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Factors Related to Age of Menopause in Elderly Mothers in Cimanggis Community Health Center Depok

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Abstract - Women who face menopause are included in the risk group because in this group there is a drastic change in physical, psychological, and socio-cultural. The age of menopause between a woman and another woman is not the same and depends on the factors that influence it. Menopause at an earlier age will increase the risk of cardiovascular disease, atherosclerosis, stroke, and osteoporosis. The purpose of this study is discusses the relationship between age of menarche, parity, last childbirth, history of contraception use, occupational history, nutritional status and history of smoking with age of menopause in elderly mother in Cimanggis Community Health Center Depok 2018. This study use survey method with cross sectional approach. The study was conducted in May 2018. The population in this study were all elderly mothers (≥ 60 years) with sample amounted to 113 elderly mothers taken by cluster sampling. Data were collected through direct interviews with respondents using questionnaires and observations. Data is processed using computer and data analysis is done using multiple logistic regression. The result showed that there was a significant correlation between smoking history with age of menopause p value 0,001, OR = 6,80 (95% CI, 2,18-21,21). It is recommended to avoid smoking, the content in cigarettes can accelerate the occurrence of menopause. The occurrence of menopause at an earlier age will be more at risk of health problems in women.

Keywords: age of menopause, smoking history

I. INTRODUCTION

Population as a determinant of development needs serious attention. Development programs, including development in the health sector, must be based on population dynamics. Development efforts in the health sector are reflected in health programs through promotive, preventive, curative and rehabilitative efforts. Health development is an effort to improve health status [1].

The success of health development has an impact on increasing life expectancy. The life expectancy of the Indonesian population in 2008 and 2009 was 69 years and 69.21 years. In 2014 and 2015 were 70.59 years and 70.84 years. The growth of the elderly population (elderly) is predicted to increase rapidly in the future, especially in developing countries. Indonesia as one of the developing countries will also experience an explosion in the number of elderly population, the age group of the elderly (50-64 years and 65+) based on projections continues to increase. The number of elderly women is more than the number of elderly males [1]. An increase in life expectancy and the number of women, this also means an increase in the number of menopausal women in Indonesia with various health problems they face [2]

The number and proportion of female population aged over 50 years and is estimated to enter menopause from year to year has increased very significantly. In 2000 an estimated 15.5 million women had entered the age of menopause. Based on the population census in 2010 the number of women aged over 50 years reached 19.4 million people or 8.2% of the total population while in 2020 the number is expected to increase to 30.3 million or 11.5% of the total population [2].

Menopause is a condition in a woman who has decreased ovarian function resulting in decreased production of the hormone estrogen, this condition, among others, causes the cessation of menstruation forever [3]. Women who face menopause are included in the risk group because in this group there are drastic changes physically, psychologically, and socially culture. Menopause is a risk of developing cardiovascular disease. The small amount of estrogen in the body has a detrimental effect on cardiovascular function and body metabolism so that menopause is a risk factor for developing cardiovascular disease. In addition, menopause can also cause stress disorders. Research in India states that there is a significant relationship between menopausal status and the incidence of stress [4].

The effects of menopause affect one third of a woman's life. The problem that causes death is heart disease. From the results of the study, one in two women died after post menopause due to heart disease or stroke, one in twenty women died of breast cancer.

The age of menopause between a woman and other women is not the same and depends on the factors that influence it. Women who experience menopause at an earlier age are almost twice as likely to suffer bone loss or osteoporosis later in life. Menopause at an earlier age will increase the risk of cardiovascular disease, atherosclerosis, stroke, and osteoporosis [5]. Many factors affect the time of menopause. According to Sibagariang some of these factors are the age of first menstruation (menarche), parity, age of last childbirth, history of contraceptive use, work history, nutritional status, and smoking [6].

