RELIABILITY AND VALIDITY OF THE HINDI VERSION OF MENOPAUSAL RATING SCALE IN POSTMENOPAUSAL WOMEN.

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Background : Menopause identifies the end of a woman's reproductive life and is caused by reduced secretion of ovarian hormones.[1]Postmenopause is defined as the stage of conception from 12 months after the last menstrual cycle [2] In India ,the number of natural menopausal women below the age group of 50years where we can even see the national data tells about the menopause prior the 40 years of age by 1.5 percent approximately.[3] **Aim** The aim of the study was to translate MRS to Hindi and find out the reliability and validity of the Hindi version of MRS in postmenopausal women among urban areas **Methods :**The study was carried out in two phases: The two phase was the translation of scale into the Hindi language; the second phase was to find out the reliability and validity of the final version of scale. Validation was done by seven experts from the field of obstetrics and gynaecology, nursing, language expert , English expert. The English version of MRS was translated into Hindi was done by a bilingual expert and back translated. Translated version of MRS was reviewed by a panel to determine the face validity. A sample of 150 women aged 40-55 years residing in urban,Delhi was selected by convenience sampling method in a door to door survey. Reliability and validity of the tool for 11 items of MRS were conducted using Cronbach's α to ascertain the construct validity, 11 items were analyzed confirmatory factor analysis was conducted to evaluate the structural model fit of the Hindi language version of MRS. The Menopause Rating Scale (MRS) is a widely used tool to assess severity of menopausal symptoms in postmenopausal women. Data was analyzed by Jamovi (version 2.6.44). **Results** Validity was be done for MRS scale, from seven experts from the field of Nursing and Medicine , language expert and the ICVI for MRS scale was found to be 0.97.The English version of MRS was translated into Hindi was done by a bilingual expert and back translated. Translated version of MRS was reviewed by a panel to determine the face validity Menopause Rating Scale in Hindi showed high validity and good co-relation with Menopause Rating Scale-English. Menopause Rating Scale showed Cronbach's alpha was r=0.86. **Conclusion:** The Hindi version of MRS is a reliable and valid tool for assessing the menopausal symptoms in Hindi -speaking populations.

Keywords: Menopause rating scale, Hindi,Post menopausal women , menopausal symptoms.

Introduction

Menopause is one point in a continuum of life stages for women and marks the end of their reproductive years. After menopause, a woman cannot become pregnant, except in rare cases when specialized fertility treatments are used.Most women experience menopause between the ages of 45 and 55 years as a natural part of biological ageing. Menopause can also be a consequence of surgical or medical procedures.Menopause is caused by the loss of ovarian follicular function and a decline in circulating blood oestrogen levels.The menopausal transition can be gradual, usually beginning with changes in the

menstrual cycle. Perimenopause refers to the period from when these signs are first observed and ends one year after the final menstrual period.Perimenopause can last several years and can affect physical, emotional, mental and social well-being.A variety of non-hormonal and hormonal interventions can help alleviate perimenopausal symptoms[4].

Menopause is a natural phenomenon in that the woman is moving out from her reproductive period. It usually arises between the ages of 45 and 55 as a natural part of biological aging although it may also be caused by surgical or medical intervention. Menopause is the undefinition of menstruation caused by the termination of ovarian follicular function and dramatic reduction in circulating estrogen. Once menopause occurs, it's impossible for natural conception to occur, except in rare cases with specialized testing.[4]

Symptoms associated with menopause include: hot flushes and night sweats, body composition and cardiovascular risk can also be affected, vaginal dryness, pain during sexual intercourse and incontinence,difficulty sleeping/insomnia,changes in mood, depression and anxiety. Menopause can also result in the weakening of the pelvic support structures, increasing the risk of pelvic organ prolapse. Loss of bone density at menopause is a significant contributor to higher rates of osteoporosis and fractures.[4]

Aim of the study

The aim of the study was to translate MRS to Hindi and find out the reliability and validity of the Hindi version of MRS in postmenopausal women among urban areas

Need of the study

The Pan-Asian Menopause study shows the prevalence of 18 menopausal symptoms in 9 Asian countries and suggested that the percentages of overall and individual menopausal symptoms differed among the ethnic groups, with the smallest overall rates reported by Indonesian women and the highest for Vietnamese women. Others factors including menopausal status, socioeconomic status, lifestyle factors, and chronic conditions were identified to be associated with menopausal. Symptoms.[5]Many symptoms have been attributed to menopause, with substantial effects on quality of life[6]

