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A Study on Pregnancy Stress and Related Factors in Pregnant Women

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ABSTRACT

Background/Objectives: This study has been attempted to identify the pregnancy stress of Korean women by considering antenatal depression, maternal fetal attachment, and social support.

Method/Statistical Analysis: The data were collected by means of a questionnaire of 195 pregnant women between June 1 and August 30, 2018. Data were analyzed by frequency analysis, Cronbach's alpha coefficients, Pearson's correlation using SPSS 18.0.

Findings: The average score of pregnancy stress was 85.0, antenatal depression was 7.3, maternal fetal attachment 70.2, and social support 36.0. Pregnancy stress was significantly correlated with antenatal depression($r=.29$, $p<.001$), maternal fetal attachment($r=-.23$, $p<.001$), and social support ($r=-.19$, $p<.001$.). Pregnancy stress level was not significantly different depend on age, marriage age, pregnancy period, children, miscarriage experience, religion, educational level, vocational state, and household income.

Improvements/Applications: These findings suggest that healthcare professionals have more attention about pregnancy stress, and they should provide pregnancy stress screening and intervention programs for management and prevention of pregnancy stress period during whole pregnancy period.

Keywords: *Pregnancy stress, antenatal depression, maternal fetal attachment, social support, pregnant women*

Introduction

Pregnancy, the important process required to give birth to the next generation, involves numerous changes, along with procedures to adapt to these changes. Pregnancy has been identified as a stressful event in a women's life that asks a significant physical and psychological adaptation[1]. While some pregnant women experience these dramatic changes in their lives as part of a happy and satisfying maturing process, others suffer from emotional difficulties such as main stress and depression. Pregnancy stress occurs when a pregnant woman is unable to appropriately respond to the various changes and stimuli encountered during the pregnancy. The major causes of pregnancy stress include the physiological, psychological, emotional and socioeconomic changes associated with the pregnancy, anxieties about labor pain and childbirth, and concerns about the unborn baby and parenting[1,2]. This type of stress incident and depression is most commonly experienced by pregnant women. Pregnancy stress and depression during pregnancy can cause a huge number of maternal as well as neonatal negative effects in many fields. Pregnancy stress increases the frequency of cesarean section and premature in pregnant women, as well as the prevalence of fetal disorders including lowered immunity and infection[3,4]. Pregnancy stress and depression also increases inappropriate fetal activity, adversely affecting the physical health of a fetus or inhibiting fetal growth. In this way, pregnancy stress may negatively affect both pregnancy and childbirth, and may become a serious problem even in the later parenting of the child[5,6]. Moreover, pregnancy stress causes postpartum depression as well as decreased attachment to the fetus, leading to negative effects on the family's quality of

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life. Mother's mental health, like anxiety and depression recognized as s main public health problem in the world due to serious consequences for the pregnancy as well as nurturing baby after their birth[7]. Changes in social relations during the pregnancy are also a pregnancy stress factor. The persons important to a pregnant woman include the fetus and the spouse. The fetus is a very important person to a pregnant woman, and the two mutually affect each other through the physiological communion during the pregnancy. A pregnant woman develops an intimate emotional relationship and actions with the fetus during the pregnancy. The intimacy and the feeling of connectedness between a pregnant woman and her fetus are referred to as maternal fetal attachment, which is closely related to pregnancy stress[5,6]. The spouse, another important person to a pregnant woman, is also closely associated with various pregnancy stress factors, including the psychological, physical, and social adaptation of the pregnant woman. The spouse's support may serve as a buffer to pregnancy stress by decreasing the pregnant woman's stress, increasing her self-efficacy, and inducing positive childbirth, but the support may also sometimes have a negative effect[3,7,8]. Therefore, the pregnancy stress may be decreased as the pregnant woman forms maternal fetal attachment, while at the same time the social support system, including the spouse, provides appropriate support to the pregnant women[7,8]. Recent reports have shown that in addition to the human social support system, social media are recognized as an important support system before, during, and after pregnancy, and that many pregnant women receive social support through social media. When they have available time, pregnant women access social medial to acquire various types of information and knowledge that are necessary in each stage of pregnancy and to receive effective support for the pregnancy. This information and knowledge support may reduce the stress related to pregnancy[8]. Therefore, this quantitative study was conducted to explore the level of pregnancy stress, antenatal depression, maternal fetal detachment, and social support to fully understand pregnant women and to be utilized as basic data in nursing intervention and research on pregnancy stress.

