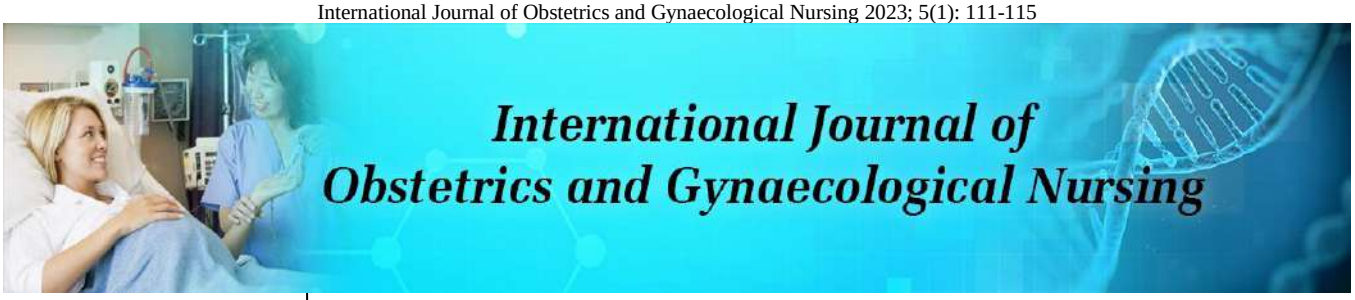

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Hariprasath Pandurangan
Amity College of Nursing, Amity University Haryana, India

Balasubramanian N
S Lal Singh Memorial Institute of Nursing, Desh Bhagat University, Punjab, India

Sudha Rani S
S Lal Singh Memorial Institute of Nursing, Desh Bhagat University, Punjab, India

Corresponding Author:
Hariprasath Pandurangan
Amity College of Nursing, Amity University Haryana, India

Development and validation of postmenopausal attitude scale

Hariprasath Pandurangan, Balasubramanian N and Sudha Rani S

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Abstract
Background: Menopause is not only a biological event but also psychosocial. Attitudes, perceptions, and expectations are some of the psychosocial phenomena surrounding menopause. Many women perceive it as a welcome relief from menses and the risk of pregnancy while those who desire children consider it an unwelcome event. Both women in midlife and health professionals agree that attitudes toward menopause play a potential role in the experience of menopause, including its perceived severity. However, there is currently no comprehensive tool to assess menopausal women's attitudes.
Methodology: The aim of this study is to develop post-menopausal women attitude scale. To develop the tool authors followed the various steps like review of literature, obtaining content validity and establishing content validity ratio, factor analysis and estimating the reliability of the tool.
Results: The content validity ratio of the tool is 1 and reliability of the estimated by Cronbach alpha and it was found to be 0.765. The version of the scale is a five point Likert scale with 25 items. There were 10 items under the heading Attitude towards Physical Factor, 5 items under the heading Attitude towards psychological Factor, 5 items under the heading Attitude towards Sexual Factors, and 5 items under the heading Attitude towards Management of Menopause.
Conclusion: Proper validation of tool is essential, and it is crucial process in the new construction of the tool. The prepared tool will comprehensively measure all the domains of attitude related to menopause.

Keywords: Attitude, menopause, menopausal women, content validity ratio, reliability, factor analysis

1. Introduction
The aging population is increasing, and the major health problem of old-age women is the severity and symptoms of menopause [1]. The report of the World Health Organization is that in 2030, postmenopausal women will reach 1.2 billion, and the ratio of them in industrialized and developing countries will be 24% and 76%, respectively [2]. As of 2021. The population of females in the world is estimated at 3,905 million or 3.905 billion, representing 49.58% of the world population. Approximately 247,107,979 females are in the age group of 40 to 50 years [3]. These statistics show that there is need for sensible preparation is required by health care members to meet the needs of this growing population of menopausal women.
Menopause is the end of menstruation permanently that is recognized after 12 months of amenorrhea. It causes as a decrease in the production of ovarian gonadotropins, estrogen, and progesterone hormones [4]. This decline in hormones creates vasomotor and psychological symptoms [5]. Some menopausal women might also have health problems such as cardiovascular diseases and osteoporosis [6].
Hot flashes, vaginal dryness, nervousness, and sleeping problems are the major manifestations caused by a lack of oestrogen [7]. These manifestations do not exist in all menopausal woman, it differs from individual to individual [8]. These problems not only cause serious suffering and infirmity for menopausal women but also require a lot of planning in the country's health care system [9]. Understanding the changes and insight into the causes is vital for all menopausal women, and it helps to adopt a positive attitude.
Attitudes towards menopause in women vary from individual to individual as well as nation to nation. In western cultures, the valuable qualities of women are physical and sexual attractiveness and reproductive capacity, they consider menopause as a negative attitude whereas, in non-western cultures, menopause changes social roles, and increases the authority of women [10]. Various studies show that menopausal women's negative attitudes cause severe symptoms [10, 11, 12].

