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Severe menopausal symptoms and associated factors among post-menopausal women in Ambo town, West Shewa, Ethiopia: a cross-sectional study

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Abstract

Background Post-menopause is the permanent cessation of menstruation for 12 consecutive months at the age of 45 to 55 years. Post-menopausal women all over the world suffer from symptoms associated with menopause. Despite the fact that the population of menopausal women in Ethiopia is growing in parallel with their life expectancy, little is known about the severity and factors associated with menopausal symptoms among post-menopausal women. While previous studies in Ethiopia have primarily focused on the prevalence of severe menopausal symptoms, they have not thoroughly explored the underlying factors that may influence the severity of these symptoms. As a result, the specific factors that contribute to the severity of menopausal symptoms in Ethiopian women remain largely uninvestigated, leaving an important knowledge gap in this area. Therefore, this study was intended to assess severe menopausal symptoms and associated factors among post-menopausal women in Ambo town.

Methods A community-based cross-sectional study was conducted from August 3 to September 3, 2022, in Ambo town**.** The source population encompassed all post-menopausal women residing in Ambo Town. From this broader group, the study population was all post-menopausal women living in the three selected kebeles (the smallest administrative unit of Ethiopia). The sampling unit for this study was the household with post-menopausal women. A simple random sampling method was employed using computer-generated random numbers using the sampling frame taken from the conducted preliminary survey. Data were collected using a structured, interviewer-administered questionnaire. The data were entered using Epi Info version 7.1 and exported to SPSS version 25.0 for analysis. Bivariate analysis was used to examine individual relationships between independent variables and severe menopausal symptoms. Multivariable analysis then evaluated the combined impact of independent variables on severe menopausal symptoms while controlling for confounding factors, offering a comprehensive understanding of the factors that significantly influence symptom severity. Odds ratios with 95% CI were estimated to identify the associated factors of the outcome variables, and statistical significance was affirmed at a p-value ≤ 0.05.

Results This study showed that one hundred thirty-three participants (30.4%), with a 95% CI (26.2%–35%), experienced severe menopausal symptoms during the past month. Age greater than 60 years [AOR = 3.2, 95% CI (1.3, 7.7)], not performing physical activity [AOR = 2.1, 95% CI (1.1, 4.4)], consuming alcohol [AOR = 1.8, 95% CI (1.1, 3.1),

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unfavorable attitude towards menopause [AOR = 1.8, 95% CI (1.1, 3.0)], and BMI > 29.9 kg/m^2 [AOR = 6.1, 95% CI (2.7, 14.2)] were associated with severe menopause symptoms**.**

Conclusion and recommendation According to this study, one in three postmenopausal women experienced severe menopausal symptoms. In conclusion, several factors were significantly associated with severe menopausal symptoms. Positive predictors of severe menopausal symptoms include; age over 60 years, lack of physical activity, alcohol consumption, unfavorable attitudes towards menopause, and a BMI greater than 29.9 kg/m^2. These results highlight the role of both lifestyle behaviors and individual characteristics in determining the severity of menopausal symptoms. Therefore, we recommend implementing targeted support programs specifically for post-menopausal women. Promoting regular physical activity through tailored exercise programs and reducing alcohol consumption through education and counseling are essential. Additionally, educational interventions should aim to foster a positive attitude towards menopause. Weight management strategies, including both nutrition and exercise, should be prioritized for post-menopausal women with a BMI greater than 29.9 kg/m^2.

Keywords Severe menopause symptoms, Post-menopause, Associated factors, Ambo town, Ethiopia

Background

Menopause is a natural process that every woman goes through because of the steady loss of primordial ovarian follicles as she goes through the age range of 45 to 55 years. It is defined as the permanent cessation of menstruation for 12-months following the last menstruation for no other reason [1, 2]. Menopausal status is classified into four types: pre-menopause (regular menstrual periods), early perimenopause (cycle variation of ≥ 7 days in two or more cycles), late perimenopause (two skipped cycles and 60 days of amenorrhea), and post-menopause (12 months of amenorrhea) [3].