Perimenopausal and postmenopausal symptoms can be disruptive to personal and professional lives, and changes associated with menopause will affect a woman's health as she ages. Therefore, perimenopausal care plays an important role in the promotion of healthy ageing and quality of life.[4]

Menopause can be an important transition from a social perspective, as well as a biological one. Socially, a women's experience of menopause may be influenced by gender norms, familial and sociocultural factors, including how female ageing and the menopausal transition are viewed in her culture. During the menopausal period, the ovarian hormonal function is ending, mainly   the restricted level of estrogens, may show to the development of vasomotor, psychological, somatic, and atrophic changes in the estrogen-dependent tissues, which give to the so called menopausal symtoms that is climacteric. The physiological and pathological change may exert a adverse effect on women's quality of life, and even cause severe physical and mental illness[7]

The Menopause Rating Scale (MRS) developed by researchers at the Berlin Centre for Epidemiology and Health Research (ZEG) first translated from German to English. Through the years the MRS has been translated into Mexican/Argentine Spanish, Swedish, Turkish, Brazilian Portuguese, French, Indonesian, Italian, Gujarati and so on. With the increasing need to measure the extent of menopause symptoms and determine the quality of life in Hindi speaking postmenopausal women, this study has the goal of not only translating the MRS from English into the Hindi language, but also culturally adapting, reliability and validating the tool in this language.[8]

The need of the study was to translate the Menopause Rating Scale into Hindi in order to assess the severity of symptoms experienced by postmenopausal women for Hindi speaking women .

Research Methodology

An observational study was conducted among menopausal women using Hindi version MRS scale and carried two phases that is first translation phase and second validation phase. Firstly, the two independent professional bilingual translators were given the MRS to translate the original English version to Hindi language questionnaire and completing the forward translation .Subsequently two more independent bilingual translators performed a back translation of the reconciled Hindi version to English**.** Tool used MRS HINDI version

The reliability and validity of Hindi Menopause rating scale became accomplished with the sample size of 150 post menopausal women. Menopause Rating Scale questionnaire has 11 items.

Inclusion criteria

 Postmenopausal Women

A) Who Had Menopausal Symptoms with Natural and Surgical Menopause.

B) Above 40 Years

C) Who Are Willing to Participate

D) Who understands Hindi

E) Women who are available during data collection

Exclusion criteria

A) Who Are Already Taking Hormonal Tablets or Hormonal Replacement Therapy.

B) with Cardiac Problems

C)with Any Psychotic Drugs or Any Antidepressant

D)with Diabetes Mellitus and Hypothyroidism

Postmenopausal women who were included in this study are from urban slums in Delhi from the May 2024 to August 2024 .Prior to the conduction of the study , Ethical permission were taken from JHIEC , Jamia Hamdard ,Delhi and Written informed consent was taken from the women . Further these translated Hindi version tool MRS was fill up. All the participants were asked whether they understood the items and whether they could interpret the questions. The scores were calculated for each subject and check the reliability of menopause rating scale. Data was analyzed by jamovi (version 2.6.44)

Results

Section 1: Reliability of MRS Data was analyzed Jamovi   (version 2.6.44. There were total 11 items in the MRS scale and overall Cronbach's alpha of MRS scale was 0.86 which indicates internal consistency. To check the individual contribution of items, each item was deleted one by one to see the changes in the value of Cronbach's alpha. But no item showed increase in the value of Cronbach's alpha rather the value

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of Cronbach's alpha remained same or it decreased which indicates all the items are contributing in the scale. This indicated that all the 11 items were contributing for reliability

Table no 1. Eigenvalues

Component	Eigenvalue	% of Variance	Cumulative %
1	4.954	45.03	45.0
2	1.414	12.86	57.9
3	0.947	8.61	66.5
4	0.730	6.63	73.1
5	0.717	6.52	79.6
6	0.542	4.93	84.6
7	0.496	4.51	89.1
8	0.385	3.50	92.6
9	0.341	3.10	95.7
10	0.267	2.42	98.1
11	0.208	1.89	100.0

