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Development and Validation of Menopausal Symptoms Scale (MSS) for Pakistani Sample

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The present study was conducted to develop a valid and reliable indigenous measure for assessment of menopausal symptoms in Pakistani women. For development of Menopausal Symptoms Scale (MSS), items were empirically generated and were presented on a four point likert scale. A sample of 250 women, ages ranged from 40-60 years, was approached from the gynecology outpatient ward of a public sector hospital. The construct validity of MSS was determined through Factor Analysis which resulted in 26-items questionnaire. This process yielded four factors i.e. somatic and vasomotor symptoms, depression, cognitive symptoms, and anxiety. The construct validity of MSS revealed that MSS discriminates well between premenopausal and peri-menopausal women. In addition, criterion related concurrent validity of MSS was also satisfactory as there was a significant direct relationship between the criterion ratings assigned by gynecologist on intensity of menopausal symptoms and the scores on MSS. Moreover, MSS showed a high internal consistency reliability i.e. 0.89. In conclusion, this newly developed scale is a valid and reliable indigenous measure for assessment of health related quality of life of women going through menopause.

Keywords: menopausal symptoms, indigenous measure, assessment, Pakistani sample

Women's life expectancy is increasing all over the world (Doctor's Guide, 1997). Similar trend is being observed in Pakistan where the gender ratio for total population is 1 male per female, and for age 65 years and above, this ratio becomes 0.82 male per female (Wikipedia, 2010). These facts call to attention the health related quality of life of aging women and one of the important health related issue of aging women is menopause.

Menopause is a natural biological event that marks the end of menstruation. It involves hormonal changes that affect health related quality of life of women. These hormonal changes are manifested in physiological as well as psychological symptoms. Physiological signs and symptoms of menopause include headache, restlessness in legs, backache, urine leakage, skin dryness, vaginal dryness, hair loss, facial hair, and limb pains. The vasomotor symptoms include hot flashes and night sweats.

Researches have suggested association between menopausal status and menopausal symptoms as Liu and Eden (2007) investigated that nearly 50-70% of menopausal women were experiencing physical, psychological and sexual problems. Whereas most prevalent among them were "Poor memory, feeling tired and worn out, dry skin and aching in muscles and joints". Dennerstein, Dudley, Hopper, Guthrie, and Burger (2000) observed the severity of different symptoms such as "trouble sleeping vaginal dryness, night sweats, and hot flashes" increased during menopausal transition. Brown, Mishra and Dobson (2002) investigated menopausal symptoms in Australian sample. They came to the conclusion that transition from pre- menopause to peri- menopause involves "increase in tiredness, stiffness, and difficulty sleeping, whereas those who transitioned from peri-menopause to post-menopause reported increases in back pain and leaking urine".

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Various health related quality of life scales have been developed for assessment of menopausal symptoms (Zollner, Acquadro, & Schaefer, 2005) having certain benefits and drawbacks and above all is the marked cultural variation in the experience of menopausal symptoms which reduces applicability of existing scales for diverse samples. This variation in menopausal experience can not be overlooked as growing body of data indicates socio-cultural diversity in the experience and expression of menopausal symptoms (Hautman, 1996; Jamil& Khalid, 2009; Jones, 1994). For instance, Flint and Garcia (1979) studied Indian women and the findings suggested that menopause was viewed as a very positive event in the Indian *Rajput* women. However, Sharma and Saxena (1981) observed a very negative attitude in *Veranasi* sub culture in India. *Rajput* women did not exhibit menopause related symptoms while majority of *Veranasi* women suffered from menopausal hot flashes. Whereas in western cultures frequency of menopausal hot flashes is quite high as compared to Japanese and Chinese women (Von Muhlen, Kitz-Silverstein & Barrett-Connor, 1995; Liu & Eden, 2007).

