yoga postures focusing on the psoas muscle, 5 minutes cooling down stretching, and 10 minutes meditation. Instructors were certified in prenatal yoga, and the sessions happened online on the Zoom application. Adherence was recorded via preregistration and session check-In, with expected completion per- participant instructional sessions. There were no serious adverse events, with only occasional muscle soreness that was resolved by adjusting the practices to suit the comfort of the participants.

The research was conducted in May-July 2025 in North Cikarang District at Mekarmukti, Cikarang, and Waluya Health Centers among women who are pregnant with gestational age of third trimester visiting the health centers. Health personnel were recruited through eligible participants who will consent after being informed. The intervention group will attend regular prenatal yoga classes held online, and the control group will receive routine antenatal care. To reduce cross-contamination and bias, group allocation will be according to places of residence and the health centers where they were affiliated for care and treatment; participants residing in Waluya and Cikarang were assigned to that receving yoga intervention, while those from Mekarmukti are designated as control.

Study participants were recruited using convenience sampling, which involved a screening questionnaire and provision of study information to those interested from three health centers in North Cikarang. Selection criteria were pregnant women (aged 20-35 years) who were at gestational weeks 28 to 31 with a singleton pregnancy, who had not enrolled in prenatal yoga practice during the current and previous pregnancies, without obstetric complication. We also excluded from the study women with illnesses such as hypertension, low-lying placenta and gestational diabetes, short cervix, or who presented other risk factors.




Instruments in this research comprised the Perinatal Anxiety Screening Scale (PASS) and World Health Organization Quality of Life - Brief (WHOQOL-BREF). The PASS was made up of 31 items evaluated in a likert type scale ranging from 0 (never) to 3 (very often/always), and the total score ranges between 0-93. Total scores are divided into: 0-20 as no anxiety, 21-41 as mild to moderate anxiety, and 42-93 as severe anxiety; Furthermore the internal consistency of this scale is high with Cronbach's alpha value = 0.957 in its Indonesian version (Yuliani et al.,2024). The WHOQOL-BREF consists of 26 items that reflect quality of life in four dimensions and has satisfactory validity and reliability (Cronbach's alpha ranged between 0.70 and 0.79) (Purba et al., 2018). The information will be collected at two time points (pre-test and post-test), so that the intervention effect can be compared.

The estimated sample size minimum required was calculated using the numerical formula of unpaired comparison, as described in the reference study of (Adhikari, 2021). A type I error of 5% and a type II error of 20% were used. According to the study referred, we considered a formula for two-sample comparison of means and applied an anticipated effect 20.66 (0.78 multiplied by the standard deviation 26.435). We defined the level of significance (alpha) at 0.05, equivalent to a z-value of 1.96 according to power analysis, and we chose the desired power at 0.80, equivalent to z value of - 0.84 according to this same previous analysis. Plugging in these values into the equation, we pooled the standard deviations of both groups to obtain an initial sample size. We inflated this initial number by 30% to make allowance for potential loss-of-follow-up, which resulted in a final total of 32 children per group. Ethical

clearance has been received from "Research Ethics Committee of Padjadjaran University Bandung, registration number 596/UN6. KEP/EC/2025".

The analyses of data in this study were performed in IBM SPSS (version 25) software. Percentages, frequencies, means, and standard deviation were used to describe the characteristics of the subjects. The Shapiro-Wilk test was used to verify normality of the dependent variables since sample size in both groups is less than 50, indicating of non-parametric distribution. Therefore, within-group differences were analyzed using Wilcoxon's test, and results of the two groups were analyzed and compared using Mann-Whitney analysis.

## RESULT

### Characteristics of Respondent

After analyzing the data, it was found that there is a total of 64 subjects the antenatal yoga intervention group (n = 32) and standard ANC control group (n = 32), no attrition or dropouts were recorded, all completed the study. Table 4.1 explains that most participants in intervention group had age between 20-24 years (43.8%) and confined profuseness was observed in the control group among individuals having 31-35 years (34.37%) There were no significant differences in maternal age (p = 0.860), education level (p = 0.447) or parity (p = 0.743) between the two groups.

