

A Cross-Sectional Study to Determine Effect of Menopause on Quality of Life and Pain in Women Aged 40-60 Years

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Abstract

Background: Menopause means the permanent cessation of menstruation at the end of reproductive life due to loss of ovarian follicular activity. Menopause has a profound impact on a woman's physical and mental health as a whole. Quality of life and pain are measured to study and compare the effect of menopause on them.

Objective: The aim of this study was to compare quality of life and pain among pre-, peri- and postmenopausal women and find the effect of menopause on the above-mentioned factors.

Methodology: This cross-sectional study included 258 women between the age group of 40-60 years who were classified according to their menstrual status into premenopause, perimenopause and postmenopause. They were selected on the basis of inclusion and exclusion criteria. All the participants agreed to participate in the study. Outcome measures SF-20, VAS was measured. Statistical analysis of the data was performed using SPSS version 20 through application of descriptive statistics, t-test and multivariate analysis.

Result: The data measure of outcome variables of the premenopausal, perimenopausal and postmenopausal groups was compared using descriptive statistics, multivariate analysis and t-test. The components of SF-20 which were significantly reduced for postmenopausal women as compared to premenopausal were physical functioning ($p=0.000$), role functioning ($p < 0.00001$), social functioning ($p < 0.00001$), mental health ($p = 0.0000$), health perception (< 0.00001). The component of pain was significantly increased ($p = 0.0158$) in postmenopausal women compared to premenopausal women.

Conclusion: Thus, we can conclude there is significant deterioration in components of quality of life and pain in postmenopausal women as compared to premenopausal women even after controlling for age. These findings will help to add valuable input to current research on menopause.

Keywords: Menopause, Premenopause, Quality of life, Medical Outcomes Study: Short Form-20, pain

Introduction

Menopause means the permanent cessation of menstruation at the end of reproductive life due to loss

of ovarian follicular activity. It is the point of time when last and final menstruation occurs. The clinical diagnosis is confirmed following cessation of menstruation (amenorrhea) for twelve consecutive months without any other pathology⁽¹⁾.

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Menopausal status is classified as premenopause, perimenopause or postmenopause according to the PENN-5 menopausal status definition. Premenopausal status was defined by regular cycles with no change in

observed cycle length (21 – 35 days). A woman was considered perimenopausal if she had two menstrual cycles with cycle length changes of at least 7 days or her last menstrual period occurred > 3 but <11 months before the study. Women who had not menstruated within the previous 12 months were categorized as postmenopausal⁽²⁾.

At the time of menopause, a woman must readjust her life from one that has been physiologically stimulated by estrogen and progesterone production to one devoid of these hormones⁽³⁾. These hormonal alterations often result in unpleasant and even harmful physical, psychological, and sexual changes in postmenopausal women, which can have a negative impact on their quality of life⁽⁴⁾.

The WHO defined the phrase “quality of life” as an individual’s perception of their position in life in the context of the culture and value systems in which they lie and in relation to their goals, expectations, standards and concerns. The expression “health-related quality of life” refers to an individual’s perception of the correlation between their physical (ability to perform physical activities), psychological (emotional stress, anxiety and depression), and social (family interaction, time for friends and leisure activities) limitations⁽⁵⁾.

Pain can also negatively affect quality of life. Those women who were early perimenopausal, late the perimenopausal or postmenopausal reported significantly more aches and pains, compared with premenopausal women. With complete risk factor adjustment, postmenopausal women still reported significantly greater pain symptoms than did premenopausal women⁽²⁾.

An epidemiological study on Indian women found ‘pain in hands or legs’ as the most prevalent symptom followed by anxiety and physical and mental exhaustion⁽⁶⁾. While another study on urban Indian women found the most frequent menopausal symptoms to be in the following order: fatigue, lack of energy, headache, hot flushes, cold sweats, cold hand and feet, weight gain, numbness/tingling and excitability/anxiety⁽⁷⁾.

Menopause is not only a biologic process but also a life stage characterized by changing roles such as the end of childbearing potential and children leaving home. A study on women transitioning into menopause found that regardless of the presence of its hallmark symptoms of hot flashes and vaginal dryness, it is associated with a decrement in HRQoL⁽⁸⁾.

Mean age at menopause ranges in Indian women from 40.32 to 48.84 years and in developed countries from 48.0 to 51 years⁽⁹⁾. The life expectancy of women is around 80 years; this means that women spend more than 30 years in postmenopausal status. The World Health Organization reported that by 2030, there would be 1.2 billion women at and over age of 50. Therefore, although the menopause seems like a natural process, it is a period that must definitely be followed and treated⁽¹⁰⁾.