The authors in search of an existing attitude scale but mostly found are not suitable for the objectives of the present study and lack strong reliability and validity. Hence, the authors planned to develop the instrument on post-menopausal women's attitude scale.

2. Materials and Methods

Development of Post menopausal attitude scale

Extensive literature was initially done to develop a tool. A literature review is defined as "a descriptive, analytic summary of the existing material relating to a particular topic or area of study" [13]. Review literature helps in making decisions about the suitability of material to be considered. PubMed, CINAHL, books, reports, articles, periodicals, published and unpublished research studies and mass education media were reviewed for literature. After search of existing tool, it is observed that no tool has been found based on the objectives of the study. Hence, authors developed the own tool and validated.

Post-Menopausal Women Attitude Scale (PMWAS): The tool was developed under four subheadings. There were 20 items under the heading Attitude towards Physical Factor, 10 items under the heading Attitude towards psychological Factor, 10 items under the heading Attitude towards Sexual Factors, and 10 items under the heading Attitude towards Management of Menopause. Therefore, the initially developed too has 50 items.

Validation of the tool

The following steps are followed in content validity:

- Preparation of content validity evaluation form
- Selection of content validity experts
- Data sheet and scoring
- Calculating content validity index

Preparation of content validity evaluation form

The initial process in content validity is preparation of content evaluation form, which is to be submitted to the subject experts along with newly developed tool. It is prepared in such a way that the experts will go through the content and find out the relevancy, clarity, simplicity and ambiguity. The criteria for measuring content validity includes that the content in the item is not relevant, needs modification, needs minor modification and relevant. The authors adopted

Yaghmaie [14] criteria for measuring content validity and based on that evaluation form was developed. The scoring ranges from 1 to 4. Experts were asked to rate the items in the content validity evaluation form.

Selection of Content validity experts

Experts were selected on the basis of their qualifications, job title, experience, knowledge and availability to complete the task within the specified time frame. Thus, authors had selected eight experts who are expertise in the particular topic with minimum qualification of PhD in nursing and M.D in OBG and four experts were from the field of Nursing and three were OBG specialist and one bio-statistician was selected. The authors contacted experts through mobile and after consent the tool has been submitted to the experts for content validity. The experts were requested to go through the Attitude Scale and give their validity based on relevancy, clarity, simplicity and ambiguity in the content evaluation form of items. The tool has been collected and analyzed for validity after receiving from all experts.

Data sheet and scoring

The rating given by the experts has been noted in the data sheet. The item number and expert number are marked in the coding sheet. The evaluation form submitted to the experts is four points rating scale which has scoring of not relevant (1), needs modification (2), needs minor changes (3) and relevant (4). Further, the data was computed for content validity index.

Calculating content validity index

Content validity index is used to find out representativeness, comprehension, ambiguity and clarity. Two types of content validity index (CVI) are calculated i.e., I-CVI and S-CVI. I-CVI is item level content validity index. It is the proportion of content experts giving items a relevance rating 3 or 4. The formula used to compute I-CVI is agreed item/number of experts. S-CVI is scale for content validity index. It is the average of I-CVI scores for all items on the scale. There are two methods for estimating S-CVI, in which the average of the I-CVI scores for all items on the scale (S-CVI/Ave) and the proportion of items on the scale that achieve relevance scale of 3 or 4 by all experts (S-CVI/UA). The experts rate the items 1 to 4, as given in the following rating [15-16].