Materals and Method

Setting and Recruitment: From June to August 2018, recruitment was taken placed in the mom support center in Cheonan City of Republic of Korea. Research staff explained the study in detail and answered any questions. After approving of the study participation, they completed questionnaires.

Data Collection

Instruments and Variables: Pregnancy stress scale[9] was used to measure the degree of stress during pregnancy and the scale contains 26 items. Each item is rated from 1 to 5 points where the higher the score the higher the pregnancy stress. The score of Cronbach's α was .84[9], and .93 in this study. Antenatal depression scale[10] was used to measure the degree of antenatal depression during pregnancy and the scale contains 10 items. Each item is rated from 0 to 3 points where the higher the score the higher the antenatal depression. The score of Cronbach's α was .87[10], and .92 in this study. Maternal fetal attachment scale[11] was used to measure the construct of maternal fetal attachment during pregnancy and the scale contains 24 items. Each item is rated from 1 to 4 points where the higher the score the higher the maternal fetal attachment. The score of Cronbach's α was .85[11], and .94 in this study. Social support scale[12] was used to measure the support from others during pregnancy and the scale contains 10 items. Each item is rated from 1 to 5 points where the higher the score the higher the social support. The score of Cronbach's α was .82[12], and .83 in this study.

Data Collection Process and Data Analysis: Participants were asked to complete the baseline questionnaires for their socio-demographic information and research questionnaire when they visiting the mom center program. Collected data were analyzed using SPSS 18.0 by numeric number, percentile, mean scores and standard deviation, Pearson's correlation. The reliability of the measurement was done by Cronbach's alpha.

Ethical Considerations: Participants were informed that the collected data would not be used for any purposes except this study, and that they could withdraw their participation at any time. Written informed consent was obtained from each participant. After completing questionnaires provide a present.

Results and Discussion

All participants were married, and the age of the participants was the majority (80.0%) in the thirties. Marriage age was the majority (69.2%) in the thirties and

twenties was the next. Duration of their pregnancy was more than twenty weeks in 94.9%. The majority (62.0%) was in their first pregnancy, 71.8% did not experience abortion. More than half (54.8%) of participants were no religion, and they graduated more than college in 85.6%. In total 36.9% of women had an occupation during pregnancy, and 64.7% of participants had a monthly family income more than three million won. Additionally, pregnancy stress level was not significantly different depend on age, marriage age, pregnancy period, children, miscarriage experience, religion, educational level, vocational state, and household income[Table 1].

The results showed that the average score of pregnancy stress was 85.0 ± 18.7, antenatal depression, 7.3 ± 3.5, maternal fetal attachment, 70.2 ± 11.8, and social support, 36.0 ± 5.5[Table 2].

Pregnancy stress was significantly correlated with antenatal depression(r=.29, p<.001), maternal fetal attachment(r= -.23, p<.001), and social support(r= -.19, p<.001). Antenatal depression was significantly correlated with maternal fetal attachment(r= -.24, p<.001), and social support(r= -.43, p<.001). Maternal fetal attachment was also correlated with social support(r=.46, p <.001)[Table 3].

