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Article

A Cross-Cultural Comparison of Climacteric Symptoms, Health-Seeking Behavior, and Attitudes towards Menopause Among Mosuo Women and Han Chinese Women in Yunnan, China

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Abstract

Cultural background has been shown to influence climacteric symptoms of women. This study compares various characteristics of climacteric symptoms, illness

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conception, health-seeking behavior, and attitude towards menopause of Mosuo women, a Chinese ethnic minority with a matriarchal structure, and Han Chinese women, the majority ethnic group of China with a patriarchal structure. Through convenience sampling, 51 Mosuo and 47 Han women ages 40 to 60 completed a sociodemographic questionnaire, the modified Kupperman Menopause Index (KMI), the Self-Rating Scale of Illness Conception and Health Seeking Behavior (SSICHSB) and the Menopause Attitude Questionnaire (MAQ). The Mosuo and Han Chinese women are comparable with regard to their age, educational levels and menstrual status. During climacteric, Mosuo women showed less severe melancholia ($p = .009$), reported less health-seeking behavior ($p = .009$), and displayed more positive attitudes towards menopause than their Han Chinese counterparts ($p < .001$). One predictive variable of the melancholia severity in Mosuo was "menarche age", while that in the Han group was "social view on the menopause". Future research with a larger sample is needed to deepen our understanding about the interaction between culture and climacteric symptoms.

Keywords
climacteric symptoms, health-seeking behaviors, attitude towards menopause, cross-cultural comparison, Mosuo

Introduction

Menopause is a natural biological event that represents the end of a woman's reproductive capacity. The term "climacteric" refers to the transitional period during which the reproductive capacity of women decreases and menopause begins (Lin & Liu, 2005). Menopause is neither a disease nor is defined by somatic and/or psychological symptoms, but many epidemiological and clinical studies have shown that women during climacteric are at high risk for various symptoms.

The biomedical view holds that the symptoms exhibited during climacteric are attributed to changes in hormone levels. However, as early as 1951, Ross (1951) had already observed that the psychosocial aspects of women experience during climacteric are influenced by the integrated action of multiple factors such as changes in family structures, professional status and interpersonal relationships in addition to hormone fluctuations. Recently, data from a growing number of cross-cultural studies (Bell, 2013; Siever, 2014) suggests that these symptoms are closely related to the meaning of menopause and vary among different cultures, perhaps because of different perspectives on aging and female status.

This study examines the influence of culture on climacteric experience by comparing Mosuo and Han Chinese women, two groups with different cultures and gender roles. With a population of approximately 40,000, the Mosuo are a small ethnic group living in southwestern China, mostly in Yongning town near Lake Lugu. Mosuo culture is famous for being a "matriarchal society", which, however, does not fully describe the complex social structure. Mosuo people trace their

lineage from the maternal side, and live in extended families consisting of all of the members of the mother's lineage. Women, as the head of the family, often manage the family affairs, while men as brothers or uncles have their own responsibilities taking care of business outside the household. Moreover, men are usually in charge of political and religious activities. Another well-known characteristic is their practice of a form of marriage, called "walking marriage" or "visiting relationship", in which partners continue to live in their own mother's house separately from each other. Once the relationship developed, the man visits the woman's house only during the night and returns to his home the next morning. Some of these "walking marriages" last a lifetime, while others end after one partner is no longer in love with the other. A child is not a necessary prerequisite to maintain a relationship. In the Mosue cultural context, women are more independent and highly respected compared with women of other ethnic groups in China (Cai, 2001; He, 2008; Shih, 2010).

The present exploratory study had the following objectives: (1) to compare the symptoms and their severity during climacteric commonly reported in cross-cultural research literature between the two ethnic groups, Mosuo and Han Chinese; (2) to compare illness conception, health-seeking behavior and attitude towards menopause between Mosuo and Han Chinese; and (3) to explore the correlations between symptoms experienced during climacteric and sociodemographic variables, illness conception, health-seeking behavior and the attitude towards menopause in all women and between the two groups. In Chinese "menopause" is translated as "*Juejing*" (绝经) meaning the termination of menstruation while "climacteric" is translated into "*Gengnianqi*" (更年期) representing the female transition period from reproductive to non-reproductive stages of life. Midlife is translated into "*Zhongnian*"(中年) which covers a broader but more ambiguous concept. For these reasons, the term "climacteric symptoms" was used for the purpose of our study.