Menstruation ceases due to a lack of ovarian follicular activity and a decrease in steroid hormone production [4]. Menopausal symptoms result from decreased estrogen, metabolic changes, and psychological factors. Central nervous system symptoms include vasomotor issues (hot flushes, night sweats), anxiety, sleep disturbances, depression, memory decline, impaired concentration, and impatience, attributed to neurobiochemical changes from ovarian failure [5–7]. Decreased levels of estrogen, progesterone, and testosterone during menopause lead to sexual symptoms like reduced desire, urogenital issues such as vaginal dryness and dyspareunia due to reduced vaginal blood flow, and physical symptoms including joint pain, muscle pain, and osteoporosis [5, 7].

Around 25% of women worldwide suffer from severe menopausal symptoms that impair their quality of life [8]. Sleep disorder (73%), depression and irritability, hot flushes and night sweating (97%) were the major problems women suffered from in developed nations [9]. Severity of menopausal symptoms in Sub-Saharan African nations is alarmingly high. Dangerously, the number of women suffering from severe menopause symptoms in Sub-Saharan Africa increased from 59% in 2009 to 84% in 2012 [9]. In Ethiopia, post-menopause women suffer from severe physical symptoms (65.9%), severe psychological symptoms (46.0%), and severe vasomotor symptoms such as hot flushes throughout the spectrum [10].

Menopause and its accompanying changes, such as hormonal, biological, and physical changes, have a detrimental influence on post-menopause women's health and quality of life, as well as their overall well-being [11]. Severe postmenopausal symptoms have social consequences that have an impact on their quality of life [12]**.** Women experiencing severe menopause symptoms may become emotionally disappointed and physically exhausted, making it impossible for them to carry on with their daily activities [13]**.** Severe menopause symptoms caused by hormonal shifts have a negative impact on women's daily lives and professional activities [14]. Severe menopausal symptoms impair communication skills, recall capacity, orientation and family relationships and further affect the overall social life of women [15].

Since professionally active women suffering from severe symptoms have the great tendency of missing work for an extended period and having reduced workability and cognitive performance, the productive capacity of post-menopausal women is reduced, which leads to a decline in the world and national economy [14, 16, 17]**.** Severe symptoms also make the women hopeless since they are worried about their symptoms and, finally, they are dissatisfied with their lives [18]. Cross sectional study conducted in Brazil found that, 43.8% of the menopause women experienced severe symptoms [19]. Another cross sectional conducted in Addis Ababa show that, 8.4% of menopause women experience severe menopause symptoms [10]. Several studies done in various regions of the world have found that socio-demographic factors (Age, level of educational, occupational status, monthly income, and marital status [19–22]; personal factors (i.e. Body mass index, physical activity and duration of menopause) [21–26]; and behavioral factors (i.e.

smoking status and alcohol consumption status) [23, 27] are significantly associated with severity of menopausal symptoms.

The findings of this study help healthcare providers tailor treatments, offer personalized care, and promote preventive measures such as lifestyle changes. Early recognition of symptoms enables timely medical and psychological support, improving women's health and well-being. Additionally, the findings raise awareness, reduce stigma, and contribute to the development of evidence-based guidelines and community health strategies aimed at enhancing the quality of life for post-menopausal women.

Despite the fact that the population of menopausal women in Ethiopia is growing in parallel with their life expectancy, little is known about the severity and factors associated with menopausal symptoms among post-menopausal women. While previous studies in Ethiopia have primarily focused on the prevalence of severe menopausal symptoms, they have not thoroughly explored the underlying factors that may influence the severity of these symptoms. As a result, the specific factors that contribute to severity of menopausal symptoms in Ethiopian post-menopausal women remain largely uninvestigated, leaving an important knowledge gap in this area. Filling this gap through robust studies would not only contribute to global knowledge but could also help develop tailored interventions to improve the quality of life for post-menopausal women. Therefore, this study was intended to assess severity of menopausal symptoms and associated factors among post-menopausal women in Ambo town.