Experts in agreement

Sum up the experts rating of each item. If an expert marked the item score either '3' (need minor changes) or '4' (relevant), then it is considered as agreed, if not disagreed. For an each agreed items the assigned score was '1'and for disagreed item '0'. For a example in item number 27 (1 + 1 + 0+1 + 0 + 1 + 1+ 0) = 5

Universal agreement (UA)

If all experts agreed to the item then the score 'one', even one expert is not agreed then the score is zero.

I-CVI

The total number of experts agreement divided by the total number of experts. For a example in item number 1, 8/8=1. In item number 27 and 32, five experts agreed and three experts rejected. So 5/8=0.62.

S-CVI/Ave (based on I-CVI)

The sum up of I-CVI score of all items divided by the total number of items, for example the S-CVI/Ave (50/50) is equal to 1.

Based on the above calculation, item numbers 9, 12, 14. 15, 16, 17, 20, 24, 25, 27, 32, 41, 42, 44, 45, 46, 49 were removed and items numbers 5, 7, 13, 22, 23, 28 were modified as suggestion of experts. After that attitude scale is submitted to the same experts for content validity. This time I-CVI and S-CVI was found to be 1.

Pre testing of the tool

A cross-sectional survey design was used to collect the data. The study period was from December 2021 to February 2022. The research setting was selected districts in Valparai district of Tamil Nadu. The sample size was calculated based on the ratio 1:5 i.e each item five participants will be included in the study. The estimated sample size was 165

and considering the non-response rate of 20 % the sample size was increased to 200. The tool was pretested among postmenopausal women. The structured interview schedule used to collect data on menopausal women's attitude toward menopause.

Procedure for data collection

Administrative permission was obtained from the village administrative officer and written consent from the post-menopausal women who met inclusion criteria. PMWAS was a structured interview schedule, where the data was collected by means of interview and took 30 minutes for tool completion. Data analysis was done using descriptive analysis, exploratory factor analysis for construct validity, and Cronbach's alpha for measuring internal consistency. Principal component factor analysis was used. For deciding the number of factors to extract the scree plot and Kaiser's criterion was used. KMO test and Bartlett's test of sphericity were used to determine sample adequacy and appropriateness of data for factor analysis.

3. Results and Discussion

The demographic information of the participants was analyzed using descriptive statistics. A total of 200 post-menopausal women were participated in this study. Out of those, only 170 participants were responded to all 33 items in the questionnaire. The mean age of the participants was 48 years, with a standard deviation of 4.53.

Table 1: Loading coefficients of factors obtained by Factor Analysis of Attitude Scale among postmenopausal women

Item No.	Physical Factor	Psychological Factor	Sexual Factors	Management of Menopause
1.	0.649			
2.	0.798			
3.	0.712			
4.	0.692			
5.	0.894			
6.	0.834			
7.	0.845			
8.	0.898			
9.	0.716			
10.	0.787			
11.		0.812		
12.		0.891		
13.		0.782		
14.		0.672		
15.		0.619		
16.			0.716	
17.			0.724	
18.			0.787	
19.			0.717	
20.			0.867	
21.				0.781
22.				0.887
23.				0.891
24.				0.886
25.				0.814
Variance	16.12%	14.18 %	12.91 %	10.68 %
Eigen Value	2.52	2.32	1.75	1.18
Cronbach's Alpha	0.785	0.742	0.718	0.694

KMO= 0.819, Bartlett's Test of Sphericity $\chi 2 = 1268$, $p<0.001$.

The data is considered suitable for factor analysis if KMO value is > 0.8 and the p values Bartlett's Test of Sphericity <0.05. The data were extracted using principal component analysis with varimax rotation (factors with Eigen values of >1 was retained) and inter item correlation value less than 0.6 was supressed and 8 items were removed due to cross loading. The final tool 25 items. This four factors model explained nearly 53.89 % of the variability of the data. Factor 1 (Physical), Factor II (Psychological), Factor III (Sexual), Factor IV (Management of Menopause) accounted for 16.12%, 14.18%, 12.91%, 10.68%, of variance respectively with an eigenvalue of 2.52, 2.32, 1.75, 1.18.