West Java is one of the provinces that implements well- mannered elderly services, one of which provides services to elderly mothers who have experienced menopause. West Java is a province with the highest number of elderly polite Community Heath Center, namely 158 Community Health Center from 824 Community Health Center throughout Indonesia, and has 6,565 elderly integrated service post [7]. Depok City is one part of West Java that has programs to get to elderly-friendly cities, some of the programs that have been implemented are training for elderly care (care giver) and guidance for elderly-friendly Community Health Center. Community Health Center in Depok City is a well-mannered elderly Community Health Centers. Depok City is also one part of West Java with the third highest population level of the city and continues to increase from year to year.

Depok City is a city in West Java with the highest growth rate of 3.67 in 2010-2016. Life expectancy in Depok reaches 74.06 years, which exceeds national life expectancy. According to data on the health profile of the city of Depok in 2016, Depok City has 57,991 elderly people (5.4%) of 1,080,759 people. In 2017, the City of Depok had 60,177 elderly women. Cimanggis District is an area that has the largest female sex population with a total of 144,831 people in 2015 and an increase of 149,982 people in 2016, with 391 female elderly people.

Based on a preliminary study conducted on 20 elderly women who have gone through menopause at the Cimanggis Public Health Center, there were 16 elderly menarche at the age of 15 years, and 4 elderly women menarche at the age of > 15 years. Parity between 1-8 and the age of childbirth last between 25-42 years. There are 7 elderly women who use hormonal contraception during reproduction and 9 elderly women who work. The age of menopause among elderly mothers between 39-56 years. Therefore, researchers are interested in knowing "Factors Related to Menopause Age in Elderly Mothers in the Cimanggis Community Health Center Depok".

II. METHOD

This study uses a survey method with a cross sectional approach where data concerning independent variables (age of menarche, parity, age of last birth, contraceptive use history, occupational history, nutritional status and smoking history) and dependent variables (age of menopause) are collected simultaneously.

The population in this study were all elderly mothers (≥ 60 years) in the Working Area of Cimanggis Health Center Depok in 2018 as many as 391 elderly mothers. Based on the formula obtained a minimum sample size of 86 people and supplemented by a 10% reserve sample of 9 people, the minimum sample being 95 respondents. Samples were taken by cluster sampling. In this study, a randomization was conducted to determine the sample of the area, namely 3 RWs selected from 11 RWs in the Cimanggis Public Health Center Depok, Cimanggis District, Curug Village randomly. The selected regions are RW 1, RW 2, and RW 5. Data analysis used univariate analysis, bivariate analysis and multivariate analysis.

III. RESULTS

With a sample of 123 elderly mothers, including the exclusion criteria in this study as many as 10 elderly mothers, so the sample in this study was 113 elderly mothers. The data that the researchers obtained were first univariate analyzed to explain each research variable, using a distribution table.

Table 1.Distribution of Respondents by Age of Menopause to Elderly Mothers in the Cimanggis Community Health Center in Depok

Variable	Quantity	Percentage (%)
Age of Menopause		
< 45 years old	18	15.9
≥ 45 years old	95	84.1
Age of menarche		
>15 years old	44	38.9
≤ 15 years old	69	61.1
Parity		
≥1	5	4.4
2-4	67	59.3
>4	41	36.3
Age of the last childbirth		
< 40 years old	101	89.4
≥ 40 years old	12	10.6
Contraceptive use history		
Non Hormonal	64	56.6
Hormonal	49	43.4

Occupational History		
Yes	57	50.4
No	56	49.6
BMI		
< 18,5 kg/m^2	5	3.5
18,5-25,0 kg/m^2	53	46.9
≥ 25 kg/m^2	56	49.6
Smoking History		
Yes	18	15.9
No	95	84.1

