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The Effect of Antenatal Class Plus Coping Skill Training on the Level of Stress and Childbirth Self-Efficacy

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Background: Pregnancy puts mothers in vulnerable conditions that lead to stress. Consequently, a negative impact over the stress influences mother's and baby's health. Antenatal class (AC) was aimed to increase knowledge and prepare for childbirth. However, AC focuses on delivering knowledge, whereas the content is lack of psychological preparation such as developing self-efficacy and coping skill in facing childbirth. This study aimed to find the effect of antenatal class plus coping skills training towards a level of stress, and a childbirth self-efficacy. *Method:* This study was a randomized pre-test post-test control group design over primigravida women in their 24–34 weeks of pregnancy. Data collection was conducted in 4 weeks. Data were analyzed using paired T-test and independent T-test, and also repeated ANOVA with Benferroni post hoc test. *Results:* The mean age of participants was 24 years. The intervention of antenatal class plus coping skills training had significant influence to decrease the stress level ($p = 0.014$) between groups. In one hand, it was also enhancing the childbirth self-efficacy but in the other hand it was statistically insignificant with the mean and standard deviation of 2.484 and 12.727 respectively, with a p value of 0.579 between the groups. *Conclusion:* It is essential for pregnant women to have antenatal classes plus coping skills training. It is also important to screen the pregnant women for stress and the screen protocol could be included in the maternal handbook.

Keywords: Coping Skill Training, Childbirth Self-Efficacy, Antenatal Class, Stress Levels.

1. INTRODUCTION

Pregnant women commonly encounter serious stress as it was shown in a study, where 78% of pregnant women experienced stress at low levels to moderate, and 6% suffered from severe stress.¹ During pregnancy, women are more susceptible to stress than during postpartum.² As the women experience pregnancy day by day, their stress level is also potentially increase.³ Mothers who are at the first pregnancy (primigravida) are more susceptible to stress than mothers who experience pregnancy more than once.⁴ One effort to prevent problems and complications during pregnancy is by increasing knowledge and preparing for childbirth.

The strategy to overcome the problem and complication is through a regular antenatal class (AC). AC is a government program that is integrated with pregnancy services in Indonesia. The service program includes the provision of education to pregnant women in which the material contains pregnancy, childbirth, and

postpartum cares. In addition, it also contains baby care. The program is performed in the health care unit and community.⁵ However, in one hand, AC showed a lack of involvement from the husbands, lack of emotional and psychological implementation and in the other hand the contents are more focus on practices of birth and infant care in the conventional AC.⁶ AC is focusing more on delivering knowledge rather than preparing pregnant women for strengthening and identifying the sources of coping and self-confidence in facing labor.⁷

Coping skills for stress during pregnancy are important to be mastered as their influence over the outcome of pregnancy and birth are better in terms of minimizing or preventing the negative effects over the emotional, behavioral, cognitive, and physiological responses toward stress. Coping skills serves to select and implement appropriate efforts to cope with stress and serves as a resource bastion of pregnant women and children from the effects of the potential dangers of exposure to stress during pregnancy.⁸ There is a controversial result over research on antenatal class (AC), the vulnerability of pregnant women to experience the stress, the need and the importance of providing coping skills

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to mothers and facing confinement in order to decrease stress and improve childbirth self-efficacy (CBSE). However, there is no research on coping skills in pregnant women. It is necessary to conduct a research about the effects of AC which includes coping skills training (CST) for pregnant women on the level of stress and CBSE.

This study aimed to analyze the effects of antenatal education class plus coping skill training toward the level of stress and childbirth self-efficacy. The hypothesis of the study was AC plus CST has more influence in decreasing stress compared to AC only. In addition, AC plus CST also increases CBSE more than AC only.

2. METHOD

This study was a randomized study with pre-test post-test control group design. The subjects in this study were 62 primigravida pregnant women who were encounter the end of second trimester and early third trimester (24–34 weeks gestation) in sixth health centers of Semarang city. The sixth health centers were chosen randomly from 37 health centers that meet the inclusion and exclusion criteria. Intervention was done by midwife facilitator for 4 weeks. Confounding variables such as age, pregnancy age, level of education, occupation, and support from family were measured to know the homogeneity for each group.

The instrument used to measure the stress was PSS questionnaire and CBSE inventory to measure CBSE. Stress levels were measured using PSS with a category score of 0–13 as mild stress, 14–26 as moderate stress, 27–40 as severe stress.⁹ Child-Birth Self-efficacy Scale (CBSES) consists of two parts, Outcome Expectancy subscale (OE-16) and Efficacy Expectancy subscale (EE-16), thus the total items were 32. The total score of each aspect of EE and OE describes the level of CBSE from low to high in which the higher score indicates that mother has higher CBSE.^{10,11} AC instrument was provided based on Ministry of Health AC module. AC plus CST instrument was provided based on AC plus CST module that has been stated in the literature and pilot study.