Reliability of Attitude scale

Cronbach's alpha was calculated to assess internal consistency of attitude scale. The Cronbach's alpha value of attitude scale was found to be 0.765 (Ideally Cronbach's alpha coefficient should be > 0.70) and item score to total score correlation was between 0.3-0.89. Though for few items the item score to total score correlation was < 0.3 and when the individual item was deleted the Cronbach's alpha value of the item did not increase that meant all items were internally consistent and contributing to the total reliability of the tool but for few items Cronbach's alpha value increased when that individual item was deleted. It indicated that these items were not contributing to the total reliability of tool and could be discarded.

Final Tool

The post-menopausal women attitude scale is a five point Likert scale with 25 items. There were 10 items under the heading Attitude towards Physical Factor, 5 items under the heading Attitude towards psychological Factor, 5 items under the heading Attitude towards Sexual Factors, and 5 items under the heading Attitude towards Management of Menopause.

Table 2: Statement, attitude towards physical factor, sexual factor and management of menopause

S. No	Statements	SA	A	U	DA	SD
Attitude towards Physical Factor						
1.	Menopause is unpleasant experience					
2.	Women generally feel changes in all the systems of the body					
3.	All menopausal women are at risk of heart disease					
4.	Women gain excessive weight during menopause					
5.	Menopause is an end for pregnancy					
6.	Women can lead a healthy life after menopause.					
7.	Healthy diet intake is required during menopause					
8.	Menopausal symptoms are generally serious and cannot be controlled.					
9.	Mensurating women are healthier than menopausal women					
10.	Joint problems are common after menopause					
Attitude towards Psychological Factors						
11.	Menopause makes every woman depressed.					
12.	Mood swings are common during menopause					
13.	Women feel happier after menopause because they are free from monthly menstrual bleeding.					
14.	Menopause creates general fear, and it is disturbing for woman.					
15.	Menopause makes every woman aggressive					
Attitude towards Sexual Factors						
16.	Sexual life will be affected after menopause					
17.	After menopause, women feel down and feel loss of femineity					
18.	Menopause ends sexual pleasure					
19.	Sex after menopause is usually painful					
20.	Sex after menopause can damage the vagina					
Attitude towards Management of Menopause						
21.	Hormone replacement therapy is dangerous					
22.	Women generally don't need contraception if the period stops.					
23.	Lifestyle modifications are important after menopause					
24.	Coping strategies are important to manage menopausal symptoms					
25.	Women should consult the gynaecologist at the time of menopause					

Discussion

A woman's attitude toward menopause alters her menopausal experience. Understanding women's perceptions of menopause will be of benefit to healthcare providers. The paucity of research on such attitudes among Indian women prompted this tool development.

Previous studies suggested that women with positive attitudes better manage menopausal symptoms than those with negative attitudes [17-18]. Thus Educating midlife women about the normal parameters of the menopause experience, addressing any symptoms with possible treatments, and informing women that menopause can be a pleasant experience and does not necessarily call for medical consultation are interventions nurses and health workers can apply to help them reduce fear and increase confidence to deal with menopause in perimenopausal women. Further investigation of the concerns and reasons behind the negative attitudes of Indian women toward menopause with in-depth qualitative research is sorely needed to assist these women adopt positive attitudes that will ultimately help them have successful menopausal transitions.

The diversity of attitudes across different parts of the world suggests that social and cultural factors play a role in shaping people's attitudes toward menopause. Hence, for the management of menopause, a holistic approach to health, with physical, mental, psychological, social, and cultural aspects, should be taken when developing appropriate interventions [19-20]. Nurses can play a preventive role by evaluating women's perceptions. Moreover, health counselors need to encourage women to share their fears, and remind them that the personal experience of menopause varies from person to person: personal plans for coping with the menopausal experience should be constructed with the collaboration of health personnel. Tailored pre-, peri-, and postmenopausal educational interventions depending related to the status and symptoms of menopause should be regarded as crucial for Indian midlife women.

4. Conclusion

Proper validation of tool is essential, and it is crucial process in the new construction of the tool. The prepared tool will comprehensively measure all the domains of attitude related to menopause.

Conflict of interest: Nil.

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