# THE RELATIONSHIP BETWEEN CHARACTERISTICS OF PREGNANT WOMEN WITH HYPERTENSION AND THEIR HEALTHY LIFESTYLE

**Florisma Arista Riti Tegu[1], Yosi Maria Wijaya[1], Maria Yunita Indriarini[1]**
[1] Sekolah Tinggi Ilmu Kesehatan Santo Borromeus
*Corresponding Email*: yosi@stikesborromeus.ac.id

## Abstract

Hypertension in pregnancy can be prevented by controlling the healthy lifestyle. However, the majority of research on this topic has been conducted on lifestyle in women with normal pregnancy. Few studies of lifestyle have focused on Indonesian pregnant women with hypertension. The purpose of this study is to determine the association of demographic characteristics and the lifestyle of pregnant women who have hypertension. This research method is cross-sectional study, 76 of women with hypertension during pregnancy were recruited from primary health care, West Java, Indonesia. Inclusion criteria were gestational age ≥ 28 weeks with the blood pressure systole ≥ 140 mmHg and diastole ≥ 90 mmHg. Data were collected using two instruments: demographic data and the Health Promoting Life Style Profile (HPLP II). Data were analyzed using the descriptive statistic approach and the Chi-square test. Results: Bivariate analysis using Chi-square test shows education (p-value 0,021), occupation (p-value 0,025) and income (p-value 0,023) are the factors related to lifestyle among pregnant woman who have hypertension. Conclusion. Understanding the lifestyle and associated factors contributes to health care providers' ability to design effective interventions intended to improve healthy lifestyle among pregnant women with hypertension.

**Keywords:** Demographic Characteristics; Hypertension; Lifestyle; Pregnancy.

## INTRODUCTION

Hypertension in pregnancy is still one of the highest contributors to the cause of maternal death, which is about 50,000 mothers died each year due to hypertension in pregnancy (Nurhidayati, 2016). Hypertension in pregnancy is also the leading cause of maternal mortality in Indonesia by 27.1% (Kemenkes RI, 2014).

The result of maternal mortality rate (MMR) analysis according to the Society of Obstetric Gynecology Indonesia of West Java, in 2014 stated the cause of maternal mortality in West Java due to hypertension in pregnancy was 29.3%. West Bandung Health Office in 2016 also states 9 out of 31 mothers died of hypertension in pregnancy. It certainly needs special attention to analyze the precise steps to be taken as efforts to reduce maternal and fetal mortality.

Prevention of hypertension in pregnancy can be done by controlling the risk factors which is monitoring the mother and fetus, maternal proper diet, good stress management, identifying and early treatment of hypertension, monitoring blood

pressure regularly, and making changes to the lifestyle (Ratnawati, 2016). A regular diet with lots of fruits and vegetables, protein, low-carbohydrate and fat products, and doing an easy physical activity at regular intervals of at least fifteen minutes to thirty minutes per day such as gymnastics and leisurely strolling are lifestyle modifications that can be done to the pregnant mothers (Paramitasari & Martini, 2012).

Hypertension in pregnancy that can refer to preeclampsia is one unhealthy lifestyle result of pregnant women, with elevated blood pressure, proteinuria, and edema as clinical manifestations (Paramitasari & Martini, 2012). Previous study found data 8 of 16 pregnant women who examined urine protein test were positive, these results indicate that there is still a high occurrence of hypertension during pregnancy (Gardelia, Solehati, & Mamuroh, 2019). The other study found in 107 post-partum mothers who experienced preeclampsia found 60.7% of preeclampsia mother with unhealthy lifestyle behavior (Ratnawati, 2016).

Healthy lifestyle behaviors can be influenced by individual demographic characteristics such as age, education, occupation, income and access to health services (Rahmadian, 2011). Research on the factors of demographic characteristics that affect healthy lifestyle is still small that is done on postpartum mother, and no one has studied with pregnant woman respondent especially with the complication of hypertension in pregnancy. The study generally refers more to the respondents of postpartum mothers and there has been no research looking at how the mother's lifestyle with hypertension during pregnancy. In West Java Province, especially West Bandung regency has never been assessed on healthy lifestyle behavior in special conditions such as high-risk groups, especially in pregnant women with hypertension.

