

PRENATAL GENTLE YOGA HELPS PREGNANT WOMEN IN REDUCING FEAR OF CHILDBIRTH

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ABSTRACT

Background: Expectant mothers will experience physiological and psychological changes during pregnancy, including feeling fear of childbirth. Fear is a psychological condition that can raise catecholamine levels and decrease uterine contractions, slowing down the labor process. Prenatal exercise such as Prenatal Gentle Yoga is developed to increase healthy pregnancy that may reduce fear of childbirth. This study aimed to evaluate the effect of Prenatal Gentle Yoga on fear of childbirth in pregnant women.

Methods: This research used a cross-sectional case-control study, conducted from July to August 2018 in Central Java Province. This study involved 130 first-time expectant mothers. A demographic questionnaire and the Wijma Delivery Expectancy/Experience Questionnaire version A were used for data collection. Cross-tabulation and chi-square was used to analyse the demographic information. Independent samples t-test and one-way ANOVA were used to determine the differences in W-DEQ scores between the two groups. This study also used hierarchical multiple linear regression to determine predictors of fear of childbirth.

Results: Three variables significantly impacted fear of childbirth were education level, number of ultrasound examinations, and participation in Prenatal Gentle Yoga classes. Prenatal Gentle Yoga reduced fear of childbirth among participants who attended eight hours or more of classes compared to those who did not ($p < .001$). Participation in Prenatal Gentle Yoga was the only factor that strongly predicted childbirth fear ($R^2 = .26$).

Conclusions: This study concluded that Prenatal Gentle Yoga can decrease childbirth fear. Thus, Prenatal Gentle Yoga is recommended for pregnant women in order to reduce fear of childbirth.

Keywords: *fear of childbirth, pregnancy, prenatal yoga*

INTRODUCTION

Every pregnant woman will experience physiological and psychological changes during pregnancy. One of these changes is emotion instability, including feeling fear of childbirth. Fear is a psychological condition that can raise catecholamine levels and decrease uterine contractions, slowing down the labor process¹. The increased of fear may lead to prolongation of labor and may raise the risk of obstetric intervention during childbirth, including caesarean section^{2,3}.

Research by Adams, et al (2012) found that women with fear of childbirth had longer duration of labor than those of without fear. Then, prolongation of labor is one of indications of cesarean delivery⁴. A study by Nieminen, et al (2016) found that severe fear of childbirth is associated with preference of cesarean section⁵. Likewise, research showed that fear of childbirth contributed to mode of delivery, where instrumental delivery and cesarean surgery were more often occur in pregnant women with fear of childbirth². Nieminen concluded that fear of childbirth may partly explain the increasing number of maternal requests for cesarean sections over the last decade⁶.

Decades of consensus in the international healthcare community regards the ideal percentage for caesarean sections as between 10% and 15%⁷. Caesarean sections increased in several countries, including Netherlands³. In Indonesia, the overall rate of cesarean sections has increased significantly up to 15,3%, which is more than the limit rate from WHO⁸. Cesarean section poses both physical and psychological risks for the mother and baby⁹. Based on a review of the literature by Lavender, et al (2012), evidence shows that as a surgery, cesarean section raises physical risks including anesthesia impacting to breastfeeding and mother-infant bonding difficulties, restricted activities of daily living and

increased maternal problems related to uterine scar⁹.

Marshal and Raynor (2014) report that fear of childbirth is a common cause of maternal distress⁴. Distress or depression in early pregnancy could influence the attitude of pregnant women to pregnancy and childbirth³. Therefore, expectant mother can avoid feeling of childbirth fear and even maternal distress.

Prenatal exercise such as Prenatal Gentle Yoga is developed to increase healthy pregnancy that may reduce fear of childbirth. This exercise includes poses and activities that are adjusted to be acceptable for pregnant women⁴. The contents delivered in prenatal yoga class are yoga poses (*asanas*), breathing exercise (*pranayama*), as well as relaxation¹⁰. Prenatal yoga exercise has benefits for pregnant women to maintain wellbeing and facilitate better control of physic and psychological condition¹¹. Nonetheless, few studies have explored the benefits of Prenatal Gentle Yoga on decreasing fear of childbirth.

This study therefore aimed to evaluate the effect of Prenatal Gentle Yoga on fear of childbirth in pregnant women.

