

## Research Article

# Menopause Status and Risk Factors for COVID-19 in the Elderly

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**ORCID**Juwitasari: <https://orcid.org/0000-0001-9161-091X>**Abstract.**

The cessation of the menstrual cycle in women (menopause), which usually occurs in women aged over 40 years, is often accompanied by significant impacts on both physical and psychological health. During menopause, women experience a decrease in estrogen levels which is a protective factor in the woman's body by decreasing chemokine ligand 2 expression during inflammation. Postmenopausal women who have experienced a decrease in their protective agents are more susceptible to being exposed to viruses. This study identified the correlation between menopause status and risk factors for COVID-19 by using Spearman rho. The participants in this retrospective cross-sectional study were 30 elderly women, 33 to 64 years old, at Posyandu lansia (Integrated Health Care System for Elderly) who expressed their willingness to participate in this study from April 1<sup>st</sup> until June 19<sup>th</sup>, 2022, by online survey or by filling out the menopause health and risk factor of COVID-19 questionnaires manually. Risk factors of COVID-19, such as comorbid disease, lack of exercise, low healthy life patterns, and obesity, have a significant correlation with the menopausal status of elder women. Half of them had graduated from senior high school and got menarche at 9 years old. Twenty per cent of them had a risk factor of COVID-19, and more than half of them used contraception. The number of elder people who were already in menopause was 27 per cent. Elderly people should improve their immune systems and prepare for menopause to lower the incidence of COVID-19 infection.

**Keywords:** COVID-19, elderly, menopause, risk factors

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## 1. INTRODUCTION

The world is struggling with the increasing number of patients diagnosed with Covid-19. The world health organization (WHO) has reported 150 million cases so far, with 3.2 million deaths. In-depth research and investigations are underway to understand the risk factors, pathophysiology, management, and complications of Covid-19, which is being carried out worldwide (1). The condition of a person infected with the coronavirus can show symptoms of mild-moderate to severe illness and sometimes progress to acute respiratory distress syndrome (ARDS) and death. Several animal-based studies of infection with SARS-CoV and MERS, the "sister" of SAR-CoV-2, also demonstrated a sex

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preference in infection patterns. The male sex experienced a higher mortality rate than the female. In humans, ACE2 is a SARS-CoV and SARS-CoV-2 receptor, and it is shown to be more prevalent in male lungs than female lungs. Consistently, ACE2 expression is downregulated by the hormone estrogen (E2). Estrogen reduces the susceptibility and severity of the phenotype to SARS-CoV, in an experiment in female mice (2).

Menopause is the permanent cessation of a woman's menstrual period and a marker of the end of a woman's reproductive ability (3). A woman has reached menopause when the woman has not had consecutive menstrual periods for 12 months due to non-disease. Menopause is a stage of life that all women will experience, menopause is a transitional period from fertile to old age. The average age of menopause for women in countries such as Paraguay, Colombia, and Italy, and in Asian countries such as Korea, Japan, and Malaysia is around 46 years. Developed countries such as the United States also show the age of menopause is getting faster from 53.2 years to 47 years. The average age of menopause in Indonesia was 47 years before 2015, in 2019 the average age of menopause was 51 years (4)

There is an increase in life expectancy in elderly women, while the age of menopause is getting faster, making the lives of the elderly increase with longer physical and psychological complaints. In 2020 the number of women living in menopause 8 around 30.3 million or equivalent to 15.3% of the entire population, with an average age of 49-53 years, a high life expectancy increases the incidence of menopause in women (4). Around 2025, it is predicted that the number of women in Indonesia who will experience menopause is estimated at 60 million women, while according to WHO, it will increase by 1.2 billion in 2030.

Menopause itself is a normal stage in the physiological stage, namely aging of the ovaries which results in decreased production of the hormone estrogen (5). Since the end of 2019 and into 2020 until now, it has forced nurses to think about the inevitable need to examine in depth, how non-urgent clinical services can be best provided in vulnerable populations, especially postmenopausal women. So far, the government has tried to balance the delivery of planned services with the demands of emergency services and also accommodate health services by anticipating the spread, the minimum social distance requirement of 1.5 – 2 meters, and special protocols for the provision of safe health services and there are even suggestions to minimize hospital visits if necessary. allow. During the Covid-19 period in clinical practice in hospitals, it was very apparent that this pandemic condition was further exacerbating the typical symptoms of the menopausal transition and postmenopausal period.

Nurses should consider the complaints that premenopausal and postmenopausal women have during these difficult times. They certainly deserve to be heard and noticed. Providing adequate medical care while maintaining social distancing is a challenge, amid limited research. Published research and reports on COVID-19 show that men exhibit significantly more symptoms at the death when compared to women. On the other hand, clinical observations show that women are the most vulnerable to the adverse effects of the imposed restrictions.

## 2. MATERIALS AND METHODS

A retrospective cross-sectional study with an observational approach was conducted to identify the status of menopause, and stress during the COVID-19 pandemic and their correlation. This study identifies demographic data of women who experience premenopausal and menopause phases at the elderly Posyandu (Integrated Healthcare Centre). The population in this study was 100 elderly women in the elderly posyandu (Integrated Healthcare Centre), Kepanjen Malang Regency.

