The relationship of menopause with depression among women over 50 years old

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Original Article

ABSTRACT

Background: Depression is a significant contributor to the global burden of disease and affects people in all communities across the world. Today, depression is estimated to affect 350 million people with apercentage of 50% higher for females than males. Several theories have been proposed to explain this phenomenon which includes biological, psychological, and social factors. Some researchers conclude the prevalence of depression is quite high in women, especially when a woman reaches her menopause period.

Objective: This study aims to know the relationship between menopause and depression among female above 50 years old.

Methods: An analytical observational study with a cross-sectional design was carried out from August to October 2016. The samples were selected using non-probability sampling, consecutive sampling method of 108 subjects. Data were collected using a questionnaire which included the characteristics of the subject (age, education, occupation, menopausal state) and the Beck Depression Inventory to measure the level of depression. Chi-Square test and Fisher test were used to analyse data with the significance test at $p < 0.05$.

Results: A total of 56 (51.9%) subjects aged 50-60 years and as many as 85 subjects (78.7%) experienced menopause. The prevalence of menopause and depression among women above 50 years old is 20%. The statistical analysis showed there was no significant correlation between two variables (p=1).

Conclusion: There is no correlation between menopause and depression among women above 50 years old.

Latar Belakang: Depresi merupakan salah satu kontributor signifikan terhadap masalah kesehatan dan mempengaruhi semua orang di seluruh dunia. Sampai hari ini terhitung 350 juta orang menderita depresi dengan kejadian depresi 50% lebih tinggi pada perempuan dibandingkan laki-laki. Beberapa faktor yang dipercayai memiliki peran yaitu faktor biologi, psikologi dan sosial. Beberapa peneliti menyimpulkan prevalensi depresi cukup tinggi pada peempuan, terutama ketika seorang perempuan memasuki masa menopause.

Tujuan: Penelitian ini bertujuan untuk menentukan hubungan menopause dengan depresi pada wanita di atas usia 50 tahun.

Metode: Sebuah penelitian analitik observasional dengan desain cross sectional dilaksanakan pada bulan Agustus hingga Oktober 2016. Sampel dipilih dengan menggunakan non-probability sampling yaitu metode consecutive sampling sejumlah 108 subjek. Data dikumpulkan menggunakan kuesioner yang meliputi karakteristik subjek (usia, pendidikan, pekerjaan menopause) dan Beck Depression Inventory

untuk mengukur tingkat depresi. Uji Chi-Square dan Fisher digunakan untuk analisis data dengan tingkat kemaknaan yang digunakan p< 0.05.
Hasil: *Sebanyak 56 (51.9%) subjek berusia 50-60 tahun dan sebanyak 85 subjek (78.7%) mengalami menopause. Hasil studi menunjukkan prevalensi menopause dengan depresi pada wanita diatas 50 tahun adalah sebesar 20,0%. Hasil uji statistik menunjukkan tidak terdapat hubungan signifikan antara menopause dengan depresi (p=1).*
Kesimpulan: *Penelitian ini menunjukkanbahwa tidak terdapat hubungan antara menopause dengan depresi pada wanita diatas 50 tahun.*

INTRODUCTION

Depression is a mental disorder that attacks a person's entire life, including the physical, mood or feelings and thoughts which affects eating and sleeping patterns. In many cases, its incidence is usually preceded by an anxiety condition. Anxiety even depression can be experienced by women during their menopause stage. Menopause is considered as one of the most significant reproductive events in a woman's life which bring several physiological changes that affect a woman's life permanently. It is a natural end of the menstrual cycle that occurs due to a decrease in the production of estrogen and progesterone produced by the ovaries. During this time, there is hormonal imbalance characterised by a reduction in the amount of estrogen produced. Therefore menstruation becomes irregular and eventually stops.[1] The anxiety is influenced by the person's attitude towards menopause, in which menopause is often perceived as a frightening experience for women.[1]

Li Ying et al. study showed the prevalence of depression and anxiety disorders in postmenopausal women in Beijing was 23.9%. Every year around 25 million women around the world are estimated to experience menopause. This number is expected to increase steadily, and it is predicted that by 2030 the number of menopausal women will reach 1.2 billion.[2] Various studies show that at the time of menopause, generally between the ages of 45 and 55 in 60–70% of women.[3,4]

There are many speculations about symptoms that appear before, during and after the onset of menopause. Experienced anxiety can elicit various symptoms that arise and may continue to become a depression state.[5] The study showed the five most common symptoms in menopausal women were emotion instability (72.1%), joint pain (70.6%), back pain (61.2%), hot flushes (49.3%) and headaches (49.2%).[4]

Various studies were conducted to analyse the relationship between menopause and depression. Hunter's results showed a significant increase in depressed mood disorders in premenopausal, menopausal and postmenopausal women.[6] However, Kaufert PA et al. concluded that menopause naturally does not increase the risk of depression, but the onset of chronic diseases and psychosocial stressors that trigger women in middle age to experience depression.[7] Previous literature searches on the relationship between menopause and depression are still inconsistent. Therefore the authors are interested in conducting the study about menopausal relationship with the incidence of depression in women over the age of 50 years.