METHODS

This study is a cross-sectional study. This research was conducted in Central Java Province in Indonesia from July to August 2018. Data were collected from 12 midwives in 8 regencies, including Solo, Sukoharjo, Klaten, Cilacap, Magelang, Kendal, Ungaran, and Jepara. This study used a convenience sampling technique to recruit participants. Respondents were primigravidas. The respondents were divided into two groups of pregnant women: a group participating in Prenatal Gentle Yoga classes and another not participating in Prenatal Gentle Yoga.

Inclusion criteria of this study were: primigravidae, ages 20 to 35 years old, at 32 to 42 weeks of gestation, with normal singleton pregnancies (no obstetric

complications). For inclusion in the Prenatal Gentle Yoga group, they must have completed ≥ 8 hours of Prenatal Gentle Yoga. For inclusion in the control group, they must have done no prenatal yoga at all. Participants must be able to speak, read and write in the Indonesian language (Bahasa Indonesia). Pregnant women who had obstetric complication (i.e. placenta previa, preeclampsia) and unable to continue participating the study were excluded.

Every pregnant woman who came to the midwifery clinics and fulfilled the criteria were asked to fill out the demographic questionnaire and Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ) in order to identify whether they joined Prenatal Gentle Yoga classes as well as to recognize fear of childbirth score. The final sample size of this study was 130 respondents, including 65 pregnant women in each group. An approval letter was obtained before conducting this study (No. 116/PGY/VIII/2018).

This study used a demographic questionnaire and the WDEQ version A to collect data. The demographic questionnaire comprises 11 items related to demographic information and pregnancy history. The W-DEQ consists of 33 items and uses a six-point Likert scale from 0 to 5, with the highest and lowest answers describing the opposite extremes of a woman's feelings about labour and delivery¹². The total possible score on the W-DEQ version A is 165. Scores of 66-84 points indicate a high level of fear of childbirth, while 85-99 points is classified as severe fear of childbirth or tokophobia¹³, and ≥ 100 points indicates serious, very intense, or extreme fear of childbirth¹⁴.

All statistical analyses were conducted utilizing the Statistical Package for the Social Sciences (SPSS) for Windows, version 20.0. Cross-tabulation and chi-square was used to analyse the demographic information. Independent

samples t-test and one-way ANOVA were used to determine the differences in W-DEQ scores between the two groups. This study also used hierarchical multiple linear regression to determine predictors of fear of childbirth.

RESULT

Characteristics of the participants are shown in the Table 1. The average age of the pregnant women was 26.85 years old. The majority of the participants were Muslims (90%) and Javanese (94.6%). Around two-thirds of respondents had got undergraduate or higher education levels. As much as 60.0% of the participants who attended Prenatal Gentle Yoga were employed, while no more than half of those not attending Prenatal Gentle Yoga were employed (43.1%). More than half of expectant mothers who did not attend Prenatal Gentle Yoga made less than 3,000,000 IDR per month, while nearly 50 percent of the participants in the Prenatal Gentle Yoga group got incomes of 5,000,000 IDR and above. The majority of pregnant women in this study lived with their husbands.

More than half of pregnant women in the study (55.4%) were at between 32 and 36 weeks of gestation, while the rest were at 37 to 42 weeks of gestation. Most of the pregnancies were planned (84.6%). When pregnant women filled out the questionnaire, almost all of them had had fetal ultrasounds (96.2%). Nevertheless, more than half of the participants in the yoga group had ultrasound checking from five to nine times that performed during their pregnancies, while as much as 60% pregnant women in the control group had had fewer than five times ultrasound checking (Table 1).

Three variables significantly impacted fear of childbirth: education level, number of ultrasound examinations, and participation in Prenatal Gentle Yoga classes. Specifically, those who had the most ultrasound examinations (10 to 15 ultrasounds) scored lowest on fear of childbirth of all the women in the study.

Overall, the more fetal ultrasounds a woman had, the lower her fear of childbirth score. In addition, education level significantly impacted fear of childbirth; pregnant women who had undergraduate level education or above scored lower on fear of childbirth, while those with less education experienced greater fear of childbirth. Most important for this study, participation in Prenatal Gentle Yoga classes significantly affected

fear of childbirth; specifically, pregnant women attending eight hours or more of Prenatal Gentle Yoga classes reported lower fear of childbirth (see Table 2).

Factors that showed no significant impact on fear of childbirth were mothers' age, religion, ethnicity, employment status, household income, living with husband, gestational age, having or not having fetal ultrasounds, and planned pregnancy.