The abovementioned studies highlight importance of indigenous scales for the assessment of menopausal symptoms. In order to serve this purpose, following study was conducted. To the best of our knowledge, it is first study conducted in Pakistani scenario for development of a valid and reliable menopausal symptoms scale (MSS). The need for the construction of MSS arouse for the following reasons:

- To develop an indigenous scale in the native language of Pakistani sample; which may address the culture specific experience of menopause.
- To study menopausal symptoms in broader dimensions; unlike most of the existing scales which mainly focus on measuring physiological dimensions of menopausal experience; this scale focuses on physiological, psychological and cognitive dimension.

- To ensure the development of a scale possessing sound psychometric properties.

Study 1: Development of Menopausal Symptoms Scale (MSS)

This study was carried out in two phases. Phase-I comprised of item generation process and in Phase-II, factorial validity and reliability of Menopausal Symptoms Scale (MSS) were estimated.

Method

Phase-I: Item Generation

Items for development of Menopausal Symptoms Scale (MSS) were generated from three sources i.e. (a) literature review of existing measures for assessment of menopausal symptoms; (b) women going through menopausal transition were interviewed for identification of menopausal symptoms. They were encouraged and probed to discuss their menopausal symptoms; (c) additionally, 5 practicing gynecologists were interviewed and questioned about the symptoms they usually observe in menopausal women during their clinical practice. Consequently, the symptoms collected from the abovementioned sources were listed down.

This procedure yielded 67 items. In order to retain the most prevalent symptoms, the symptoms collected from the abovementioned sources were tested for their frequency of endorsement on a trichotomous scale; 0 for No, 1 for occasionally and 2 for Yes. These symptoms were administered to 30 participants; each was probed to report the frequency of the experience of given symptoms. The symptoms which were being experienced most frequently (endorsement criteria ≥ 20%) were approved and this process resulted in 42 items. The item content was analyzed carefully by four Psychologists (Department of Applied Psychology). Each item was evaluated independently by the judges on the following criteria: (a) clarity of content (b) relevance to the construct (c) repetition (d) readability/comprehens-ibility. This exercise resulted in 30 items.

The 30 items were listed on a four-point likertscale. In which the participants were requested to report the frequency of their menopausal symptoms. The response categories comprised of not at all (1), sometimes (2), often (3), and always (4). The scale was pilot tested on 30 naturally menopausal women. Moreover, the participants were asked to mark any unclear item in the scale. The pilot testing of the scale resulted in the same 30 items.

Phase-II: Factor Structure and Internal Consistency of MSS

Phase II consisted of the process of determining factorial validity of 30-item MSS. It was done in order to select final representative items of the scale and to analyze the factor structure of MSS. Moreover, Cronbach alpha was calculated to find out internal consistency and item total correlation.

Method

Participants

The sample consisted of 250 women, ages ranged from 40-60 years. This age range was selected because mean age of menopause lies between these age ranges. Participants were recruited from the gynecology outpatient ward at a government hospital in Lahore. Women with intact marriage and having children were included. Moreover, patients of arthritis were not included. Pregnant, breastfeeding, nulliparous women were excluded from the sample. In addition, women gone through hysterectomy or having history of any clinical disorder were also excluded from the sample.

Procedure

The participants were women from the gynecology outpatient ward of a public hospital. They belonged to different socioeconomic backgrounds. Menopausal Symptoms Scale (MSS) was individually administered on each participant. They were instructed to select a response that was most appropriate. The researcher recorded the responses of participants. The participants were assured of the confidentiality and anonymity of the responses since no names were recorded.

Results

The 30-item MSS was subjected to Principal Component Analysis (PCA)by using the method of Varimax Rotation. It was done to increase the interpretability and orthogonalityof factors. The scale structure thus obtained was reviewed on the criteria given following: (a) a simple structure with distinctive factors, with its items highly loading on single factor; (b) an Eigen value equal to or greater than 1; (c) a factor loadings of minimum0.40 and (d)meaningfulness of the factor in relation to the underlying construct (Zeller & Carmines, 1980; Norman &Streiner, 1994).