Section 2: Face Validity was be done for MRS scale, from seven experts from the field of Nursing and Medicine , language expert and the ICVI for MRS scale was found to be 0.97.Validity of MRS Scale Pearson's Correlation to analyze inter-item correlation among items of postograph scale, Pearson's Correlation was applied. All (11) items of MRS had correlation $>.30$. Construct Validity The KMO value of data in this study was 0.84 which was calculated by jamovi (version 2.6.44), whereas p value of Bartlett's test of sphericity was < 0.05. It means that the data was suitable for factor analysis. Rotated Component Matrix by Using Principal Component Analysis By applying rotated component matrix by using principal component analysis scale had generated 2 components listed as 1, 2, as depicted in Table 1. All the items had loaded $(>.30)$ on factor 1 and 2 so all items were retained in the final scale. Principal component analysis technique with varimax rotation had yielded a total of 2 factors having Eigen value

of above 1. The Eigen values of two components were in the range of 1.30 –5.00. The two factors so generated accounted for 65% variance

Table no 2. KMO measure of sampling adequacy of MRS scale

KMO Measure of Sampling Adequacy	
Items	**MSA**
Overall	0.848
MRS1	0.884
MRS 2	0.858
MRS3	0.844
MRS4	0.860
MRS 5	0.783
MRS 6	0.908
MRS 7	0.897
MRS 8	0.797
MRS 9	0.821
MRS 10	0.725
MRS 11	0.884

Table no 3. Principal component analysis

Component Loadings		
	Component	
Items	**1**	**Uniqueness**

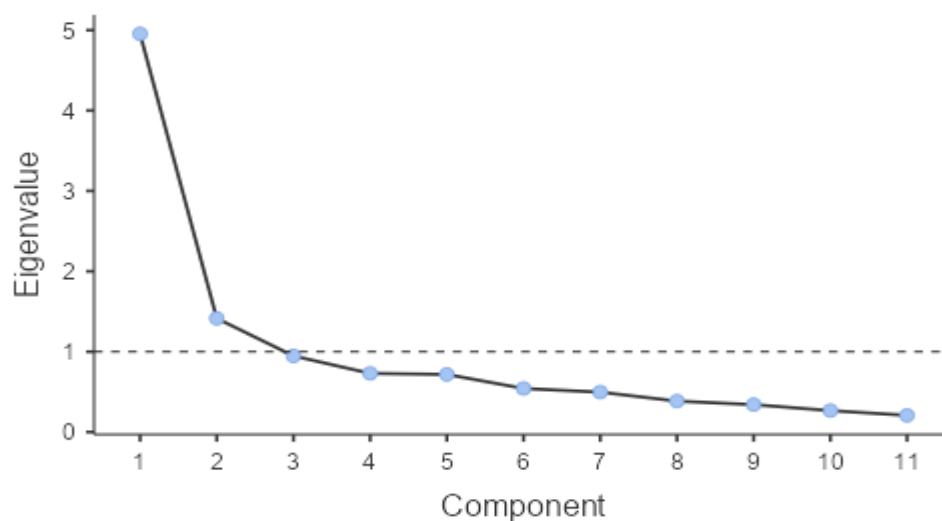| MRS1	0.760	0.423
MRS 2	0.692	0.521
MRS3	0.592	0.649
MRS4	0.602	0.637
PRE MRS 5	0.761	0.421
PRE MRS 6	0.744	0.447
PRE MRS 7	0.839	0.297
PRE MRS 8	0.365	0.867
PRE MRS 9	0.528	0.722
PRE MRS 10	0.592	0.650
PRE MRS 11	0.767	0.412
Note. 'varimax' rotation was used		

Figure 1. Screeplot of MRS scale

Discussion

An MRS in Hindi was translated to use for the healthcare professionals for menopausal to assess the condition of the menopausal women with the symptoms. The conclusion drawn from the study was that MRS in Hindi version has high validity and reliability and can be used effectively to assess the condition of the menopausal women. This was supported by the study conducted by Ekanayake et al[9] Content, discriminant and construct validity, together with high test-retest reliability and internal consistency, marked Tamil version of the MRS questionnaire, which indicates its equivalence to the original English version.

Construct validity was supported by several key findings. All items exhibited inter-item correlations above the recommended threshold of 0.30, indicating that each item contributes meaningfully to the underlying construct being measured. Furthermore, the Kaiser-Meyer-Olkin (KMO) value of 0.84 and a significant Bartlett's test ($p < 0.05$) confirmed that the data were suitable for factor analysis.