Methods

Sample

The subject population was from Yongning district in Yunnan Province, which consists of 67 villages, with Yongning town as the district center. The women included in this study were either Mosuo or Han Chinese aged 40 to 60. The exclusion criteria included: history of alcohol/substance abuse; history of estrogen replacement therapy or any other drugs affecting the endocrine system (e.g., raloxifene); history of physical diseases and/or mental disorders; and post-surgical menopause.

This study was conducted from March 2012 to April 2012. At that time, the total number of female residents ages 40 to 60 in Yongning was 1,786 including 768 Mosuo, 184 Han Chinese and other minorities. However, differences in population size between Mosuo and Han Chinese, as well as the limited time and poor

infrastructure presented challenges to research. For this exploratory study, we therefore aimed to recruit 100 participants, 50 in each group. Convenience sampling was performed the villages closest to Yongning town, including 10 villages (five villages of each ethnicity) and 10 women in each village.

Measures

Sociodemographic data and clinical data. Questions about ethnicity, age, occupation, educational level, family members, family income, menstrual history, marital status, and religion were used to describe the sociodemographic background of the participants. Additionally, participants were asked about their menstrual state and awareness of climacteric.

Modified Kupperman Menopause Index (modified KMI). The Kupperman index was initially developed to evaluate the treatment of climacteric symptoms (Delaplaine, Bottomy, Blatt, Weisbader, & Kupperman, 1952). More recently, the Kupperman index was modified by Wiklund, Karlberg and Mattson (1993) and used in their study. With the wide application of the modified KMI in the world, it was then translated into Chinese and widely used in China. The Chinese version of the modified KMI has proven effective in identifying and evaluating discomfort during climacteric compared with other climacteric-related questionnaires (Lin & Liu, 2005; Tong, Yang, & Wu, 2010; Li, Wu, Pu, Zhao, Wan, Sun, & Zhang 2012; Tao, Shao, Li, & Teng, 2013). The modified KMI is a 13-item symptom checklist where each symptom is rated on a scale from 0 to 3 corresponding to ''no'', ''slight'', ''moderate'', and ''severe'' complaints. An index score is calculated by summing the severity of each symptom multiplied by its own weight factor, which consists of 4, 2, and 1, and differed for varying symptoms. A higher index score indicates more severe symptoms. However, the item ''difficulty in sexuality'' was deleted because of the cultural taboos of Mosuo in this study.

Self-Rating Scale of Illness Conception and Health-Seeking Behavior (SSICHSB). The SSICHCB scale was designed by a Chinese research group based on Chinese culture and is used to assess illness conception and health-seeking behaviors from the perspective of the development of individual illness conception and influences of the family (Su et al., 2012). The SSICHSB, which showed good reliability and high validity, has 16 items grouped into three subscales: 1) *Development of illness conception and influencing factors in childhood*, consisting of six items such as ''When I was a child, I had seen someone around me sick or dead. Their suffering at that time had impressed me so much.''; 2) *Conception of disease and health in adulthood*, consisting of 7 items, such as ''I'm especially concerned about my own health.''; and 3) *Health-seeking methods and behavior*, consisting of three items, such as ''When my illness is very slight, I just take some medicine by myself instead of going to doctors''. Each statement is measured by a 5-point Likert scale: 1 (completely disagree) to 5 (completely agree). The score of each subscale is the

total score of the items contained in that subscale. A high total score indicates the belief that recovery from the illness is more related to personal health-seeking behavior.

