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Validity and reliability study of Menopausal Maladies Scale (MMS)

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ABSTRACT

Menopause is a natural part of the aging process in women's life in which the women are "sandwiched" between the responsibilities related to two generations. Menopause has various phases as mention by STRAW + 10 classification among which perimenopausal and early postmenopausal periods are more significant because the women suffer with most significant health problems due to estrogen depletion during this period. If the problems are not identified and treated in the early stage, these problems become sickness (maladies) and bring the women's life to an end. MENQOL, Menopausal Rating scale and modified Kupperman's Index are popularly used tools to assess the menopausal problems. The tool Menopausal Maladies Scale (MMS) is developed from the above mentioned popular tools. MMS includes a wide range of items relating to Maladies of menopausal women which mainly ley on the physiological and psychological domains. Physiological domain and psychological domain of MMS, are further classified as under physiological Maladies involved Skin, Heart, Sleep, Joint and muscular problems and urogenital problem and the Psychological Maladies as include Depression, Anxiety, Stress and Memory & concentration. The MMS was reliable and valid tool to assess the physiological and psychological menopausal maladies.

Keywords: Menopause, Perimenopause, Postmenopause, Maladies, Content validity index, Criterion and Construct validity and Interrater reliability.

1. BACKGROUND OF THE STUDY

Menopause is a process of attainment of permanent stoppage of menstrual periods due to the reduction in ovarian activity and low level of hormone estrogen. Most of the women enter menopause in their 40s, but this can vary from one individual to another. Average age of menopause of an Indian woman is 46.2 years much less than the Western counter parts (51 years). There was a correlation between the age of menopause and social and economic status, married status, dwelling place and parity status. ¹

The most common symptoms during menopause were low back ache (79%) and musclejoint pain (77.2%). The least frequent symptoms were increase in facial hair (15%) and feeling of dryness during intimacy (10.8%). Scores of vasomotor domain were significantly more in menopause transition group. Scores of physical domain were significantly more in late postmenopausal group. So that, the menopause related symptoms had a negative effect on the quality of life of the perimenopausal and the postmenopausal women. ²

Prevalence of symptoms among ladies in this period were emotional problems (crying spells, depression, irritability) 90.7%, headache 72.9%, lethargy 65.4%, dysuria 58.9%, forgetfulness 57%, musculoskeletal problems (joint pain, muscle pain) 53.3%, sexual problems (decreased libido, dyspareunia) 31.8%, genital problems (itching, vaginal dryness) 9.3%, and changes in voice 8.4%. Only 22.4% of women knew the correct cause of menopause. ³

Proper and timely identification of Menopausal problems and rendering intervention among menopausal women will help to reduce the symptoms and lead a better quality of life. These menopausal problems initially start as symptoms, then these symptoms are worsened and if not treated, these problems become physiological and psychological maladies or sickness.

Since there was the need of measuring wide range of physiological and psychological maladies associated with peri and post menopause and also to make the tool user friendly with guidelines, the researcher developed a new tool by gathering information from the popularly used tools to assess the menopausal problem such as Menopause Specific Quality of Life Questionnaire (MENQOL), Menopausal Rating Scale (MRS), modified Kupperman's Index

2. OBJECTIVES

- To develop a tool to measure the menopausal maladies of peri and post-menopausal women.
- To test the content, construct and criterion validity of the Menopausal Maladies Scale
- To test the internal consistency reliability and interrater reliability of the Menopausal Maladies Scale

3. DEVELOPMENT OF THE TOOL

To assess the level of Menopausal Maladies (Problems are named as maladies while the problem becomes sickness) among peri and post-menopausal women the researcher used 3 parts of the tool.

Part - A: Demographic variables:

Part - B: Menopausal Staging STRAW +10 Scale

Part - C: Menopausal Maladies Scale (MMS)

Part - A: In demographics variable the researcher included the variables of the peri and postmenopausal women such as Age (Yrs.), Religion, Marital Status, Educational status, Occupational status, Household income/month, Habits, Body Mass Index (BMI), Exercise (times/ week) & Family type

Part - B: Menopausal status of the women: The menopausal status was classified according to STRAW (Stages of Reproductive Aging Workshop)⁴ classification which divided menopause staging into many stages. In which **Perimenopause** refers to a period in which women had 7 days or more difference in their 2 – 3 consecutive menstrual cycles. Early perimenopause; had increasing irregularity of menses without skipping periods (7 days difference from the beginning of a given cycle to the next, experienced after the previously regular cycle). Late perimenopause; had irregular menstruation in the previous/last 2- 12 months but not in the previous/last 2 months (previous 2 months the women have complete missing of periods). And the **Postmenopause** refers to the period of women in which women had continuous 12 months of amenorrhea (no menstrual bleeding in the previous/last 12 months) until the end of the life

Part - C: Menopausal Maladies Scale (MMS)

The MMS is the 5 point “Likert scale” comprises of 30 items under two sub scales to measure the Physiological maladies and Psychological maladies.