Meaningful differences between the two groups were for occupational status (p = 0.046) and BMI (p = 0.045). In the control group, over half women were housewives (75.0% vs 53.2%). in terms of BMI, most women in the intervention group were overweight (53.1%) while the majority of those in the control group were normal weight (40.6%). Other variables such as living on economic status were similar between the groups, suggesting a greater equilibrium between the two groups except for occupation and BMI data at baseline.

**Table 1. Characteristics of Respondents (n=64)**

| Variables | Groups | | | | Nilai p |
|---|---|---|---|---|---|
| | Prenatal Yoga N=32 | | Control N=32 | | |
| | N | % | N | % | |
| **Ages (years)** | | | | | |
| 20-24 | 14 | 43.75 | 6 | 18.75 | |
| 25-30 | 9 | 28.12 | 15 | 46.87 | 0.860[a] |
| 31-35 | 9 | 28.12 | 11 | 34.37 | |
| **Education level** | | | | | |
| Primary education | 0 | 0 | 0 | 0 | |
| Junior high school | 0 | 0 | 1 | 3.1 | |
| Senior high school | 21 | 65.6 | 22 | 68.8 | 0.447[b] |
| Higher education | 11 | 34.4 | 9 | 28.1 | |
| **Parity** | | | | | |
| Nuliparous | 14 | 43.8 | 11 | 34.4 | 0.743[a] |
| Primiparous | 11 | 34.4 | 13 | 40.6 | |

| Variables | Groups | | | | Nilai p |
|---|---|---|---|---|---|
| | Prenatal Yoga N=32 | | Control N=32 | | |
| | N | % | N | % | |
| Multiparous | 7 | 21.9 | 8 | 25 | |
| **Occupation** | | | | | |
| House wife | 17 | 53.2 | 24 | 75 | |
| Freelance (<7 hours/day) | 4 | 12.5 | 5 | 15.6 | 0.046[b] |
| Full-time (>7 hours/day) | 11 | 34.4 | 3 | 9.4 | |
| **Socio-economic status** | | | | | |
| LIG (<Rp.582.9993) | 1 | 3.1 | 3 | 9.4 | |
| MIG I (Rp.582.993-Rp. 2.004.000) | 13 | 40.6 | 16 | 50 | |
| MIG II (Rp.2.004.000-Rp.9.900.000) | 18 | 56.3 | 13 | 40.6 | 0.338[b] |
| HIG ( >Rp.9.900.000) | 0 | 0 | 0 | 0 | |
| **BMI (kg/m2)** | | | | | |
| *Underweigh*t (< 18,5) | 0 | 0 | 2 | 6.3 | |
| Normal (18,5-24,9) | 14 | 43.85 | 13 | 40.6 | |
| *Overweight* (25-29,9) | 17 | 53.1 | 11 | 34.4 | 0.045[b] |
| Obesitas (>30) | 1 | 3.1 | 6 | 8.8 | |
| **Total** | 32 | 100 | 32 | 100 | |

***[a]= Chi-square [b]= Likelihood ratio. Significance was observed at p < 0,05***
***LIG: Low income group, MIG: Middle income group, HIG: High income group, BMI: Basal metabolic index***

## Anxiety Level

At the start of treatment (pre-test), both groups had primarily severe anxiety, with no statistical difference being found between the two groups (p = 0.453). In prenatal yoga group, 90.6% were categorised as having severe anxiety; 9.4% or approximately three participants, fell into the "mild to moderate" range. In the control group, 84.4% were severe and 15.6%, mild-moderate; no participant in either group reported no anxiety.

Significant changes were also in favor of the prenatal yoga group after the intervention (post-test). The number of participants who were not anxious (15.6%), as well as those in the mild-moderate category (68.8%). In contrast, decreased significantly from 29 to 5 participants stayed severe. There were no similar improvements observed in the control group, 96.9% of whom remained as severely affected and only 3.1% had a mild to moderate severity scale with none reporting no anxiety symptoms. The between-group comparison indicated that anxiety levels in the prenatal yoga group were significantly lower (p < 0.001) than the control group. The within-group analysis also showed a significant decrease in the anxiety level for yoga participants (p < 0.001), where as there was no meaningful change seen in control group.

