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## Original Article

## Depression and its link to other symptoms in menopausal transition

R. Muharam<sup>a,b,\*</sup>, Martina Wiwie Setiawan<sup>c</sup>, Muhammad Ikhsan<sup>a,b</sup>, Herdinda Erudite Rizkinya<sup>a,b</sup>, Kanadi Sumapraja<sup>a,b</sup><sup>a</sup> Department of Obstetrics and Gynecology, Faculty of Medicine Universitas Indonesia, Dr. Cipto Mangunkusumo National General Hospital, Jakarta, Indonesia<sup>b</sup> Indonesian Reproductive Medicine Research and Training Center, Faculty of Medicine Universitas Indonesia, Dr. Cipto Mangunkusumo National General Hospital, Jakarta, Indonesia<sup>c</sup> Department of Psychiatry, Faculty of Medicine Universitas Indonesia, Dr. Cipto Mangunkusumo National General Hospital, Jakarta, Indonesia

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## ABSTRACT

**Background:** Menopausal transition may occur between 45 and 55 years old and take 3–9 years. During this transition, the hormonal changes may contribute to the physical and psychological complaints in women. One of the psychological complaints is a sign of depression. However, not all of the women will experience those complaints.

**Objective:** To assess the relationship between depression in menopause transition and other menopausal symptoms and factors contribute to depression among Indonesian people.

**Methods:** Cross-sectional study on 133 female subjects between 45 and 55 years old. Depression measured using Beck Depression Inventory-II (BDI-II), and menopausal symptoms were collected using Menopause Rating Scale (MRS). The comparison and relation were assessed for every aspect regarding depression and menopausal symptoms.

**Results:** Out of 133 subjects, depression was found in 17 subjects (12.8%). Somato-vegetative symptoms were complained by 50.4% and urogenital symptoms by 75.9% subjects. There was significant correlation between depression and somato-vegetative ( $p = 0.008$ ) as well as urogenital complaints among women who underwent menopause transition ( $p = 0.016$ ). These findings were consistent with previous studies.

**Conclusion:** Depression on menopausal transition significantly correlated with somato-vegetative and urogenital symptoms among women. Future investigations should be conducted with a cohort design to observe mood alterations during the menopause transition.

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## 1. Introduction

Depression is a common psychological condition and estimated to affect 350 million worldwide population [1]. Depression may decrease work performance, interpersonal relationship, financial status, and the appearance of suicide ideation. Although it is a psychological condition, depression may implicate to physical well-being and increasing morbidity and mortality [2,3].

Depression is twice more common in women compared to men. This high risk in women may be caused by hormonal changes in condition such as puberty, pregnancy, and menopausal transition [4].

Menopausal transition is a period when women undergo irregular menstruation and cessation of menstrual cycle [5]. Menopause

transition may occur up to three to nine years in the midlife around 45–55 years old [6]. In the midlife, a woman may experience several health problems, changes in social function, work and family thus contribute in psychological condition [7].

Menopausal transition is marked by fluctuation of sex-steroid hormones and symptoms of vasomotor, psychic, and psychosomatic [8–10]. Still in controversy, what is the most complained of menopausal symptoms among menopausal women? National Institute of Health stated that vasomotor symptoms (hot flashes and night sweating), vaginal dryness, and sleep problem are the most common menopausal symptoms. Mood disorder including depression is not common in menopausal symptoms, although it often coincides with menopausal transition. Previous studies showed that there might be associations between depression and other menopausal symptoms and vice versa. However, it is still not clear whether the causation is strongly related or merely coincidental [11,12].

In this study, we will focus on menopausal transition toward depression symptoms. Then, depression symptoms will be associated with other menopausal symptoms during the menopausal

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\* Corresponding author at: Departemen Obstetri dan Ginekologi, Rumah Sakit Cipto Mangunkusumo, Jl. Diponegoro No. 71, Jakarta Pusat 10340, Indonesia.

E-mail address: [rmuharam@yahoo.com](mailto:rmuharam@yahoo.com) (R. Muharam).<http://dx.doi.org/10.1016/j.mefs.2017.08.003>

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transition. The study observing symptoms of menopausal transition including depression are still limited in Indonesia thus encourages the authors to conduct this study.

## 2. Material and methods

This is a cross sectional study to assess depression and other menopausal symptoms in women forty-five to fifty-five years old. We collected data consecutively on one hundred and fifty subjects starting from February until May 2016. The study was conducted in Cipto Mangunkusumo National General Hospital, Jakarta, Indonesia.

Subjects were enrolled based on inclusion and exclusion criteria. The inclusion criteria were women with 45–55 years old and willing to participate (informed consent obtained). The exclusion criteria were women with a history of gynecological condition that caused earlier menopause (before 45 years old); having mentally ill condition or another psychological condition (especially mood disorder); and/or having any illness that may impact menopausal symptoms (malignancy, thyroid disease, autoimmune diseases, heart diseases). Sample size was calculated using the formula for estimated proportion in infinite number of population. We used confidence level of 95% and power of study of 90%. The minimum number of samples required was one hundred subjects.