Scoring procedure

Score the items in the scale based on the following responses given by the respondents:

“0” for Never / None

“1” for rarely/ Once in a while

“2” for Often/Frequent but not affecting function

“3” for Very often / very frequently/ Affects life and work/ needs treatment

“4” for Always/ recurrence even after treatment.

The scale’s lowest score is 0 and highest score is 120.

S.No	Menopausal Maladies	0	1	2	3	4
Physical Maladies						
Skin:						
1.	Hot flashes	None	<3 times/day	3–9 times/day	≥ 10 times/day	Always
2.	Night Sweating	None	<3 times/day	3–9 times/day	≥ 10 times/day	Always
3.	Formication	None	Rarely	Frequent	Very frequently	Always
Heart:						
4.	Unusual awareness of heart beat	None	Rarely	Frequent	Very frequently	Always
5.	Heart racing	None	Rarely	Frequent	Very frequently	Always
6.	Heart tightness	None	Rarely	Frequent	Very frequently	Always
Sleep:						
7.	Difficulty in falling asleep	None	Rarely	Frequent	Very frequently	Always

8.	Difficulty in sleeping through	None	Rarely	Frequent	Very frequently	Always
9.	Waking up difficulty	None	Rarely	Frequent	Very frequently	Always
Joint and Muscles:						
10.	Joint pain	None	Rarely	Frequent	Very frequently	Always
11.	Soreness in joints and muscles	None	Rarely	Frequent	Very frequently	Always
12.	Feeling of fatigue	None	Rarely	Feel difficult when climbing the 4th floor	Very frequently	Always
13.	Myalgia	None	Rarely	Frequent, not affecting function	Very frequently	Always
14.	Vertigo	None	Rarely	Frequent, not affecting function	Very frequently	Always
15.	Melancholia	None	Rarely	Frequent, not affecting function	Very frequently	Always
Uro – Genital:						
16.	Difficulty in urinating	None	Rarely	More than 3 times per year, not requiring medication	More than 3 times per year, needing medication	Always
17.	Bladder incontinence	None	Rarely	More than 3 times per year, not requiring medication	More than 3 times per year, needing medication	Always
18.	Vaginal Dryness	None	Rarely	Frequent Itching /Burning soreness of vulva and vagina / not affecting function	Frequent Itching /Burning soreness of vulva and vagina affecting function / needs treatment	Always
19.	Lack of interest in sexual activity	None	Reduced initiation of sexual/ erotic thoughts or fantasies	Unreceptive to partner's attempts to initiate	Rarely accepts by compulsion of the partner	Complete absence/ of interest in sexual activity
20.	Difficulty in sexual intercourse / Lack of satisfaction	None	Reduced sexual arousal in response to sexual erotic cues	Reduced sexual excitement	Reduced genital or non-genital sensations during sexual activity	Complete absence/ of interest in sexual activity
Psychological Maladies						
Depression:						
21.	Feeling down	None	Rarely	Frequent	Very frequent	Always
22.	Feeling Sad	None	Rarely	Frequent	Very frequent	Always
23.	Crying spells	None	Rarely	Frequent	Very frequent	Always

24.	Mood swings	None	Rarely	Frequent	Very frequent	Always
Anxiety:						
25.	Inner tension	None	Rarely	Frequent	Very frequent	Always
26.	Panic	None	Rarely	Frequent	Very frequent	Always
Stress:						
27.	Nervousness	None	Rarely	Frequent	Very frequent	Always
28.	Aggressive	None	Rarely	Frequent	Very frequent	Always
Memory & Concentration:						
29.	Impaired memory	None	Rarely	Frequent	Very frequent	Always
30.	Decrease in concentration	None	Rarely	Frequent	Very frequent	Always

Note: Use hand guide to score psychological menopausal maladies.

Hand guide to score psychological menopausal maladies: (Derived from DASS 21) ⁸

1.	Feeling down	I couldn't seem to experience any positive feeling at all
		I felt that I had nothing to look forward to
		I found it difficult to work up the initiative to do things
		I was unable to become enthusiastic about anything
		I felt I wasn't worth much as a person
		I felt that life was meaningless
2.	Feeling Sad	I felt downhearted and blue
3.	Crying spells	I feel like crying & I cry even
4.	Mood swings	I feel not to take a constant decision
5.	Inner tension	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)
		I was aware of dryness of my mouth
		I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)
		I experienced trembling (e.g. in the hands)
6.	Panic	I felt scared without any good reason
		I was worried about situations in which I might panic and make a fool of myself
		I felt I was close to panic
7.	Nervousness	I tended to over-react to situations
		I felt that I was using a lot of nervous energy
		I found myself getting agitated
8.	Aggressive Restlessness	I found it difficult to relax
		I found it hard to wind down
		I was intolerant of anything that kept me from getting on with what I was doing
9.	Impaired memory	I feel I forget the things and feeling difficulty to keep remembering the things
10.	Decrease in concentration	I feel I am unable to concentrate continuously, even for short period

4. INTERPRETATION

Based on the scores the levels of menopausal maladies will be interpreted and graded in six categories. They are “No symptoms” - 0 - 20, “Mild” - 21 - 40, “Moderate - 41 - 60” “severe - 61 - 80” and very severe - 81 - 100 and ‘Worse’ - 101 - 120 symptoms.