**Table 2. Anxiety Level Within And Between Two Groups**

| Anxiety Level | Groups | | Nilai P |
|---|---|---|---|
| | Prenatal Yoga (n=32) N (%) | Control (n=32) N (%) | |
| **Pre test** | | | |
| No anxiety | 0 (0) | 0 (0) | 0.453* |
| Mild-moderate | 3 (9.4) | 5 (15.6) | |
| Severe | 29 (90.6) | 27 (84.4) | |

| Anxiety Level | Groups | | Nilai P |
|---|---|---|---|
| | Prenatal Yoga (n=32) N (%) | Control (n=32) N (%) | |
| **Post test** | | | |
| No anxiety | 5 (15.6) | 0 (0) | <0.001* |
| Mild-moderate | 22 (68.8) | 1 (3.1) | |
| Severe | 5 (15.6) | 31 (96.9) | |
| **Δ( post-pre) yoga vs control** | | | <0.001** |

***) Wilcoxon test **)Mann-Whitney test***

**Table 3. Results of the Ordinal Regression Analysis on the Effects of Occupation, and BMI on Post-test Anxiety Levels**

| Variable | Category vs References | B | S.E | Wald | sig | 95% C.I | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower | Upper |
| Groups | Prenatal yoga vs control | -26.340 | 1.243 | 449.139 | <0.001 | -28.776 | -23.904 |
| BMI | ≤ 24,9 vs ≥ 25 | -0.042 | 0.003 | 0.959 | 0.959 | -1.633 | 1.550 |
| Occupation | House wife vs working mom | -0.500 | 0.826 | 0.366 | 0.545 | -2.119 | 1.119 |
| Anxiety level | Mild vs Severe | -23.290 | <0.001 | - | <0.001 | -23.290 | -23.290 |

The results of ordinal regression analysis suggested that the difference was significant between intervention and control group in post-test anxiety (B = −26.340, p < 0.001), which implied prenatal yoga practice was associated with low level of anxiety. On the other hand, level of BMI category (≤ 24.9 vs ≥ 25) was not statistically significant for post-test anxiety (p = 0.959) as well as occupation (housewife vs working mother; p = 0.545). The model additionally supported a threshold difference between mild and severe anxiety (B = –23.290, p < 0.001), indicating the ordinal nature of the outcome. We found that the practice of prenatal yoga was the main component in reducing anxiety, while BMI and occupation had no prospective effects.

**Quality of Life**

At baseline, there was no statistically significant difference between the two groups in terms of any domain of quality of life (P > 0.05). The scores between the two groups were similar before both interventions.

After intervention domains were significantly improved in the prenatal yoga group for a couple of factors. For the area of physical QoL, the median score from 59.50 (44–88) to 84.50 (69–94), equating to a large median change of +25 (p < 0.001). Psychological health also greatly improved with preoperative scores of 63 (44–100) increasing to 81 (63–100), a median difference of +18 (p < 0.001). The social domain also improved over time, from 56 (44-94) to 81 (50-100) with a median change of +25 (p < 0.001). The environmental domain, also improved, from 69 (38-94) to 88 (50-100), with a median change of+19 (p < 0.001).

In contrast, we found no changes in the control group for any of these domains. Median scores were almost the same from pre-test to post-test: 63 to 63 in the physical domain ($p = 0.544$), 56 to 56 in the psychological domain ($p = 0.065$), 56 to 50 in the social domain ($p < 0.001$) and a decrease from a median of score of 69 at pre-test to a median of score of 63 at the post-test for environmental well-being ($p = 0.004$).

Between-group comparative assessment showed that the prenatal yoga group had significantly higher score change than the control group across all quality-of-life domains ($p < 0.001$). Our findings show that there are considerable positive effects of prenatal yoga on the QoL of women in late pregnancy, including physical, psychological, social and environmental health.