Bivariate analysis using paired *t*-tests was used to determine the differences in score of stress, and CBSE before and after treatment within group, and the independent *t*-test to determine the difference between control and treatment groups. Repeated ANOVA with Benferroni post hoc tests were employed to see the difference before and after treatment and the mean difference in each measurement at levels of stress in each week.¹² A *p*-value of <0.05 was considered as significant differences. Ethical clearance was approved by ethical committee of Medical Faculty of Diponegoro University and Kariadi Hospital, with the number of 767/EC/FK-RSDK/2016.

3. RESULTS

3.1. Characteristic of the Mothers

There was no difference in age, gestational age, support, employment, and education between the two groups. Characteristics of the respondents in the two groups were homogeneous. Characteristics of the mothers is shown in Table I.

3.2. Stress Level

PSS score changes before and after treatment is shown in Table II. There was a significant difference between pre and post

Table I. Characteristics of pregnant mothers.

Characteristics	AC + CST <i>N</i> = 31	AC <i>N</i> = 29	<i>p</i>
	Median (min–max) <i>n</i> (%)	Median (min–max) <i>n</i> (%)	
Age	24 (20–33)	25(20–33)	0.412*
20–25	25 (80.6)	19 (65.6)	
26–30	4 (12.9)	9 (31.0)	
31–35	2 (6.5)	1 (3.4)	
Pregnancy	27.97 ± 5.67	28 (20–34)	0.841*
24–28	17 (54.8)	16 (55.2)	
29–34	14 (45.2)	13(44.8)	
Education			0.548*
Primary	1 (3.2)	3 (10.3)	
Secondary	17 (54.8)	15 (51.7)	
Tertiary	13 (42)	11 (38)	
Occupation			0.923*
Housewife	11 (35.5)	18 (62.1)	
Private	8 (25.8)	9 (31.0)	
Teacher	1 (3.2)	1 (3.4)	
Student	11 (35.5)	1 (3.4)	
Support	10 (6–10)	10 (9–10)	0.299*

Note: *Mann whitney *U* test.

Table II. PSS score within and between groups.

PSS	Group		<i>p</i>
	AC + CST	AC	
Pre	18.06 ± 3.172	15.97 ± 4.62	0.044
Post	15.61 ± 5.09	16.10 ± 4.18	0.947
<i>p</i>	0.014 [‡]	0.832 [‡]	–
Δ PSS	–2.45 ± 4.66	1.14 ± 3.74	0.002 [§]

Notes: [‡]Pre versus post, Wilcoxon, [‡]pre versus post, paired *t*-test, [§]AC + CST versus AC independent *t*-test.

treatment of AC + CST, with a *p* value of 0.014. Stress levels at pre and post AC were measured by paired *t* test with *p* value = 0.832. It can be concluded that there was no difference within the control group. The independent *t*-test between the two groups was used to find the influence of AC + CST based on the

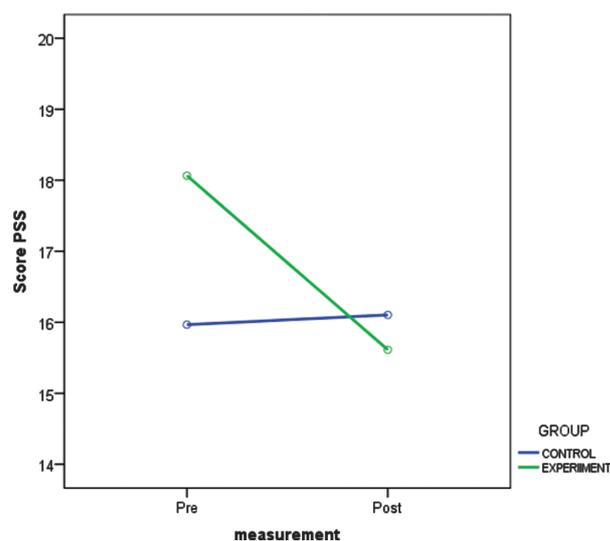


Fig. 1. Pre and post PSS scores between groups.

Table III. Friedman and repeated measure ANOVA test of stress level at AC plus CST and AC group before and after treatment.

Stress level	Group			
	AC + CST		AC	
	Median (min–max)	<i>p</i>	Mean ± SD	<i>p</i>
Pre	17 (13–25)	–	15.97 ± 4.62	–
Week-2	17 (6–21)	0.011 ^a	15.10 ± 4.41	1.000 ^d
Week-3	16 (4–23)	0.027 ^b	15.31 ± 4.30	1.000 ^e
Week-4	16 (4–24)	0.014 ^c	16.10 ± 4.18	1.000 ^f

Notes: ^aPre versus week-2; Wilcoxon, ^bPre versus week-3; Wilcoxon, ^cPre versus week-4; Wilcoxon, ^dPre versus week-2; paired *t*-test, ^ePre versus week-3; paired *t*-test, ^fPre versus week-4; paired *t*-test.

mean change from each group. The results of comparison test showed *p* value = 0.002. Thus, there was a significant difference over AC + CST treatment on stress levels. The stress level in the treatment group decreased by 2.452, with a standard deviation of 4.66.