5. TRANSLATION AND BACK TRANSLATION

It is imperative that the translated version of measurement was well understood by respondents, and that they perceived the same meaning as what researchers intended to achieve from the questionnaire. Hence, the modified Tamil version of the Menopausal Maladies Scale was translated into the Tamil language by an expert who was a post graduate in Tamil literature.

6. CONTENT VALIDITY

A total of four professional bilingual senior professors with over five years' research experience in the field of obstetrics and gynecological nursing and in the English language medium rated the content validity of each test in relation to the physiological and psychological problems associated with menopause in the rating protocol. The scale was scored as follows: 1 = test not being

relevant; 2 = somewhat relevant; 3 = quite relevant and 4 = highly relevant. Grades 3 and 4 were considered acceptable. Apart from assessing the content, the four experts were invited to comment in more detail in boxes on the side of each question.

7. CONTENT VALIDITY INDEX

Content validity index. A panel of four experts reached a consensus that the final items in all 30 questions were valid to be used. An item-level CVI (I-CVI) was computed by dividing the total number of experts giving a rating of 3 or 4 (relevant) by the total number of experts in which all items scored a rating of 1, which reveals that the content in the tool is valid.

8. CRITERION VALIDITY

Since the tool was constructed by making modifications over the item and item arrangements of Menopausal Rating Scale (MRS), modified Kupperman's Index (mKI) and MENQOL the researcher measured criterion validity instead of construct validity. MENQOL was considered as criterion tool to check criterion validity because MENQOL is considered as an criterion (good standard) tool even for the MRS and mKI and the researcher selected the maximum number of items from MENQOL Pearson correlation coefficient test was used to find the correlation between the MMS and MENQOL. The calculated Correlation r value 0.92 indicates that the MMS is highly correlating with MENQOL.^{5, 6, 7}

9. INTER RATER RELIABILITY

Inter rater reliability was done through following steps.

1. Sample size determination
2. Subjects selection, preparation and administration of the questionnaire
3. Pearson correlation coefficient test

Sample size determination for the Inter rater reliability method

The sample size calculation for this study was based on the suggestion by Viechtbauer [6], for studies of similar nature.⁸

$$n = \frac{\ln(1-y)}{\ln(1-\pi)}$$

Whereas, n = number of sample size, y= confidence level (95%) and π = probability for non-responses to occur (0.05).

It was anticipated that problems while using the questionnaire that might occur would be minor such as nonresponses or item misinterpretation. Hence, it was decided that, if such difficulties are presented themselves with at least $\pi = 0.05$ probability (i.e. in at least 1 out of 20 participants), it would be good to detect this problem during the validation process. Accordingly, from the above equation, 60 participants needed to be screened to achieve 95% confidence that one or more such problem cases would be encountered. Since the researcher wanted to assess problems of both perimenopausal and postmenopausal women, equally selected 30 perimenopausal and 30 postmenopausal women.

Subjects selection, preparation and administration of the questionnaire

The 30 peri and 30 post-menopausal women aged between 40 - 60 years and who gave willingness were selected through convenient sampling method, residing in Pallakkapalayam village, Namakkal District. Two clinical instructors are selected as the raters from Dhanvantri college of Nursing, Namakkal District. 15 peri menopausal and 15 post-menopausal women were assigned to each rater. Raters were informed to rate the physiological and psychological Maladies of each participant in peri and post-menopausal group through the interview schedule.

Pearson correlation coefficient test:

The Pearson correlation coefficient r values for physiological and psychological items among perimenopausal group were 0.89 and 0.91 respectively. And r values for physiological and psychological items among postmenopausal group were 0.92 and 0.93 respectively. r' values infer that the inter rater reliability is high between the raters to measure physiological and psychological Maladies among both perimenopausal and postmenopausal women.

10. INTERNAL CONSISTENCY

Internal consistency Cronbach's alpha values for physiological and psychological items among perimenopausal group were 0.89 and 0.87 respectively. Cronbach's alpha values for physiological and psychological items among postmenopausal group were 0.81 and 0.82 respectively. Cronbach's alpha values reveals that the high Cronbach's alpha values indicate that response values for each participant across a set of questions in relation with physiological and psychological menopausal Maladies among perimenopausal and postmenopausal are consistent.

11. CONCLUSION

MMS is feasible tool to identify physiological and psychological aspect of the health affected during perimenopausal and postmenopausal period. High degree of interrater reliability and internal consistency of the tool shows that the items in the tools are consistent in measuring the menopausal problems during peri and postmenopausal period. High degree of content validity index, construct validity and criterion validity shows that the items are intended to measure the entire problems involved during peri and postmenopausal period.

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