The average pregnancy stress score of the participants in the present study was 85.0 points out of 100 points. The pregnancy stress was at a medium high level, probably owing to concerns about childbirth, because the study participants included pregnant women in all stages of pregnancy, with most in stages after 20 weeks. The pregnancy stress level may differ between stages of pregnancy in which different pregnancy stress factors are involved; therefore, further study may be required to investigate pregnancy stress levels in the individual stages of pregnancy. The average antenatal depression score of the participants in the present study was 7.3 points out of 30 points. If antenatal depression of 10 points or higher is considered a high level of antenatal depression, the overall level of prenatal depression among the present study participants was not high. Other studies revealed that the depression score in England women after their birth was 6.70, and Ireland women's score was 7.20 after their birth[13,14]. The average maternal fetal attachment score of the participants in the present study was 70.2 points out of 96 points. As the pregnancy was the first one in 62% of the participants, and 63.1% of the participants were unemployed or on leave of absence, the antenatal depression level was likely low among the participants because their pregnancy was desired or because they had the opportunity to concentrate on their pregnancy. The average social support score of the participants in the present study was 36.0 points out of 60 points. Considering that the pregnancy was the first one in the majority of the participants, without the experience of childbirth, they might have not searched for a social support system or received social support. A high level of pregnancy stress has been reported as a cause of antenatal depression[6].

Table 1: General Characteristics (N = 195)

Characteristics	Cate-gories	n (%)	Pregnancy stress Mean ± SD	P. stress t, F (P)
Age (yr)	20~29	30 (15.4)	85.13 ± 16.04	2.08 (.482)
	30~39	156 (80.0)	85.28 ± 11.38	
	40~49	9 (4.6)	84.90 ± 15.71	
Marriage age	20~29	56 (28.7)	84.33 ± 11.65	0.41 (.225)
	30~39	135 (69.2)	85.52 ± 12.15	
	40~49	4 (2.1)	87.24 ± 14.39	
Pregnancy period (weeks)	10~ under 20	10 (5.1)	85.88 ± 12.66	1.42 (.354)
	20~ under 30	78 (40.0)	85.57 ± 16.22	
	over 30	107 (54.9)	82.44 ± 12.09	
Children (including this pregnancy)	1	121 (62.0)	85.88 ± 12.66	1.22 (.223)
	2	62 (31.8)	83.57 ± 15.22	
	3	12 (6.2)	85.44 ± 12.09	
Miscarriage experience	Yes	55 (28.2)	82.76 ± 12.08	0.02 (.284)
	No	140 (71.8)	85.01 ± 14.87	

Conted…

Religion	Christianity	60 (30.8)	87.03 ± 11.66	2.11 (.241)
	Catholicism	14 (7.2)	84.07 ± 12.89	
	Buddhism	14 (7.2)	84.67 ± 13.05	
	None	107 (54.8)	85.60 ± 16.16	
Educational level	High school	28 (14.4)	86.88 ± 12.66	1.18 (.207)
	College	144 (73.8)	85.57 ± 14.22	
	More than college	23 (11.8)	85.44 ± 12.09	
Vocational state	Yes	72 (36.9)	84.88 ± 17.66	0.74 (.360)
	No	77 (39.5)	85.57 ± 11.22	
	Layoff	46 (23.6)	87.44 ± 15.09	
Household income	Under three million won	69 (35.4)	85.88 ± 16.66	1.35 (.161)
	Three~five million won	82 (42.1)	85.57 ± 14.22	
	Over five million won	44 (22.6)	83.44 ± 13.09	

Table 2: Pregnancy Stress, Antenatal Depression, Maternal Fetal Attachment, and Social Support (N = 195)

Variables	Mean ± SD
Pregnancy stress	85.0 ± 18.7
Antenatal depression	7.3 ± 3.5
Maternal fetal attachment	70.2 ± 11.8
Social support	36.0 ± 5.5

Table 3: Correlation of Pregnancy Stress, Antenatal Depression, Maternal Fetal Attachment, and Social Support

Variables	Pregnancy stress	Antenatal depression	Maternal fetal attachment
Antenatal depression	.29**		
Maternal fetal attachment	-.23**	-.24**	
Social support	-.19**	-.43**	.46**

High levels of antenatal stress were significantly related with antenatal depression. The results of the some study also indentified a significant positive relationship between pregnancy stress and antenatal depression. It coincidence with prior studies showing a correlation between depressive symptoms or psychiatric disorders and increased pregnancy stress[14,15]. Pregnancy stress may be caused by various factors, but levels of antenatal depression are high in cases in which the pregnant woman is less helped by the husband and family, has a low degree of satisfaction with the marriage life, and has poor health, and in which the pregnancy is unplanned. Therefore, much attention should be paid to the physical and emotional conditions of pregnant women, and positive support should be provided accordingly. Antenatal depression is a mood disorder caused by the hormonal changes during the pregnancy and the accumulated difficulties in pregnancy. Previous studies have shown that antenatal depression was increased along with pregnancy stress, and that maternal fetal attachment was low in pregnant women with high levels of antenatal depression.

