

The Correlation between Gestational Age and Stress Level in Pregnant Women, in Ciracas Health Care Service, East Jakarta

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ABSTRACT

Stress is one of common problems that occurs easily in pregnant women. American College of Obstetrician and Gynecologist (ACOG) makes a recommendation regarding a routine screening assessing psychosocial stress during pregnancy. This study aims to know correlation between gestational age and stress level in pregnant women. Cross sectional design was used in this study and had taken 100 subjects selected by consecutive sampling. This study used questionnaire contained demographic data, obstetric history, and stress level refers to The Prenatal Psychosocial Profile Hassles Scale. The result of this study showed that that gestational age was significantly correlated with stress scores ($p=0,022$). It had a negative value which means increasing gestational age would reduce stress scores. However, the power possessed weak correlation ($R=-0,230$). Based on linear regression analysis, each increment of a week gestation reduced stress score as much as 0,053. Based on this study, gestational age was significantly correlated with stress level. The greater gestational age, the lower stress level. It is very important thing to do psychosocial stress screening during pregnancy, especially in first trimester.

Keywords: Gestational age, pregnancy, stress

ABSTRAK

Kehamilan merupakan masa yang rentan terjadi stres. American College of Obstetrician and Gynecologist (ACOG) mengeluarkan rekomendasi terkait skrining stres psikososial selama kehamilan. Tujuan studi ini untuk mengetahui hubungan antara usia gestasi dan tingkat stres pada ibu hamil. Studi ini menggunakan desain potong lintang dengan total sampel sebesar 100 subjek penelitian yang dipilih dengan teknik *consecutive sampling*. Data diambil dengan menggunakan metode kuesioner untuk menilai data demografik, riwayat obstetri, dan tingkat stres yang mengacu pada *The Prenatal Psychosocial Profile Hassles Scale*. Hasil studi menunjukkan terdapat korelasi bermakna antara usia gestasi dengan skor stres ($p=0,022$). Korelasi bersifat negatif yang berarti semakin bertambah usia gestasi maka skor stres akan berkurang, tetapi kekuatan korelasi yang dimiliki masih lemah ($R=-0,230$). Berdasarkan analisis regresi linier, setiap penambahan usia gestasi sebesar satu minggu akan menurunkan skor stres sebanyak 0,053. Studi ini menyimpulkan terdapat korelasi yang bermakna antara usia gestasi dengan tingkat stres. Korelasi tersebut memperlihatkan bahwa semakin bertambah usia gestasi akan menurunkan tingkat stres. Oleh karena itu, skrining stres psikososial selama kehamilan sangat diperlukan, terutama pada trimester pertama.

Kata kunci: Kehamilan, stres, usia gestasi

INTRODUCTION

Pregnancy is a period that is very vulnerable to stress and may cause psychiatric disorders. Department of Health and Human Services reported that 1 out of every 8 peoples would experience a depressive disorder and this number almost happened twice in

women.¹ Psychosocial stress during pregnancy is defined when a pregnant mother felt she could not meet the match requirement should be. These conditions can be seen both physically and psychologically. American College of Obstetrician and Gynecologist (ACOG) in 2006 expressed the opinion that psychosocial stress during pregnancy

could predict how big their concern for personal health, healthy controls, and the health of her children.² Di Pietro et al³, stated that the mother's emotional affected fetal development and birth outcomes. Negative emotions, such as maternal anxiety and persistent stress, cause decrease fetal heart rate variability, increase motor activities, and interfere fetal habituation. Changes in psychosocial stress also increase the risk of spontaneous abortion, pregnancy complications, lower gestational age, preterm delivery, and low birth weight.^{3,4} This is due to the disruption of the hypothalamic-pituitary-adrenal axis and increasing cortisol levels during pregnancy. All those changes lead to behavioral disorders. In addition, the stress factors also influence directly or indirectly to the cycle uteroplacental.⁴

Based on the above conditions, handling stress in pregnant women becomes a very important thing. One way to combat it is by early detection of stress experienced in pregnant women. ACOG provides recommendations to do psychosocial stress screening and other psychosocial issues to all pregnant women in each trimester and postpartum.² However, in Indonesia, antenatal care still does not involve psychosocial stress screening as one of the routine examination, as well as in Ciracas health care service (*Pusat Kesehatan Masyarakat Ciracas*), East Jakarta. Based on ACOG, gestational age becomes important in screening for psychosocial stress. According to Lobel et al⁵, there is a significant correlation between stress exposure at any gestational age and pregnancy outcome. However, it is not certain whether there is a correlation between gestational age and stress level. Therefore, we need a study to determine whether gestational age has a relationship in influencing psychosocial stress in pregnant women.