Menopause Attitude Questionnaire (MAQ). The Taiwanese Menopause Attitude Questionnaire with acceptable psychometric properties (Chang, Chen, & Hu, 1993; Lee & Kuo, 2002; Lu, 2003) was used in the study. However, after several interviews we found the subscale "attribution of discomforts", which includes two items (1. The woman who experiences distress during climacteric is someone who is poor at time management; 2. The woman who experiences distress during climacteric is someone who has already anticipated there would be distress before climacteric) was very difficult for the local women to understand. Based on these experiences directly from fieldwork, we deleted the factor "attribution of discomforts". This modification could affect the validity of the result. The final questionnaire consisted of 13 items divided into the following 4 subscales: 1) "Feminine charm", for example "A woman is afraid that after the menopause her husband wouldn't love her anymore"; 2) "Taboos after menopause", for example "After menopause, women can live more freely"; 3) "Feminist view", for example "Women don't need to take any medicine during climacteric because it is not a disease"; 4) "View of society", for example "Climacteric is a natural process". Patients rated these statements on a 5-point Likert scale from 0 (strongly disagree) to 4 (strongly agree). A high total score indicates positive attitudes.

Procedure. The study was approved by the ethics committee of the Shanghai Dong Fang hospital, affiliated to Shanghai Tongji university.

Potential participants were informed about the study and provided informed consent. Because Mosuo have their own distinct language (similar to Sino-Tibetan), and some Han Chinese women in the region are illiterate, all questionnaires were read to participants by one researcher. The questionnaires were not translated into the Mosuo language because there is no written form of this language. One female Mosuo student with high school education acted as an interpreter, translating all questions verbally to the Mosuo women during the interview. Instruments were not culturally adapted, but allowances were made for local idiomatic expressions by the interpreter.

Data Analysis

Statistical analysis used SPSS 19.0. The women were divided into two groups by ethnicity. To compare the variables between the two groups, the *t*-test was used for continuous variables (age, menarche age, family members, family income, the severity rating of each item (without weight factor) of modified KMI, and the scores of the three questionnaires), and the chi-square or Fisher exact test was used for categorical variables (occupation, educational level, marital status, religion). Because the distribution of some variables differed from a

normal distribution, Spearman correlation, which is the appropriate correlation analysis for ordinal data, was used to evaluate the correlation between the severity of melancholia, SSICHSB and MAQ. Because of the exploratory character of this study and the problem of inflation of alpha-error, a correction was used to adjust $p < .01$ as significant in the group comparison of questionnaires and correlation analysis.

A multiple linear regression model was examined within each group, with the score on melancholia as a dependent variable in relation to the following predictors: the continuous sociodemographic variables (age, menarche age, number of family members and family income) and the sub-scores of SSICHSB and MAQ. A stepwise method was applied in the regression, and criteria for selection were a minimum probability of .05 and .10 for *F*-to-enter and *F*-to-remove, respectively. Best-fit models were chosen to interpret of the interrelationship.

Results

A total of 60 Mosuo women and 54 Han Chinese women were contacted. Of these, nine Mosuo and six Han Chinese were excluded based on their previous medical conditions and one Han Chinese refused to be interviewed. Finally, 51 Mosuo and 47 Han Chinese women were enrolled for the study.

Sociodemographic Characteristics and Clinical Data

According to mean age, educational level (mostly primary school) and distribution of menstrual status, the differences between the Mosuo group and Han Chinese group were statistically insignificant. However, the two groups differed in several characteristics. The Mosuo women were mostly engaged in farming tasks and lived in the larger extended family with several generations, compared with Han Chinese women, whom had more family members but had a lower family income. The average menarche age of Mosuo women was later than that of Han Chinese, and the ''walking marriage'' was the dominant relationship mode, whereas almost all of the Han Chinese women were cohabitating with their spouse. (except four who were widowed). Out of 51 Mosuo women, 49 practiced two coexisting beliefs: their own syncretism called Daba and Tibetan Buddhism. Most Han Chinese women did not report religious belief or practices, except for one who practiced Buddhism. Detailed information is presented in Tables 1 and 2.

Climacteric Symptom Severity

After correction for multiple comparisons ($p < .01$), Mosuo scored significantly lower in ''melancholia'' compared to the Han Chinese group ($p < .01$). There is a tendency of a lower total score in the Mosuo group compared to the Han Chinese group. Moreover, Cohen's *d* effect size for ''melancholia'' ($d = .54$), ''hot flashes'' ($d = .41$) and total score ($d = .43$) are the largest three (see Table 3).

Table 1. Sociodemographic characteristics of Mosuo and Han Chinese women.

