

# The Effect of Prenatal Gentle Yoga on Maternal-Fetal Attachment among First-time Expectant Mothers in Indonesia

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## ABSTRACT

**Background & aim:** Maternal-fetal attachment is one of the several psychological processes during pregnancy that builds the relationship between a mother and her unborn child. It seems that Prenatal Gentle Yoga (PGY) promotes wellbeing during pregnancy. However, no study has evaluated the effect of PGY on maternal-fetal attachment in Indonesia. This study aimed to measure the effect of PGY on maternal-fetal attachment among first-time expectant mothers.

**Methods:** This interventional study, was conducted from July-August 2018 in Central Java Province, Indonesia, compared maternal-fetal attachment among 130 primigravidae women who did (n=65) and did not (n=65) practice PGY. Participants were 20 to 35 years old, between 32 and 42 weeks of gestation, with normal singleton pregnancies and no obstetric complications as well as no history of psychological disorders which recruited with convenience sampling. The intervention group participated in eight or more hours of PGY classes (a minimum of six, 90-minute, once-weekly sessions). The control group did not do yoga. Women completed a demographic questionnaire and the Prenatal Attachment Inventory, analyzed with SPSS 20.0. Independent samples t-test and hierarchical multiple linear regression were used to analyze the data.

**Results:** Prenatal Gentle Yoga increased maternal-fetal attachment scores among participants who attended eight or more hours of classes compared to those who did not (P=0.001). Educational level and participation in yoga classes were the strongest predictors of maternal-fetal attachment (R<sup>2</sup>=.142).

**Conclusion:** Practicing PGY can increase maternal-fetal attachment. Midwives could recommend PGY to pregnant women in the routine antenatal care in Indonesia and around the world.

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## Introduction

Pregnancy and childbirth are natural events experienced by most women around the world (1). However, many of them view these normal processes as scary experiences, a belief that increases the chance they will endure both physical and psychological discomfort (1). During pregnancy, a woman may experience

emotional changes, both positive and negative. A mother's feelings and expression may indicate the developing relationship between a pregnant woman and her fetus, one of several psychological processes occurring during pregnancy. The quality of that relationship is referred to as maternal-fetal attachment (2).

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When a woman can manage unpleasant feelings during pregnancy, she will be better able to cope during labor and birth (3). However, new mothers, in particular, may have difficulty expressing unhappiness during pregnancy and motherhood (4).

Maternal-fetal attachment has been shown to be an effective predictor of the relationship between a woman and her child (5). Several risk factors may negatively affect maternal-fetal attachment, such as multiparity, having a high-risk pregnancy (6,7), tobacco use (6), stress, anxiety, and depression (5,8), as well as other negative emotions (9). By contrast, factors that can positively influence attachment scores include higher maternal age, ethnicity, higher education, higher income, recognizing fetal gender, having a planned pregnancy, gestational stage, maternal status, and assessing the health of the fetus or fetal ultrasound (6, 8). Furthermore, self-esteem, social support (8) and practicing yoga during pregnancy (10, 11) may also have positive effects on maternal-fetal attachment. Understanding factors that influence maternal-fetal attachment is important for achieving quality antenatal care (6) that can help expectant mothers experience pregnancy positively and feel strongly attached to the fetus.

Prenatal Gentle Yoga (PGY) is a program specially developed to promote wellbeing during pregnancy that may encourage maternal-fetal attachment. It was developed in Indonesia by the Kristala Permata Nusantara Company (12). It is called "gentle" yoga because the poses and activities are adapted for pregnant women. Prenatal yoga includes physical and psychological exercises such as *asanas* (poses), *pranayama* (breathing), and relaxation (11). Awareness of breathing is a technique that helps maintain good health and facilitates greater physical and emotional control (3).

Interventions aimed at fostering maternal-fetal attachment include training mothers to touch their abdomens in order to feel the fetus, communicating with the fetus, and paying attention to fetal movement (13, 14). Prenatal Gentle Yoga includes several exercises that can develop expectant mothers' ability to visualize and talk with the fetus during pregnancy. Throughout the yoga sessions, instructors

encourage reflection and greater self-understanding, awareness, tenderness, affection, and positive affirmations about the pregnancy and the fetus. Each class ends with a 10-minute relaxation and affirmation period, when the mother closes her eyes and touches her abdomen to feel her fetus and talks to her fetus—actions which could make the women feel more peaceful and encourage bonding with the fetus (12).