The findings of this study are consistent with previous research conducted on translated versions of the Menopause Rating Scale (MRS) in different languages and cultural settings. validated the Urdu version of the MRS in a sample of 130 women aged 40–55 years and reported a Cronbach's alpha of 0.869, indicating strong internal consistency. Their study also emphasized the importance of culturally sensitive translations, noting that the translation process provided women an opportunity to discuss menopause-related concerns, which are often overlooked in clinical settings. Similarly, Radha Anand Pathak et al[8]. validated the Gujarati version of the MRS, demonstrating satisfactory reliability and validity among postmenopausal women, further supporting the adaptability of the MRS across linguistic groups. These results align with findings from other linguistic validations of the MRS and reinforce the scale's utility across diverse cultural settings. Here is a integrating the findings from the studies by Urooj Sadiq et al.[10] Gehanath Baral et al.[11] developed and validated the Nepali version of the scale, reporting a Cronbach's alpha of 0.77, which confirms acceptable internal consistency and reinforces the utility of the MRS in assessing menopausal symptoms in diverse populations.

Conclusion

The current research was designed to convert the Menopause Rating Scale (MRS) into Hindi and see how suitable it is among postmenopausal women in urban locales for determining its reliability and validity. The research results suggest that the Hindi version of the MRS has both high reliability and validity, so it is suitable for assessing common symptoms of menopause in Hindi communities. Because the scale has reliable internal consistency, is dependable when taken again, and mirrors the expected results, it is suitable for use both in clinical work and research.

According to the I-CVI and results of factor analysis (KMO = 0.84 and Bartlett's test $p < 0.05$), the Hindi MRS truly measures the many aspects of menopausal symptoms in women.
As a result, the Hindi MRS is advisable for use by healthcare professionals in cities when assessing and monitoring symptoms of menopause. It is advisable that more groups be included in further research to see if the findings are broadly applicable and consistent with what was found here.

मेनोपॉज़ रेटिंग स्केल (MRS)

इनमें से कौन से लक्षण आपके लिए इस समय मान्य हैं? कृपया हर लक्षण के आगे उपयुक्त स्थान पर निशान लगाएं। जो लक्षण आपके लिए मान्य नहीं है उसके आगे 'अमान्य' पर निशान लगाएं।

लक्षण

अमान्य | थोड़ा | थोड़ा अधिक | अधिक | बहुत अधिक

अंक =   0   1   2   3   4

1 अचानक गर्मी लगना, पसीना आना
(अत्यधिक पसीना आना) ……………………………………………………………………

2 दिल में बेचैनी / असुविधा
(असामान्य ढंग से दिल की धड़कनें महसूस होना,

दिल की धड़कन असामान्य होना, दिल बहुत तेज़ धड़कना,

सीने में कसाव महसूस होना) ………………………………………………..

3 सोने में तकलीफ
(नींद आने में परेशानी होना, नींद पूरी न होना,

नींद जल्दी टूट जाना) …………………………………………………………

4 अवसाद / बुझा हुआ मन
(उदासी महसूस होना, रोने का मन करना,

कुछ करने का मन न करना, मूड बदलते रहना) …………………………

5 चिड़चिड़ापन
(तनाव महसूस करना, छोटी छोटी बातों पे गुस्सा आना,

घबराहट महसूस करना) …………………………………………..

6 चिंता होना
(मन में बेचैनी होना, डर महसूस करना) ……………………………

7 शारीरिक और मानसिक थकावट
(सामान्य कामों को करने में थकान होना,

याददाश्त कमज़ोर होना, किसी चीज़ में मन न लगना,

चीज़ें भूलना) ……………………………………………………

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8 यौन समस्या

(यौन इच्छा में परिवर्तन होना, यौन गतिविधि और

संतुष्टि में परिवर्तन होना) ………………………………………………….

9 मूत्राशय में समस्या

(पेशाब करने में तकलीफ, अत्यधिक पेशाब आना,

पेशाब में नियन्त्रण न होना) ……………………………………………….

10 योनि में शुष्कता

(योनि में सूखापन या जलन महसून होना,

यौन सम्बन्ध बनाने में परेशानी होना) ………………………………………

11 जोड़ों और मांसपेशियों में परेशानी

(जोड़ों में दर्द होना, गठिया सम्बंधित परेशानियां) ……………………….

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