**Table 4 Quality of Life Within And Between Two Groups**

| Domains Quality of Life | Groups | Median Pre (min-max) | Median Post (min-max) | P* (Pre vs Post) | Median ▲ |
|---|---|---|---|---|---|
| Physical | Prenatal Yoga | 59.50 (44-88) | 84.50 (69-94) | <0.001 | +25 |
| | Control | 63 (31-88) | 63 (38-81) | 0.544 | 0 |
| **P** (Between two groups)** | | 0.542 | < 0.001 | | **<0.001** |
| Psychological | Prenatal Yoga | 63 (44-100) | 81 (63-100) | <0.001 | +18 |
| | Control | 56 (31-100) | 56 (31-88) | 0.065 | 0 |
| **P** (Between two groups)** | | 0.395 | < 0.001 | | **<0.001** |
| Social | Prenatal Yoga | 56 (44-94) | 81 (50-100) | <0,001 | +25 |
| | Control | 56 (50-94) | 50 (44-75) | <0,001 | -6 |
| **P** (Between two groups)** | | 0.068 | <0,001 | | **<0.001** |
| Environmental | Prenatal Yoga | 69 (38-94) | 88 (50-100) | <0,001 | +19 |
| | Control | 69 (13-94) | 63 (13-88) | 0.004 | -6 |
| **P** (Between two groups)** | | 0.744 | <0,001 | | **<0.001** |

**)Wilcoxon test **)Mann-Whitney test*

**Table 5. Results of the ANCOVA Analysis on the Effects of Occupation, and BMI on Post-test Quality of Life**

| Domain | Factor | F | P *value* |
|---|---|---|---|
| Physical | Occupation | 1.238 | 0.270 |
| | BMI | 1.284 | 0.262 |
| | Score post-test | 17.041 | <0.001 |
| | Groups | 68.256 | <0.001 |
| Psychological | Occupation | 2.920 | 0.093 |
| | BMI | 0.395 | 0.532 |
| | Score post-test | 29.262 | <0.001 |
| | Groups | 82.692 | <0.001 |
| Social | Occupation | 0.197 | 0.659 |
| | BMI | 0.264 | 0.610 |
| | Score post-test | 57.782 | <0.001 |
| | Groups | 18.459 | <0.001 |
| Environment | Occupation | 1.153 | 0.287 |
| | BMI | 0.219 | 0.641 |
| | Score post-test | 189.772 | <0.001 |
| | Groups | 7.643 | 0.008 |

Results from a ANCOVA indicated that, within each of the four areas of life that make up everybody's Life Satisfaction Quotient physical, psychological, social and environmental respectively. Occupation and Body Mass Index (BMI) were not significant factors for mean-post test scores ($p > 0.05$). In contrast, group membership was found to consistently influence quality-of-life outcomes throughout every domain and related p values ranged from <0.001 to 0.008 showing that respondents in the prenatal yoga kinesiology group obtained significantly more benefit than controls.

## DISCUSSION

The literature reviews have explained some evidence on benefits of prenatal Yoga during pregnancy. Significant reduction in the degree of anxiety has been noted among subjects practicing yoga intervention to no anxiety - moderate/mild from predominantly severe anxiety, as observed in the present study. After carrying out the analysis on primary and secondary data, these findings were found to corroborate with previous studies that showed prenatal yoga practice is an effective tool to reduce anxiety, stress, and depression in pregnant women (Bakri et al., 2021; Lin et al., 2022). The study informs that anxiety in pregnancy impacts between 15-50% of women and increases in severity during the third trimester, with a strong association to fear of childbirth, worries about the health of the fetus, and psychosocial stressors with outcomes that include dysregulated corticol levels, poor sleep quality, and risks for preterm birth. However, prenatal yoga practice involving asanas, pranayama, and mediation can be the solution to these problems by providing physical comfort and relaxation in addition to mental preparation towards labor (Nadholta et al., 2023).

Our study supports the benefits of yogic practices in that they have physiological effects such as the activating the parasympathetic nervous system, increasing secretion of GABA and reduced activity in the amygdala, which can help to relieve fear and anxiety (Chaudhary et al., 2024). Why Yoga practice is beneficial? particularly the breathing exercises, including belly breathing and Nadi Shodhana canpromote better sleep, less anxiety, and overall improved brain health (Bentley et al., 2023). Strengthening and stretching the psoas muscle is specifically important given that chronic tension psoas muscles strongly related to stress responses can exacerbate anxiety in pregnancy. From the results of our study, we can concluded that prenatal yoga can be a beneficial non-pharmacological treatment option" for late pregnancy anxiety and depression (Asriyah and Widyastuti, 2024).