Table 1. Characteristic of Participants

Variable	Group Total	Yoga Group	Control Group	χ^2	p-value
	n (%)	n (%)	n (%)		
Mother's Age				6.86	.032
20-24 years old	32 (24.6%)	10 (15.4%)	22 (33.8%)		
25-29 years old	73 (56.2%)	43 (66.2%)	30 (46.2%)		
30-35 years old	25 (19.2%)	12 (18.5%)	13 (20.0%)		
Religion				2.89	.193
Islam	116 (89.2%)	55 (84.6%)	61 (93.8%)		
Other	14 (10.8%)	10 (15.4%)	4 (6.2%)		
Ethnicity				1.36	.244
Javanese	123 (94.6%)	63 (96.9%)	60 (92.3%)		
Other	7 (5.4%)	2 (3.1%)	5 (7.7%)		
Education Level				23.78	<.001
High School or Less	42 (32.3%)	8 (12.3%)	34 (52.3%)		
Undergraduate or More	88 (67.7%)	57 (87.7%)	31 (47.7%)		
Employment Status				3.73	.054
Employed	67 (51.5%)	39 (60.0%)	28 (43.1%)		
Unemployed	63 (48.5%)	26 (40.0%)	37 (56.9%)		
Household Income				16.49	.001
<3,000,000 IDR	52 (40.0%)	15 (26.0%)	37 (56.9%)		
3,000,000-5,000,000 IDR	33 (25.4%)	19 (29.2%)	14 (21.5%)		
>5,000,000 IDR	45 (34.6%)	31 (47.7%)	14 (21.5%)		
Living with Husband				1.03	.310
Yes	112 (86.2%)	54 (83.1%)	58 (89.2%)		
No	18 (13.8%)	11 (16.9%)	7 (10.8%)		
Gestational Age				4.48	.034
32-36 weeks	72 (55.4%)	30 (46.2%)	42 (64.6%)		
37-42 weeks	58 (44.6%)	35 (53.8%)	23 (35.4%)		
Planned Pregnancy				.945	.331
Yes	110 (84.6%)	57 (87.7%)	53 (81.5%)		
No	20 (15.4%)	8 (12.3%)	12 (18.5%)		
Having Fetal Ultrasound				5.20	.058
Yes	125 (96.2%)	65 (100%)	60 (92.3%)		
No	5 (3.8%)	0 (0%)	5 (7.7%)		
Number of Ultrasounds				31.37	<.001
0-4 times	48 (36.9%)	9 (13.8%)	39 (60%)		
5-9 times	69 (53.1%)	45 (69.2%)	24 (36.9%)		
10-15 times	13 (10%)	11 (16.9%)	2 (3.1%)		

Source: Primer Data

Table 2. Effect of Prenatal Gentle Yoga on Fear of Childbirth Score

Variable	Fear of Childbirth (FOC)	
	Mean ± SD	t/F/p-value
Total Score	39.28±23.96	
Mother's Age		1.767/
20-24 years old	45.19±24.73	.175
25-29 years old	38.70±23.89	
30-35 years old	33.40±22.37	
Religion		.178
Islam	39.15±24.12	.859
Others	40.36±23.44	
Ethnicity		1.006/
Javanese	38.77±23.98	.316
Others	48.14±23.55	
Education Level		2.519/
High School or Less	46.79±25.08	.013
Undergraduate or More	35.69±22.69	
Employment Status		1.244/
Employed	36.75±23.93	.216
Unemployed	41.97±23.90	
Household Income		1.532/
<3000000 IDR	43.19±25.15	.220
3000000-5000000 IDR	39.36±23.46	
>5000000 IDR	34.69±22.60	
Living with Husband		-1.007/
Yes	40.13±24.20	.316
No	34.00±22.33	
Gestational Age		.250/
32-36 weeks	39.75±25.00	.803
37-42 weeks	38.69±22.82	
Planned Pregnancy		1.721/
Yes	37.42±22.38	.099
No	49.50±29.92	
Having Fetal Ultrasound		-.140/
Yes	39.34±24.37	.889
No	37.80±10.57	
Number of Ultrasounds		3.489/
①0-4 times	46.35±25.14	.033
②5-9 times	35.46±22.89	①>②>③
③10-15 times	33.38±20.21	
Participation in Prenatal Gentle Yoga		6.182/
Yes	27.83±18.54	<.001
No	50.72±23.40	

