EAS Journal of Nursing and Midwifery
Abbreviated Key Title: EAS J Nurs Midwifery
ISSN: 2663-0966 (Print) & ISSN: 2663-6735 (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-1 | Issue-2 | Mar-Apr -2019 |

Research Article

The Effect of Prenatal Yoga on Quality of Life. A Questionnaire Based Cohort Prospective Study Based On the WHOQOL-BREF Questionnaire

Metallinou Dimitra.[1], Karampas Grigorios.[2], Karapiperi Despina.[3], Sarella Aggeliki.[4], Sarantaki Antigoni.[5], Lykeridou Katerina.[6]

[1]Midwife, Department of Midwifery, Faculty of Health Professions, University of West Attica, Campus 1, Athens - Greece / Neonatal Department – NICU, "Alexandras" General Hospital, Athens, Greece.
[2]Consultant Obstetrician - Gynecologist, Department of Obstetrics & Gynecology, "Aretaieio" University Hospital, Athens, Greece.
[3]Midwife, Department of Midwifery, Faculty of Health Professions, University of West Attica, Campus 1, Athens - Greece.
[4]Lecturer, Department of Midwifery, Faculty of Health Professions, University of West Attica, Campus 1, Athens – Greece.
[5]Lecturer, Department of Midwifery, Faculty of Health Professions, University of West Attica, Campus 1, Athens – Greece.
[6]Professor, Department of Midwifery, Faculty of Health Professions, University of West Attica, Campus 1, Athens – Greece.

*Corresponding Author
Metallinou Dimitra.

Abstract: Prenatal yoga tends to become a common physical and mental exercise during pregnancy, but there is still a lack of evidence on its effect on maternal quality of life (QoL). The aim of this prospective cohort study was to evaluate the possible effect of prenatal yoga on the QoL of pregnant women after attending yoga classes in regular basis using a validate questionnaire. In the study were included 49 pregnant women who met the inclusion criteria. The evaluation of the QoL was measured by the World Health Organization Quality of Life Scale Abbreviated Version questionnaire (WHOQOL-BREF). Each woman completed the same questionnaire at two different time points during pregnancy, one at the first prenatal yoga lesson, during the second trimester and one at the end of the third trimester. All women had singleton, naturally concepted pregnancies and absence from class no more than a week. Pregnant women showed significant improvement on the overall perception rate of the person's QoL (p=0.001) and satisfaction of their own health (p=0.007). Additionally, pregnant women reported significant improvement in all four domains of WHOQOL-BREF questionnaire, "Physical Health" (p=0.001), "Psychology" (p=0.001), "Social Relations" (p=0.001) and "Environment" (p=0.049). Our study provides evidence that a systematic yoga course during pregnancy improves the overall QoL of pregnant women. Consequently, there is a need for information and education of health professionals, especially midwives, to integrate yoga into the holistic approach of pregnancy. Our results, though encouraging, require further confirmation with larger prospective studies or randomized control trials.

Keywords: Prenatal yoga; Quality of life; WHOQOL-BREF questionnaire; Midwifery practice.

INTRODUCTION

Most cultures and systems dealing with human health, harmony and evolution have developed some forms of meditation and internal concentration. The idea of communicating with an inner force, an inner voice, an inner knowledge or an inner guidance is common to all spiritual systems and religions. In the past, however, these techniques were mainly used by priests, monks, mystics and those who had a deeper inclination for spiritual development (Satchidananda, 2012).

The most traditional, scientifically developed and effective system of internal concentration is the system of "yoga", which comes from India over 4.000 years ago. The word "yoga" originates from the Sanskrit term "yug" which is translated as "union" and has as the ultimate goal of the transcendence of the mind and join with the God, the Universal Spirit who lives in all beings (Najemy RE, 2008). Yoga is an evolutionary system of innate mental powers that are latent within man. Thus, it is thought that its techniques regulate the body's functioning and give mental and physical well-being. Yoga does not center primarily on physical fitness, but rather on integration of mind, body and spirit, cultivation of balance, calm, harmony,

Quick Response Code

Journal homepage:
http://www.easpublisher.com/easjnm/

Article History
Received: 13.03.2019
Accepted: 30.03.2019
Published: 18.04.2019

DOI: 10.36349/easjnm.2019.v01i02.003

awareness and in classic yoga traditions, the attainment of selflessness and spiritual enlightenment (Hewitt J, 1991).