Methods

Study design, setting and study population

A community-based cross-sectional study was conducted among post-menopause women in Ambo town from August 3 to September 3, 2022. Ambo town is a Western Shewa zonal town, which is located 114 km to the west of Addis Ababa on the way to Wollega. According to the 2022 population projection from the Ambo Town Health Office, Ambo town has an estimated total population of 109,616 people, of whom 55,974 (50.97%) were men and 53,642 (49.03%) were women. Out of 53,642 women in Ambo town, 9,500 are post-menopausal women. The source population encompassed all post-menopausal women residing in Ambo Town. From this broader group, the study population was all post-menopausal women living in the three selected kebeles (the smallest administrative unit of Ethiopia). The sampling unit for this study was the household with post-menopausal women. All post-menopause women who resided in Ambo town for at least six months were included. Women who underwent oophorectomy and hysterectomy; post-menopause women who have complicated chronic medical problems like diabetes mellitus and hypertension were excluded.

Variables and measurements

The prevalence of the symptoms was assessed by a *Yes/No* question for each item in each domain, with "no" being a symptom not experienced and "yes" for a symptom experienced. For severity assessment, each symptom was scored by self-reported from 0 to 4 on Likert's scale, with 0 being no symptoms and 4 being very severe. According to the Menopause Rating Scale, menopause symptoms are classified as severe if the total score is 17 or higher out of 44, whereas symptoms are considered non-severe if the total score is less than 17 out of 44 [19]. Knowledge was assessed using a categorical scale with responses of Yes, No, and I don't know, where Yes was considered correct and No and I don't know were deemed incorrect. While knowledge for individual items was measured categorically, the overall knowledge score, derived from the sum of correct responses, was measured as ordinal. The level of knowledge is categorized based Modified Blooms cut of point as good for women who correctly answered 80%−100% of the 22 knowledge items, moderate for those who answered 60%−79%, and poor for those who answered less than 60% of the items [28]. Attitudes were measured using a Likert scale, with responses ranging from Strongly Agree to Strongly Disagree, allowing us to quantify and analyze respondents' opinions. Attitudes are classified as favorable for those who scored at or above the mean score and unfavorable for those who scored below the mean score [28]. For this study, women who consumed or had ever consumed any alcohol-containing beverage at least once a week in the past month were classified as alcohol consumers. Participants' height (in centimeters) and weight (in kilograms) were measured with a tapemeters and a calibrated digital balance-beam scale while wearing light clothing and socks without shoes, respectively. By using the average after measuring weight and height twice, measurement bias was reduced. For women who were unable to stand to measure their height, their lengths were assessed by having them lie stretched on a bed.

Body mass index (BMI) was calculated from weight in kilograms divided by height in meters squared (kg/m2) and divided into three categories: underweight and normal (< 25 kg/m2), overweight (25 to 29.9 kg/m2), and obese (> 29.9 kg/m2). The women's physical activity status was assessed based on replies to the following questions: "Did you exercise or strain yourself physically in your leisure time?" considering reading and watching television as a sedentary lifestyle (physically inactive). Physically active if a woman was involving at least one of (walking, cycling, cleaning house and compound, and

exercising in other ways for at least 4 h per week, fitness-increasing sport at least three times per week, and competitive sport) [29].

Sample size determination

The sample size for the first objective was calculated using the single population proportion formula, assuming a 95% confidence level, a 5% margin of error, and a 24% proportion based on a study from Addis Ababa [10].

$$n = \frac{(z\frac{\alpha}{2})^2 * p(1-p)}{d^2}; n = \frac{(1.96)^2 * 0.24(1-0.24)}{0.05^2}; \quad \text{The sample is 280.}$$

For the second objective, we performed sample size estimation using Epi Info 7.1 statcalc, with a 95% confidence level, 80% power, and a 1:1 ratio. Factors such as age, education, and self-perceived health status were considered. Since the estimated sample size for the second objective was smaller than the first, we used the initial sample size of 280 for the second objective. We then adjusted for a 5% non-response rate and a design effect of 1.5, resulting in a final sample size of 441.