Source: Primer Data

Table 3. Hierarchical Multiple Linear Regression Analysis of Fear of Childbirth

Variable	B	SE	β	R ²	ΔR ²
Step 1				.08	.08
Intercept	61.360	8.615			
Mother's Age	-4.053	3.234	-.112		

	Education Level	-6.274	5.521	-.123		
	Household Income	-.651	2.872	-.024		
	Gestational Age	-.142	4.230	-.003		
	Number of Ultrasounds	-4.980	3.740	-.131		
Step 2					.09	.010
	Intercept	50.061	11.930			
	Mother's Age	-4.836	3.274	-.134		
	Education Level	-7.338	5.557	-.144		
	Household Income	-.906	2.869	-.033		
	Gestational Age	-.667	4.233	-.014		
	Number of Ultrasounds	-5.418	3.741	-.143		
	Having Fetal Ultrasound	15.635	11.462	.126		
Step 3					.26	.17
	Intercept	41.511	10.910			
	Mother's Age	-4.500	2.962	-.124		
	Education Level:	-2.074	5.123	-.041		
	Undergraduate or More vs.					
	High School or Less					
	Household Income	.639	2.611	.023		
	Gestational Age	2.249	3.868	.047		
	Number of Ultrasounds	.600	3.568	.016		
	Having Fetal Ultrasound	17.195	10.372	.139		
	Participation in Prenatal					
	Gentle Yoga Class:	-23.782	4.469	-.498**		
	Yes vs. No					

** p-value <.001

Table 3 shown that the following variables were entered together into the three-step hierarchical model: mother's age, education level, household income, gestational age, having fetal ultrasound, number of fetal ultrasounds, and participation in Prenatal Gentle Yoga

Gentle Yoga class contributed significantly to predicting childbirth fear. Using this combination of predictors, only participation in Prenatal Gentle Yoga class contributed significantly to predicting childbirth fear, accounting for 26% of the variance ($R^2 = 0.26$) (Table 3).

DISCUSSION

This research assessed Prenatal Gentle Yoga as an exercise during pregnancy that may decrease fear of childbirth. Fear of childbirth (FOC) is a common experience among pregnant women, it is more common among nulliparous women and after 21 weeks of gestation¹³. The findings revealed that participants in this study who took at least eight hours of Prenatal Gentle Yoga classes had lower fear of childbirth scores

than those who did not take any Prenatal Gentle Yoga classes.

This result is in line with a study conducted by Newham et al in the United Kingdom, which found that prenatal yoga was effective for reducing fear of childbirth scores, using the Wijma Delivery Expectancy Questionnaire (W-DEQ)¹⁵. In Newham's study, the participants attended an eight-week course where a trained prenatal yoga teacher taught exercises, postures, relaxation and

breathing techniques, emphasizing postures for alleviating localized aches and pains. The course also addressed optimal positioning of the fetus, the different stages of labor, and exercises for the postnatal period, such as pelvic floor exercises. The Prenatal Gentle Yoga classes in this study trained the mothers to centre themselves physically and mentally using breathing techniques and postures, as well as practicing relaxation and affirmation at the end of the sessions.

Our findings show that prenatal yoga has a statistically significant effect on fear of childbirth scores, a result which is consistent with conclusions of prior research. A combination of seven variables explained 26% of the variance in fear of childbirth during pregnancy. They included the mother's age, education level, household income, gestational age, having had a fetal ultrasound, number of ultrasounds, and participation in Prenatal Gentle Yoga classes. Of these seven factors, participating in Prenatal Gentle Yoga class was the strongest predictor of fear of childbirth scores among pregnant women. Specifically, lower fear of childbirth scores was found in the yoga group.

A study by Newham and colleagues in the United Kingdom reported that yoga during pregnancy was related to a significant decrease in fear of childbirth¹⁵. Newham's study also reported that prenatal yoga can potentially prevent depression during pregnancy and after birth. This is because doing yoga during pregnancy lowered state anxiety and levels of cortisol¹⁵. Stoll's review of studies on coping with fear of childbirth likewise found that antenatal yoga was effective for helping women develop strategies to cope with fear of childbirth¹⁶.

CONCLUSION

This study concluded that Prenatal Gentle Yoga can reduce fear of childbirth during pregnancy. Participation in

Prenatal Gentle Yoga was the only factor that strongly predicted childbirth fear. This was the first study ever to test the effects of participating in Prenatal Gentle Yoga classes on fear of childbirth in Indonesia. Prenatal Gentle Yoga should be promoted to all pregnant women through the health care system.

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