Based on the description of the phenomenon, researcher interested to conduct a research on the relationship of demographic characteristics and lifestyle of pregnant women who have hypertension.

## METHOD

### Design and sample

This was a cross-sectional study with an accidental sampling, 76 pregnant women were with the inclusion criteria were pregnant women of third trimesters (≥ 28 weeks) who have hypertension with the blood pressure systole ≥ 140 mmHg and

diastole ≥ 90 mmHg as well as the pregnant women have case history of preeclampsia and chronic hypertension while the exclusion were obtained. Samples were pregnant women who attended Batujajar primary health care, the researcher found that high risk pregnant women number in this area were high.

**Data collection**

Data collection tool in this research was questionnaires which consists of questionnaire A that was demographic characteristic questionnaire consisting of age, education, occupation, income and access of health service in the form of distance from home to primary healthcare.

Questionnaire B was a questionnaire of HPLP (Health Promotion Live Style ) II that has been adapted is the study of healthy living behavior of pregnant women with preeclampsia called healthy lifestyle promotion questionnaire (PPGHS) II consists of 52 items related to healthy lifestyles including health responsibility (9 statements), physical activity (8 statements), nutrition (9 statements), spiritual development (9 statements), interpersonal relationships (9 statements) and stress management (9 statements) (Ratnawati, 2016).

Instrument of PPGHS II has passed the validity and reliability test by Ratnawati (2016) in the study of healthy life behavior of pregnant women with preeclampsia, with the result of r value for PPGHS II is 0.370-0,864 so that the measuring instrument is valid, and the test of reliability using Alpha Cronbach formula that got the PPGHS II instrument value of 0.953, which means that this questionnaire was very reliable to be used for research.

Data collected among pregnant women who attended Batujajar primary health care in accordance with the inclusion criteria are given a brief explanation of the research objectives and asked for approval by maintaining the confidentiality of the respondent's information. Then the respondents fill out the questionnaire and returned it after completely filled. Furthermore, researcher entered the respondent data into computer software to be processed and analyzed.

**Data analysis**

Descriptive statistics (means, standard deviation, percentages) were used to describe demographic characteristics such as age, education, occupation, income, and access of health service and lifestyle among pregnant women who have hypertension. Chi-square test was used to assess relationship among variables. statistical software package SPSS version 23. The level of statistical significance was $p < 0,05$.

**RESULTS**

Results of research and discussion about the relation of demography characteristic which include age, education, occupation, income, and access to health service with the lifestyle of the pregnant women with hypertension were as follows:

**Table 1. Frequency Distribution of Respondent's Demographic Characteristics (n = 76)**

| Characteristics | | n | % |
|---|---|---|---|
| Age | Risked (< 20 & > 35 y.o.) | 17 | 22,4 |
| | Not risked (20-35 y.o.) | 59 | 77,6 |
| Education | Low (Elementary School-Junior High School) | 45 | 59,2 |
| | High (Senior Hih School-College) | 31 | 40,8 |
| Occupation | Not working | 72 | 94,7 |
| | Working | 4 | 5,3 |
| Income | Low (<2.468.289,44) | 60 | 78,9 |
| | High (≥ 2.468.289,44) | 16 | 21,1 |
| Access of Healthcare Service | Close (≤ 247 meters) | 16 | 21,1 |
| | Far (> 247 meters) | 60 | 78,9 |

Table 1 shows that most of the respondents of hypertensive pregnant women were in the range of non-risk age group (20-35 years) as much as 77.6%, more than half of pregnant women who have hypertension had low education level (59.2%), almost all of respondents of pregnant women who experience hypertension did not work (94,7%), most of pregnant women respondents who have hypertension have low income (78,9%) and most of pregnant women respondents who have hypertension have far access distance to primary healthcare (78.9%).