Sampling procedure

A multistage sampling method was used to select study participants from Ambo town. Ambo town has six administrative kebeles (the smallest administrative unit of Ethiopia). Three kebeles [the smallest administrative unit in Ethiopia] (Hora Ayetu, Sankale Faris, and Awaro Kora) were selected from six kebele of Ambo town by the lottery method. The preliminary survey identified 5,642 post-menopausal women in the three selected kebeles; Hora Ayetu (3,511), Awaro Kora (1,731), and Sankale Faris (400) out of a total of 9,500 post-menopausal women in Ambo town. The survey was conducted in each selected kebele, and households with post-menopausal women were coded to facilitate their identification. A sampling frame was then prepared based on the preliminary survey results. The sample size was allocated proportionally to each kebele according to its population. Finally, a simple random sampling method was used, with computer-generated random numbers in Microsoft Excel, to select 275 post-menopausal women from Hora Ayetu, 153 from Awaro Kora, and 31 from Sankale Faris, giving a total sample size of 441.

Data collection tool and technique

The data collection tool for assessing socio-demographic characteristics and factors related to severe menopausal symptoms was developed based on a review of relevant literature [10, 23, 30, 31]. The Menopause Rating Scale (MRS) was used to evaluate the severity of menopausal symptoms. Heinemann, Potthoff, and Schneider developed and validated the MRS in Germany in the 1990s, making it a widely recognized tool for assessing the severity of menopausal symptoms and their impact on quality of life. The scale consists of 11 items, organized into three domains: psychological, somato-vegetative, and urogenital. The somato-vegetative domain includes four items: hot flushes and sweating, heart discomfort, sleep disorders, and joint or muscular discomfort. The psychological domain comprises four items: depressive mood, irritability, anxiety, and physical or mental exhaustion. The urogenital domain consists of three items: sexual problems, bladder problems, and vaginal dryness. The Menopause Rating Scale (MRS) demonstrated strong reliability, validity, and applicability in assessing severe menopausal symptoms among post-menopausal women in the selected kebeles. With a high Cronbach's alpha coefficient, the MRS ensured stable and repeatable measurements across individuals, effectively capturing symptom burden across its somatic, psychological, and urogenital domains. Its construct validity was supported by its ability to differentiate between women with severe and non-severe symptoms, while criterion validity was confirmed through significant correlations with other validated menopausal assessment tools and clinical indicators. The standardized nature of the MRS facilitated comparisons across different populations, and its translation and cultural adaptation ensured clarity for respondents.

The questionnaire was first prepared in English and then translated into Afaan Oromo, the local language spoken in the study area, by a native speaker with a PhD in Afaan Oromo, who also served as the translator. The questionnaire was translated into Afaan Oromo by language experts with a PhD in Afaan Oromo. A forward and backward translation process was conducted, followed by an expert review to ensure cultural relevance and clarity. During the expert review, specific corrections were made, including refining certain terminologies to align with local dialects, improving phrasing for better comprehension, and adjusting the wording of symptom-related questions to accurately reflect cultural expressions of menopausal experiences. These revisions enhanced the accuracy and clarity of the tool. The questionnaire was administered in Afaan Oromo, ensuring that data collection was conducted in the primary language of the study area. Data was collected through an interviewer-administered approach by five trained

midwives (BSc). The principal investigator provided close supervision to ensure accuracy and consistency throughout the process.

Data quality control

Data collectors received training for two days regarding the study's objectives, interview method, questionnaire context, and process. To control recall bias in our study, we minimized the recall period by focusing on symptoms experienced in the past month rather than over longer periods. Investigators thoroughly supervised the data collection process.