Variable	MS ($n = 51$) *M (SD)*	HC ($n = 47$) *M (SD)*	*t* (*df*) *M (SD)*	*p*
Age	49.86 (5.34)	48.83 (5.44)	0.95 (96)	.35
Family members	7.76 (3.30)	4.74 (1.24)	6.09 (96)	<.001
Family income (RMB/month)	1266.8 (1011.27)	2021.34 (1152.17)	−3.45 (96)	.001
Menarche age	17.78 (1.84)	15.38 (2.59)	5.32 (96)	<.001

Note. MS = Mosuo women. HC = Han Chinese women.

Table 2. Sociodemographic characteristics and clinical data of Mosuo and Han Chinese women.

Variable	MS ($n = 51$) *M (SD)*	HC ($n = 47$) *M (SD)*	Chi^2(*df*) *M (SD)*	*p*
Education level (%)			2.27 (2)	.34
Primary school	49 (96.1)	42 (89.4)		
Middle school	2 (3.9)	3 (6.4)		
High school	0 (0.0)	2 (4.3)		
Occupation (%)			5.31(3)	.04
Peasants	50 (98.0)	40 (85.1)		
Administrators	0 (0.0)	1 (2.1)		
Professionals/technical	0 (0.0)	1 (2.1)		
Self-employed	1 (2.0)	5 (10.6)		
Menstrual state (%)			0.29 (2)	.90
Premenopausal	23 (45.1)	19 (40.4)		
Perimenopausal	10 (19.6)	11 (23.4)		
Postmenopausal	18 (35.3)	17 (36.2)		
Marital status (%)			63.35 (4)	<.001
Single	3 (5.9)	0 (0.0)		
Walking marriage	32 (62.7)	0 (0.0)		
Cohabitating with spouses	12 (23.5)	43 (91.5)		
Divorced	2 (3.9)	0 (0.0)		
Widowed	2 (3.9)	4 (8.5)		
Religion (%)			86.39 (1)	<.001
Daba/Buddhism	49 (96.1)	1 (2.1)		
Others	0 (0.0)	0 (0.0)		
None	2 (3.9)	46 (97.9)		
Awareness of climacteric (%)			4.46 (1)	.04
Yes	8 (15.7)	16 (34.0)		
No	43 (84.3)	31 (66.0)		

Note. MS = Mosuo women. HC = Han Chinese women.

Table 3. Comparison of modified KMI between Mosuo and Han Chinese women.

Item	MS ($n = 51$) *M (SD)*	HC ($n = 47$) *M (SD)*	*t* (*df*) *M (SD)*	*p*	*Cohen's d*
Total scores	13.31 (6.98)	16.64 (8.51)	2.12 (96)	.04	−.43
Hot flashes	0.55 (0.64)	0.85 (0.81)	−2.06 (96)	.04	−.41
Paresthesia	0.80 (0.83)	0.81 (0.83)	−0.03 (96)	.98	−.01
Insomnia	0.92 (0.87)	0.85 (0.75)	0.43 (96)	.67	.09
Nervousness	0.78 (0.76)	1.06 (0.79)	−1.79 (96)	.08	−.36
Melancholia	0.61 (0.64)	0.98 (0.74)	−2.68 (96)	<.01	−.54
Vertigo	0.78 (0.73)	0.98 (0.64)	−1.40 (96)	.17	−.29
Weakness	0.86 (0.85)	1.00 (0.75)	−0.844 (96)	.40	−.17
Arthralgia/myalgia	1.27 (0.90)	1.49 (0.83)	−1.228 (96)	.22	−.25
Headache	1.04 (0.85)	1.19 (0.85)	−0.887 (96)	.38	−.18
Palpitation	0.84 (0.78)	1.09 (0.72)	−1.590 (96)	.12	−.33
Formication	0.25 (0.56)	0.38 (0.64)	−1.052 (96)	.30	−.22
Urogenital symptoms	0.22 (0.50)	0.34 (0.64)	−1.082 (96)	.28	−.21

Note. KMI = Kupperman Menopause Index.
Mean Value from 0 = no complaint to 3 = severe complaints.
MS = Mosuo women. HC = Han Chinese women.