Based on table 1, it is found that the age distribution of menopause, elderly women with menopause age ≥ 45 years is 95 respondents (84.1%) and elderly women with menopause age <45 years namely 18 respondents (15.9%). The age distribution of menarche, elderly women with menarche age ≤15 years, 69 respondents (61.1%) and elderly women with menarche age> 15 years, 44 respondents (38.9%). Distribution of parity, elderly women with parity 2-4, 67 respondents (59.3%), followed by elderly women with parity > 4, 41 respondents (36.3%) and elderly women with parity ≤ 1, namely 5 respondents (4.4 %). The distribution of the age of the last childbirth, elderly mothers with the last childbearing age <40 years are 101 respondents (89.4%) and elderly mothers with the last childbirth age ≥40 years which is 12 respondents (10.6%). Distribution of history of contraceptive use, elderly mothers who have used non hormonal contraception are 64 respondents (56.6%) and elderly mothers who have used hormonal contraception are 49 respondents (43.4%).

Distribution of occupational history, elderly women who have worked are 57 respondents (50.4%) and elderly women who have never worked are 56 respondents (49.6%). Distribution of nutritional status (BMI), elderly women with nutritional status (BMI) > 25.0 kg / m^2 is 56 respondents (49.6%), followed by elderly women with nutritional status (BMI) 18.5 - 25.0 kg / m2 namely 53 respondents (46.9%) and elderly mothers with nutritional status (BMI) <18.5 kg / m^2 is 5 respondents (3.5%). Distribution of smoking history, elderly mothers who never smoked were 95 respondents (84.1%) and elderly mothers who had smoked were 18 respondents (15.9%).

Table 2.Bivariate Analysis of Factors Associated with Menopause Age in Elderly Mothers in the Cimanggis Community Health Center Depok

Dependent Variable	Independent Variable	P value
Age of Menopause	Age of	0.064
	Menarche	0.927
	Parity	0.403
	Age of Last Birth	1.000
	Contraceptive Use	0.766
	History Occupational	0.583
	History	0.001
	BMI	
	Smoking History	

Table 3.Factors Related to the Age of Menopause in Elderly Women in the Working Area of Cimanggis Health Center, Depok

Variable	P value	OR	95% CI OR	
			Upper	Lower
Smoking Histor	0.001	6.80	2.18	21.21

Table 2 showed the results of the analysis of the relationship between smoking history and menopausal age obtained p value = 0.001, it was concluded that there was a significant relationship between smoking history and menopausal age.

The results of the analysis of the relationship between the age of menarche, parity, age of last childbirth, history of contraceptive use, work history and nutritional status with menopausal age were obtained respectively p value = 0.064, 0.927, 0.403, 1,000, 0.766 and 0.583, so it was concluded that there was no significant relationship between the age of menarche, parity, age of last birth, history of contraceptive use, work history and nutritional status with menopause age.

Multivariable analysis was performed computerized using multivariable logistic regression tests / multiple logistic regression tests of determinant models (predictive models).

The results of multivariable analysis modeling, variables related to menopausal age are smoking history. The biggest variable related to the age of menopause is the history of smoking with OR = 6.80 (95% CI, 2.18-21,21), meaning that mothers who have smoked will have the chance of experiencing menopause 6.8 times earlier than the mother who have never smoked.

IV. DISCUSSION

The results of the bivariate analysis showed that there was a relationship between smoking history and menopausal age. The results of the analysis of the relationship between smoking history and menopausal age found that there were as many as 8 (44.4%) Mothers who had experienced menopause at an earlier age (<45 years). While mothers who have never smoked, there are 10 (40.0%) who experience

menopause at an earlier age (<45 years). Chi Square test results obtained p value = 0.001, it concluded that there was a significant relationship between smoking history and menopausal age.

After multivariable analysis, OR adjusted = 6.80 (95% CI, 1.32-12.82) is obtained, meaning that mothers who have smoked will have the chance to experience menopause 6.8 times earlier than mothers who have never smoked.