Stress level measurement for each week was done in 4 weeks. Table III shows the results.

Stress level in AC plus CST group for each measurement in four weeks were analyzed by Friedman test. The *p*-value of 0.029 showed that there was difference in two or more measurements. The next test by Wilcoxon post hoc showed that the difference was found between pre and week-2 (*p* = 0.011), pre and week-3 (*p* = 0.027), pre and week-4 (post test) (*p* = 0.014). Thus, there were significant differences over the level stress in each measurement in each week over the treatment group of AC plus CST. The level of stress at AC group which was analyzed by repeated ANOVA and continued by post hoc dependent wise comparison (Benferonni) indicated no difference among the measurement of each week.

3.3. CBSE Score

The test over the results of test analysis and EE, OE within group before and after the treatment was analyzed by paired *t*-test. Data comparison between the group was done by independent *t*-tests as data were normally distributed. CBSE scores change is shown in Table III.

Table IV. CBSE score pre and post treatment within and between groups.

CBSE	Group		<i>p</i>
	AC + CST (<i>n</i> = 31)	AC (<i>n</i> = 29)	
CBSE EE			
Pre	47.74 ± 7.11	49.55 ± 5.60	0.280
Post	49.25 ± 5.09	49.27 ± 4.98	0.989
<i>p</i> [‡]	0.271	0.749	
Δ	1.52 ± 7.52	–0.28 ± 4.61	0.268
CBSE OE			
Pre	51.16 ± 7.14	50.72 ± 9.16	0.988
Post	52.12 ± 6.51	52.21 ± 5.96	0.962
<i>p</i> [‡]	0.440	0.796	
Δ	0.97 ± 6.88	1.48 ± 8.96	0.83
CBSE			
Pre	98.90 ± 13.33	100.28 ± 12.39	0.682
Post	101.39 ± 10.83	101.48 ± 10.38	0.972
<i>p</i> [‡]	0.286	0.558	
Δ	2.484 ± 12.727	1.207 ± 10.949	0.579 [§]

Notes: [‡]pre versus post, paired *t*-test, [§]Mann Whitney *U* test.

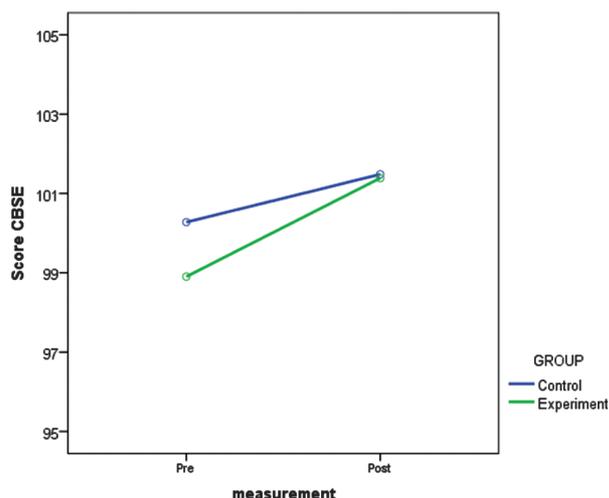


Fig. 2. Pre and post cbse score between groups.

4. DISCUSSION

4.1. AC Plus CST is More Effective to Reduce the Level of Stress in Pregnant Women Compared to AC

The hypothesis of this study which claims that AC plus CST is more effective in lowering the level of stress in pregnant women compared to AC was actually acceptable. This was proved by the findings that there was a significant difference of stress levels before and after giving AC plus CST treatment in the experimental group, while in the control group there was no significant difference before and after giving AC. There was a significant effect on the reduction in stress levels at experiment group AC plus CST compared to control group AC.

CST was given together with AC to provide knowledge and to train some materials including a mother’s ability to identify and manage stress, sources of stress, and mother’s ability to cope with stress through exercising some techniques to reduce or cope with stress. CST was proved to help mothers to reduce stress than mothers who only received AC. The research was supported by other research which also showed that CST reduced stress, but on the different subjects, for example on the subject of diabetes mellitus, mothers with children with special needs. The study showed that the CST drilled helps mother to overcome stress and showed better psychological conditions.¹³