Material and Methodology

Study Design: Cross-sectional study

Inclusion criteria:

- Ø Women aged 40-60 years.
- Ø Intact uterus with at least one ovary.
- Ø Having entered into menopause naturally without any surgical or medical intervention.

Exclusion Criteria

- Ø Currently pregnant or breast feeding.
- Ø Using exogenous hormone preparation affecting ovarian or pituitary function in previous 3 months.
- Ø Any disorder or disease that may prevent from performing the required tests.
- Ø Women who have stopped menstruating as a result of hysterectomy or radiotherapy or chemotherapy.
- Ø Women whose menstrual status could not be determined.
- Ø Women refusing to participate.

Study Setting: Study was conducted at New Civil Hospital, Surat

Study Duration: 6 months between October 2019 to March 2020

Sample Size: Sample size was calculated from openepi software on basis of prevalence rate of 20% and the resultant sample size for this study was found to be 258.

Sampling Technique: Purposive sampling

Questionnaire and scale

Ø Medical outcome study: 20- item short form survey instrument

Ø Visual Analog Scale

Outcome Measures:

Ø Quality of Life

Ø Pain

Procedure: After obtaining clearance from the

Human Research Ethical Committee of Government Medical College, Surat the present study was initiated. All the women approached were provided with a participant information sheet explaining about the study in a language understood by them and their consent was taken. They were screened to determine their eligibility for the study, according to the inclusion and exclusion criteria. The subjects were enquired about their menopausal status by asking them about their last menstrual cycle and its regularity. Their menopausal status was then determined on the basis of definition given by PENN. The participant was administered Medical Outcome Study Short Form-20 questionnaire through interview method. On the visual analog scale, the participant was asked to mark her pain intensity on the line.

Data Analysis: SPSS version 15 was used for the analysis of data. Multivariate model, post-hoc ANOVA, t-test was used for analysis. P-value < 0.05 was considered as significant.