The most widely practiced forms of yoga include Raja (royal or classical) Yoga and the closely related Hatha Yoga. Raja Yoga gives emphasis on the benefits of meditation for spiritual self-realization and the determined evolution of consciousness. On the other hand, Hatha yoga, most widely practiced in the US and other Western countries, incorporates also cleansing exercises, mantras or chants and specific hand gestures (mudras). Originally developed to prepare the body for meditation, Hatha Yoga itself encompasses many different styles, such as Iyengar, Vinyasa, Kundalini yoga and eventually is the base of prenatal yoga (Kappmeier KL, 2006). Both of them emphasize on specific body postures (asanas), breathing techniques (pranayama), concentration and meditation (dharana and dhyana).

Since 1979, when the first article on prenatal yoga by Uchiyama K. et al. was published in Japanese (Uchiyama K, 1979), yoga during pregnancy is considered in many studies as an effective complementary or alternative activity to improve or even prevent a number of adverse maternal and neonatal outcomes (Narendran S, 2005, Chuntharapat S, 2008, Babbar S, 2012). Nevertheless, most of those studies include a small number of participants resulting in low level of evidence (Smith CA, 2018, Shi Z, 2017).

As yoga is gaining popularity through years, pregnancy is usually a motivation for initiating and continuing yoga practice, especially in the West. According to "The 2016 Yoga in America Study" the number of American yoga practitioners increased to over 36 million in 2016 up from 20.4 million in 2012 (www.yogaalliance.org). Besides, yoga is listed as a moderate physical activity determined by level of intensity in accordance with the Centre for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM) guidelines (www.cdc.gov). Furthermore, the American College of Obstetricians and Gynecologists (ACOG) recommends at least 150 minutes per week of moderate-intensity aerobic activity for healthy pregnant women (ACOG Committee Opinion, 2018). Thus, prenatal yoga, when practiced under trained supervision, is generally considered a safe form to improve the flexibility of the body, strengthen the pelvic muscles, reduce anxiety, improve blood circulation in the body, stimulate the organs and glands thereby aiding in normalizing blood pressure and gaining fitness overall (Narendran S, 2005, Chuntharapat S, 2008, Curtis K, 2012).

Interestingly, studies on the effect of yoga on the quality of life (QoL) during pregnancy are limited (Babbar S, 2012, Sreedevi A, 2017) as most studies focus mainly on the physical and mental health of pregnant women. Moreover, in most studies there is lack of a validated instrument or questionnaire to evaluate the effect of prenatal yoga on women's health. Based on those findings and as there is limited evidence on the effect of yoga on QoL of pregnant women, both worldwide and in Greece, our research aimed to evaluate the change in QoL using as instrument the "World Health Organization Quality of Life Scale Abbreviated Version" (WHOQOL-BREF) questionnaire (www.who.int).

EXPERIMENTAL SECTION/MATERIAL AND METHODS

This is a prospective questionnaire based cohort pilot study. From a total of 60 women, which gave their informed consent to participate in the study during the second trimester of pregnancy, 49 were finally included. Exclusion criteria involved pregnant women with:

- High risk pregnancy such as those complicated by preeclampsia – eclampsia, insulin dependent gestational diabetes mellitus, premature labour, bleeding during the 2nd or 3rd trimester, maternal hospitalization for any reason and fetus presenting intrauterine restriction or any other pathology.
- Multiple pregnancy
- Pregnancy achieved after in vitro fertilization (IVF)
- No yoga classes for > 1 week
- Missed questions in the questionnaire corresponding to ≥ 20%

From the 11 women that were excluded from the study, 4 were lost during the follow-up period, 3 were excluded due to absence from yoga classes for more than one week and 4 due to partially completed questionnaire. Women were recruited from 6 different private yoga schools located in different areas of Athens – Greece in order to achieve, as far as possible, a representative sample.

All women attended a 75 minutes prenatal yoga class twice a week. All Prenatal Yoga Teachers were registered and met the Yoga Alliance Standards. All classes had similar structure and flow of the lesson.

In detail, they included:

- Yoga postures
- Breathing techniques
- Relaxation exercises
- Meditation

The evaluation of the QoL of pregnant women was measured by the "World Health Organization Quality of Life Scale Abbreviated Version" questionnaire, WHOQOL-BREF. According to World

Health Organization QoL is defined as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment" (www.who.int).

