

Original Research



Menopause specific quality of life and correlated factors among Sri Lankan post-menopausal women

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Abstract

Introduction: During menopause, declining ovarian function gives rise to menopausal symptoms. Menopause specific quality of life could be assessed based on the distress caused by menopausal symptoms.

Objectives: To describe menopause specific quality of life and correlated factors among post-menopausal women aged 45-55 years in Kalutara District, Sri Lanka

Methods: A community-based cross-sectional study was conducted in Kalutara District among post-menopausal women using multistage cluster sampling. Participants (N=756) responded to an interviewer-administered questionnaire on socio-demographic, reproductive and lifestyle characteristics, and validated Menopause Specific Quality of Life Questionnaire (MENQOL-S). Menopause specific quality of life of participants was categorized as 'good' and 'poor' on a cut-off decided during a previous validation study. Binary multiple logistic regression analysis was carried out to identify independent predictors of menopause specific quality of life.

Results: Mean age of the participants was 52.1 years (SD=2.2). Of them, 96.8% reported at least one menopausal symptom. Median MENQOL-S score was 65.0 (IQR=33.3-96.7). Out of the respondents, 63.8% (n=483) had 'poor' menopause specific quality of life and this was significantly associated with Sinhala ethnicity (adjusted OR (aOR)=5.867; 95% CI=4.472, 8.642), being currently employed (aOR=1.698; 95% CI=1.283, 2.38), having a monthly family income LKR <20 000 (aOR=1.832; 95% CI=1.301, 2.467), history of having irregular menstrual cycles (aOR=2.654; 95% CI=1.726, 4.014), history of having premenstrual mood swings (aOR=2.345; 95% CI=1.451, 3.980), never been pregnant (aOR=3.34; 95% CI=1.568, 7.348), and poor perceived health status (aOR=2.456; 95% CI=1.128, 4.678)..

Conclusions & Recommendations: Majority of the menopausal women aged 45-55 years living in Kalutara District had 'poor' menopause specific quality of life. Impact of menopause on quality of life and long-term health, should be taken into consideration when developing policies and planning healthcare programmes for women in this age group.

Keywords: midlife, vasomotor symptoms, climacteric, quality of life

Introduction

Menopause is an important milestone in a woman's life. It marks the end of fertile years and introduces women to the non-fertile phase of life. During menopause, the menstrual cycles permanently stop due to declining ovarian function. Natural menopause has been observed to occur between 45 and 55 years with minor variations worldwide. Menopause occurring before the age of 40 years is considered as premature menopause while those attaining menopause between 40-45 years are considered as undergoing an early menopause (1). National Institute for Health and Care Excellence (NICE) Guidelines advise that women older than 45 years could be diagnosed with menopause based on menstrual cycle characteristics. Post-menopause is the established state of menopause characterized by not having menstrual cycles for a minimum of 12 months period, in an otherwise healthy woman who is 45 years or older (2).

Sri Lankan population pyramids exhibit an aging trend and large numbers of Sri Lankan women are entering menopause each year. Increased female literacy, improved nutrition, improved living conditions and advanced medical technology has expanded the life-expectancy of Sri Lankan women to over 70 years (3). As a result, a woman could spend many numbers of years in the state of post-menopause.

Symptoms of menopause are known to impair quality of life of women by imposing limitations in work, family and social lives (4-5). Menopause specific quality of life is the extent to which quality of life of a woman is not affected by menopausal symptoms and could be assessed based on the distress caused by various groups of menopausal symptoms (6). Menopause specific quality of life is correlated with various socio-demographic, medical and lifestyle variables. Body mass index, level of physical activity, co-morbidities and past obstetric history are some of the factors that have been linked to quality of life during menopause (7-9).

Although menopause and quality of life have been extensively studied in developed countries, literature from Sri Lanka was limited. Given this background, the objective of this study was to assess menopause specific quality of life of post-menopausal women aged 45-55 years in Kalutara District, Sri Lanka and to identify correlated factors.

Methods

A descriptive cross-sectional study was conducted among post-menopausal women, who had undergone natural menopause and aged 45-55 years living in Kalutara District, Sri Lanka in year 2018. Women on any form of hormonal contraceptive or hormone replacement therapy, those suffering from any disease status that might affect data collection, those who have had hysterectomy with or without ovariectomy, women whose menstrual cycles have been disturbed because of medication, radiotherapy, pregnancy or lactation and women who have undergone menopause before 45 years of age (early and premature menopause) were excluded from the study.