Illness Conception, Health-Seeking Behavior and Attitudes towards Menopause

The comparison of the SSICHSB between the two groups suggested a lower mean score in the subscale "health-seeking methods and behavior" in Mosuo group. Within the subscales of the MAQ, the "taboos after menopause" was significantly higher in the Mosuo group (see Table 4). In addition, the higher total score of MAQ of Mosuo women was statistically significant.

At the significant level of $p < .01$, the correlations between severity of melancholia and SSICHSB, MAQ were not statistically significant in either the Mosuo group or in the Han Chinese group. For women in both groups, the severity of melancholia was negatively correlated with the factors of "view of society". Beyond this, there were no other significant correlations (See Table 5).

The multiple linear regression of melancholia as dependent variable showed that within the Mosuo group, the menarche age ($\beta = .36$, $p = .01$) was a significant predictive variable of the severity of melancholia with an alpha level of .05 (adjusted $R^2 = .11$). Age, number of family members, family income, subscales of SSICHSB and MAQ were excluded. In the Han group "view of society" ($\beta = .30$, $p = .04$) was shown to be the significant predictive variable for the melancholia severity with an alpha level of .05 (adjusted $R^2 = .07$). Age, number of family

Table 4. Comparison of SSICHSB, MAQ between Mosuo and Han Chinese women (N = 98).

Scales	Mosuo ($n = 51$) *M (SD)*	Han ($n = 47$) *M (SD)*	*t* (*df*)	*p*
SSICHSB				
Development of illness conception and influencing factors in childhood	16.82 (3.67)	16.45 (5.03)	0.43 (96)	.67
Conception of disease and health in adulthood	17.63 (4.85)	16.64 (3.77)	1.12 (96)	.27
Health-seeking methods and behavior	10.92 (2.35)	12.13 (2.11)	−2.67 (96)	<.01
MAQ				
Feminine charm	14.08 (3.41)	12.43 (4.23)	2.14 (96)	.04
Taboos after menopause	13.47 (2.94)	10.81 (4.35)	3.52 (96)	<.01
Feminist view	10.57 (3.16)	9.79 (3.96)	1.07 (96)	.29
View of society	9.14 (1.50)	8.09 (2.35)	2.62 (96)	.01
Total scores of MAQ	47.37 (7.01)	41.23 (8.35)	3.95 (96)	<.001

Note. SSICHSB = Self-Rating Scale of Illness Conception and Health Seeking Behavior.
Scored from 1 = completely disagree to 5 = completely agree.
MAQ = Menopause Attitudes Scale. Scored from 0 = strongly disagree to 4 = strongly agree.

Table 5. Spearman's correlation of severity of melancholia, SSICHSB and MAQ.

Correlation with severity of melancholia	Mosuo ($n = 51$)	Han ($n = 47$)	Total ($N = 98$)
SSICHSB			
Development of illness conception and influencing factors in childhood	−.01	.21	.09
Conception of disease and health in adulthood	−.08	.31*	.10
Health-seeking methods and behavior	−.07	.12	.08
MAQ			
Feminine charm	−.14	−.12	−.19
Taboos after menopause	.13	.14	.05
Feminist view	−.19	−.24	−.20*
View of society	−.13	−.36*	−.30**
Total scores of MAQ	−.09	−.21	−.21*

Note. SSICHSB = Self-Rating Scale of Illness Conception and Health Seeking Behavior.
MAQ = Menopause Attitudes Scale.
*$p < .05$; **$p < .01$.

members, family income, menarche age, other subscales of SSICHSB and MAQ were excluded.

Discussion

We conducted a cross-sectional study to compare Mosuo women and Han Chinese women in relation to climacteric symptoms, illness conception, health-seeking behavior and attitude towards menopause. This is the first empirical study in this region that investigates these two ethnic groups from a psychosomatic perspective. The results reveal some significant differences between the two groups.