**Table 2. Frequency Distribution of Respondent's Lifestyle (n = 76)**

| Variable/Sub Variable | | n | % |
|---|---|---|---|
| Healthy Responsibility | Unhealthy | 37 | 48,7 |
| | Healthy | 39 | 51,3 |
| Physical Activity | Unhealthy | 37 | 48,7 |
| | Healthy | 39 | 51,3 |
| Nutrition | Unhealthy | 41 | 53,9 |
| | Healthy | 35 | 46,1 |
| Spiritual Development | Unhealthy | 33 | 43,4 |
| | Healthy | 43 | 56,6 |
| Interpersonal Relationship | Unhealthy | 39 | 51,3 |
| | Healthy | 37 | 48,7 |
| Stress Management | Unhealthy | 38 | 50 |
| | Healthy | 38 | 50 |
| Total Lifestyle | Unhealthy | 45 | 59,2 |
| | Healthy | 31 | 40,8 |

Table 2 shows that more than half of pregnant women with hypertension have a healthy lifestyle in the domain of health responsibility and physical activity (51.3%), spiritual development (56.6%); more than half of respondents have no lifestyle healthy in the nutrition domain (53.9%), interpersonal relationships (51.3); and half of the respondents (50%) have healthy lifestyles and are not healthy in the stress management domain as well as on overall lifestyle, more than half of respondents have an unhealthy lifestyle.

**Table 3. The relationship of Characteristics of Pregnant Women with Lifestyle (n=76)**

| Characteristics | Lifestyle | | p-value |
|---|---|---|---|
| | Unhealthy (n,%) | Healthy (n,%) | |
| **Age** | | | |
| *Risked* | 14 (82.4) | 3 (17.6) | 0.054 |
| *Not risked* | 31 (52.5) | 28 (47.5) | |
| **Education** | | | |
| *Low* | 32 (71.1) | 13 (28.9) | 0.021 |
| *High* | 13 (41.9) | 18 (58.1) | |
| **Occupation** | | | |
| *Not working* | 45 (62.5) | 27 (37.5) | 0.025 |
| *Working* | 0 (0) | 4 (100) | |
| **Income** | | | |
| *Low* | 40 (66.7) | 20 (33.3) | 0.023 |
| *High* | 5 (31.3) | 11 (68.8) | |
| **Health service access** | | | |
| *Close* | 8 (50) | 8 (50) | 0.577 |
| *Far* | 37 (61.7) | 23 (38.3) | |

Table 3 shows that from 17 respondents at risk (<20 &> 35 years old), there were 14 respondents (82.4%) who had an unhealthy lifestyle. Respondents who are at not at risk age (20-35 y.o.) as many as 59 respondents, where 31 respondents (52,5%) have an unhealthy lifestyle. The analysis of this research was conducted using chi-square test with p-value = 0,054, so there was no correlation between age characteristic with the lifestyle of the pregnant women who have hypertension.

Moreover, the results found that out of 45 respondents with low education, there were 32 respondents (71.1%) who had an unhealthy lifestyle. Respondents with high education are as many as 31 respondents, where 18 respondents (58.1%) have a healthy lifestyle. The analysis of this research was conducted using chi-square test with p-value = 0,021, so there was a correlation between education characteristic with the lifestyle of pregnant women having hypertension.

The characteristic of occupation shows that out of 72 respondents who did not work, there were 45 respondents (62.5%) who had unhealthy lifestyles, while from 4 respondents who worked, all those 4 respondents (100%) had a healthy lifestyle. The P-value = 0,025, there was a correlation between work characteristic and the lifestyle of pregnant women with hypertension.

The result for income found that out of the 60 low-income respondents, there were 40 respondents (66.7%) who had an unhealthy lifestyle. Respondents with high income are as many as 16 respondents, where 11 respondents (68.8%) have a healthy lifestyle. The analysis of Chi-square test with P-value = 0,023, means there was a correlation between income characteristic and the lifestyle of pregnant women who have hypertension.