The WHOQOL-BREF questionnaire provides a short form of life quality assessment, based on the WHOQOL-100 questionnaire, which allows a detailed assessment of each individual aspect of the QoL, with the disadvantage that it is time-consuming as it includes 100 questions. The WHOQOL-BREF which was used in this study is translated and validated in Greek by Coccossi Maria et al (Coccossis M., 1996). It includes a total of 26 questions from which the 24 are divided into four main domains of QoL: physical health (7 questions), psychology (6 questions), social relations (3 questions) and environment (8 questions) (Table 1). The questionnaire was chosen for two main reasons. Firstly, it is a cross – cultural questionnaire as it was developed simultaneously in 15 field centers around the world so its' results are comparable across cultures. Secondly, it is developed to assess responsiveness to change (www.who.int).

Two of the twenty-six questions of the questionnaire were evaluated separately, as they do not belong to any of the above four domains. These two questions specifically addressed:

- The overall perception of the person's quality of life and
- The person's overall perception of woman's health.

Table 1: Content of the questions according to the 4 domains of the WHOQOL-BREF questionnaire

Domain	Views integrated in the domain
1. Physical Health	• Day-to-day activities • Dependence on drugs and medical devices • Energy and fatigue • Mobility • Pain and discomfort • Sleep and rest • Ability to work
2. Psychology	• Body image and appearance • Negative feelings • Positive feelings • Self-esteem • Spirituality / Religion / Personal Beliefs / Thinking / Learning / Memory / Concentration
3. Social Relationships	• Personal relationships • Social support • Sexual activity
4. Environment	• Financial resources • Freedom / Physical security / Protection • Health and social welfare: accessibility and quality • Home environment • Opportunities for acquiring new knowledge and skills • Participation and opportunities for recreation / Entertainment • Natural environment (pollution / noise / traffic / climate) transportation

Each pregnant woman completed the same questionnaire at two different time points during pregnancy in order to evaluate the change in score. The first questionnaire was completed at the first prenatal yoga class and while the woman was still in the second trimester of pregnancy. The second questionnaire was filled in after the completion of all or most of the prenatal yoga sessions, at the end of the third trimester of pregnancy, a few days before childbirth.

Ethics

All participants involved in the study gave their written consent and the study was approved by the "Academic Research Committee" of the "Department of Midwifery" of the "University of West Attica" of Athens - Greece (n. approval 687/2015).

Statistics

The statistical software: IBM SPSS statistics version 20 (IBM Corporation, Somers, NY 10589, USA) was used for data analysis. The control of the distribution of all quantitative indicators was done with the *One-Sample Kolmogorov-Smirnov test*. The comparison of the quantitative indicators before and after the prenatal yoga courses was done either with *the pair sample t – test*, if the data were normally distributed, or with the *Wilcoxon* non – parametric test for *two – related samples*, if the data were not normally distributed. A level of alpha = 0.05 was considered significant.

RESULTS AND DISCUSSION

Table 2 presents the characteristics of the women that participated in the study. Of the 49 women

who participated in the survey and completed the questionnaire, 14.3% (n=7) were secondary school graduates and the remaining 85.7% (n=42) were graduates of higher education. Twenty six women had no previous delivery while the rest 23 women had at least one more normal delivery or caesarian section. The 34 women were married (69.3%), 14 were in cohabitation (28.7%) and 1 was unmarried (2%). In a percentage of 89.8% (n = 44), women did not experience a health problem, in contrast to a 10.2% (n = 5) who experienced some systemic disease, such as diet regulated gestational diabetes mellitus, hypothyroidism, gestational hypertension. The mean age of pregnant women was 33.5 years. The mean gestational age of pregnant women at the inclusion time in the study was 21 weeks and 6 days, while the mean gestational age of completion of their participation in the study was 37 weeks and 1 day.

Table 2: Demographic characteristics of the pregnant women (n=49)

Age at inclusion (mean±SD)	33.5 ± 4.22
Parity	Nulliparous: 53% (n=26)
	Multipara: 47% (n=23)
Gestational age at inclusion (mean±SD)	21^{+6} ± 5 days
Gestational age at completion (mean±SD)	37^{+1} ± 2 days
Educational level	Secondary school: 14.3% (n=7)
	College / University: 85.7% (n=42)
Marital status	Unmarried: 2% (n=1)
	Cohabitation: 28.7% (n=14)
	Married: 69.3% (n=34)
Health status	Healthy: 89.8% (n=44)
	Systematic disease: 10.2 (n=5)

SD: Standard Deviation

A significant improvement was observed after the completion of the prenatal yoga courses, in the two independent questions "How would you rate your quality of life?" (p = 0.001), "How satisfied are you with your health?" (p = 0.007), as well as, in all four domains of QoL, "Physical Health", "Psychology", "Social Relationships" and "Environment" with (p = 0.001,p = 0.001,p = 0.001 and p = 0.049 respectively) (Table 3).