Sample size required to assess menopause specific quality of life was calculated as 384 by using the formula, where $Z_{2\alpha}$ was considered 1.96 for a confidence level of 95%, p , the proportion of women with poor menopause specific quality of life was 50% and w , the desired level of precision was 5% (10). For multistage cluster sampling method, this sample size was multiplied by a design effect of 1.87. Since there was no previous information, degree of homogeneity was considered as 0.03 to calculate the design effect and cluster size was taken as 30, based on the feasibility of number of interviews to be done during a day (11). After adjusting for a non-response rate of 10%, the sample size was calculated to be 790.

Participants were recruited by a household survey using a multistage cluster sampling technique. A *grama niladhari* (GN) division was considered as a

cluster and the participants were recruited from randomly selected 27 GN divisions in Kalutara District. After visiting the GN division, data collection was initiated at the house immediately right to the GN office, when standing, facing the office. Subsequent households were selected from houses located on the right side of the index house. If there were more than one eligible woman in a household, lots were drawn to select one woman. If the eligible participant was not available on the first day of data collection, a second visit was paid on another day. Data collection was also carried out on weekends and public holidays to ensure that working women were also captured. Failure to collect data after three visits was considered as no response.

Data were collected using an interviewer-administered questionnaire by trained female data collectors. Three female data collectors were employed to collect data considering the sensitive nature of questions and the cultural background in Sri Lanka. All data collectors were given a well-structured two-day training prior to data collection. The questionnaire consisted of questions on socio-demographic data, correlates of menopause specific quality of life (past menstrual history, past obstetric history, co-morbidities, physical activity level, anthropometric measures, perceived health status and stressful life events) and culturally adapted and validated MENQOL-S, which assesses 26 menopausal symptoms and measures menopause specific quality of life based on the degree of bother caused by these symptoms. The validation study of MENQOL-S is presented elsewhere (6,12).

Total MENQOL-S score was calculated by summing up the scores obtained by individual items, which ranged from 0 to 208. Menopause specific quality of life of participants was categorized as 'good' and 'poor' based on a cut-off decided during a previous validation study (12). Those scoring equal and above the cut-off score of 53 were categorized as having 'poor' menopause specific quality of life and all others as having 'good' menopause specific quality

of life.

Data analysis

Data were analysed using the Statistical Package for the Social Sciences (SPSS) Software version 20.0. Binary multiple logistic regression analysis was carried out to identify independent predictors of menopause specific quality of life. Independent variables considered were age, ethnicity, educational level, current employment, relationship status, monthly family income, premenstrual mood swings, number of menopausal years, age at menopause, number of living children, having at least one co-morbidity, BMI, physical activity level, perceived health status and recent stressful life events.

Results

Response rate was 93.4% (756/790). Mean age of the sample was 52.1 years (SD=2.2). Mean age at menopause was 48.7 years (SD=2.8).

Table 1 describes the socio-demographic characteristics of the sample. Most of the women were Sinhalese (80.9%), Buddhists (77.7%), married (84.7%), educated above GCE Ordinary Level (51.6%) and unemployed (66.4%) were unemployed. The sample was considered representative of population in Kalutara District by their ethnic and religious composition, representing the cultural diversity of the study setting (3).

Majority (45.5%) of the women had been diagnosed with at least one co-morbidity. Diabetes (23.7%), hypertension (26.9%) and hypercholesterolemia (20.3%) were the most commonly reported co-morbidities among the participants. A considerable proportion of women (47.9%) had BMI in the overweight and obese categories, while 35.1% were having insufficient physical activity levels. Almost 78% had not faced any stressful life events during the past one month and 42.8% rated their perceived health status as 'good'.

Table 1: Frequency distribution of the socio-demographic characteristics of participants (N=756)

Characteristic	No.	%
Age	> 50 years	75.2
	≤ 50 years	24.8
Ethnicity	Sinhala	80.9
	Muslim	13.0
	Tamil	5.4
	Other	0.7
Religion	Buddhism	77.7
	Hindu	3.3
	Islam	13.3
	Christian/Catholic	5.3
	Other	0.5
Highest educational level	No schooling	3.3
	Grade 1-5	19.3
	Grade 6-10	25.8
	GCE Ordinary Level	29.1
	Vocational training	18.3
	University or higher	4.2
Current employment	Employed	33.6
	Unemployed	66.4
Family income (LKR)	≤ 20,000	49.7
	20,000 - 50,000	43.8
	50,000 - 100,000	4.2
	>100,000	2.2
Civil status	Married	84.7
	Never married	4.1
	Divorced/Separated	3.6
	Widowed	6.9
	Other	0.8

Table 2 describes responses for items in MENQOL-S, with 96.8% reporting at least one item in MENQOL-S. The most reported MENQOL item was “aching in muscles and joints” (66.3%) followed by “feeling tired or worn out” (51.8%) and “poor memory” (51.2%). Mean of the total MENQOL score was 70.2 (SD=31.7) while median and mode were 65.0 (IQR=33.3-96.7) and 31.0, respectively. According to the cut-off score of 53, 63.8% (n=483) had ‘poor’ MENQOL.