Results

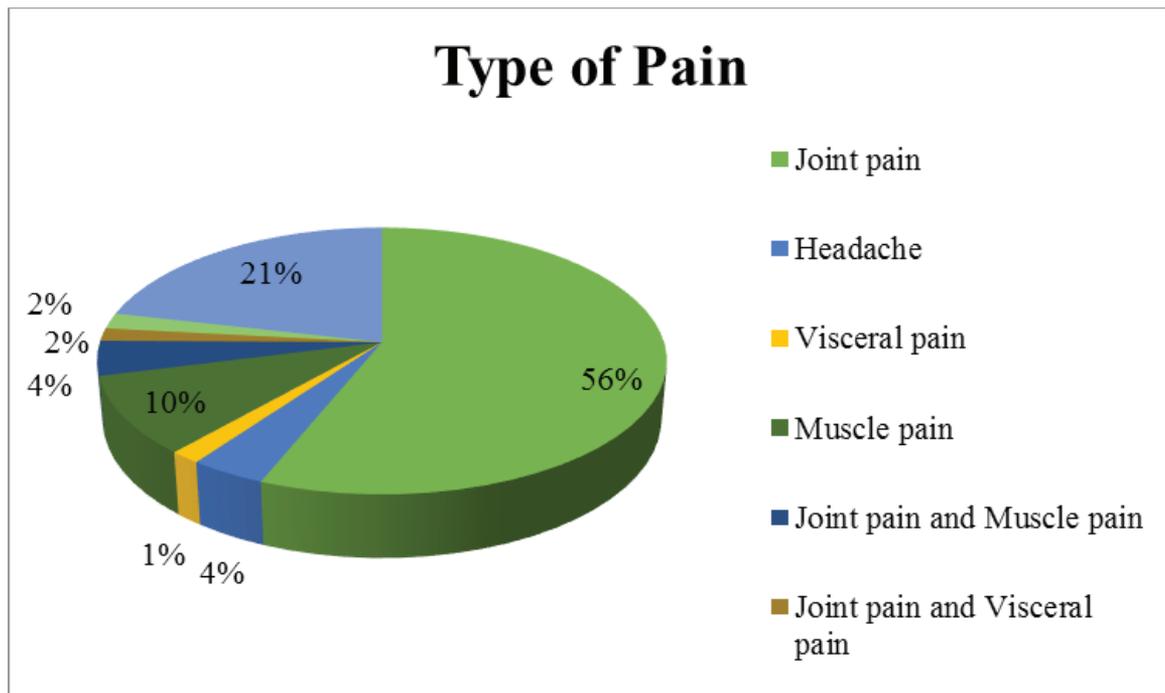


Figure 1 Percentage distribution of type of pain in sample population

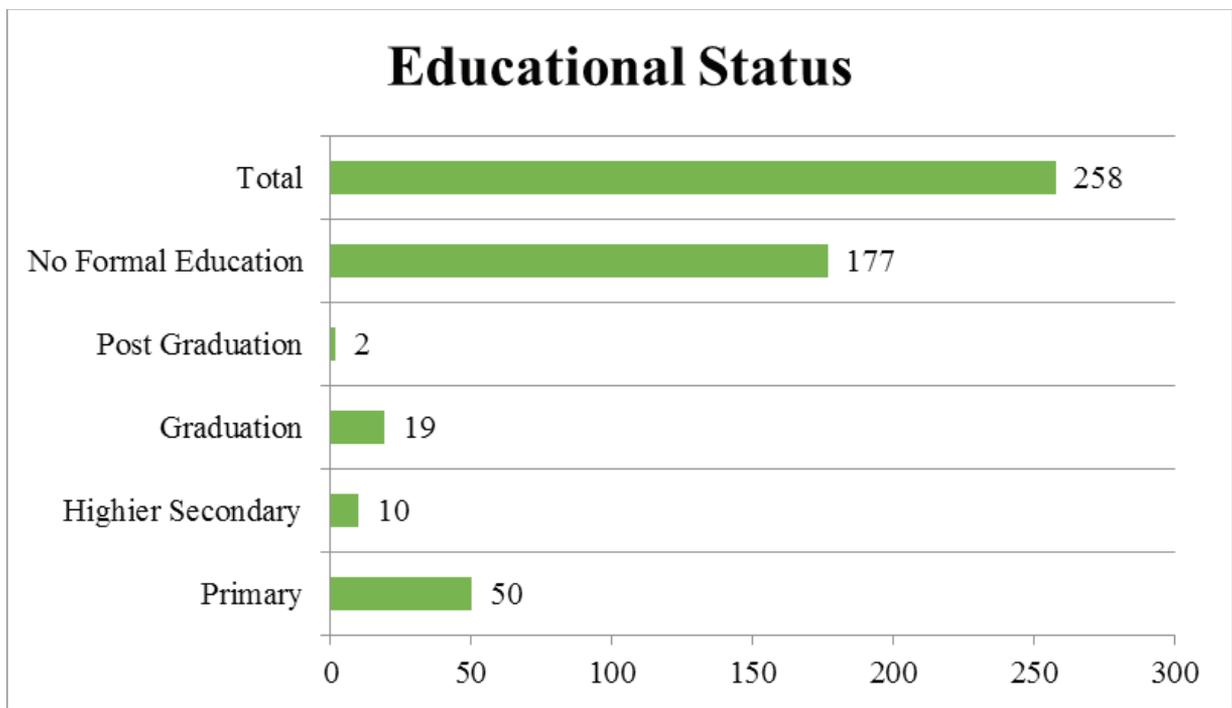


Figure 2 Frequency distribution of educational levels of study participants

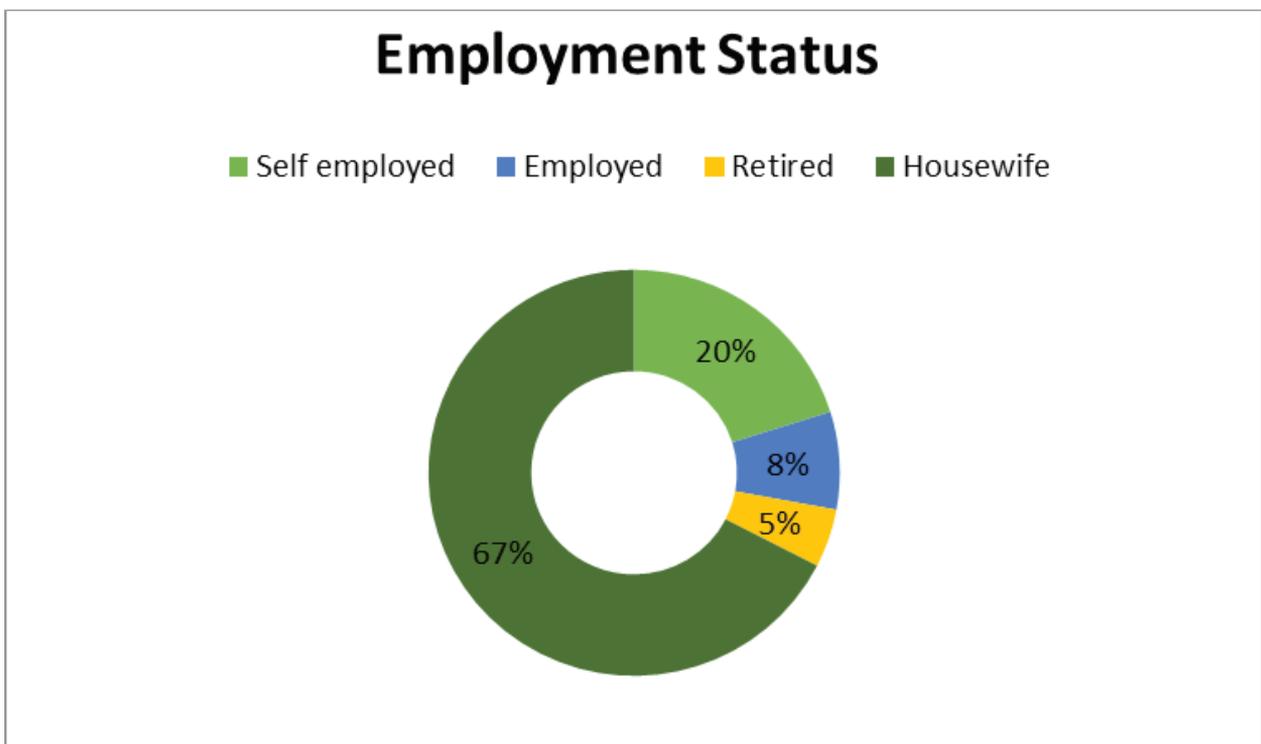


Figure 3: Frequency distribution of employment status of study participants