METHODS
Research Design

This research is an observational analytic study with cross-sectional approach. The research was carried out from August to October 2016 in Bogor, West Java.

Research Subjects

A total of 108 women aged over 50 years assisted by Posbindu Semplak Health Center was the subject of this research. The determination of sample size was done using the formula of infinite population and finite population:

Number=Z^2 x p x q/d^2 ⇢ n=no/1(no/N)

The prevalence of menopausal women who experience depression is 23.9% with an accuracy of 0.05.[2] Therefore the sample size required 280 subjects. The number of women aged over 50 years old assisted by Posbindu Puskesmas Semplak was 140 people and dropouts are estimated at the rate of 15%. Based on these

calculations, the sample size needed for this study was 108 subjects.

The sample selection was made by non-probability sampling, namely consecutive sampling method. The selected sample fulfilled the inclusion and exclusion criteria, with the inclusion criteria are women over 50 years old, able to communicate well and willing to take part in the study. While the exclusion criteria are having a history of gynaecological surgery, having or underwent hormone replacement therapy, having had a mental disorder, experiencing a catastrophe in the last three months and suffering from a severe chronic illness.

Data Collection

All respondents who met the inclusion and exclusion criteria were interviewed. Data were collected using a questionnaire that includes the characteristics of the subject (age, education, occupation, menopausal status) and Beck Depression Inventory (BDI) to assess the level of depression of the subject.

Data Analysis

The data analysis used in this study were univariate and bivariate analysis. Univariate analysis was used to describe the distribution of each of the variables studied, such as age, education, employment, and menopausal status. Bivariate analysis was used to examine the relationship between variables of age, education, employment, menopausal status and depression. The statistical test used is the Chi-Square test and Fisher's test. The level of significance used was 0.05.

Ethical Clearance

This research protocol has obtained ethical clearance from the Research Ethics Commission of the Faculty of Medicine, Trisakti University with No 57 / KER-FK / VII / 2016.

RESULTS

A total of 108 respondents who participated in this study. The majority of subjects were 56 people (51.9%) aged 50-60 years. The respondents aged 61 - 70 and over 70 years old were 36.1% and 12% respectively. Based on the education level, the majority of the respondents were graduated from elementary school with a total of 94 people (87%). Most of the respondents, 94 people (87 %) were unemployed, and as many as 85 women (78.7%) already had menopause (Table 1).

Table 2 shows the results of the statistical

Table 1. Distribution of respondent characteristics (n = 108)

Characteristics	n	%
Age (year)		
50 – 60	56	51,9
61 – 70	39	36,1
> 70	13	12
Education		
Elementary – Junior high school	94	87,0
Senior high school- college	14	13,0
Work		
Yes	14	13,0
No	94	87,0
Menopause		
Yes	85	78,7
No	23	21,3

test to determine the relationship between age and depression. The obtained p-value of 0.581 may infer that there is no significant relationship between age and depression. Of the 108 respondents, it was found that 22 people experienced depression and the remaining were not found any abnormalities. The statistical tests to determine the relationship between the level of education and depression obtained a p-value of 0.730. This can be concluded that there is no significant relationship between education levels with depression. A total of 94 respondents graduated from elementary to junior high school education, and 14 others achieved high school to university education. Among them, 22 people were depressed, with the majority found on the women graduated from elementary-junior high school (20 women).

Women aged 50-60 years who experienced depression were ten people (17.9%), it was higher than women aged over 70 years of 2 people (15.4%). Nevertheless, it was not statistically significant (p = 0.581). Other factors such as education and work are not related to depression with the p-value were 0.730 and 0.292 respectively.

Among 85 post-menopausal women, the majority of them (80%) were not depressed

Table 2. The relationship between the characteristics of respondents and menopause with depression

Characteristics (n=108)	Normal n(%)	Depression n(%)	P value
Age (year)			
50 – 60	46 (82,1)	10 (17,9)	0,581
61 – 70	29 (74,4)	10 (25,6)	
> 70	11(84,6)	2 (15,4)	
Education			
Elementary-junior high school	74 (78,7)	20 (21,3)	0,730
Senior high school-college	12 (85,7)	2 (14,3)	
Work			
Yes	13 (92,9)	1 (7,1)	0,292
No	73 (77,7)	21 (22,3)	
Menopause			
Yes	68 (80)	17(20)	1*
No	18 (78,3)	5 (21.7)	

*Fisher test

while the remaining 20% had depression. The statistical tests to determine the relationship between menopause and depression obtained the p-value of 1. It was concluded that there was no significant relationship between menopause and depression.