Data collected in this study were primary data, which collected via questionnaires. Every subject had been informed of the purposes of this study, the procedures, and data collected. Informed consents had been obtained from all the subjects participating in this study. Every subject had agreed to share data collected regarding the publication of this study. The ethical committee of Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia, had approved this study.

Every subject was asked to fill three questionnaires consist of baseline data, Beck Depression Inventory-II (BDI-II), and Menopause Rating Scale (MRS). BDI-II was used to identify symptoms and diagnosis of depression among menopausal women. MRS was used to assess menopausal symptoms (especially somato-vegetative and urogenital symptoms).

BDI-II consists of twenty-one questions characterizing symptoms of depression. This tool has been used in medical or psychiatric practice around the world. Subjects may choose one of four possible boxes based on her condition in each question. For the purpose of this study, BDI-II score fourteen or more was considered to be depressive [13].

MRS was developed and validated some years ago aiming at establishing an instrument to measure health-related quality of life that can easily complete by women. Three dimensions of symptoms were identified using this questionnaire including somato-vegetative (vasomotor), psychological, and urogenital factors. MRS consists of 11 items of questions, 4 questions each to assess somato-vegetative and psychological symptoms and 3 questions to assess urogenital symptoms. The subjects provide her personal perception by checking one of five possible boxes of severity [14].

For the purpose of this study, we categorize each somato-vegetative and urogenital symptoms into no/little symptoms, mild symptoms, moderate symptoms, and severe symptoms from MRS score. Women who had somato-vegetative symptoms score 3 or more; psychological symptoms score 2 or more; and urogenital symptoms score 1 or more were considered having positive menopausal symptoms. Based on somato-vegetative domain participants were divided into no/little symptoms (0–2); mild symptoms (3–4); moderate symptoms (5–8); and severe symptoms ( $\geq 9$ ). Last, based on urogenital domain participants were divided into no symptom (0); mild symptoms (1); moderate symptoms (2–3); and severe symptoms ( $\geq 4$ ).

Data was analyzed with SPSS software for Windows version 22. To exhibit a correlation between depression (BDI-II score) and menopausal symptoms, we used Spearman test or Pearson correlation test depended on the distribution of data. To compare the difference of each group (depressive and normal subject), we used Chi-square or Fisher exact test.

## 3. Results

One-hundred and fifty subjects were enrolled in this study. Seventeen subjects were excluded from the study due to exclusion criteria, hence total of one-hundred and thirty-three subjects were included in the analysis.

From 133 subjects, depression was found in seventeen subjects (12.8%). According to baseline data, normal and depressive subjects exhibited no difference between two groups in age of menarche, marital status, occupation, education, and monthly income ( $p > 0.05$ ). Detailed of baseline characteristics between the two groups can be seen in Table 1.

Assessment of menopausal symptoms using MRS found 50.4% and 75.9% of subjects had somato-vegetative and urogenital symptoms, respectively. From the symptomatic women, most of the normal subjects had mild somato-vegetative symptoms and moderate to severe urogenital symptoms. Compared to depressive subjects, most of the subjects had moderate somato-vegetative symptoms and severe urogenital symptoms (Fig. 1). There was significant correlation between depression and somato-vegetative ( $p < 0.05$ ;  $r = 0.236$ ) as well as urogenital complaints ( $p < 0.05$ ;  $r = 0.215$ ) among women who underwent menopause transition. Distribution of menopausal symptoms among subjects can be seen in Table 2.

We also correlate BDI-II scores with somato-vegetative and urogenital scores (from MRS) using pearson correlation test (normal distribution of data). There was significant positive correlation between BDI-II scores and MRS scores for somato-vegetative ( $p < 0.05$ ;  $r = 0.468$ ) and urogenital complaints ( $p < 0.05$ ;  $r = 0.474$ ).

## 4. Discussion

This study was conducted to assess the relationship between depression in menopause transition and other menopausal symptoms and factors contribute to depression among Indonesian people. Menopausal symptoms observed in this study consisted of somato-vegetative and urogenital symptoms. Factors assumed to contribute in depression including monthly income, education, and occupational status.

**Table 1**  
Baseline characteristics of subjects.

Baseline data	Normal	Depression	P-Value
Age (Mean and SD)	50.75 (3.37)	49.98 (3.35)	0.323 <sup>a</sup>
Age of Menarche (Mean and SD)	13.39 (1.25)	13.76 (1.25)	0.25 <sup>a</sup>
Monthly income			
Low income	56 (48.3%)	10 (58.8%)	0.417 <sup>b</sup>
High income	60 (51.7%)	7 (41.2%)	
Education			
Low educated	47 (40.5%)	9 (52.9%)	0.333 <sup>b</sup>
Highly educated	69 (59.5%)	8 (47.1%)	
Occupation status			
Working	24 (20.7%)	4 (23.5%)	0.756 <sup>c</sup>
Not working	92 (79.3%)	13 (76.5%)	
Total	116 (87.2%)	17 (12.8%)	

<sup>a</sup> Independent T-test.

<sup>b</sup> Chi-square test.

<sup>c</sup> Fisher's exact test.

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