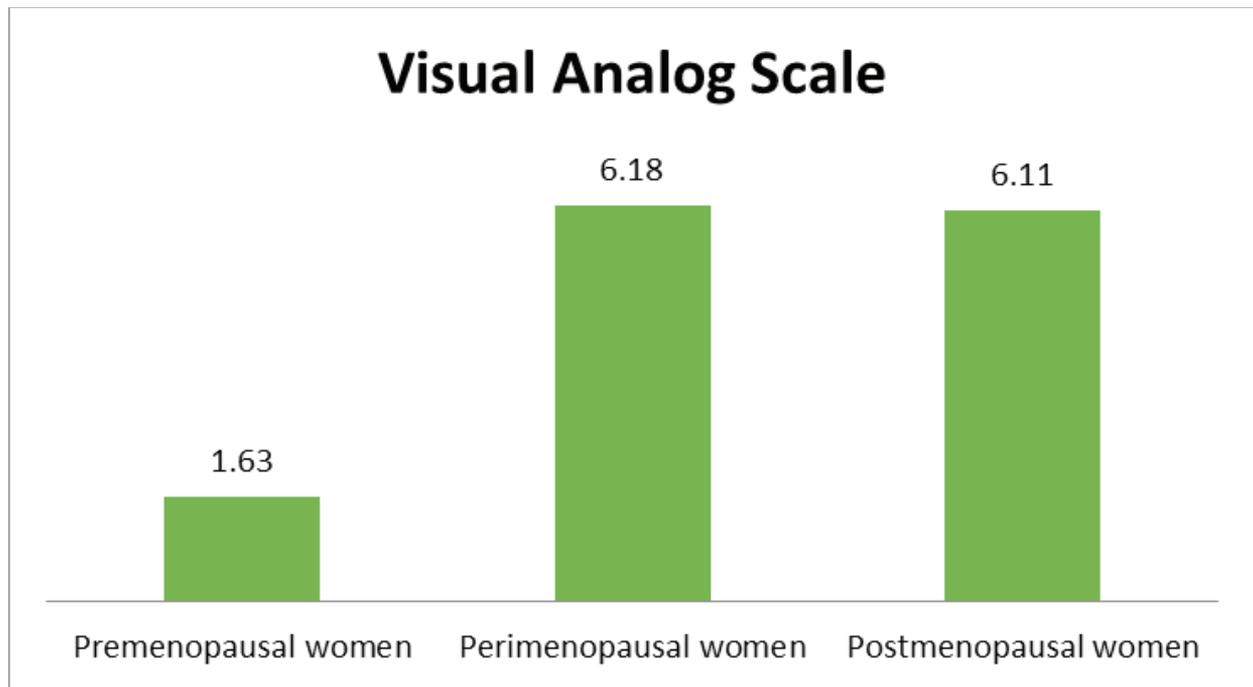


Figure 4: Graphical presentation of mean values of Visual Analog Scale

Table 1: Descriptive statistics of Physical Functioning, Pain and Mental Health

		Physical Functioning	Pain	Mental Health	N
Mean ±SD	Premenopausal Women	94.65±7.61	1.62±17.48	74.39±5.68	86
	Postmenopausal Women	80.51±13.44	53.48±22.21	67.18±10.77	