Then, from our analysis, we also found that the comparison group, which did not receive prenatal yoga, experienced a 12.5% increase in severe anxiety, increasing from 84.4 to 96.9%. This finding supports another study (Redondo et al. 2025), which noted that in control groups (the one that received standard care or usual activities only) mental health outcomes, including anxiety, typically only decrease fractionally or not at all over the course of pregnancy. In a study conducted in Brazil, the greatest prevalence of anxiety (42.9%) occurred during the third trimester. Pre-treatment differences in BMI and employment status were found between groups, but variables that conceptually could be related to high anxious functioning (due to concerns about their health, dissatisfaction with their body or occupational stress), statistical analysis indicated that none of the variables significantly influenced anxiety. It means the reduction in anxiety seen among the yoga group is probably due more to the specific effects of prenatal yoga than to differences in maternal traits (Maharani et al., 2022).

From the results of this study, we can conclude that prenatal yoga is effective in improving the QoL (Quality of Life) of third-trimester pregnant women as compared to those taken standard ANC. It was proven by the significant improvements seen on participants in the prenatal yoga group in all four PAID domains (physical, psychological, social relationship, and environmental) at post-intervention. Our study suggests positive impact of yoga, with its physical activity, controlled respiration, and mental relaxation incorporated in this holistic approach as a mind-body intervention for maternal adjustment during the third trimester of pregnancy (Azward et al., 2021).

Prenatal yoga can decrease pain and improved energy, mobility, sleep and activities of daily living. When someone is doing Yoga, she does the mild stretching and posture practices, and this is very good to promote flexibility, blood flow, and musculoskeletal tonicity reducing pain and decreasing fatigue symptoms. Our findings is consistent with the studies carried out

by Viana et al., (2024), in that yoga reduces physical discomfort related to pregnancy). The physiological gains may have been responsible in part for the superior physical quality of life scores within this study and an improvement with feeling fitter, more energetic, and being better prepared for child birth (Yulinawati et al., 2024).

Emotional equilibrium and mental balance were achieved with the help of prenatal yoga through aspects such as mindfulness, spiritual attitude, and cognitive concentration. This is proven by things that we can see such as less negative moods, better attention, and self-regulation after the intervention (Novianti et al., 2024). Other studies have also discussed the benefits of regular yoga practice during pregnancy to reduce stress, anxiety, and depression, for examples the study carried out by Nadholta et al. (2023) and Li et al. (2022). Yoga can also increase emotional stability and happiness, and this is very good to reduce a mom's anxiety during pregnancy. How does yoga practice boost moods? It is because the activation of parasympathetic nervous system, or what is also called to rest-and-digest,and an increase in GABA and serotonin, which are neurotransmitters that have a calming effect on your body.

It is not just improved mood and mental health during pregnancy, social relationship is getting better too. A significant percentage of participants reported feeling more satisfied in their relationships, and on a more personal level, a measure we believe is associated with the enhanced image of self and body-awareness promoted through regularity self-practise. It is already known that positive changes in body perception evoke an increase in self-esteem and enrich relational intimacy, as also evidenced in the relationship between body self-esteem and sexual satisfaction during pregnancy (Karaahmet et al., 2022). Yoga can be done alone and in a group, and when it is done in a group, they can share and talk and supports each other, making them happier. Yoga classes allowed for social connection and peer support that facilitated a sense of emotional security and empathy. This observation is in line with the results of Field et al. (2013), who emphasized the fact that yoga, on the one hand decreases anxiety and, in addition, exercises social bonding through shared practices and empathetic communication (Vogler et al., 2023).