In Indonesia, a few studies have explored the benefits of Prenatal Gentle Yoga, such as the use of PGY for stabilizing blood pressure (15), for reducing anxiety in the third trimester (16–18), and to ease depression (19), however, none have explored the effect of PGY on maternal-fetal attachment. In Michigan, USA, Muzik and colleagues conducted an experimental study that evaluated yoga for improving maternal-fetal attachment (2012). Muzik and colleagues offered a 10-week program of mindfulness yoga to 18 psychiatrically at-risk pregnant women (10). The participants were primiparous, between 12 and 26 weeks of pregnancy, and had baseline scores on the Edinburg Postnatal Depression Screen greater than 9. The results showed a significant decrease in depression ( $p=0.025$ ) and a significant increase in maternal-fetal attachment scores ( $p=0.000$ ) (10). However, Muzik's study had a small sample size and did not compare participants who practiced yoga with a control group.

A pilot project by Williams (2015) in Palo Alto, California, USA evaluated a 12-week mindfulness-based prenatal yoga program to improve maternal attachment and mindfulness levels during pregnancy and the postpartum (11). That study included fifteen first-time expectant mothers with low- to moderate-incomes, who were 18 to 35 years old and in their second trimester when starting the program (11). Williams's study excluded pregnant women with mental or medical illness, drug use, or regular and extensive yoga practice (11). Data was gathered at four time points: baseline, halfway through the program (6 weeks), at the program's conclusion (12 weeks), and four months afterwards. The study used the Prenatal Attachment Inventory and results showed that participants experienced an increase in mean maternal attachment scores of

18% on average at each measurement. Like Muzik's study, Williams's study also had a small sample and no control group, which made it hard to demonstrate causality (11).

This study used a control group to compare maternal-fetal attachment among first-time expectant mothers in Indonesia who practiced Prenatal Gentle Yoga with those who did not.

## Materials and Methods

This cross-sectional study compared two groups of pregnant women: a group participating in Prenatal Gentle Yoga classes and a control group not participating in Prenatal Gentle Yoga. This study obtained a research permission from Kristala Permata Nusantara Foundation in Jakarta Indonesia (Ref. No. 116/PGY/VIII/2018). Comparison of the two groups provides a basis for assessing the effects of Prenatal Gentle Yoga on maternal-fetal attachment, the dependent variable.

The study used convenience sampling to recruit pregnant women who lacked prior experience of pregnancy and childbirth. This research was conducted in Central Java Province in Indonesia in July and August 2018. Twelve midwives collected data in eight regencies (counties): Solo, Sukoharjo, Klaten, Cilacap, Magelang, Kendal, Ungaran, and Jepara. To estimate the required sample size according to means, the researcher used G-Power version 3.1.2. Assuming a medium effect size  $d$  of 0.5, a type I error of 0.05, and a power of 0.8, the difference between the two independent means (of the two groups) indicated a required sample size of 130. The final sample of this study thus consisted of 130 respondents, with 65 pregnant women in each group.

The women included were primigravidae, ages 20 to 35 years old, at 32 to 42 weeks of gestation, with normal (i.e., no obstetric complications) singleton pregnancies and no history of psychological disorders. For inclusion in the Prenatal Gentle Yoga group, they must have completed  $\geq 8$  hours of Prenatal Gentle Yoga. For inclusion in the control group, they must have done no prenatal yoga at all. Participants had to be able to speak, read and write in Indonesian.

The manual for Prenatal Gentle Yoga trainers (2017) specifies that the yoga should be performed during 90-minute classes which

consist of: centering (5 minutes); *pranayama*/breathing (5 minutes); warming up (5 minutes); 60 minutes of exercises that include the Prenatal Sun-Salutation A/B, Soft Form Prenatal Gentle Yoga A/B, and *asanas* (standing, kneeling, and sitting poses); supine/restorative poses (5 minutes), finishing with 10 minutes of relaxation and affirmations (20). The yoga facilitators were midwives who had completed a 35-hour program of Prenatal Gentle Yoga training over four days. Facilitators' training was conducted by two certified specialist instructors at Kristala Permata Nusantara Company, Yesie Aprilia and Tantri Maharani Setyorini. The certificate of completion, which qualifies a person to teach pregnant women, was provided by the Indonesian Midwives Association (*Pengurus Ikatan Bidan Indonesia*).