The participants in this study were premenopausal and menopausal women who were recruited by using purposive sampling. With the inclusion criteria of healthy premenopausal and postmenopausal elderly, women in posyandu (Integrated Healthcare Centre) for the elderly, not with dementia, and willing to participate in this study. Of a total of 100 elderly, 30 elderly were meet the inclusion criteria. This research was conducted at the Elderly Integrated Healthcare Centre, Jatirejoyoso Village, Kepanjen, Malang Regency in March-June 2022.

The instrument used in this study was a questionnaire. The questionnaire used in this study was a questionnaire on the menopause health (6,7) pandemic in the Elderly.

## 3. RESULTS

Based on table 3.1 below, identify the characteristics of respondents on 29 April 2022, there are elderly respondents Menopausal and premenopausal women who meet the criteria of 30 people with an age range between 33-63 years old, at Elderly Integrated Healthcare Centre, Posyandu Lansia Dusun Tamanayu, Jatirejoyoso Village, Kepanjen, Malang Regency. All of the Participants were housewives, had Javanese Race backgrounds, and were Moslem People.

### 3.1. Demographic Characteristics of Respondents

Seventy-three percent of participants were still not in menopausal status. Most of them graduated from senior high school and have no risk of Covid-19. Almost one-third of them were menopause women.

### 3.2. Correlation of Menopause Status and Risk Factor of Covid-19

The table above had shown that the risk factors of Covid-19 such as comorbid disease, lack of exercise, low healthy life pattern, and obesity has a significant correlation with menopausal status of elder women.

## 4. DISCUSSION

The change of hormonal situation during perimenopause and menopausal period in elder women can cause the disturbance of physiological ovarian steroid hormone production and preceded altered chronic inflammatory response due to sex-based immunomodulation (8). Curiously, previous studies shown that there was a potential defensive condition behind estrogen and Coronavirus seriousness. Some clinical studies performed to the females showed that pre-menopausal females have a relatively mild covid 19 symptoms, while menopausal females had moderate to severe illness (need more oxygen therapy, ventilation support, and progress from mild-to-severe disease with a prolonged hospital stay and increasing mortality rate (9).

The elder women in integrated healthcare system in Kepanjen majority graduated from low to middle level of education. However, the further understanding of physiological change during menopause and Covid-19 infection was needed to adapt to the pandemic situation (10). An option to enlarge the understanding of Menopause definition and training service should be well planned. Extra care during the earlier part of the pandemic and perimenopausal conditions as menopause consultations virtual activity (either by telephone or web-based video consultations) (11).

## 5. CONCLUSION

Menopausal status can affect the risk factor of Coronavirus 19 infection. Premenopausal women usually show a lower incidence of chronic and serious illness than men (12). Some previous studies stated that there is a good correlation between menstruation

TABLE 1: Characteristics of Elderly Women in Integrated Healthcare Centre.

	Frequency	Percent	Valid Percent
<b>Age (years old)</b>			
33	1	03.03	03.03
37	1	03.03	03.03
40	1	03.03	03.03
42	3	10.00	10.00
43	2	06.07	06.07
46	1	03.03	03.03
47	2	06.07	06.07
48	5	16.07	16.07
49	5	16.07	16.07
51	4	13.03	13.03
53	1	03.03	03.03
54	1	03.03	03.03
59	1	03.03	03.03
60	1	03.03	03.03
64	1	03.03	03.03
<b>Menarche Age (years old)</b>			
9	1	03.03	03.03
11	3	10.00	10.00
12	3	10.00	10.00
13	7	23.03	23.03
14	9	30.00	30.00
15	5	16.07	16.07
17	1	03.03	03.03
18	1	03.03	03.03
<b>Education Level</b>			
uneducated	1	03.03	03.03
primary school	6	20.00	20.00
secondary school	8	26.07	26.07
senior high school	13	43.03	43.03
diploma/bachelor's degree	2	06.07	06.07
<b>Risk of Covid-19</b>			
No risk factor	25	83.03	83.03
covid	5	16.07	16.07
<b>Menopausal Status</b>			
No	22	73.03	73.03
Yes	8	26.07	26.07
<b>Marital Status</b>			
married	23	76.07	76.07
divorce	7	23.03	23.03
<b>Contraceptive Use</b>			
not use	14	46.07	46.07
use	16	53.03	53.03

status/hormone levels and the severity or outcomes of COVID-19 (2). A state of lower

TABLE 2: Menopausal Status and Risk Factors of Covid-19.

Correlations			Covid Status	Menopausal Status
Spearman's rho	Covid Status	Correlation Coefficient	1.000	.742**
		Sig. (2-tailed)	.000	.000
		N	30	30
	Menopausal Status	Correlation Coefficient	.742**	1.000
		Sig. (2-tailed)	.000	.000
		N	30	30

\*\* Correlation is significant at the 0.01 level (2-tailed).

estradiol level during peri and postmenopausal conditions, burdened by the COVID-19 pandemic, not only should appropriate postmenopausal women be considered for making preparation, such as following hormone replacement therapy regimen, and elder women should be counseled on the risks and benefits of their condition personally (13).

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