Based on the resuls of our study and by referring to the literature reviews, we can conclude that prenatal yoga seems to promote a positive influence on the environmental dimension of quality of life in pregnant women by means of better mental health, less stress and more ability to get benefit from resources within the environment (sense of safety, access to health services, home/neighborhood conditions, and opportunities for recreation/information). For instance, one of the latest randomized controlled trials found that pregnant women allocated to the prenatal yoga intervention group significantly increased in

WHOQOL-BREF Environmental domain compared to the usual care (Nadhola P et al., 2023). In addition, a systematic review and meta-analysis of pregnancy yoga interventions reported that yoga was found to have a positive impact on global quality of life-R including well-being and environmental health domains (Corrigan L et al., 2022).

## LIMITATION

This study has some limitations that we need to acknowledge. There are, of course limitations associated with a quasi-experimental design, compared to the RCT approach including but not limited to the diminished capacity for controlling for confounding and establishing strong causality. Second, the online character of the intervention limited researchers' control over participant adherence and execution of yoga practices. Third, using self-reported measures (PASS and WHOQOL-BREF) might be subjected to social desirability bias and the truthfulness of answering questions. Lastly, the sample was both specific and geographically localized to North Cikarang, which may limit the generalizability of results to other populations.

## CONCLUSION

A lot of literature reviews have discussed the benefits of yoga as an exercise during pregnancy. For example, yoga is good for improving life quality of third-trimester pregnant women. Gentle mix of movements, breath control, and awareness practice in yoga can control psychological stress and adjust more easily to physical and emotional challenges. There is a mind and body connection in yoga, and this can reduce anxiety and engender maternal confidence as labour nears, in addition to increasing flexibility, circulation, energy and sleep quality, leading to higher physical subjective QoL scores. There are also mental health advantages in terms of less anxiety, more balanced emotions, and stronger coping skills. Our study supports this literature review, and in addition, significant improvements in social and environmental domains suggest the broader effects of yoga on maternal attachment, perceived support, sense of security and access to resources in their environment. Our findings highlight prenatal yoga as having multidimensional positive effects on physical, psychological, social, and environmental aspects of QoL.

## REFERENCES

Adhikari, G. P. (2021). Calculating the Sample Size in Quantitative Studies. *Scholars' Journal*, 14–29. https://doi.org/10.3126/scholars.v4i1.42458

Asriyah, S., Widyastuti, W. (2024). The Effect of Breathing Relaxation Techniques and Body Exercise on the Physical and Mental Readiness of Third Trimester Pregnant Women at

PMB S. *International Journal of Health and Pharmaceutical (IJHP)*, *4*(2), 300–304. https://doi.org/10.51601/ijhp.v4i2.284

Azward, H., Ramadhany, S., Pelupessy, N., Usman, A. N., & Bara, F. T. (2021). Prenatal yoga exercise improves sleep quality in the third trimester of pregnant women. *Gaceta Sanitaria*, *35*, S258–S262. https://doi.org/10.1016/j.gaceta.2021.10.030

Bakri, K. R. R., Usman, A. N., Syamsuddin, S., Idris, I., & Limoa, E. (2021). The effectiveness of gentle prenatal yoga on the recovery of depression level in pregnant women aged. *Gaceta Sanitaria*, *35*, S310–S313. https://doi.org/10.1016/j.gaceta.2021.10.042

Bentley, T. G. K., D'Andrea-Penna, G., Rakic, M., Arce, N., LaFaille, M., Berman, R., Cooley, K., & Sprimont, P. (2023). Breathing Practices for Stress and Anxiety Reduction: Conceptual Framework of Implementation Guidelines Based on a Systematic Review of the Published Literature. *Brain Sciences*, *13*(12), 1612. https://doi.org/10.3390/brainsci13121612

Bodunde, E. O., McCarthy, F. P., O'connor, K., Matvienko-Sikar, K., & Khashan, A. S. (2025). Mode of birth and maternal depression/severe anxiety: Findings from Millennium Cohort Study. *PLOS One*, *20*(6), e0327129. https://doi.org/10.1371/journal.pone.0327129

Boutib, A., Chergaoui, S., Marfak, A., Hilali, A., & Youlyouz-Marfak, I. (2022). Quality of Life During Pregnancy from 2011 to 2021: Systematic Review. *International Journal of Women's Health*, *Volume 14*, 975–1005. https://doi.org/10.2147/IJWH.S361643