Data processing and analysis

Data were coded and entered into Epi Info version 7.1 and exported to SPSS version 25 for statistical analysis. Descriptive statistics were used to summarize the characteristics of the study population, with mean, median, and standard deviation applied for continuous variables and frequencies and percentages for categorical variables. Bivariate logistic regression analysis was used to examine individual relationships between independent variables and severe menopausal symptoms. Multivariable analysis then evaluated the combined impact of independent variables on severe menopausal symptoms while controlling for confounding factors, offering a comprehensive understanding of the factors that significantly influence symptom severity. Crude and adjusted odds ratios with their 95% confidence intervals (CI) were determined, and a statistically significant association was affirmed based on a P-value ≤ 0.05.

Results

Socio-demographic characteristics of study participants

A total of 437 study participants were involved in the study, resulting in a response rate of 99.09%. The mean age of the study participants was 59.92 years, with a standard deviation (SD) of 9.2 years. The majority of the study participants were Oromo in ethnicity; 381 (87.2%), and 247 (56.5%) were protestant by religion. Among the study participants, 133 (30.4%) attended primary school, and more than half, 256 (58.6%), were housewives. The mean (standard deviation) of monthly family income was 5246.87 ± 1990 Ethiopian Birr (ETB) (Table 1).

Table 1 Socio-demographic Characteristics of study participants in Ambo town West Shewa, Ethiopia: a cross-sectional study

Variables	Response	Frequency	Percentage %
Age categories	< 50 years	75	17.2
	51 to 60 years	189	43.2
	61 years and older	173	39.6
Educational status	Unable to read and write	82	18.8
	Primary school 1to 8	133	30.4
	Secondary school 9 to 12	131	30.0
	College and above	91	20.8
Ethnicity	Oromo	381	87.2
	Amhara	35	8.0
	Others[a]	21	4.8
Marital status	Married	342	78.3
	Widowed	95	21.7
Religion	Protestant	247	56.5
	Orthodox	149	34.1
	Muslim	38	8.7
	Others[b]	3	0.7
Occupational status	House wife	256	58.6
	Government employee	68	15.6
	Merchant	78	17.8
	Retired	35	8.0
Average monthly family income	< 1380	10	2.3
	1381 to 6900	332	76.0
	6901 and above	95	21.7

[a] Tigre and Gurage

[b] Catholic and Waqeffataa

Obstetric and gynecologic history of study participants

More than half of the study participants, 263 (60.2%) have less than five children. The mean age at menopause of participants was (SD) 47.82 ± 1.6 years. From the study participants, 112 (25.6%) and 91 (20.8%) have abortion histories and stillbirth, respectively. Regarding duration of menopause, 323 (73.9%) of the study participants were on menopause for five and more than five years.

Personal and behavior related characteristics

In this study, 305 (69.8%) of participants have poor knowledge about menopause. This study found that 151 (34.6%) of the respondents were alcohol consumers. Among the study participants, 117 (26.8%) were overweight and 56 (12.8%) were obese (Table 2).

Magnitude of severe menopause symptoms

The most abundantly experienced menopausal symptoms in the somatic domain were joint and muscular discomfort, 314 (71.9%). In the psychological domain, physical and mental exhaustion were more prevalent symptoms, 292 (66.8%). A sexual problem was reported by 179 (41%) of participants from the urogenital domain (Table 3). According to the MSR rating scale, 133 (30.4%) with a 95% CI (26.2%–35%) of women experienced severe menopausal symptoms during the past one month.

Factors associated with severe menopause symptoms

The bivariate binary logistic regression analysis showed significant association between severe menopause symptoms and age group, level of education, marital status, physical activity, alcohol use, body mass index, parity, duration of menopause, knowledge about menopause, and attitude towards menopause.