The results of this study are in line with Safitri's study, with the title "Some Factors Affecting Menopause in Women in Titi Papan Village, Medan City in 2009" states there is a relationship between smoking habits with menopause age with p value = 0.011 [8]. The research of Herawati, Rika et al with the title "Strategy to Slow Menopause Age in Integrated Service Post Elderly in Rokan Hulur Regency" states there is a correlation between smoking habits and menopause age with p value = 0,0001 [9]. Women who consume more cigarettes (16 cigarettes per day) will enter menopause 0.140 years younger than women who do not smoke.

Otero et al's research entitled "Association Between Socioeconomic Position in Earlier and Later Life and Age at Natural Menopause: Estudo Pro-Saude, Brazil" also states that women who smoke will have an average menopause age 1.5 years younger compared to women who don't smoke with p value
= 0.008 [10]. Research by Szwejser, Ewa and Krzysztof Szostek with the title "The Influence of Selected Environmental Factors on The Time of Natural Menopause in Women Living in The Malopolskie Voivodeship" states there is a relationship between smoking and menopause age p value = 0.031 [11]. Women who smoke for a longer period of time tend to experience menopause earlier than women who smoke in a shorter period of time.

Research of Pokoradi et al with the title "Factors Associated with Age of Onset and Type of Menopause in A Cohort of UK Women" states there is a relationship between smoking and menopause age p value = 0.001 [12]. Women who smoke ≥ 15 years are at 1.75 times the risk of early menopause compared to women who have never smoked.

For heavy smokers, the risk of early menopause is almost doubled. Gold's study states that women who don't smoke are associated with slower menopausal events. Smoking can have a direct effect on ovarian follicles which is shown by a significant effect on the concentration of serum inhibin B [13]. Serum inhibin is produced from granulosa cells in the ovarian follicle which helps in regulating FSH release. Therefore, the decrease in inhibin B tends to reflect a decrease in the follicle, causing aging of the ovaries to become faster [14].

In terms of biological mechanisms, smoking is associated with changes in hormone production and metabolism, including changes in the CYP1A2 genotype, decreased serum estrogen levels, increased 2-hydroxyestrogen concentration, and quantity of androgens. All of these factors can contribute to the anti- estrogenic effects which produce natural menopause earlier [15].

One serious effect of decreasing estrogen levels is an increased risk of cardiovascular disease. Apart from being a sex hormone, estrogen plays an important role in women's health. This hormone helps minimize blood pressure by opening and smoothing blood vessels. The decline in the hormone estrogen also makes it difficult for a woman's body to balance cholesterol levels. As a result, levels of bad cholesterol / low density lipoprotein (LDL) easily jump. If food intake is not healthy, high LDL can cause blood vessels, thereby increasing the risk of heart attack.

V. CONCLUSION

Area of Cimanggis Community Health Center gave a conclusion that the distribution of menopause age, elderly women with menopause age ≥ 45 years were 95 respondents (84.1%) and elderly women with menopause age <45 years is 18 respondents (15.9%). The age distribution of menarche, elderly women with menarche age > 15 years is 44 respondents (38.9%). Distribution of parity, elderly women with parity ≤ 1 is 5 respondents (4.4%). Distribution of the age of the last childbirth, elderly mothers with the age of last birth <40 years, namely 101 respondents (89.4%). Distribution of nutritional status (BMI), and elderly women with nutritional status (BMI) <18.5 kg/m^2 is 5 respondents (3.5%). Distribution of smoking history, elderly mothers who had smoked were 18 respondents (15.9%). There is a significant relationship between smoking history and menopausal age (p value = 0.001). The final results for multivariable analysis obtained smoking history variable obtained p value = 0.001 with OR = 6.80 (95% CI, 2.18-21.21), meaning that mothers who have smoked will have the opportunity to experience 6.8 times premature menopause compared to mothers who have never smoked. History of smoking is the most dominant factor related to early menopause of elderly mothers in the working area of Cimanggis Community Health Center Depok.

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