Bartlett's Test of Sphericity was applied to test the assumption of distribution of participant responses (Bartlett, 1954). It was significant (p <0.001) which showed that the responses were distributed adequately to analyze a potential factor structure. Moreover, Kaiser Meyer Olkin test for adequacy of sampling was applied. It was done to evaluate whether the number of participants was in accordance with the number of items on MSS (Kaiser, 1974). The value of Kaiser MeyerOlkin was satisfactory (i.e. 0.77) to apply a PCA (Table 1)

The meaningful/interpretable factors were explored by the criterion given by Kaiser (1974) and the percentage of the total variance explained. This practice resulted in eight factors. Since these initial eight factors lacked meaningfulness and comprehensibility, therefore, seven, six, five and four factor solutions were carried out by using PCA. The four factor solution witnessed a simple factor structure having very few cross loading and meaningful factors.

In addition, scree test based on Eigen value plot was also used as a criteria for factors selection (Cattell, 1966). An Eigen value of 7.86 was obtained for the first factor and for the second, third and fourth factors were 3.36, 2.28 and 2.09 respectively. It was observed that first elbow on the scree plot was at the second Eigen value showing a single factor solution. Another discontinuity was observed between fourth and fifth factor. So, in order to obtain a multidimensional measure, a model consisting of four factors was analyzed. The total item variance explained by the four factors was 52%.

The criteria for selection of items on a scale was a factor loading of 0.40 and above (Norman &Streiner, 1994). There were four items (item no. 6, 19, 26, 27) which had factor loadings less than 0.40. So, these were deleted from the scale. Rest of the 26 items loaded significantly (range from 0.42 to 0.85) on four factors. It resulted in a multidimensional measure of menopausal

symptoms.The principal component analysis was again applied on 26 item MSS to obtain final factor structure.

Table 1 shows Eigen values for the factors extracted and it isevident that total variance explained by the four factors was 58%.An Eigen value of 7.67 was obtained on factor 1. Whereas on factor 2, 3 and 4 an Eigen value of 3.28, 2.21, and 2.08 was obtained respectively. 29.51% of the variance was explained by factor 1 whereas 12.62%, 8.50% and 8.01% of the variance was explained by second, third and fourth factors respectively.

Consequently, keeping in view all of the above mentioned assumptions, a four factor solution was finalized. Then each factor was examined on the basis of relevance to theme and content of items. Factor 1 comprised of 12 items incorporating those usually conceptualized as physical and vasomotor symptoms. It was labeled "somatic and vasomotor symptoms". Factor 2 consisted of 6 items showing the symptoms of depression experienced by women going through menopause. It was labeled as "depression". The third factor consisted of 3 items dealing with the cognitive symptoms related to menopause. It was labeled as "cognitive symptoms'. The items on fourth factor pertained to the symptoms of anxiety; therefore it was named as "anxiety". It comprised of 5 items showing cognitive and emotional aspects of anxiety.The four factors solution on 26 item MSS accounted for 58% of the variance. These factor loadings along with their dimensions are shown in Table 1.

It is noteworthy, that a few cross loadings were observed on certain items. For example, item no 6 simultaneously loaded on factor 1 and 2. However, keeping in view the items content and relevance to the theme it was included in factor 1.Moreover, item no 14 also loaded on second and third factor and item no. 26 loaded on third and fourth factor at the same time. These items were analyzed in terms of content and conceptual relevance and finally added to their respective factors. Moreover, a comparatively high value of factor loadings on these items helped to finalize their relevance to a specific factor.

The items to total correlations were also calculated for the 26-items of the scale. These values ranged from 0.32 to 0.61 ($p< 0.01$) thus witnessing a satisfactory internal consistency. Cronbach Alpha was fairly high ($\alpha = 0.89$) for MSS suggesting that the items were homogeneously consistent as expected theoretically for the construct of menopausal symptoms. Furthermore, Cronbach Alpha was also calculated for each subscale of MSS and these values were significant too (i.e. ranging from 0.81 to 0.87) thereby adding to the internal consistency reliability of the scale.However, the alphas for the individual scale were lower as compared to the total score but adequate for the scales with fewer items.