Table 3: Results of the WHOQOL-BREF questionnaire at the inclusion and at the completion of the study

Domain / Question	Inclusion	Completion
Domain 1: Physical health (mean ± SD)	25.7 ± 3.8	28.5 ± 4.8*
Domain 2: Psychology (mean ± SD)	22.3 ± 3.9	24.6 ± 3.7*
Domain 3: Social relations (mean ± SD)	11.5 ± 2.2	12.4 ± 2.3*
Domain 4: Environment (mean ± SD)	30.5 ± 4.3	31.4 ± 4.5*
Question 1: Person's overall perception of the quality of life median (IQR)	4.0 (0)	5.0 (1)*
Question 2: Person's overall perception of health median (IQR)	4.0 (1)	5.0 (1)*

*p ≤ 0.05 / IQR: Interquartile Range / SD: Standard Deviation

Yoga has been the subject of many studies the last years. The scientific community has proven from time to time that yoga is an important way of intervening to improve people's QoL. It has been studied in people with systemic diseases, whether physical or mental, such as diabetes mellitus (Innes KE, 2016), depression (Prathikanti S, 2017, Rao RM, 2015), rheumatic diseases (Bartlett SJ, 2013), asthma (Agnihotri S, 2014), cancer (Rosenbaum MS, 2016, Milbury K, 2015) and Parkinson's disease (Ni M, 2016).

As far as pregnancy is concerned, prospective studies on the effect of prenatal yoga on QoL are limited and focus mainly on psychology and physical health of pregnant women (Babbar S, 2012). A limited number of those studies are randomized control trials such as the one from Chen Pao-Ju et al. (Chen PJ, 2017) which showed that prenatal yoga remarkably decreases women's stress and strengthens their immune function by controlling salivary cortisol and immunoglobulin-A respectively every four weeks during pregnancy. Field Tiffany et al. (Field T, 2012, Field T, 2013) showed decrease on depression and anxiety as well as reduction in sleep disturbances in prenatally depressed women. Additionally, according to the review of Kinser Patricia Anne et al. (Kinser PA, 2017), yoga-based interventions should be considerably recommended to pregnancies which are complicated with low back or/and pelvic pain.

The maternal QoL is critical for good pregnancy outcomes. It has been shown by Rakhshani et al. (Rakhshani A, 2010), that integrated yoga is an efficacious mean of improving the QoL of pregnant

women and enhancing certain aspects of their interpersonal relationships. Our study, evaluated the effect of prenatal yoga on all four domains (physical, psychological, social, environmental) related to QoL based on the WHOQOL-BREF validated questionnaire. The results of our study are in accordance to those of the study of Rakhshani et al. regarding the yoga group, providing evidence that systematic yoga sessions during pregnancy promote the improvement of the QoL of pregnant women. In this way, prenatal yoga can provide a holistic approach to childbirth, integrating body, mind and emotions through the whole pregnancy.

However, our study has some limitations. First of all, the relatively small sample size (n=49) which could prevent the results from reaching statistical significance. Nevertheless, we found significant differences in all 4 domains and the 2 independent questions of the questionnaire used. Secondly, this is a cohort prospective pilot study without any control group. That limitation could address the question if the effect of yoga on QoL that was found in our group can be influenced by other co-factors. Based on previous studies which were mentioned above, it is proven that the influence of yoga classes during pregnancy is positive and independent factor of woman's wellbeing. Nonetheless, new prospective randomized control trials using the WHOQOL-BREF validated questionnaire are needed to confirm our findings.

CONCLUSION

Our study provides evidence and highlights the beneficial effect of a systematic sequence of prenatal yoga lessons on the QoL of pregnant woman. Furthermore, it indicates the need for information and education of health professionals, especially midwives, to integrate yoga into the holistic approach of pregnancy. The results of this study, though encouraging, require further confirmation with larger randomized control trials.