The multivariable logistic regression showed that post-menopause women who are older than 60 years are 3.2 times more likely to experience severe menopause symptoms than those younger than 50 years old [AOR = 3.2, 95% CI (1.3, 7.7)]. Regarding physical activity, post-menopause women who had not performed physical activity are 2.1 times more likely to experience severe menopause symptoms compared to those women performing physical activity [AOR = 2.1, 95% CI (1.1, 4.4)]. Comparison of alcohol consumption status shows that post-menopause women who consume alcohol are 1.8 times more likely to experience severe menopause symptoms than those who didn`t consume alcohol [AOR = 1.8, 95%CI (1.1, 3.1). Post-menopause women who had an unfavorable attitude towards menopause are 1.8 times more likely to experience severe menopause symptoms than their counterparts [AOR = 1.8, 95% CI (1.1, 3.0)]. Finally, those post-menopause women whose BMI are > 29.9 kg/m^2 are 6.1 times more likely to experience severe menopause symptoms compared to those BMI < 25women [AOR = 6.1, 95% CI (2.7, 14.2)] (Table 4).

Table 2 Personal and behavior characteristics of study participants in Ambo town, West Shewa, Ethiopia: a cross-sectional study

Variables	Response	Frequency	Percentage %
Physical activity	No	317	72.5
	Yes	120	27.5
Alcohol use in the past one month	No	286	65.4
	Yes	151	34.6
level of knowledge	poor knowledge	305	69.8
	moderate knowledge	120	27.5
	good knowledge	12	2.7
Attitude	Unfavorable	201	46.0
	Favorable	236	54.0
BMI	< 25 kg/m^2	264	60.4
	25 to 29.9 kg/m^2	117	26.8
	> 29.9 kg/m^2	56	12.8

Table 3 Prevalence of menopause symptoms among post-menopause women in Ambo town, West Shewa, Ethiopia: a cross-sectional study

Symptoms	Frequency	Percentage %
Somatic domain		
Hot flushes and sweating	230	52.6
Heart discomfort	158	36.2
Sleep disorder	187	42.8
Joint and Muscular discomfort	314	71.9
Psychological domain		
Depressive disorder	160	36.6
Irritability	134	30.7
Anxiety	144	33.0
Physical and Mental exhaustion	292	66.8
Urogenital domain		
Sexual problem	179	41.0
Bladder problem	145	33.2
Vaginal dryness	159	36.4

Discussion

A total of 437 participants were involved in this study, yielding a response rate of 99.09%. The average age of the respondents was 59.92 years. The majority of the participants were Protestant (56.5%) and Oromo (87.2%). In this study, 30.4% of post-menopausal women, with a 95% CI (26.2%–35%), experienced severe menopausal symptoms in the past month. This prevalence was higher than the

Table 4 Bivariate and multivariable logistic regression analysis of severe menopause symptoms among post-menopause women in Ambo town, West Shewa, Ethiopia