In Indonesia, there is no recommended standard frequency or total duration for doing yoga over the course of a pregnancy. Several researchers have conducted studies on prenatal yoga with differing duration and frequency. For instance, Hamdiah, et al found that 8 hours of class each lasting 60 minutes provided benefits for pregnant women (21). Another study likewise found that eight hours of prenatal yoga produced good outcomes (22). Beddoe et al (2012) recommended 9 hours of yoga during pregnancy in 75-minute sessions over a period of seven weeks (23), while Muzik et al (2012) measured advantages for pregnant women after 15 hours of prenatal yoga in 90-minute sessions held once a week for 10 weeks (10). Based on these studies, to produce measurable benefits, the researcher decided on a cut-off point for inclusion in the intervention group of at least eight hours of yoga during pregnancy. In this study, respondents in the yoga group attended Prenatal Gentle Yoga for a minimum of six sessions of 90 minutes each, once weekly.

Two questionnaires were used to collect data: a demographic questionnaire and the Prenatal Attachment Inventory (PAI). The demographic questionnaire consisted of 11 items: maternal age; religion; ethnicity; education level; employment status; combined household income (both husband and wife); gestational stage; fetal ultrasound; whether or not the pregnancy was planned; whether or not the

pregnant woman lives with her husband; and participation in Prenatal Gentle Yoga classes.

Muller developed the Prenatal Attachment Inventory (PAI) in 1993 which has good reliability (Cronbach's alpha coefficient = 0.81) (24). This questionnaire consists of 21 items with responses presented as a 4-point Likert scale (1 to 4). To measure specific feelings and situations related to pregnancy during the past month, respondents answer questions by choosing from 1 = "never," 2 = "sometimes," 3 = "often," and 4 = "almost always" (24). The highest possible total score on the Indonesian version of the PAI (IPAI) is 84. Higher scores indicate more positive feelings towards the fetus and successful adaptation to pregnancy (24). The IPAI was translated and validated by Suryaningsih (2015) and has a high internal consistency, with a Cronbach's alpha coefficient of 0.937 (25). For this study, the reliability of the Indonesian version of the PAI using Cronbach's alpha was 0.86.

Kristala Permata Nusantara Foundation, Jakarta provided a letter of approval to conduct the study. Potential participants were informed about the study and could agree or refuse to take part. Those who agreed to be respondents signed the consent form. Names of respondents were not on the questionnaires. Pregnant women who refused were not pressured to participate. To collect the data, the researchers approached midwives who were trained Prenatal Gentle Yoga facilitators and described the purposes and participation criteria for this study. All participants who met the inclusion criteria completed the questionnaire. Specifically, participants in the yoga group filled out the questionnaire if they completed six sessions of yoga (once a week, 90 minutes each). For the non-yoga group, participants filled out the questionnaire if they fulfilled the inclusion criteria without attending any prenatal yoga classes.

This study used cross-tabulation and chi-square to analyze the demographic information. Independent samples t-test and one-way ANOVA were used to determine the differences in PAI scores between the groups. To determine predictors of maternal-fetal attachment, the study used hierarchical multiple linear regression, with the coefficient of determination

(R<sup>2</sup>) on a scale of 0% to 100% at each stage of the analysis. All statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) for Windows, version 20.0.

## Results

### Participants' characteristics

Table 1 shows demographic characteristics of the pregnant women. The mean age of the mothers was 26.85 years old (SD ± 8.19). Nearly 90% of the participants were Muslim, while others identified themselves as Protestant or Catholic. An overwhelming majority of the expectant mothers were Javanese (94.6%). Approximately two-thirds of all participants had obtained undergraduate education or higher. In the yoga group, more than 80% had an undergraduate degree or higher, while no more than half of the women in the control group had university level education. Nearly two-thirds of the pregnant women who attended Prenatal Gentle Yoga were employed (60.0%), while more than half of those not attending Prenatal Gentle Yoga were not employed (56.9%).

After combining income from husbands and wives, more than half of the pregnant women who did not attend Prenatal Gentle Yoga were classified as middle income (making less than 3,000,000 IDR per month), while nearly 50 percent of the participants in the Prenatal Gentle Yoga group were upper-middle class (with incomes of 5,000,000 IDR and above). Nearly 90 percent of all participants lived with their husbands. Of all the pregnant women in the study, 55.4% were between 32 and 36 weeks of gestation, while the remainder were at 37 to 42 weeks of gestation. More than four out of five (84.6%) of the pregnancies were planned.