Study 2: Construct validity of MSS by method of contrasted groups

In this study, method of contrasted groups (extreme groups on the

Table 1

The Factor Loadings of the 26 Items of the Menopausal Symptom Scale (MSS) on First Four Factors in the Factor Solution Obtained through Varimax Rotation.

		Factors			
	Items	I	II	III	IV
Sr. No.		Somatic & Vasomotor Symptoms	Depression	Cognitive Symptoms	Anxiety
1	Numbness in hands and feet	.76			
2	Pain/Restlessness in legs	.68			
3	Dizziness	.63			
4	Shoulder stiffness	.62			
5	Feelings of weakness	.61			
6	Fatigue/Feeling fatigued	.60			
7	Lower Backache	.59			
8	Loss of interest in sexual relationships	.58			
9	Hot Flashes	.55			
10	Night Sweats	.50			
11	Joint Stiffness	.48			
12	Headache	.43			
13	Difficulty Sleeping		.86		
14	Feelings of Worthlessness		.81		
15	Feelings of Depression		.78		
16	Pessimism		.75		
17	Loss of interest in daily activities		.64		
18	Weeping/Crying Spells		.59		
19	Difficulty in concentration			.84	
20	Difficulty in decision making			.78	
21	Forgetfulness			.60	
22	Tension				.82
23	Panic attacks				.81
24	Irritability				.74
25	Difficulty breathing/breathlessness				.43
26	Worry				.61
Eigen values		7.67	3.28	2.21	2.08
Percentage of Variances		29.51	12.62	8.50	8.01
Kaiser-Meyer-Olkin Measure of Sampling Adequacy				0.77	

B

***p<0.01*

Table 2

Item total score correlations for the Menopausal Symptoms Scale (MSS) with the selected 26 items (N=250)

S. No.	Item No.	Correlation with Total Score	S. No.	Item No.	Correlation with Total Score
1	8	0.57**	14	12	0.55**
2	24	0.41**	15	14	0.57**
3	7	0.37*	16	11	0.59**
4	23	0.43**	17	13	0.47**
5	10	0.49**	18	15	0.53**
6	25	0.54**	19	4	0.43**
7	22	0.44**	20	17	0.42**
8	30	0.37*	21	16	0.32*
9	28	0.58**	22	2	0.58**
10	29	0.43**	23	5	0.48**
11	18	0.48**	24	1	0.47**
12	21	0.40**	25	20	0.51**
13	9	0.53**	26	3	0.61***

****p<0.001; **p<0.01; *p<0.05*

Table 3

Alpha Reliability of the Menopausal Symptom Scale (MSS) & its Subscales (N= 250)

S. No.	Subscales	No. of items	*Alpha Reliability*
I	Menopausal Symptoms Scale	26	0.89
II	Somatic and Vasomotor Symptoms	12	0.85
III	Depression	6	0.87
IV	Cognitive Symptoms	3	0.81
V	Anxiety	5	0.85

continuum of the same construct are taken) was used to establish the construct validity of Menopausal Symptoms Scale (MSS).

This method examines efficacy of a test in distinguishing clinical and non clinical samples (Wiggins, 1973). Therefore, two contrasting groups were identified pertaining to the construct of menopausal symptoms i.e. one control group and second comparison group reporting symptoms of menopause (pre menopausal and peri menopausal women respectively).

Method

Participants

The sample for this study consisted of 100 participants i.e. 50 pre menopausal and 50peri menopausal women.The mean age of the pre menopausal women was 42.60 and SD was 2.54 and the mean age for peri menopausal women was 46.54 with SD of 2.71. Participants' inclusion and exclusion criteria of study 1 was followed in this study.