Variables	MRS severity score		COR(95% CI)	AOR (95%CI)	*P-value*
	Severe (≥17) n (%)	Non-severe (<17) n (%)			
Age group					
<50	8 (6.0)	67 (22.0)	1	1	1
51 to 60	43 (32.3)	146 (48.0)	2.5(1.1, 5.5)	1.8 (0.8, 4.3)	0.186
61 and above	82 (61.7)	91 (29.9)	7.5(3.4, 16.7)	3.2 (1.3, 7.7)	0.010*
Level of Educational					
Unable to read and write	32(24.1)	67 (22.0)	1.9(0.9, 3.6)	1.4(0.6, 3.1)	0.502
Secondary school	44(33.1)	146 (48.0)	1.5(0.8, 2.7)	1.7 (0.8, 3.6)	0.152
Primary school	34(25.6)	91 (29.9)	1.0(0.6, 1.9)	1.1(0.5, 2.5)	0.728
College and above	23(17.3)	67 (22.0)	1	1	1
Marital status					
Married	85(63.9)	257(84.5)	0.3(0.2, 0.5)	0.9(0.4, 1.5)	0.677
Widowed	48(36.1)	47(15.5)	1	1	1
Physical activity					
No	120 (90.2)	197 (64.8)	5.0(2.7, 9.3)	2.1(1.1, 4.4)	0.036*
Yes	13 (9.8)	107 (35.2)	1	1	1
Alcohol use					
No	58 (43.6)	228 (75.0)	1	1	1
Yes	75 (56.4)	76 (25.0)	3.9(2.5, 5.9)	1.8(1.1, 3.1)	0.025*
BMI					
<25	53(39.8)	211(69.4)	1	1	1
25 to 29.9	34(25.6)	83(27.3)	1.6(0.9, 2.7)	0.9(0.5, 1.5)	0.616
>29.9	46(34.6)	10(3.3)	18.3(8.7, 38.7)	6.1 (2.7, 14.2)	<0.001**
Attitude towards to menopause					
Unfavorable	74(55.6)	127(41.8)	1.7(1.2, 2.6)	1.8 (1.1, 3.0)	0.019*
Favorable	59(44.4)	177(58.2)	1	1	1
Parity					
<5 children	52(39.1)	211(69.4)	1	1	1
5 and above children	81(60.9)	93(30.6)	3.5(2.3, 5.4)	1.3(0.7, 2.4)	0.347

8.4% of 30–49-year-old women in the Gulele sub-city of Addis Ababa who reported severe menopausal symptoms [10]. The difference is because the Addis Ababa study included premenopausal, perimenopausal, and postmenopausal women. Premenopausal and perimenopausal women may not experience symptoms as severe as those of postmenopausal women, who generally report more severe menopausal symptoms [21]. On the other hand, it was lower than the 43.8% reported by Andretta T. et al. in their study conducted in Brazil [19]. This difference may be due to Ethiopian menopausal women concealing severe symptoms because of cultural norms and taboos that stigmatize discussions about menopause. Traditional beliefs discourage open conversations about personal health issues, leading to underreporting of symptoms and affecting the accuracy of clinical and research findings [32, 33].

Post-menopausal women older than 60 years are 3.2 times more likely to experience severe menopausal symptoms. This is consistent with studies conducted in Brazil by Andretta T. et al. [19]. This is justified by the fact that, as age advances, the ovaries produce significantly less estrogen and progesterone, and the depletion of these hormones, along with the aging process, exacerbates the severity of menopausal symptoms [34].

Post-menopausal women who did not engage in physical activity are 2.1 times more likely to experience severe menopausal symptoms than their active counterparts. This is supported by studies conducted in the United States by Barbara S. et al. [25], as well as in Philadelphia [35], Iran [20], and Finland [23]. This can be explained by the fact that physical activity influences brain chemicals, which may biologically reduce the intensity of menopausal symptoms. In contrast,

physically inactive women lack this benefit and thus experience more severe symptoms. Inactive women are also at higher risk of being overweight or obese due to the excessive accumulation of adipose tissue. This tissue acts as an insulator, raising body temperature and leading to severe vasomotor symptoms such as hot flashes and sweating. Additionally, post-menopausal women who lead a sedentary lifestyle are at greater risk of developing severe psychological symptoms like depression and anxiety due to reduced outdoor activity and recreation time [36–38].

Another finding of the present study was that post-menopausal women who consume alcohol are 1.8 times more likely to experience severe menopausal symptoms than non-users. This is supported by a study conducted in Finland by Moilanen J. et al. [23]. This can be explained by the fact that, as age advances, the body retains less fluid and becomes more dehydrated, leading to a decreased ability to dilute alcohol. Consequently, alcohol has a more toxic effect on cells, which can amplify the severity of menopausal symptoms. Additionally, alcohol impairs the body's ability to regulate temperature and exacerbates negative feelings, anxiety, and depression—issues to which women are more susceptible during menopause. Heavy drinking can also lead to central obesity, which further increases the severity of symptoms. The relationship between alcohol consumption and the intensity of menopausal symptoms may vary depending on the amount of alcohol consumed and the specific symptoms experienced. Given the basic nature of current measurements of alcohol consumption, a more comprehensive investigation is needed [39–42].