Coping strategies drilled through CST helped mothers to improve their skills in coping effectively and build some abilities to overcome stress, so the effect on the psychological condition of the mother during pregnancy was better in group of given AC plus CST. Coping strategies are trained to help mothers improve their ability to perceive and solve problems in a positive emotional way using coping strategies when they face negative emotion.¹⁴ The CST drilled involves cognitive and behavioral processes that allow mothers to perceive maternal stress in a positive way and use certain behavior to cope with stress, also the ability to manage the situation which is considered as a positive weight and the ability to use resources to reduce stress.¹⁵

Some of the positive responses shown by pregnant women who received AC plus CST on the benefits of CST indicated that mothers felt more informed about the stress in pregnancy and the dangers of stress, as well as possessed better understanding

on how to deal with stress and better capability to cope with and reduce the stress. CST can also help mothers to reduce the problems in life. The mothers feel calmer, more positive, more focused, and more capable to control the emotions when they faced the stress. It also helped the mother to feel more relaxed and calmer dealing with experiencing childbirth. Giving CST also helps mothers to be more skilled at prioritizing problems. The standard of antenatal care is at least four times during pregnancy with the provisions of once in trimester one, once trimester two, and twice in trimester three. Health services for mothers and children inside, including pregnancy, childbirth, postpartum and newborn care refers to maternal book.¹⁶ However, in the existing guidelines in maternal book, there is no screening guideline including psychological condition in particular stress on pregnant mother in comparison with other countries such as Thailand which has included psychological screening to assess the level of stress in pregnant women. The assessment of stress on pregnant women also puts on a guidebook of health services for mothers and children.¹⁷ It can be concluded that the care of pregnant women needs to be done in a holistic manner. It means that bio-psycho, socio-cultural, and spiritual elements are paramount to be implemented in caring the pregnant women. Antenatal care is not only caring the physical aspects but also treating the psychological condition which actually has been recommended by ACOG. ACOG stated that screening the stress level over the pregnant women is essential to be done in every three trimester of pregnancy.¹⁸

4.2. KIH Plus CST is More Effective in Improving the CBSE in Pregnant Women Compared to KIH

The results of the study showed that the intervention of AC plus CST improved CBSE compared to AC only. CBSE is a form of self-efficacy defined as the belief that one is capable of running behavior or achieve certain goals, evaluating a person's ability or competency to perform a task, and overcome obstacles, or belief in one's ability or competency on given task performance. Achieving a goal or overcome an obstacle in this regard relates to confidence in the ability to perform an action in giving birth. Several factors related to the CBSE are social demography including age, education level and occupation. Furthermore, the other factor is obstetric history of past experience with regard to pregnancy and birth, and psychological factors such as stress and fear in the face of labor.¹⁹

CBSE component consist of self-efficacy of efficacy expectancy (EE), the outcome expectancy (OE), and values the same things EE components and OE. The second aspect of CBSE showed that the increase in the mean difference was greater in the experiment group AC plus CST both on EE and OE. EE is a component that describes a mother belief in his ability to perform certain actions or efforts in the face of problems or events. OE is a mother's belief that her ability will help her overcome or face an event or condition, in this case is facing birth.^{11,20}

Pregnant women who were given the material of AC plus CST received the material and simultaneously practice the coping strategies in which one of the coping strategies can be used when facing labor. Giving the exercise is beneficial to the mother when facing labor as it can increase the mothers' confidence to perform specific actions when they face labor. CBSE as well as self-efficacy is obtained through four sources.

The first sources of CBSE are a technical mastery of the experience (mastery experience) that will be undertaken. This process is achieved by strengthening confidence in achieving success when mothers are facing difficulties. The second source is the experience vicarious which takes another model or another person who is considered the same as herself. Another model can be obtained through observation of its success or failure. If the observations of others who are considered the same as her in managing the vicarious are success, it will increase the CBSE and vice versa. The experience of others is a form of success when passing through an experience or expected events. The third source is the social persuasion in the form of support or social reinforcement towards mothers' belief over their ability in facing an event. Excessive support for mother will help to increase the confidence of the individual against her ability to do the right thing in facing an event. The fourth source is a state of emotion, fear, anxiety, and stress can strongly reduce a self-efficacy. The self-efficacy is obtained through four processes, they are cognitive, motivational, affective and selective processes.²¹ All four sources of self-efficacy and the process for obtaining self-efficacy determine the level of CBSE pregnant women. CBSE pregnant women have a significant influence over the outcomes of pregnancy and childbirth. The pregnant women who have a high CBSE will undergo a normal delivery and decrease the rate of operative delivery compared to those who have lower CBSE.²²

5. CONCLUSION

Intervention of AC plus CST decreased the stress levels significantly. Intervention of AC plus CST showed a higher increase in CBSE scores compared to AC only group, but the different was not significant.

It is important for pregnant women to be provided CST in collaboration with antenatal class or other antenatal care as a part of providing holistic care. It is also essential to do screening of stress over the pregnant women. Finally, it is paramount to document those aforementioned recommendations in the maternal book.

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