Contrasted groups

Following contrasted groups were taken in this study:

a.) Pre menopausal Women

b.) Peri menopausal Women

a.) Pre menopausalWomen: The group of pre menopausal women refers to those women having no symptoms of menopause. Moreover it refers to the women having regular menstrual cycle during the previous three months. According to different studies, the mean age of menopause in women ranges from 47 to 49 years of age in Pakistan (Qazi, 2006; Yahya&Rehan, 2002).Therefore, a control group closer to the mean age of menopause was taken as pre menopausal group (i.e. women with age of 40 years and above). It was done to control for the general effects of aging. The participants were specifically asked in the structured interview regarding their history of medical or psychological illness. It was done to ascertain the groups were not differing in scores on MSS due to any physical or psychological ailment.

b). Peri menopausal Women: The group of peri menopausal women refers to the group of women having menopausal symptoms on the basis of diagnosis of gynecologist. The gynecologist examined peri menopausal women on the basis of their presenting complaints.

The term peri-menopause includes the time immediately prior to menopause (when the endocrinological, biological and clinical features of approaching menopause commence) and the first year after menopause.

Instruments

*a). Menopausal Symptoms Scale (MSS):*The Menopausal Symptoms Scale (MSS) was used for the assessment of menopausal symptoms (See Study 1).

*b). Structured Interview Schedule:*It was developed by the researchers of this study to acquire information regarding some important demographic variables e.g. age, menopausal status, history of medical or psychological ailment.

Procedure

The pre menopausal women were approached individually at their doorstep with the help of lady health visitors. They were screened for medical / psychological history of illness through a structured interview prior to the administration of MSS. It was done to ensure that the scores on MSS might not differ due to medical or psychological ailment.

study who were exclusively seeking treatment for menopause related symptoms. The participants were interviewed with

Table 4

Independent Samples t-test Comparing the Mean Scores of Pre and Peri Menopausal Women on MSS and its Subscales (N=100)

MSS & Subscales	Pre Menopausal Women		Peri Menopausal Women			
	M	SD	M	SD	t(98)	*p*
MSS	49.13	9.14	66.42	12.73	7.80***	0.000
Somatic &Vasomotor	22.81	5.84	35.65	7.73	9.37***	0.000
Depression	9.23	2.28	16.15	4.10	10.43***	0.000
Cognitive Symptoms	5.28	2.14	6.18	1.88	2.23*	0.03
Anxiety	9.34	3.27	10.91	2.04	2.88**	0.005

****p<.0.001, **p<0.01, *p<0.05*

Results

To compare the scores of pre and peri menopausal women on Menopausal Symptoms Scale (MSS), independent samples t-test was calculated. The results are shown in Table 4. It is evident that the two extreme groups (pre and peri menopausal women)differed significantly on scores of MSS(t (98) = 7.80; p< 0.001) and its subscales i.e. somatic and vasomotor symptoms (t (98) = 9.37; p<0.001), depression(t (98) = 10.43; p< 0.001), cognitive symptoms (t (98) = 2.23; p< 0.05) and anxiety (t (98) = 2.88; p< 0.01).Moreover, the scores of peri menopausal women were significantly higher (M = 66.42, SD = 12.73) on Menopausal symptom scale (MSS) as compared to the pre menopausal women (M = 49.13, SD = 9.14). Similar trend was observed across subscales of MSS, i.e. women going through peri menopause scored significantly higher on somatic and vasomotor symptoms (M = 35.65, SD = 7.73)depression (M = 16.15, SD = 4.10), cognitive symptoms (M = 6.18, SD = 2.14) and anxiety (M = 10.91, SD = 3.27) than pre menopausal womenon somatic and vasomotor symptoms (M = 22.81, SD = 5.84), depression (M = 9.23, SD = 2.28), cognitive symptoms (M = 5.28, SD = 1.88) and anxiety (M = 9.34, SD = 2.04).

Study 3: Criterion related Concurrent Validity of MSS

In this study, the criterion related concurrent validity of the Menopausal Symptoms Scale (MSS) was established by evaluating criterion ratings provided by expert gynecologist. It was expected that criterion ratings assigned by gynecologist would be positively associated with 26 items Menopausal Symptoms Scale (MSS).