METHOD

This study used a cross-sectional design conducted on 25th and 28th February 2013 in Ciracas Health Center, East Jakarta. Target populations were all pregnant. Affordable populations were all pregnant women at Ciracas health care service, East Jakarta that was doing antenatal examination on 25th and 28th February 2013. Total research subjects were 100 subjects selected by consecutive sampling. Inclusion criterias for the study were pregnant women who were willing to fill out a questionnaire study. Drop out criterias were respondents with incomplete questionnaire data.

This study used a questionnaire to assess stress level in pregnant women. The assessment refers to the Prenatal Psychosocial Profile Hassles Scale.⁶ This questionnaire was used to assess the daily stress level during pregnancy. The questionnaire contained 11 questions to assess stress associated with aspects of daily life such as financial problems, family problems and marriage, work problems during pregnancy, and mobilization disturbances. In addition, as a baseline study, we asked demographic data and obstetric history of the subject.

Data displayed in numeric variables to see the correlation between gestational age and stress scores. The statistical analysis used Pearson statistical test. If it was not qualified, the test would be changed by Spearman statistical test.

RESULTS

Obtained total research subjects were 100 subjects. There was one subject who dropped out because of incomplete questionnaire data. Table 1 shows the distribution of demographic data subjects. The datas show that the characteristic of most research subjects are in the age between 20 to 35 years of age (84,8%). Last educational is dominated by senior high school graduate/equivalent (43,4%). Related social and economic conditions, most research subjects have income below IDR 1.000.000 monthly (48,5%). This is in

accordance with the type of work the subject is dominated by housewife/not working (85,9%).

Most of the subjects had experienced more than one pregnancy/multiparous (80,8%). Incidence of abortion was not commonly found in the most subjects (14,1%). The mean of gestational age of the subjects at the age of 28 weeks or had entered at third trimester. The average of stress score between nulliparous (15,42) and multiparous (15,21) is not too much different descriptively. We counted the stress score in each stress variable. The result showed

stress variables with the highest scores was a variable, namely the loss of a loved one. Stress variable questionnaire was based on questions from the Prenatal Psychosocial Profile.

There was a significant correlation between gestational age with stress scores ($p=0,022$). Strength of the correlation was weak (-0,230) with a negative direction, which means the greater the gestational age, the lower stress scores. Statistical test using Spearman test because it did not meet the requirements to do Pearson test.

Table 1. The demographic characteristic of subjects

Characteristic	Frequency	%
Age		
< 20years of age	3	3
20-35 years of age	84	84,8
> 35 years of age	12	12,1
Educational		
Not passing elementary school	2	2
Elementary school/equivalent	32	32,3
Junior high school/equivalent	15	15,2
Senior high school/equivalent	43	43,4
Diploma/Bachelor/Master/Doctoral	7	7,1
Income		
<IDR 1.000.000	48	48,5
IDR 1.000.001 – Rp 3.000.000	46	46,5
IDR 3.000.001 – Rp 5.000.000	3	3
>= IDR 5.000.001	2	2
Occupation		
Housewife/not working	85	85,9
Bureaucrat/government employee	2	2
Private sector employee	9	9,1
Others	3	3

Figure 1 showsthat the pattern of points spread between the mean of stress score and gestational age (in weeks) according to the negative correlation. It showsthat the greater gestational age, less the score stress in pregnant women.

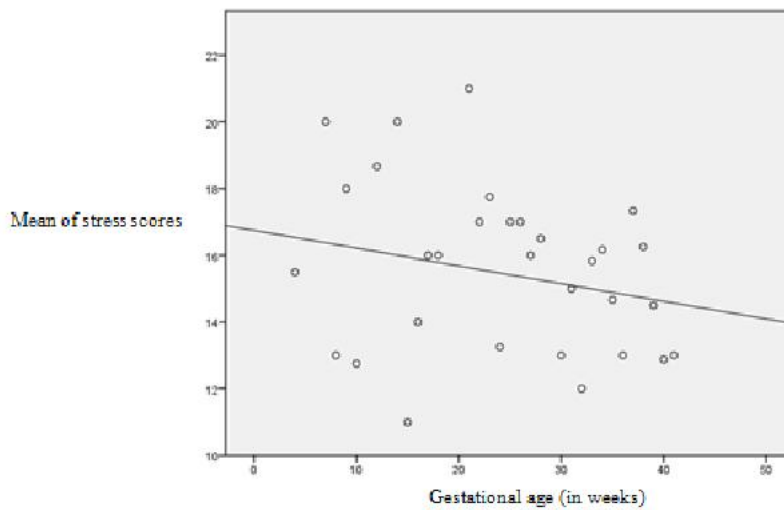


Figure 1. The pattern of points spread and line between gestational age and mean of stress score

Based on linear regression analysis, the correlation between gestational age in weeks with stress scores showed a negative correlation with the strength of a very weak ($R=0,149$). The higher the gestational age, the lower stress scores. Each increment of 1 weeks' gestation would reduce stress score as much as 0,053. However, the gestational age variable only explain as much as 2,2% of the variation in stress scores variable or gestational age variable was not too explain about stress score variable. Statistically, this correlation was not significant ($p=0,141$).