REFERENCES

1. Satchidananda, S. (2012). Yoga Sutras of Patanjali, Kindle Editions.
2. Najemy, R.E. (2008). Yoga for Health and Harmony, Greece: Heraclitus Editions.
3. Hewitt, J. (1991). The Complete Yoga Book, London: Rider Editions.
4. Kappmeier, K.L., & Ambrosini, D. (2006). Instructing Hatha Yoga, Human Kinetics.
5. Uchiyama, K. (1979). Active management of pregnant patients and natural childbirth. Part I. Preparation for childbirth and yoga (based on "Prenatal Yoga and Natural Childbirth" by J. O. Medvin). Josanpu Zasshi, 33(4), 263-8.
6. Narendran, S. (2005). Efficacy of yoga on pregnancy outcome. J Altern Complement Med, 11(2), 237-44.
7. Chuntharapat, S. (2008). Yoga during pregnancy: effects on maternal comfort, labor pain and birth outcomes. Complement Ther Clin Pract, 14(2), 105-15.
8. Babbar, S. (2012). Yoga during pregnancy: a review. Am J Perinatol, 29(6), 459-64.
9. Smith, CA. (2018). Relaxation techniques for pain management in labour. Cochrane Database Syst Rev. 3, CD009514.
10. Shi, Z. (2017). The Effectiveness of Mindfulness-Based Interventions on Maternal Perinatal Mental Health Outcomes: a Systematic Review. Mindfulness (NY), 8(4), 823-847.
11. The 2016 Yoga in America Study Conducted by Yoga Journal and Yoga Alliance (n.d.). Retrieved 20 March 2019 from www.yogaalliance.org/Portals/0/2016%20Yoga%20in%20America%20Study%20Results.pdf.
12. General Physical Activities Defined by Level of Intensity (n.d). Retrieved 20 March 2019 from www.cdc.gov/nccdphp/dnpa/physical/pdf/PA_Intensity_table_2_1.pdf.
13. ACOG Committee Opinion No. 736 (2018, May): Optimizing Postpartum Care. Obstet Gynecol, 131(5), e140-e150.
14. Curtis, K. (2012). Systematic review of yoga for pregnant women: current status and future directions. Evid Based Complement Alternat Med, 715942.
15. Sreedevi, A. (2017). The Effect of Yoga and Peer Support Interventions on the Quality of Life of Women with Diabetes: Results of a Randomized Controlled Trial. Indian J Endocrinol Metab, 21(4), 524-530.
16. WHOQOL Measuring Quality of Life (1997). Retrieved 22 March 2019 from www.who.int/mental_health/media/68.pdf.
17. Coccossis, M., Antonopoulou V, & Christodoulou, G.N. (1996). WHOQOL-BREF, Programme on Mental Health, World Health Organization, Geneva.
18. Innes, KE. (2016). Yoga for Adults with Type 2 Diabetes: A Systematic Review of Controlled Trials. J Diabetes Res, :6979370.
19. Prathikanti, S. (2017). Treating major depression with yoga: A prospective, randomized, controlled pilot trial. PLoS One, 12(3), e0173869.
20. Rao, RM. (2015). Effects of an integrated Yoga Program on Self-reported Depression Scores in Breast Cancer Patients Undergoing Conventional Treatment: A Randomized Controlled Trial. Indian J Palliat Care, 21(2), 174-81.
21. Bartlett, S.J. (2013). Yoga in Rheumatic Diseases. Curr Rheumatol Rep., 15(12), 387.
22. Agnihotri, S. (2014). Impact of yoga on biochemical profile of asthmatics: A randomized controlled study. Int J Yoga, 7(1), 17-21.
23. Rosenbaum, M.S. (2016). The Effects of Yoga, Massage, and Reiki on Patient Well-Being at a Cancer Resource Center. Clin J Oncol Nurs., 20(3), E77-81.

24. Milbury, K. (2015). Vivekananda Yoga Program for Patients with Advanced Lung Cancer and Their Family Caregivers. Integr Cancer Ther. 14(5), 446-51.
25. Ni, M. (2016). Controlled pilot study of the effects of power yoga in Parkinson's disease. Complement Ther Med, 25, 126-31.
26. Chen, P.J. (2017). Effects of prenatal yoga on women's stress and immune function across pregnancy: A randomized controlled trial. Complement Ther Med, 31, 109-117.
27. Field, T. (2012). Yoga and massage therapy reduce prenatal depression and prematurity. Bodyw Mov Ther, 16(2), 204-9.
28. Field, T. (2013). Tai chi/yoga reduces prenatal depression, anxiety and sleep disturbances. Complement Ther Clin Pract, 19(1):6-10.
29. Kinser, P.A. (2017). Physical Activity and Yoga-Based Approaches for Pregnancy-Related Low Back and Pelvic Pain. J Obstet Gynecol Neonatal Nurs, 46(3), 334-346.
30. Rakhshani, A. (2010). Effects of integrated yoga on quality of life and interpersonal relationship of pregnant women. Qual Life Res, 19(10), 1447-55.