There was no significant difference between the yoga and control groups in whether or not a woman had fetal ultrasound; almost all of the women (96.2%) indicated they had had fetal ultrasounds on the questionnaire. Only five women had not had fetal ultrasounds and none of them attended a Prenatal Gentle Yoga class.

However, the number of ultrasounds differed significantly between the two groups; more than half of the participants in the yoga group had had between five and nine fetal ultrasounds performed over the course of their pregnancies,

while a majority of participants in the control group (60%) had had fewer than five (Table 1).

**Table 1.** Demographic Information

Variable	Group Total	Did Prenatal Gentle Yoga (Group 1)	Did Not Do Prenatal Gentle Yoga (Group 2)	$\chi^2$	p-value
	N (%)	N (%)	N (%)		
<b>Mother's Age</b>				6.86	.032
20-24 years old	32 (24.6%)	10 (15.4%)	22 (33.8%)		
25-29 years old	73 (56.2%)	43 (66.1%)	30 (46.2%)		
30-35 years old	25 (19.2%)	12 (18.5%)	13 (20.0%)		
<b>Religion</b>				2.89	.193
Islam	116 (89.2%)	55 (84.6%)	61 (93.8%)		
Other	14 (10.8%)	10 (15.4%)	4 (6.2%)		
<b>Ethnicity</b>				1.36	.244
Javanese	123 (94.6%)	63 (96.9%)	60 (92.3%)		
Other	7 (5.4%)	2 (3.1%)	5 (7.7%)		
<b>Education Level</b>				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%)		
<b>Employment Status</b>				3.73	.054
Employed	67 (51.5%)	39 (60.0%)	28 (43.1%)		
Unemployed	63 (48.5%)	26 (40.0%)	37 (56.9%)		
<b>Household Income</b>				16.49	.001
<3,000,000 IDR	52 (40.0%)	15 (23.1%)	37 (57.0%)		
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%)		
<b>Living with Husband</b>				1.03	.310
Yes	112 (86.2%)	54 (83.1%)	58 (89.2%)		
No	18 (13.8%)	11 (16.9%)	7 (10.8%)		
<b>Gestational Age</b>				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%)		
<b>Planned Pregnancy</b>				.945	.331
Yes	110 (84.6%)	57 (87.7%)	53 (81.5%)		
No	20 (15.4%)	8 (12.3%)	12 (18.5%)		
<b>Had Fetal Ultrasound</b>				5.20	.058
Yes	125 (96.2%)	65 (100%)	60 (92.3%)		
No	5 (3.8%)	0 (0%)	5 (7.7%)		
<b>Number of Ultrasounds</b>				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%)		

The findings of this study revealed several characteristics of expectant mothers who were more likely to participate in Prenatal Gentle Yoga classes. They include: older maternal age, higher education level, higher household income, advanced gestational stage, and greater number of ultrasounds.

### Maternal-fetal attachment

We found a significant difference in prenatal attachment scores between the yoga and control groups (Table 2). The mean PAI score in the yoga group was higher than that of women who did not participate in yoga classes, indicating that the yoga group had stronger maternal-fetal attachment than the women in the control group. A number of other variables showed no significant relationship with maternal-fetal attachment, including maternal age, religion,



ethnicity, employment status, household income, living with husband, gestational age,

and planned pregnancy.