Chaudhary, G., Kakkar, S., Singh, S., Kumar, U., & Chaku, R. (2024). The Role of Yogic Practices in Psychological Alteration: A Comprehensive Review. *International Journal of Ayurvedic Medicine*, *15*(S1), 181–183. https://doi.org/10.47552/ijam.v15iS1.5592

Chauhan, A., & Potdar, J. (2022). Maternal Mental Health During Pregnancy: A Critical Review. *Cureus*. https://doi.org/10.7759/cureus.30656

Corrigan, L., Moran, P., McGrath, N., Eustace-Cook, J., & Daly, D. (2022). The characteristics and effectiveness of pregnancy yoga interventions: a systematic review and meta-analysis. *BMC Pregnancy and Childbirth*, *22*(1), 250. https://doi.org/10.1186/s12884-022-04474-9

Godleski, S. A., Harris, C. T., Fitzpatrick, K. M., & Kothari, A. (2022). Social and behavioral vulnerability, pregnancy, and negative mental health outcomes in the U.S. during the Covid-19 pandemic. *AIMS Public Health*, *9*(2), 331–341. https://doi.org/10.3934/publichealth.2022023

Hadfield, K., Akyirem, S., Sartori, L., Abdul-Latif, A.-M., Akaateba, D., Bayrampour, H., Daly, A., Hadfield, K., & Abiiro, G. A. (2022). Measurement of pregnancy-related anxiety worldwide: a systematic review. *BMC Pregnancy and Childbirth*, *22*(1), 331. https://doi.org/10.1186/s12884-022-04661-8

Julisafrida, L., Fajri Saminan, N., & Khairul, M. (2024). The Relationship Between Anxiety and Quality Of Life: A Bibliometric Analysis. In *AVERROUS: Jurnal Kedokteran dan Kesehatan Malikussaleh* (Vol. 10, Issue 2).

Karaahmet, A. yıldız, Bilgic, F. S., Yilmaz, T., & Kaya, H. D. (2022). The effect of yoga on sexual function and body image in primiparous pregnant Women: A randomized controlled single-blind study. *European Journal Of Obstetrics & Gynecology And Reproductive Biology*, *278*, 100–106. https://doi.org/10.1016/j.ejogrb.2022.09.014

Krzepota, J., Sadowska, D., & Biernat, E. (2018). Relationships between Physical Activity and Quality of Life in Pregnant Women in the Second and Third Trimester. International Journal of Environmental Research and Public Health, 15(12), 2745. https://doi.org/10.3390/ijerph15122745

Legey, Â. L. C., & Höfelmann, D. A. (2022). Quality of life in pregnant women: Associationwith demographic, socioeconomic, obstetric,and health conditions factors. *Salud Mental*, *45*(6), 283–291. https://doi.org/10.17711/sm.0185-3325.2022.036

Lin, I.-H., Huang, C.-Y., Chou, S.-H., & Shih, C.-L. (2022). Efficacy of Prenatal Yoga in the Treatment of Depression and Anxiety during Pregnancy: A Systematic Review and Meta-Analysis. *International Journal of Environmental Research and Public Health*, *19*(9), 5368. https://doi.org/10.3390/ijerph19095368

Maharani, H. W., Nurhidayati, S., Argaheni, N. B., Maulida, L. F., & Sukamto, I. S. (2022). The correlation between the intensity of prenatal yoga participation on anxiety levels for third trimester pregnant women in facing childbirth in Kartasura district. *Journal of Health Technology Assessment in Midwifery*, *5*(2), 123–129. https://doi.org/10.31101/jhtam.2689

Nadholta, P., Kumar, K., Saha, P. K., Suri, V., Singh, A., & Anand, A. (2023a). Mind-body practice as a primer to maintain psychological health among pregnant women–YOGESTA–a randomized controlled trial. *Frontiers in Public Health*, *11*. https://doi.org/10.3389/fpubh.2023.1201371