In our study, the symptoms experienced during climacteric were evaluated using the modified KMI. Based on the score of each item, the most severe symptoms of the participants were muscle and joint aches, followed mainly by headaches, palpitations, and fatigue. Vasomotor symptoms, which have been considered to be a consequence of hormone fluctuation, were not major complaints in both groups. A few of these symptoms showed significant differences between groups with small to moderate effect size (Cohen's d), which suggests the commonality of some symptoms between Mosuo women and Han women. This result was comparable to other Chinese and international surveys (Avis, Stellato, Crawford, Brombergerb, Ganzc, Caind, & Kagawa-Singere, 2001; Gold, Block, Crawford, Lachance, FitzGerald, Miracle, & Sherman, 2004; Shea, 2006a; Li, Yu, Ma, & Sun, 2008; Huang, Xu, I, & Jaisamrarn, 2010), which found that non-Western women suffered mainly from unspecific somatic symptoms during climacteric rather than the vasomotor symptoms common in Western studies of menopause.

On the other hand, the Mosuo women reported significantly less severe melancholia than did Han Chinese. The difference in the total scores appears to be mainly due to lower scores among Mosuo for melancholia. Whether climacteric is a "window of vulnerability" for depressive symptoms in women has been a controversial issue (Judd, Hickey, & Bryant, 2012). Depressive symptoms have been observed more frequently among women during the climacteric in Western countries. In China, a higher rate of feeling depressed, irritable, and tired in Han Chinese women during midlife has also been reported and assumed to be partly related to their psychosocial experience (Shea, 2006a; 2006b). In the present study, Mosuo women may have had less psychological suffering compared to Han Chinese counterparts in the same region during climacteric due to the matriarchal culture.

Cultural variations in health-seeking behavior and attitude towards menopause were also identified. Mosuo women showed less health-seeking behavior compared to the Han Chinese women, which could reflect the impact of religious practice on health-seeking behavior. Both Daba and Tibetan Buddhism are central to Mosuo daily life including medical treatment (Du, Zhang, Gu, & Wu, 2006). A previous study found that 53.2% of Mosuo patients with physical illness and 62.2% with mental disorders would ask Lamas for assistance (Ran, Xiang, Hou, Tang, Mao, &

Li, 1999). In reference to ''taboos after menopause'' and total score of MAQ, higher scores in Mosuo group suggested that menopause in Mosuo culture is regarded as a natural event with more positive meaning as well as greater pleasure and comfort after menopause.

Given the above symptomatic and psychosocial differences between these two groups, correlation analysis and multiple linear regression were used to explore their interactions. In the Mosuo group, only the ''menarche age'' entered into the regression models for the severity of melancholia. In the Han group, the ''social view on the menopause'' became part of the regression models. These interesting findings may indicate that the lower melancholia score of Mosuo women during climacteric was irrelevant to their relatively more positive attitude towards menopause and instead related to the biological factor ''menarche age'' as opposed to the Han Chinese women, for whom the social view on menopause as a psychosocial factor was important to their melancholia. This supported the notion that Mosuo women and Han women are distinct populations. As a result, the interactions between climacteric symptoms and psychosocial variables differed.

Limitations

This is the first comparison of climacteric symptoms among women in China from different ethnocultural groups in the same geographic region that differ in gendered social structures. The Mosuo live within a matriarchal structure while the Han Chinese live within a patriarchal structure. The results of this study, however, must be interpreted with caution. First, the sample size was limited. Secondly, the reliability and validity of the instruments used is unknown. Thirdly, the questionnaires were not pre-translated into the Mosuo language or adapted to the local culture. Fourthly, cultural identity was limited to group membership, and not qualified and measured directly. This study treated health-seeking behaviors and attitude towards menopause as variables revealing cultural attributes. However, correlation analysis and multiple linear regression can only reveal associations; clarifying the interrelationships between symptoms, health-seeking behaviors, attitude towards menopause and other cultural variables such as female status and family dynamic requires more detailed study. Finally, because of the cross-sectional design of the study, it is impossible to draw conclusions about causal relationships.

Conclusion

While menopause is universal, the concepts, experience and presentation of climacteric symptoms vary across culture (Melby, Lock, & Kaufert, 2005). Symptoms during climacteric were associated with a wide range of sociodemographic, lifestyles, and health measures (Sievert & Obermeyer, 2012). The ways of expressing one's physical experience and psychosocial distress are deeply engrained in culture. In our study, Mosuo women suffered milder melancholia during climacteric,

reported less health-seeking behavior, and their attitude towards menopause was more positive than that of their Han Chinese counterparts in the same region. Future research with larger samples is necessary to supply more details about the interaction between culture and climacteric symptoms.

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