**Table 2.** Maternal-Fetal Attachment Scores

Variable	Mean ± SD	p-value
<b>Mother's Age</b>	66.81±8.19	.617
20-24 years old	66.97±8.79	
25-29 years old	66.22±7.99	(.541)
30-35 years old	68.32±8.13	
<b>Religion</b>		.127
Islam	66.78±8.31	
Other	67.07±7.42	(.899)
<b>Ethnicity</b>		.253
Javanese	66.76±8.24	
Others	67.57±7.79	(.801)
<b>Education Level</b>		-3.334
High School or Less	63.21±9.04	
Undergraduate or More	68.52±7.19	(.001)
<b>Employment Status</b>		-1.592
Employed	67.91±7.91	
Unemployed	65.63±8.38	(.114)
<b>Household Income</b>		1.465
<3000000 IDR	65.31±9.56	
3000000-5000000 IDR	67.76±7.79	(.235)
>5000000 IDR	67.84±6.49	
<b>Living with Husband</b>		-1.134
Yes	67.13±7.67	
No	64.78±10.96	(.259)
<b>Gestational Age</b>		-1.321
32-36 weeks	65.96±8.88	
37-42 weeks	67.86±7.18	(.189)
<b>Planned Pregnancy</b>		-1.678
Yes	67.32±7.73	
No	64.00±10.17	(.096)
<b>Had Fetal Ultrasound</b>		-2.147
Yes	67.11±8.11	
No	59.20±7.19	(.034)
<b>Number of Ultrasounds</b>		2.223
0-4 times	65.17±9.43	
5-9 times	67.32±7.64	(.112)
10-15 times	70.15±4.28	
<b>Participation in Prenatal Gentle Yoga</b>		-3.518
Yes	69.23±6.89	
No	64.38±8.71	(.001)

Variables that did significantly impact maternal-fetal attachment included education level and having had fetal ultrasound examinations. Maternal-fetal attachment was stronger among pregnant women who had undergraduate level education or above. Pregnant women who had fetal ultrasounds likewise had significantly higher scores on

maternal-fetal attachment than women who had not. The more fetal ultrasounds a woman had, the higher her score on maternal-fetal attachment, though no significant difference was found.

We used three-step hierarchical multiple linear regression to determine how well the following variables predicted maternal-fetal

attachment: mother's age, education level, household income, gestational age, whether or not a mother had fetal ultrasounds, the number of fetal ultrasound examinations, and participation in Prenatal Gentle Yoga classes. With this combination of predictors, education level was the strongest predictor of maternal-fetal attachment and participation in Prenatal

Gentle Yoga class was the second-strongest predictor. The combination of these variables predicted 14.2% of the variance in maternal-fetal attachment. Education level and Prenatal Gentle Yoga participation were the only variables that contributed significantly to predicting maternal-fetal attachment (Table 3).

**Table 3.** Hierarchical Multiple Linear Regression Analysis of Maternal-Fetal Attachment

Variable	B	SE	$\beta$	R <sup>2</sup>	$\Delta R^2$
<b>Step 1</b>					
Intercept	62.477	2.901		.104	.104
Mother's Age	-.184	1.089	-.015		
Education Level	5.150	1.859	.295*		
Household Income	-.383	.967	-.040		
Gestational Age	1.306	1.425	.080		
Number of Ultrasounds	.788	1.259	.061		
<b>Step 2</b>					
Intercept	59.251	4.026		.114	.010
Mother's Age	-.407	1.105	-.033		
Education Level	4.846	1.875	.278*		
Household Income	-.456	.968	-.048		
Gestational Age	1.156	1.429	.070		
Number of Ultrasounds	.663	1.262	.051		
Had Fetal Ultrasound	4.465	3.868	.105		
<b>Step 3</b>					
Intercept	60.445	4.020		.142	.029
Mother's Age	-.454	1.092	-.037		
Education Level: Undergraduate or More vs. High School or Less	4.110	1.888	.236*		
Household Income	-.671	.962	-.071		
Gestational Age	.749	1.426	.046		
Number of Ultrasounds	-.178	1.315	-.014		
Had Fetal Ultrasound	4.247	3.822	.100		
Participation in Prenatal Gentle Yoga Class: Yes vs. No	3.324	1.647	.204*		

\* P-value <.05 Abbreviations: B: unstandardized beta coefficient, SE: standard error,  $\beta$ : standardized beta coefficient, R<sup>2</sup>: Coefficient of determination,  $\Delta R^2$ : Change of R<sup>2</sup>.

## Discussion

This study evaluated Prenatal Gentle Yoga as an exercise during pregnancy that may improve maternal-fetal attachment. Our findings show that doing yoga during pregnancy can increase a woman's sense of attachment to her fetus. Specifically, pregnant women attending eight hours or more of Prenatal Gentle Yoga classes had higher average scores on maternal-fetal attachment than women who did not do yoga (the control group). This result is consistent with findings of two other studies. The first, conducted by Muzik and colleagues, found that 10 weeks of 90-minute mindfulness yoga sessions improved maternal-fetal attachment

among pregnant women in Michigan, USA (10). A study by Williams (2015) likewise concluded that a 12-week mindfulness-based prenatal yoga course can be useful for increasing feelings of attachment between mother and baby (11). Williams concluded that mindfulness yoga is a feasible and effective program for encouraging maternal-fetal attachment during pregnancy.