The data obtained shows that from 16 respondents whose home distance is close to primary health care, there are 8 respondents (50%) who each have an unhealthy lifestyle and healthy lifestyle. Respondents whose home distance is far away from primary health care are 60 respondents, where there are 37 respondents (61,7%) who have an unhealthy lifestyle. The analysis of this research p-value = 0,577, so there was no relation between health service access characteristics with the lifestyle of pregnant women who have hypertension.

## DISCUSSION

Most of the respondents were in the non-risk age range (20-35 years). This is consistent with previous study stated that most of the respondents of women with hypertension in pregnancy aged 28-35 years old were 57.6% (Sumami, Hidayat, & Mulyadi, 2014). This is also in line with Ratnawati's study, which stated that women of less than 35 years old of age are in reproductive age ranges where women will be pregnant for the first time (primigravida) who are at greater risk for complications such as hypertension in pregnancy, and also have potential for re-exposure in the second pregnancy by 14.7% and in the third pregnancy by 31.9% (Ratnawati, 2016). Pregnancy for women of young and old age was a condition that can lead to the risk of complications and death (Astuti, 2015). Therefore, if the maternal age at the time of pregnancy includes both young and adult, the mother should keep regular antenatal care checks and counseling to health services to prevent and perform proper treatment of risky pregnancies such as hypertension in pregnancy.

More than half of pregnant women with low educational have hypertension. The previous study stated, hypertension in pregnancy that refers to preeclampsia more often occur in women who are less educated than women who are highly educated (Indriani, Ronoatmodjo, & Damayanti, 2011). Pregnant women with low levels of education had higher systolic pressure than highly educated pregnant women (Jwa et al., 2013).

Almost all respondents of pregnant women who experienced hypertension that did not work and have low income. Recent study stated incidence of hypertension in pregnancy was dominated by the mother who did not work, it related to low income that will cause the frequency of antenatal care reduced, leads to low nutritional quality, so it can cause complications in pregnancy such as hypertension (Astuti, 2015). In addition, low socioeconomic status results in reduced of purchasing power so that nutrient intake is also reduced, especially protein, which then will cause problems or complications in pregnancy such as hypertension and preeclampsia (Djannah & Arianti, 2019). s

This study found most of pregnant women who have hypertension have a long distance home to primary health care. Access to health services is the cause of maternal deaths due to pregnancy complications such as preeclampsia, which can be affected by the affordability of the location of the service, the type and quality of services available,

and the low accessibility of information, resulting in low access of pregnant women to services health available for antenatal care (Astuti, 2015).

Moreover, the results of healthy lifestyle profile showed over half of respondents had an unhealthy lifestyle, with the highest percentage of an unhealthy lifestyle in the nutrition domain was depicted by the number of pregnant women who responded not to limit the consumption of fatty foods, high fatty fats, and cholesterol that can increase the risk of hypertension in pregnancy. Other study stated that the low score on the nutrition domain reflects the behavior of respondents who tend not to consume food from well-balanced menu in terms of quality and quantity as well as variety or type of food (Damayanti & PA, 2016).

Other domain of healthy lifestyle profile was physical activity, the result found as the lowest score of 1.37, but in the lifestyle category, more respondents have a healthy lifestyle, it can be caused pregnant women never follow the planned sports like pregnancy exercise for activity needs and light exercise. Also, pregnant women were limited by their activities as housewives who have to take care of children and husband, so that the needs of activities and sports get less attention. This supported by previous research stated that preeclamptic mothers had low scores on exercise because mothers are limited by the duties of a wife and housewife, while physical activity and exercise in pregnancy can improve the whole health status. Such conditions require changes and good strategy to promote health promotion related to healthy lifestyles for normal and risk pregnant women (Malakouti, Sehhati, Mirghafourvand, & Nahangi, 2015; Ratnawati, 2016)