DISCUSSION

Our study showed that 85/108 (78.7%) women aged over 50 years had experienced menopause. Numerous studies displayed that most women (60-70%) were experiencing menopause at the age around 45 to 55 years.[3,4] This seems genetically determined and unaffected by race, socioeconomic status, age at menarche, or previous amount of ovulation. However, smoking habits in women can lead to an earlier menopause, as well as those who have had ovarian surgery, or have undergone a hysterectomy may also experience early menopause.[8] In terms of depression, our study displayed there were 20% of menopausal

women who suffered this condition. This result is comparable to Lie et al study which demonstrated the number of menopausal women with depression was 23.9%.[2]

More than half of the samples in this study were women aged 50-60 years (56%). We showed there was no significant relationship between age and depression (p = 0.581). According to Verropoulou, age is not a factor that affects a person to experience depression.[9] Depression state, especially in the elderly, is caused more by a psychosocial history, chronic illness, and social support which are essential factors in the occurrence of depressive disorders.[10] This suggestion is supported by Newmann study which presents a significant increase in clinical depressive symptoms in elderly patients.[11] Barua A et al. showed that the highest level of depression was found in the young and 68-year-old group. This could be attributed to several factors such as a decrease in the ability to carry out daily activity days, retiring from work and lack of activities that can be done in leisure time.[12]

Based on the statistical tests, there was no significant relationship between education levels and depression. The study conducted by Noori AD suggested that junior high school graduates had the lowest depression incidence throughout their life, while those with higher education showed a higher incidence.[13] In contrary, Kohn's study presented that higher education benefits from low levels of depression through good development and self-control that helps someone in dealing with life problems and stresses.[14] Although the study does not prove the relationship between education and depression, it can be seen that the number of depressed people in this study is directly proportional to the level of education. The number of respondents with depression according to education levels, on the elementary to junior high school and senior high school to college education were twenty and two women respectively. Our study showed that women with lower education level are more likely to experience depression.

Regarding the employment status, our study showed there was no significant relationship between work and depression. This is because some respondents were less educated housewives. However, these women were engaged in many joint activities in their environment such as recitation, morning exercise, cooperation and evening gatherings. These might enhance a sense of togetherness. Therefore they feel satisfied with their lives. Revenson explained that although the workplace can increase the social scope, nevertheless, the life satisfaction is the most critical factor which determines someone's loneliness. This loneliness is believed to have a significant relationship with depression.[15] According to Link et al., most people work to fulfil their socio-economic needs and the work environment can reduce financial stress and support a healthy lifestyle, hence improve mental health.[16]

In this study, the rate of depression in non-menopausal women was 21.7%; it was slightly higher than postmenopausal women who was only 20%. This can be caused by the women who are still in their reproductive age were reluctant to deal with changes in the menopausal stage. These women perceived some unfavourable symptoms such as mental instability, signs of ageing, decreased sexual ability and loss of attraction for their upcoming menopause stage, which can trigger stress and anxiety. The anxiety can worsen to cause severe mood disorders even major depression.[17-19] It has been suggested that women with a history of depression in the past, postpartum depression, premenstrual dysphoric disorder have a higher risk of depression in their menopause stage.[20] Accordingly, our study showed no significant relationship between menopause and depression. This is in line with Nagar S et al. study which showed that women with transitional period or pre-menopause phase are at higher risk of mental disorders such as anxiety and depression compared with those menopausal women. This might be due to the occurrence of the climacteric syndrome in the premenopausal phase. In this phase, women often experience hot flushes throughout the body which eventually cause anxiety about their health

conditions.[21] However, a research conducted by Sagsoz N and Prakash IJ contrary stated that there is significant increase in the incidence of depression in menopausal women.[22,23] They suggested that menopausal women experience more physical and psychological symptoms to trigger mental disorder.

The study performed by Joffe H et al. showed that about 85% of menopausal women reported experiencing at least one of menopausal physical symptoms.[24] These can occur in the form of excessive sweating, feeling hot throughout the body, and sleep disorders such as insomnia. In addition, there are sexual complaints such as decreased libido and pain during intercourse, therefore most women choose not to have intercourse.[25,26] Furthermore, the hypo-estrogens state during menopause may lead to mood disorders and put the women at higher risk of depression. Estrogen affects the brain and neurotransmitter metabolism such as dopamine, norepinephrine, β-endorphin, and serotonin.[27,28] The decrease in this hormone level affects the number of serotonin neurotransmitters in the brain that may eventually cause emotional instability and depression.[28]

This study has several limitations. The research design used is cross sectional which cannot showed causal relationships, besides, the independent variables taken were limited. Future studies need a larger number of samples to better describe the overall characteristics of the subject. It is also recommended to perform the study with longer period of time by considering other confounding factors to provide more objective results.

CONCLUSION

In this study, the prevalence of menopausal women with depression was 20.0%. There is no relationship between age, education, employment and menopause with depression in women over 50 years.

CONFLICT OF INTEREST

The investigators state that there is no conflict of interest in this study.

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