Method

Participants

Fifty Women ages ranging from 40- 53 years of age (M = 46.46, SD = 3.12), consulting gynecologist for their menopausal symptoms, participated in the present study. The participants were taken from gynecological outdoor of a private sector hospital. They were screened for any other physical or psychological ailment through structured interview schedule.

Instruments

*a). Menopausal Symptoms Scale (MSS):*The Menopausal Symptoms Scale (MSS) was used for the assessment of menopausal symptoms (See Study 1).

*a.) Structured Interview Schedule:*It was developed by the researchers of this study to acquire information regarding some important demographic variables e.g. age, menopausalstatus,history of medical or psychological ailment.

*b.) Criterion Ratings:*Criterion ratings were assigned by the gynecologist examining the menopausal women. It was assumed that the expert gynecologist's empirical judgment can be considered a free and independent criterion for the validation of MSS. Moreover, studies suggest that expert's opinion is a valid and reliable criterion for the validation of a test. Ratings are used extensively in assessing individuals in various settings, in obtaining criterion data for test validation and for many research purposes. A growing body of data has emphasized on comprehensive, systematic investigations and sufficient standardization of definitions and procedures to facilitate the comparisons of findings across studies by utilizing the method of criterion ratings (Borman, 1991; Landy& Farr, 1983) The gynecologist assigned a rank ranging from 0-10 to each menopausal woman by examining her symptomatology provided with that 0 means no symptoms and 10 means high symptoms of menopause.

Procedure

The perimenopausal women (N=50) coming to the gynecological out door of a public sector hospital participated in the study. These women were seeking treatment for their menopausal complaints. The gynecologist rated the participants regarding intensity of their menopausal symptoms. The gynecologist was instructed to rate each participants on the menopausal symptoms on a scale ranging from 0-10, whereas 0 referred to absence of symptoms and 10 referred to maximum symptoms. After getting examined and rated by the gynecologist, the participants were referred to the researcher for the administration of MSS. Hence, the participants were interviewed by the researcher with Menopausal Symptoms Scale (MSS). The researcher explained the response categories to each participant and noted their responses carefully.

Results

The results provide adequate support for the concurrent validity of the MSS in this study. A significant positive correlation between the measures of menopausal symptoms was assumed..As proposed,

results showed significant and positive correlations of .85(p<.000) between the MSS and criterion ratings (Table 5).

Table 5

Correlation Coefficient between the MSS and Criterion ratings

S. No.	Measures	r
1.	Menopausal Symptoms Scale (MSS)	0.64***
2.	Criterion Ratings	

*** (*p< 0.001*)

Discussion

The current researchaimed for the development of a scale for assessment of menopausal symptoms that might specifically elicit menopausal symptoms of Pakistani women in their indigenous scenario. Thisgoal was achieved by generating the items for MSS empirically from clinical samples of menopausal women; as well as from the practical experience of gynecologists. The items representing menopausal symptoms, therefore, help distinguish menopausal women who have a difficult menopause from those who generally experience a relatively smooth menopause. Moreover, it distinguishes between pre and peri menopausal women.

The construct of menopausal symptoms is quite multidimensional in its pathophysiology. The available standardized scales for assessment of menopausal symptoms (Greene, 1998; Hilditch, Lewis, Peter, Maris, Ross, Franssen, et al., 1996) largely focus on physiological and vasomotor symptoms. This overlooks the important element of psychological domain i.e. cognition. Research suggests that verbal memory, attention, visual perception and verbal fluency are the most profound functions that are affected by increasing age (Marquis, Moore, Howieson, Sexton, Payami, Kaye, et al., 2002). Therefore, to develop a measure of menopausal symptoms, it is important to include cognitive symptoms especially focusing on attention, concentration and verbal memory. In the present study, a principal component analysis was applied to the 30-item Menopausal Symptoms Scale (MSS) to determine the factor structure of construct of menopausal symptoms in Pakistani cultural context.