Univariate analysis results for factors associated with ‘poor’ menopause specific QOL (Table 3) included

Sinhala ethnicity (aOR=5.867, 95% CI=4.472-8.642), being currently employed (aOR=1.698; 95% CI=1.283, 2.380), having a monthly family income LKR <20,000 (aOR=1.832; 95% CI=1.301, 2.467), history of having irregular menstrual cycles (aOR=2.654; 95% CI=1.726, 4.014), history of having premenstrual mood swings (aOR=2.345; 95% CI=1.451, 3.980), never been pregnant (aOR=3.34; 95% CI=1.568, 7.348), and poor perceived health status (aOR=2.456; 95% CI=1.128, 4.678). Parameter estimates and associated factors for poor menopause specific quality of life is outlined in Table 4.

Table 2: Distribution of the responses for items in MENQOL-S (N=756)

Item in MENQOL-S		Yes		Mean	Median	SD
		No.	%			
1	Hot flushes or flashes	270	35.7	2.45	1.00	2.177
2	Night sweats	300	39.7	2.43	1.00	2.071
3	Sweating	281	37.2	2.36	1.00	2.072
4	Dissatisfaction with my personal life	259	34.3	2.10	1.00	1.741
5	Feeling anxious or nervous	185	24.5	1.88	1.00	1.758
6	Poor memory	387	51.2	2.67	2.00	1.909
7	Accomplishing less than I used to	364	48.2	2.58	1.00	1.916
8	Feeling depressed, down or blue	222	29.4	2.14	1.00	2.018
9	Being impatient with other people	180	23.8	1.91	1.00	1.807
10	Feelings of wanting to be alone	233	30.8	2.04	1.00	1.801
11	Flatulence (wind) or gas pains	309	40.8	2.63	1.00	2.198
12	Aching in muscles and joints	501	66.3	3.79	4.00	2.379
13	Feeling tired or worn out	392	51.8	2.92	3.00	2.116
14	Difficulty sleeping	262	34.6	2.55	1.00	2.325
15	Aches in back of neck or head	310	41.0	2.4	1.00	1.885
16	Decrease in physical strength	279	36.9	2.26	1.00	1.888
17	Decrease in stamina	319	42.2	2.53	1.00	1.996
18	Lack of energy	362	47.8	2.62	1.00	1.957
19	Dry skin	274	36.2	2.1	1.00	1.738
20	Weight gain	259	34.3	2.28	1.00	1.996
21	Increased facial hair	77	10.1	1.4	1.00	1.299
22	Changes in appearance, texture or tone of my skin	207	27.3	1.82	1.00	1.532
23	Feeling bloated	261	34.5	2.15	1.00	1.829
24	Low backache	329	43.5	2.73	1.00	2.201
25	Frequent urination	183	24.2	1.99	1.00	1.879
26	Involuntary urination when laughing or coughing	174	23.1	2.14	1.00	2.245
27	Decrease in my sexual desire	236	31.2	1.97	1.00	1.801
28	Vaginal dryness	221	29.2	1.91	1.00	1.758
29	Avoiding intimacy	208	27.5	2.00	1.00	1.898

SD=standard deviation

Discussion

During this study, poor menopause specific quality of life was identified among the majority (63.8%) of post-menopausal women aged 45-55 years in Kalutara District. A community-based survey conducted using Short Form-36, a generic quality of life instrument, among 683 women aged between 45-

60 years in Colombo District, Sri Lanka has previously shown that having menopausal symptoms significantly ($p<0.05$) lowered health related quality of life (13). However, menopause specific quality of life had not been studied using a condition specific quality of life instrument in Sri Lanka previously and we report the first study from Sri Lanka using such an instrument.