Maternal fetal attachment is the starting point of the relationship between the pregnant woman and the fetus before childbirth, and it refers to the degree of the interaction that the pregnant woman has with the fetus or the participation in actions showing affection. As a developmental task of a pregnant woman, maternal fetal attachment is a part of the pregnancy adaptation process and works as a predictor of the postnatal infant attachment[16]. A meta-analysis examining the factors involved in maternal fetal attachment showed that the strongest factor was social support, and other significant factors included anxiety and depression, consistent with the findings of the present study[16]. Because maternal fetal attachment is the source of successful interaction between the mother and the baby after childbirth, it is absolutely necessary for both the pregnant woman and the baby to form a positive maternal fetal relationship

from the period of pregnancy[6]. One of the major factors that hinder maternal fetal attachment is antenatal depression[17]. An investigation of the correlation between antenatal depression and maternal fetal attachment showed that antenatal depression in pregnant women is negatively correlated with maternal fetal attachment. Antenatal depression has a long-lasting effect[18], as it is significantly correlated with not only the fetal period but also with sleep disorders of the child in infancy. Therefore, pregnancy stress and antenatal depression must be managed carefully and positively, as key risk factors to the health and development of children. An overall review of intervention programs for pregnant women showed that the women prefer face-to-face education, which allows them to ask questions of nurses, over programs using videos or books[19]. The study also emphasized that nursing is more often required for individual pregnant women who have weaker support systems. Therefore, intervention programs for reducing antenatal depression need to be developed in consideration of the circumstances of individual pregnant women.

In particular, antenatal depression was about six times higher among pregnant women who felt that they lacked support from their spouses. These results showed that the sample of Korean women in this study received a moderate-low level of social support. Of various social support systems, support from spouses had the greatest effect. Therefore, prenatal education programs for pregnant women and their spouses need to include methods to increase the understanding of pregnancy and to enhance support by the spouses. Healthcare professionals need to be aware of and identify the meaningful contribution of social support, especially from spouse, family and friends in positively affecting mothers' mental health and well-being till the postpartum period. Reports have additionally shown that antenatal anxiety also increased antenatal depression, and that predisposing factors for depression are antenatal anxiety and depression, and history of depression prior to pregnancy[19,20]. Therefore, intervention programs must be provided for emotional management of women preparing for pregnancy before, during, and after pregnancy.

Conclusion

In conclusion, this study showed that perceived pregnancy stress was medium and stress level was higher than that of other female adults. The present study is significant in that it verified that the psychological state of a pregnant woman affects her interest in her fetus. Various factors associated with pregnancy stress must be identified, and intervention programs to decrease them should be implemented. In addition, the sharing of information through the internet should be facilitated as one of the social support systems, and the relevant apps must be developed and applied so that pregnant women may acquire information in the desired stages of pregnancy at the desired time in the customized support system. Healthcare professionals need to monitor antenatal depression from the early stage of pregnancy to identify risk groups. The predictors of antenatal depression and the pregnancy stress level should be continuously investigated during the pregnancy in order to provide necessary prenatal education as well as pregnancy stress and antenatal depression prevention education through consultation. In addition, a longitudinal follow-up study of pregnant women may need to be conducted to identify pregnancy stress factors in each stage of pregnancy, and to allow development of intervention programs based on the results. Also, accurate assessment for both subjective and objective pregnancy stress, and better assessment for factors that affect pregnancy stress such as duration of pregnancy, support from in-laws, and physical change are needed as well as an intervention to reduce pregnancy stress. Moreover, further studies may need to be performed to investigate and compare the pregnancy stress, antenatal depression, and maternal fetal attachment among normal pregnant women, unmarried pregnant women, older pregnant women, and high-risk pregnant women.