The items constituting four factors were quite distinct on the construct. Items loading on the factor 1 typically represented the physiological and vasomotor symptoms of menopause. This dimension was labeled as "Somatic and Vasomotor Symptoms". The contemporary research on menopause shows that the physical symptoms of menopause include fatigue, loss of energy, joint stiffness, shoulder stiffness, dizziness and numbness (Guthrie, Dennerstein, Taffe, Lehert& Burger, 2005). Moreover, it is interesting to note that symptom of legs pain is more frequently observed in indigenous sample and is rarely reported in other cultures. However, the items pertaining to inability to control urine, skin dryness, weight gain & excitability are less frequently observed in the study sample, suggesting their lack of relevance in Pakistani scenario.

Several other scales measuring menopausal symptoms constitute a separate factor of vasomotor symptoms including hot flushes and night sweats. But in the present study, vasomotor symptoms were placed with the somatic symptoms in one factor depending on the fact that there should be at least three items to form a factor (Kim & Mueller, 1978). This is important to note here that this factor comprises of the maximum number of items as compared to other factors.One of the potential factor behind this phenomenon might be that the manifestation of symptomatology is more physical among women belonging to Pakistani culture.These findings are in connection with the research done by Mumford, Ayub, Karim, Izhar, Asif and Bavington, (2005) in which they found that Pakistani women tend to relate their complaints more to the

underlying theme of feeling worthless and blue. It was therefore, labeled as "Depression". The growing body of research on menopausal symptoms thus reveals that the symptoms of perimenopausal depression include insomnia & mood fluctuations (Kravitz et al, 2003; Sherwin, 1997). Moreover, studies suggest thatfunction of estrogen is linked with those areas of brain which are related to certain symptoms observed during menopause; e.g. it is actively involved in regulating mood (Dell & Stewart, 2000). As menopausal transition involves decreased estrogen levels, therefore it is obvious to have mood fluctuations.

Factor 3 was named as "Cognitive Symptoms. It included items explaining memory concentration and decision. It was the specific domain which was comparatively given little importance in assessment of menopausal symptoms in most of the scales. As estrogen is important for optimal brain function by increasing cerebral blood flow, acting as an anti – inflammatory agent, and affecting neurotransmitter activity (Yonkers,2003).Furthermore, the research shows that the physical, cognitive and energy symptoms are more distressing to most women than depression (Conboy, Domar, & O' Connell, 2001).

A close examination of the items of the fourth factor led to conceptualizing it as "anxiety". This dimension included items, which reflected common signs of trait anxiety (i.e. difficulty breathing, tension, worry, irritability and panic attacks).

These results provide information regarding the subscales and their correlation among them. Moreover, they add to the evidence of multidimensionality of the construct of Menopausal Symptoms. The final factor structure resulted in four internally consistent subscales. These subscales significantly correlated with the total scores on MSS. It indicates that each factor/subscale represented the explained variance pertaining to its own dimension. So, these factors may be referred to as theoretically distinct ones.

Furthermore, the results of construct validity confirmed that MSS discriminates well between the normal and clinical samples on menopausal symptoms. Similarly, Brown and coworkers (2002) found out that the women transitioning from pre menopause to peri menopause showed some increase in tiredness, stiffness, and difficulty sleeping.

The evidence for the concurrent validity of the Menopausal Symptoms Scale (MSS) came from the significant positive correlation of scores on MSS with the criterion ratings of the menopausal symptoms by gynecologist. This finding is indicative of empirical evidence of the concurrent validity of MSS.

It is evident that MSS is a reliable and validmeasure for assessment of menopausal symptoms. This newer scale incorporates universalcategories of menopausal symptoms along with its indigenous scopeand fulfills optimalpsychometric standards.

Limitations and Suggestions

The current research was conducted on the urban sample of women; however, it can be extended to the suburban and rural samples in order to get a comprehensive picture of the indigenous sample. Moreover, sample consisted of gynecology outpatients of a

public sector hospital, so future research must also include healthy women going through the experience of menopause. In addition, further studies may be conducted to develop indigenous norms for Menopausal Symptoms Scale.

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