Table 2.A: Age-adjusted model of Physical Functioning

Parameter	B	Std. Error	t	Sig.
Age	-0.20699	0.120941	-1.7115	0.0882
Perimenopausal	94.43825**	5.875318	16.0737	0.0000**
Postmenopausal	91.81534**	6.693894	13.7163	0.0000**

Table 2.B: Age-adjusted model for pain

Parameter	B	Std. Error	t	Sig.
Age	0.37419084	0.245698	1.5230	0.1290
Perimenopausal	24.22758617*	11.93605	2.0298	0.0434*
Postmenopausal	33.05146075*	13.59904	2.4304	0.0158*

Premenopausal Reference Category

Table 3: Mean comparison of mental health composite

(I) menopausal status	(J) menopausal status	Mean Difference (I-J)	Std. Error	Sig.	F
Premenopause	Perimenopause	7.9279**	1.324821	0.0000**	21.905
Premenopause	Postmenopause	7.2093**	1.324821	0.0000**	
Perimenopause	Postmenopause	-0.7186	1.324821	0.8504	

Table 4: Comparison of means of role functioning, social functioning and health perception between premenopausal and postmenopausal women

		Role Functioning	Social Functioning	Health Perception
Mean ±SD	Premenopausal Women	94.9±12.31	93.35±13.65	81.76±10.16
	Postmenopausal Women	66.1± 25.96	77.06±18.16	48.35±23.32
t-value		9.29	6.64	12.17
p-value		<0.00001**	<0.00001**	<0.00001**

Discussion

After using an age-adjusted model for physical functioning in table 2.A, it was found that physical functioning was significantly reduced in postmenopausal women as compared to premenopausal women ($p < 0.0000$). Hess et al⁽⁸⁾ concluded that compared to premenopausal women, the physical health composite of the RAND-36 is significantly lower in late perimenopausal, early postmenopausal and late postmenopausal women thus supporting our result of decreased physical functioning of postmenopausal women.

According to table 2.B, after controlling for age, level of pain is significantly more in post-menopausal women as compared to premenopausal women, but the significance is only marginal while Hess et al⁽⁸⁾ concluded that the strongest and most consistent effects were seen between menopausal status and pain, menopausal status and general health perceptions.

After applying ANOVA and post-hoc test in table 3, we found highly significant decrease in mental health of postmenopausal women as compared to premenopausal women ($p\text{-value} = 0.0000$). Supporting these results is a result by Hess et al⁽⁸⁾ stating that compared to premenopausal women, the mental health composite of RAND-36 is lower in late perimenopausal, early postmenopausal, and late postmenopausal women. They also concluded that the impact of menopausal status on mental health-related quality of life is at least partially accounted for by menopausal symptom frequency and associated bother while we have focused only on physical strength and functioning.

In table 4, we compared the means of role functioning of premenopausal and postmenopausal women and found the role functioning of postmenopausal women to be significantly less than premenopausal women. This table also shows that the social functioning of postmenopausal women is significantly reduced as compared to premenopausal women, after comparison of their means. For the role functioning component of

SF-20, Hess et al⁽⁸⁾ stated that there was no significant impact of menopausal status on role limitation due to emotion problems and social function was worse only in women who had hysterectomies. They concluded that scales that assess interference (role limitation, social functioning and physical functioning) are not as impacted by menopausal stage. They have interpreted that women are not allowing menopause to interfere with most aspects of their lives, despite feeling worse.

Health perception is significantly reduced in postmenopausal women as compared to premenopausal women (p-value=<0.00001). A study by Del Sueldo et al proved that health was perceived as worse in menopausal women ($P<0.05$) compared with non-menopausal women. Patients younger than 45 years had a better perception of health than older patients⁽¹¹⁾.

Conclusion

These findings prove that during the postmenopausal phase women have reduced quality of life as compared to premenopausal women. Especially the components of physical functioning and pain of Medical Outcomes Study – Short Form 20, are significantly negatively affected even after controlling for age in postmenopausal women. This study has thrown spotlight on the quality of life and pain levels of postmenopausal women and will help focus on improving the physical and mental health and quality of life of women approaching menopause. We would recommend conducting this study on a national level so that the findings can be generalized for Indian women of all ethnicities and also a longitudinal study on women transitioning from premenopause to post menopause.

Conflict of Interest: None

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