Ethical Clearance: Not required

Source of Funding: Self

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Elsenbruch S, Benson S, Rücke M, Rose M, Dudenhausen J, Pincus-Knackstedt MK, et al. Social support during pregnancy: effects on maternal depressive symptoms, smoking and pregnancy outcome. *Human Reproduction*, (2007).
2. Lynn FA, Alderdice FA, Crealey GE, McElnay JC. Associations between maternal characteristics

and pregnancy-related stress among low-risk mothers: an observational cross-sectional study. *International Journal of Nursing Studies*, (2011).

3. Divney AA, Sipsma H, Gordon D, Niccolai L, Magriples U, Kershaw T. Depression during pregnancy among young couples: the effect of personal and partner experiences of stressors and the buffering effects of social relationships. *Journal of Pediatric and Adolescent Gynecology,* (2012).
4. DiPietro JA. Maternal stress in pregnancy: considerations for fetal development. *The Journal of Adolescent Health,* (2012).
5. Field T. Prenatal depression effects on early development: a review. *Infant Behavior Development*, (2011).
6. Kwon MK, Bang KS. Relationship of prenatal stress and depression to maternal-fetal attachment and fetal growth. *Journal of Korean Academy of Nursing,* (2011).
7. Zheng X, Morrell J, Watts K. Changes in maternal self-efficacy, postnatal depression symptoms and social support among Chinese primiparous women during the initial postpartum period: a longitudinal study. *Midwifery*, (2018).
8. Baker B, Yang I. Social media as social support in pregnancy and the postpartum. *Sex Reproduction Health*, (2018).
9. Ahn HL. An experimental study of the effects of husband's supportive behavior reinforcement education on stress relief of primigravida. *The Journal of Korean Academic Society of Nursing Education*, (1985).
10. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression: development of the 10-item edinburgh postnatal depression scale. *The British Journal of Psychiatry, (1987).*
11. Cranley MS. Development of a tool for the measurement of maternal attachment during pregnancy. *Nursing Research*, (1981).
12. Liabsuetrakul T, Vittayanont A, Pitanupong J. Clinical applications of anxiety, social support, stressors, and self-esteem measured during pregnancy and postpartum for screening postpartum depression in Thai women. *The Journal of Obstetrics Gynaecology Research*, (2007).
13. Morrell CJ, Warner R, Slade P, Dixon S, Walters S, Paley G, et al. Psychological interventions for postnatal depression: cluster randomised trial and economic evaluation. The PoNDER trial. *Health Technology Assessment*, (2009).
14. Leahy-Warren P, McCarthy G, Corcoran P. First-time mothers: social support, maternal parental self-efficacy and postnatal depression. *Journal of Clinical Nursing*, (2012).
15. Woods SM, Melville JL, Guo Y, Fan M-Y, Gavin A. Psychosocial stress during pregnancy. American Journal of Obstetric Gynecology, (2010).
16. Callister LC. Relationship among maternal-fetal attachment, prenatal depression, and health practices in pregnancy. *MCN American Journal of Maternal Child Nursing,* (2002).
17. Callister LC. Relationship among maternal-fetal attachment, prenatal depression, and health practices in pregnancy. *MCN American Journal of Materrnal Child Nursing,* (2002).
18. Yarcheski A, Mahon NE, Yarcheski TJ, Hanks MM, Cannella BL. A meta-analytic study of predictors of maternal-fetal attachment. *International Journal of Nursing Studies*, (2009).
19. Mercer RT, Walker LO. A review of nursing interventions to foster becoming a mother. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, (2006).
20. O'Connor TG, Caprariello P, Blackmore ER, Gregory AM, Glover V, Fleming P, et al. Prenatal mood disturbance predicts sleep problems in infancy and toddlerhood. *Early Human Develop*, (2007).