Table 3: Factors associated with poor menopause specific quality of life (QOL) in univariate analysis

Characteristic		Menopause specific QOL				Unadjusted odds ratio	95% CI	
		‘Poor’		‘Good’				
		No.	%	No.	%			
Age	>50 years	386	67.8	183	32.2	1.957	1.398	2.74
	≤ 50 years (Ref)	97	51.9	90	48.1	p=0.000		
Race	Sinhala	477	78.0	135	22.0	11.585	7.874	17.04
	Others (Ref)	34	23.5	110	76.5	p=0.000		
Religion	Buddhism	456	77.7	131	22.3	7.498	5.303	10.6
	Others (Ref)	54	31.7	115	68.3	p=0.000		
Educational level	A/Level or higher	138	81.2	32	18.8	3.013	1.983	4.577
	Below A/Level (Ref)	345	58.9	241	41.1	p=0.000		
Current Employment	Employed	186	73.2	68	26.8	1.888	1.357	2.626
	Unemployed (Ref)	297	59.2	205	40.8	p=0.000		
Civil status	Married	419	65.5	221	34.5	.649	0.435	0.969
	Other (Ref)	64	55.2	52	44.8	p=0.047		
Monthly income (LKR)	< 20,000	272	71.6	108	28.4	1.969	1.456	2.664
	≥ 20,000 (Ref)	211	56.1	165	43.9	p=0.000		
Having Regular cycles	No	99	83.2	20	16.8	3.26	1.96	5.41
	Yes (Ref)	384	60.3	253	39.7	p=0.000		
Duration of cycle length (days)	<21 or >35	385	62.4	232	36.1	0.69	0.46	1.03
	21-35 (Ref)	98	70.5	41	29.5	p=0.79		
Painful menstruation	Yes	242	81.2	56	18.8	3.89	2.75	5.48
	No (Ref)	241	52.6	217	47.4	p=0.000		
Premenstrual mood swings	Yes	147	82.6	31	17.4	3.42	2.24	5.2
	No (Ref)	336	58.1	242	41.9	p=0.000		
Excessive bleeding	Yes	144	77.4	42	22.6	2.33	1.594	3.432
	No (Ref)	339	59.5	231	40.5	p=0.000		
Years in menopause	≥ 5	120	64.9	65	35.1	1.05	0.78	1.49
	< 5 (Ref)	363	63.6	208	36.4	p=0.792		
Ever been pregnant	No	47	82.5	10	17.5	2.83	1.4	5.7
	Yes (Ref)	436	62.4	263	37.6	p=0.002		
Age at first pregnancy	≥ 35	15	60.0	10	40.0	0.84	0.37	1.9
	<35 (Ref)	468	64.0	263	36.0	p=0.677		
Number of live births	None	52	77.6	15	22.4	2.07	1.14	3.76
	>1 (Ref)	431	62.6	258	37.4	p=0.016		
Number of children	None	58	79.5	15	20.5	2.34	1.3	4.22
	>1 (Ref)	425	62.2	258	37.8	p=0.003		
Presence of comorbidities	One or more	222	64.5	122	35.5	1.053	0.78	1.41
	None (Ref)	261	63.3	151	36.7	p=0.76		
BMI (kg/m ²)	< 18.5 or > 25	271	67.9	128	32.1	1.44	1.00	1.95
	18.5 – 24.9 (Ref)	212	59.4	145	40.6	p=0.015		
Physical activity	Insufficient	182	68.7	83	31.3	1.384	1.00	1.90
	Sufficient (Ref)	301	61.3	190	38.7	p=0.047		
Perceived health status	Poor	58	85.3	10	14.7	3.589	1.80	7.14
	Good (Ref)	425	61.8	263	38.2	p=0.000		
Stressful life events	None	404	68.6	185	31.4	2.43	1.71	3.45
	One or more (Ref)	79	47.3	88	52.7	p=0.000		

95% CI=95% confidence interval; Ref=reference category; BMI=body mass index

In the current study, a higher proportion (96.8%) reported having at least one symptom in MENQOL-S. Similarly, a previous study from Colombo District has reported a higher prevalence (91%) of at least one menopausal symptom among the participants (13). Another cross-sectional study involving 403 women who have undergone natural menopause from Sri Lanka has shown 87.1% prevalence of at least one menopausal symptom among the participants (14). All these studies support the fact that menopausal symptom prevalence is quite high among menopausal women in Sri Lanka.

The most prevalent symptoms seen in this study were “aching in muscles and joints” (66.3%) and “feeling tired or worn out” (51.8%). Similarly, during a previous study from Colombo District has reported “joint and muscular discomfort” (74.7%) followed by “physical and mental exhaustion” (53.9%) as the commonest menopausal symptoms (13). A similar picture is observed in other Asian countries. A cross-sectional study done in Nepal among 140 menopausal women has also shown that most common menopausal problem was “joint and muscular discomfort” (71.4%) (14). This shows that symptoms of joint and muscle pain cause a high degree of burden and distress among the Asian menopausal women. In addition to this association, wear and tear of the natural aging process and the association with oestrogen deficiency of menopause have been clearly established (15).