Healthy behavior varies with age, where age affects a person's healthy lifestyle, younger people are generally able to practice healthier behaviors or habits better than older people (Rahmadian, 2011). This is different from the results of this study that showed no relationship between age characteristics with lifestyle of pregnant women who have hypertension. Hypertension in pregnancy that may refer to preeclampsia may be a result of unhealthy lifestyles including diet and physical activity in pregnant women with elevated blood pressure, proteinuria, and edema as clinical manifestations (Paramitasari & Martini, 2012). Hypertension in pregnancy that can occur due to unhealthy lifestyle can also be experienced by certain age ranges during pregnancy, i.e. age < 20 and > 35 years old are at risk of preeclampsia (Cavazos-Rehg et al., 2015; Sari,

Utama, & Agus, 2017). It can be concluded that age does not affect the lifestyle of pregnant women who have hypertension but age can be a risk factor causes of hypertension in pregnancy so there is no relationship between age characteristics with lifestyle in pregnant women who have hypertension.

The result of this study also showed that there were correlation between education characteristic, occupation and income with lifestyle of pregnant women who have hypertension. Previous study revealed that education and income can influence a person's healthy behavior or lifestyle where people with higher education are generally able to behave in a healthier way than those who are lowly educated and have few sources power, also people who have bigger or richer incomes generally practice healthier behaviors or habits better than people with lower incomes (Rahmadian, 2011). In addition, a strong correlation between educational level and health status where there is a positive effect of duration (years) of education with consistent health, with the view that the length of the school year can develop an effective living capacity that will ultimately affect health status, doing a good job, improving welfare, economics, self-control, more participation in social support, and healthy lifestyle (Pradono & Sulistyowati, 2014).

Employment status also had a relation with healthy lifestyle profile. Unemployed mothers tended to be 2 times more likely to develop hypertension in pregnancy compared with working mothers (Prasetyo, 2016). Other study stated that socio-economic factors are the most influential on the formation of healthy living behavior after controlled by age, obesity, and parity. The low income that causes the difficulties of managing the income for daily needs has a low level of health, one of which is measured by the lifestyle (Ratnawati, 2016).

The other characteristic was access to health services in the form of distance. The accessible primary health care and Batujajar areas already supported by adequate two or four-wheeled transportation to facilitate and motivate pregnant mothers who are far away to come and check their health at the primary health care. This is supported by previous study that access to health services were easy to achieve or obtain health services, not only in terms of distance, but also the presence of transportation or transportation to the health service (Mardiana, 2019). Access to health services can not only be assessed in terms of distance, but affordability of service places with adequate

means of transportation to get there, where the service is located in strategic and affordable places, as well as the motivation of pregnant women themselves to check their health (Syed, Gerber, & Sharp, 2013). The researcher conclude there is no a significant relationship between access to health services in the form of distance from the respondent's home to the health service with the lifestyle of pregnant women who have hypertension.

On the other hand, our study had several limitations that needs to be considered, as follows. This study assessed healthy lifestyle using subjective measurement rather than using objective measurement. Self-report measurument may be influenced by mood condition for their response. Moreover, this study design was a cross sectional study with a convinience sampling in primary health care. This method can not be illustrate the causality between demographic characteristics and healthy lifestyle. Despite these limitations, the results of this study do have implications for screening healthy lifestyle among women with high risk pregnancy. Further research need to asessed healthy lifestyle which longitudinal approach and develop intervention to improve healthy lifestyle in women with high risk pregnancy.

## CONCLUSION

There is a relationship between characteristics of education, occupation, and income with the lifestyle of pregnant women who have hypertension. The results of this study can be developed for other researchers with the aim of identifying maternal factors that influence lifestyle behavior in pregnancy, childbirth and postpartum conditions in the normal group of pregnant women to detect early pregnancy complications and need to increase the promotion of healthy lifestyle on a regular basis for pregnant women.

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