Novianti, R. P., Nyoman Supariasa, I. D., Ika Setyarini, D. I. S., & Mustafa, A. (2024). The Impact of Prenatal Yoga on Anxiety Levels in Third-Trimester Primigravida Mothers: A Pre-Experimental Study. *International Journal of Advanced Health Science and Technology*, *4*(4), 206–211. https://doi.org/10.35882/ijahst.v4i4.334

Purba, F. D., Hunfeld, J. A. M., Iskandarsyah, A., Fitriana, T. S., Sadarjoen, S. S., Passchier, J., & Busschbach, J. J. V. (2018). Quality of life of the Indonesian general population: Test-retest reliability and population norms of the EQ-5D-5L and WHOQOL-BREF. *PloS one*, *13*(5), e0197098. https://doi.org/10.1371/journal.pone.0197098

Redondo-Delgado, P., Blanco-Giménez, P., López-Ortiz, S., García-Chico, C., Vicente-Mampel, J., & Maroto-Izquierdo, S. (2025). Effects of strength training on quality of life in pregnant women: A systematic review. *Acta obstetricia et gynecologica Scandinavica*, *104*(7), 1231–1243. https://doi.org/10.1111/aogs.15122

Salimi, H. R., Griffiths, M. D., & Alimoradi, Z. (2024). Prevalence of anxiety and depression among pregnant women with diabetes and their predictors. *Diabetes Epidemiology and Management*, *14*, 100198. https://doi.org/10.1016/j.deman.2024.100198

Tandi Bara, F., Ayu Nata, S., Wahdaniyah, M., & Bhakti Pertiwi Luwu Raya, S. (2025). Science Midwifery Midwives and prenatal yoga: An analysis of acknowledge and interest in its application. In *Science Midwifery* (Vol. 13, Issue 2). Online. www.midwifery.iocspublisher.orgJournalhomepage:www.midwifery.iocspublisher.orFg

Viana, Z., Retnoningrum, D., & Patimah, S. (2024). Comparison of Reduction in Physical Discomfort Score for Pregnant Women who Attended Prenatal Yoga for 30, 45, and 60 Minutes. *Indonesian Journal of Global Health Research*, *6*(6), 4047–4056. https://doi.org/10.37287/ijghr.v6i6.4022

Villar-Alises, O., Martinez-Miranda, P., & Martinez-Calderon, J. (2023). Prenatal Yoga-Based Interventions May Improve Mental Health during Pregnancy: An Overview of Systematic Reviews with Meta-Analysis. *International Journal of Environmental Research and Public Health*, *20*(2), 1556. https://doi.org/10.3390/ijerph20021556

Vogler, S., Salyer, R. E., & Giacobbi, P. R. (2023). Yoga and Mental Well-being: A Qualitative Exploration of the Lived Experiences of Yoga Practitioners. *International Journal of Yoga*, *16*(3), 192–201. https://doi.org/10.4103/ijoy.ijoy_191_23

WHO. Guide for integration of perinatal mental health in maternal and child health services. 2022. ISBN: 978-92-4-005714-2. https://www.who.int/publications/i/item/9789240057142

Wu, H., Sun, W., Chen, H., Wu, Y., Ding, W., Liang, S., Huang, X., Chen, H., Zeng, Q., Li, Z., Xiong, P., Huang, J., Huang, J., Akinwunmi, B., Akinwunmi, B., Zhang, C. J. P., & Ming, W.-K. (2021). Health-related quality of life in different trimesters during pregnancy. *Health and Quality of Life Outcomes*, *19*(1), 182. https://doi.org/10.1186/S12955-021-01811-Y

Yuliani, D. R., Aini, F. N., Amalia, R., & Hapsari, W. (2024). The Perinatal Anxiety Screening Scale Versi Indonesia: Studi Instrumen Kecemasan Pada Kehamilan. *Jurnal Sains Kebidanan*, *6*(1), 17–25. https://doi.org/10.31983/jsk.v6i1.11282

Yulinawati, C., Rahayu Putri, M., & AZIZ, H. (2024). Effect of Prenatal Yoga on Lowering Blood Pressure in Pregnant Women at Lubuk Baja Public Health Center. *Jurnal Kesehatan Amanah*, *8*(1), 289–294. https://doi.org/10.57214/jka.v8i1.722