A survey conducted in North America and Europe has shown that the most prevalent menopausal symptoms are “vaginal dryness”, “hot flashes” and “night sweats” (16). However, in the current study, the prevalence of hot flushes was only 35.7%. This finding is in accordance with the previous observation that menopausal symptoms found among Asian women are different to those commonly found among western women. This difference is probably due to the impact of ethnic and

cultural influences (17).

During the current study, Sinhala ethnicity was significantly correlated with poor menopause specific quality of life. Similarly, in the Study of Women's Health Across the Nation (SWAN), the reporting of menopausal symptoms has varied among women belonging to different ethnicities (18). Asian women have reported fewer symptoms compared to the Caucasian and Afro-American women. This multi-ethnic study further provides evidence to the theory that menopausal symptom reporting has a strong cultural and ethical influence. Such study findings have led to the proposed concept that there is no universal menopausal syndrome (19).

The current study shows that being currently employed increases the risk of poor menopause specific quality of life. Similarly, a study from India, reported menopause specific quality of life of vasomotor domain was significantly higher among working women compared to the non-working women (mean score of the vasomotor domain of non-working women of 2.78 (SD=0.1) compared to 3.13 (SD=0.028) of working women (20).

Previous studies have also reported that women who had premenstrual syndrome were at greater risk of menopausal symptoms (21). The reason for this relationship could be because both phenomena are results of changing hormone levels. Poor perceived health status was a significant correlated factor for poor menopause specific life during the current study. Similarly, self-reported health status has been shown to be significantly associated with quality of life of women going through menopause in other settings (9).

The cross-sectional nature of this study limited the assessment of how correlated factors affect menopause specific quality of life with time. Since all the study instruments were interviewer-

administered, an interviewer bias might have been introduced despite the efforts taken to minimize it. We anticipate that a social desirability response bias

could have hindered participant responses for sensitive areas like sexual problems.

Table 4: Parameter estimates and significance of associated factors for poor menopause specific quality of life during multivariate analysis

Variable	B	S.E	Wald	df	Sig.	Adjusted OR	95% CI	
							Lower	Upper
Sinhala ethnicity	1.798	0.18	96.142	1	0.000	5.867	4.472	8.642
Being currently employed	0.487	0.16	10.087	1	0.001	1.698	1.283	2.380
Monthly family income LKR <20,000	0.979	0.15	11.500	1	0.000	1.832	1.301	2.467
History of having irregular menstrual cycles	0.975	0.23	19.264	1	0.000	2.654	1.726	4.014
History of having premenstrual mood swings	0.968	0.42	12.278	1	0.000	2.345	1.451	3.980
Never been pregnant	1.258	0.35	10.285	1	0.001	3.340	1.568	7.348
Poor perceived health status	0.890	0.37	6.385	1	0.014	2.456	1.128	4.678

B=β coefficient; SE=standard error; df=degrees of freedom; Sig=significance; 95% CI=95% confidence interval

Conclusions & Recommendations

Majority of menopausal women aged 45-55 years living in Kalutara District had 'poor' menopause specific quality of life. Significantly associated co-related factors of menopause specific poor quality of life among the participants were Sinhala ethnicity, being currently employed, having a monthly family income LKR< 20 000, history of having irregular menstrual cycles, history of having premenstrual mood swings, never been pregnant and poor perceived health status.

Impact of menopause on quality of life, should be taken into consideration when developing policies and planning healthcare programmes for women of this age group. Menopause should be considered as a window of opportunity to promote health. The current well women clinic programme conducted by the Ministry of Health, Sri Lanka should be strengthened to assess women for menopausal symptoms and refer for further care. All women

above 45 years should be invited to undergo regular health assessments and those with poor menopause specific quality of life should be referred for specialist menopause care.

Public Health Implications

- The quality of life of women living in Sri Lanka is significantly affected by bothersome menopausal symptoms.
- Menopause specific quality of life is significantly correlated with ethnicity, premenstrual syndrome, irregular menstrual cycles, nulliparity, and poor perceived health status.
- This article highlights the importance of considering the impact of menopause on quality of life, when planning healthcare programs for women in menopausal age group.

Author Declarations

Competing interests: The authors declare that there is no competing interest.

Ethics approval and consent to participate: Ethics clearance was granted by the Ethics Review Committee of the National Institute of Health Sciences, Kalutara (NIHS/ERC/75/2018). Informed written consent was obtained from each participant prior to data collection.

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Author contributions: CHR and RF were responsible for design of the study. CHR undertook the data collection, analysis, interpretation and writing of the article. RF and RS critically reviewed and supervised the process. The manuscript has been read and approved by all the authors.

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