DISCUSSION

Table 1 shows that most of the subjects at the age between 20-35 years of age. Last educational is senior high school graduate/equivalent and followed by income under IDR 1.000.000 for a month. These results are in line with the dominant subjects who choose to be housewives or unemployed. Demographic conditions of subjects show that they experience during pregnancy are still at reproductive age. The process of pregnancy itself also supported by occupation that is not too much burden of pregnancy due to as a

housewife. However, the economic conditions are very important in supporting the process of pregnancy still seems to be a problem most of the subjects. The low income may be one of the triggering stress in pregnancy. According to Gavin et al⁷, poverty and low educational during pregnancy were linked with decreased fetal growth and lower gestational age. The possible mechanisms is due to altenating of immunoendocrinology and reproductive systems that increase the risk of preterm delivery and low birth weight.³⁻⁵

Most of subjects had more than one pregnancy or multiparous. These conditions are in accordance with the demographic distribution that shows the subject lies at the reproductive age. Descriptively, the average of stress score between nulliparous and multiparous groups are not too much different. These results are in line with the study conducted by Woods et al², stated that there was no significant difference in the mean of stress scores between nulliparous and multiparous groups ($p=0,385$). It could be because of stress exposure did not affect the pregnancy history. Woods et al², also

state that the previous history of pregnancy complications was not related to the emergence of psychosocial stress.

The results of the questionnaire stated that the variables most often create a feeling of stress in pregnant women was the loss of a loved one, while the lowest was the sexual, emotional, or physical violence. It meant that the subject was still in a favorable environment because of no one threatened her during pregnancy. However, the cause of stress is feeling the loss of a loved one needs to get further intervention. Family and community support is required very well when the subject is experiencing the symptoms of stress are difficult removed. It is still an opportunity for further study.

The results of statistical tests showed that there was a significant correlation between gestational age and stress scores. The correlation indicates that increasing gestational age will lower stress scores. Earlier gestational age will be vulnerable to get higher stress levels than the older gestational age. It is still unclear because of many factors influencing the occurrence of stress in early pregnancy. Nevertheless, the results of this study can complement the study conducted by Matton et al⁴, stated that stress exposure in pregnancy under 20 weeks of pregnancy leads to complications. The most complication was preterm delivery.⁴

Based on linear regression analysis, the correlation showed each increment of 1 weeks' gestation reduced stress score as much as 0,053. However, these results had a very weak correlation. The results were caused many confounding factors that affected stress levels during pregnancy. According to Dole et al⁸, showed that the influential factor of stress during pregnancy were low income and socioeconomic status.

CONCLUSION

Gestational age had a significant correlation with stress level during

pregnancy. The greater gestational age, the lower stress level in pregnant women.

RECOMMENDATION

Psychosocial stress screening should be a routine examination in antenatal care, especially in the first trimester. This study supports the recommendation from ACOG for psychosocial stress screening during pregnancy. Further study is needed to identify the stressors in early pregnancy.

REFERENCES

1. Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Gilstrap LC, Wenstrom KD. Williams obstetrics. 23rd edition. New York: Mc-Graw Hill Companies. 2010.
2. Woods SM, Melville JL, Guo Y, Fan MY, Gavin A. Psychosocial stress during pregnancy. *Am J Obstet Gynecol.* 2010;202:61.
3. DiPietro JA, Ghera MM, Costigan K, Hawkins M. Measuring the ups and downs of pregnancy stress. *J Psychosom Obstet Gynecol.* 2004;25:189-201.
4. Matton NR, Moutquin JM, Brown C, Carrier N, Bell L. The impact of perceived maternal stress and other psychosocial risk factor on pregnancy complications. *J Obstet Gynaecol Can.* 2011;33(4):344-52.
5. Lobel M, DeVincent C, Kaminer A, Meyer B. The impact of prenatal maternal stress and optimistic disposition on birth outcomes in medically high-risk women. *Health Psychol.* 2000;19:544-53.
6. Arabia DL. Asses the stres: identifying psychosocial risk to optimize perinatal outcomes in military gravids. Arizona State University. 2002.
7. Gavin AR, Nurius P, Greene PL. Mediators of adverse birth outcomes among socially disadvantaged women. *Journal of Women's Health.* 2012;21(6):634-42.

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8. Dole N, Savitz DA, Siega-Riz AM, Hertz-Picciotto I, McMahon MJ, Buekens P. Psychosocial factors and preterm birth among African, American and white women in central North Carolina. *Am J Public Health*. 2004;94:1358-65.