Results of this study show that Prenatal Gentle Yoga can strengthen pregnant women's feelings of attachment to their unborn child. PGY encourages mothers to connect emotionally with their baby before it is born using tactile, visualization, and communication exercises

designed for this purpose. Muzik's study similarly observed that women who completed mindfulness yoga classes became more comfortable with their role as mothers and enjoyed their interactions with the fetus and concluded that the supportive environment provided in prenatal yoga facilitates the transition to motherhood (10). Prenatal Gentle Yoga stimulates mothers to imagine and communicate with their baby in the womb, which could explain why the women who took yoga classes scored higher on maternal-fetal attachment.

Education level and participation in Prenatal Gentle Yoga classes were the only strong predictors of maternal-fetal attachment among the pregnant women in this study. Results showed that education level had a statistically significant positive effect on maternal-fetal attachment. In other words, the higher the woman's education level, the higher her attachment score. A study done in India similarly found that higher education had a positive effect on prenatal attachment (26). Hassan and Hassan suggested that educated mothers may have stronger maternal-fetal attachment because they are more able to seek health information, which is also positively related to maternal-fetal attachment (27), although that study did not find the relationship they expected between education and maternal-fetal attachment (27). The link between higher education and maternal attachment in this study could be because Prenatal Gentle Yoga includes a type of imaginative activity that may be particularly suited to people with more formal education; formal education may be conducive to the kind of imagination practiced in Prenatal Gentle Yoga to foster a sense of connection with the unborn child.

Because Prenatal Gentle Yoga fosters mothers' sense of attachment to their unborn babies, midwives should promote it widely to pregnant women in Indonesia and around the world. Antenatal education should target women with less education and income in particular. We recommend that the health system in Indonesia promote Prenatal Gentle Yoga as a routine part of antenatal care.

This study had several strengths. Data was obtained from multiple locations distributed

across eight different regencies of Central Java Province. Consequently, results can be generalized to the province, but not to the entire country of Indonesia. In addition, participants were clients of 12 different midwives, reducing the risk that results might be influenced by the personality or unique practices of a single midwife. Furthermore, the study compared two groups of participants, those who took Prenatal Gentle Yoga classes and a control group. Comparisons are important as they provide a basis for obtaining valid findings and producing credible results (28).

There are also several limitations of this study. Because the study used a cross-sectional design, it was not possible to compare results over a period of time. Although the number of participants in this study was greater than in previous ones, the study used convenience sampling and had only 130 participants, potentially limiting the validity of the findings. Future research should use randomized sampling with a bigger sample covering a larger region.

In addition, some demographic variables differed significantly between the two groups, such as education level and household income, so the background of the participants was not identical, making valid comparison harder. The researcher did not control for these variables, which may have influenced mothers' decisions to participate in yoga classes, and could also have influenced the maternal-fetal attachment scores. Future research should ensure that participants in the two groups have similar backgrounds in order to obtain clearer evidence that Prenatal Gentle Yoga is beneficial for a target population.

Lastly, there were potential differences between the Prenatal Gentle Yoga classes. While all Prenatal Gentle Yoga instructors had completed 35 hours of training from the same organization (Kristala Permata Nusantara Foundation), their abilities could still differ. Although classes all started from centering and ended with relaxation, content of the classes might not be completely identical. There may have been some different poses in each class.

## Conclusion

Prenatal Gentle Yoga is a unique program developed in Indonesia to prepare pregnant



women for childbirth. This was the first study ever to test the effects of participating in Prenatal Gentle Yoga classes on maternal-fetal attachment in Indonesia. Prenatal Gentle Yoga is gaining popularity there, even though it is not yet actively promoted to all pregnant women through the health care system. This study has produced valuable information about the benefits of Prenatal Gentle Yoga classes. Specifically, this study shows that Prenatal Gentle Yoga can increase maternal-fetal attachment. The strongest predictors of maternal-fetal attachment were education level and participation in Prenatal Gentle Yoga. The findings can be used to promote participation in prenatal yoga as preparation for having a baby.

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### Conflicts of interest

Authors declared no conflicts of interest.

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