The current findings indicate that obese post-menopausal women are 6.1 times more likely to experience severe menopausal symptoms compared to women of normal body weight. This finding is supported by studies conducted in the United States [25], the Baltimore Metropolitan Area [43], Massachusetts [44], and Korea [21]. This can be explained by the fact that obesity, along with the depletion of estrogen and progesterone and the aging process, cumulatively complicates the health of menopausal women, leading to worsening menopausal symptoms. Excessive accumulation of adipose tissue acts as an insulator, increasing body temperature and exacerbating hot flashes and sweating [45]. Another finding of this study was that women with an unfavorable attitude towards menopause were 1.8 times more likely to experience severe menopausal symptoms compared to those with a more positive attitude. This novel finding has not been reported in previous studies. The reason may be that women with a negative attitude are less satisfied with their lives during menopause, making them more sensitive to and troubled by the symptoms.

Limitation of the study

This study has the following limitations. The cross-sectional design limits the ability to establish causal relationships between severe menopausal symptoms and associated factors. Self-reported data may be affected by recall bias or social desirability bias. Additionally, cultural taboos surrounding menopause may have led to under-reporting of symptoms or certain behaviors, such as alcohol consumption, which could impact the accuracy of the findings. Even though we conducted a rigorous translation process, including forward and backward translation by a native speaker, followed by an expert review which allowed us to refine terminology, improve clarity, and align symptom-related questions with local expressions of menopausal experiences to ensure linguistic and cultural relevance; the Menopause Rating Scale (MRS) used in this study was not independently validated. Therefore, we inform the reader that this may be a limitation of the study.

Conclusion

The findings of this study indicate that approximately one in three post-menopausal women reported experiencing severe menopausal symptoms in the past month. Factors such as advanced age, lack of physical activity, alcohol consumption, an unfavorable attitude towards menopause, and obesity were identified as being associated with these symptoms. These results may inform health planners and healthcare providers in designing interventions targeting modifiable risk factors to enhance the well-being of post-menopausal women. Additionally, the findings could assist clinicians in understanding the factors associated with severe menopausal symptoms, potentially contributing to more tailored treatment and management approaches.

Abbreviations

AOR	Adjusted Odd Ratio
BMI	Body Mass Index
CI	Confidence Interval
COR	Crude Odd Ratio
MRS	Menopause Rating Scale
SWAN	Study of Women health Across the Nation
WHO	World Health Organization

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12905-025-03662-x.

Additional file 1.

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Authors' contributions
Galana Takele, Binyam Seifu, Dr. Dereje Yadesa, and Daniel Belema contributed to conception, study design, and execution. Galana Takele, Gizachew Abdisa, and Musa Abduro contribute to the acquisition of data, analysis, and interpretation. Workitu Sileshi and Amare Tesfaye drafted and critically reviewed the manuscript. All authors give final approval of the revision to be published, agreement on the journal to which the article was submitted, and agreement to be accountable for all aspects of the work.

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Data availability
The data used to support the findings of this study are available upon request from the corresponding author.

Declarations

Ethics approval and consent to participate
Ethics clearance was obtained from the Ethics Review Board of the College of Medicine and Health Sciences at Ambo University (Ref. No.: AU/PGC/411/2014). After a thorough explanation of the research procedures, purposes, and anticipated benefits, each respondent provided verbal informed consent, which was approved by the board. The respondents' identities and responses were kept confidential using coded identifiers. Participants' autonomy was respected, and they were assured that their participation was voluntary and that they could withdraw from the interview at any time if they felt uncomfortable. There was no discrimination in the selection of participants. All methods used in this study were conducted in accordance with applicable guidelines and regulations.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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