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An assessment of selected health related quality of life between physically active perimenopausal and physically inactive postmenopausal women

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Abstract
The aim of the study is to determine the selected health related quality of life between physically active perimenopausal and physically inactive postmenopausal women. A sample of 100 (50 physically active perimenopausal women and 50 physically inactive postmenopausal women) from various regions of Bilaspur and Raipur were takenas sample on the basis of stratified purposive random sampling. The age group of the subjects wereranged from 40 - 65 years. Health related quality of life (HRQOL) was assessed through SF-36 Questionnaire, which was used inthe present study. IPAQ-The physical activity level was assessed using the International Physical Activity Questionnaire. To compare the selected HRQOL variables between physically active and inactive women, Independent sample t-test was used. The level of significance was set at 0.05. It was concluded from the findings of the study that significant difference was obtained in Role Physical, Mental Health and Bodily Pain (The selected sub-scales of health related quality of life) between active perimenopausal andinactive postmenopausal women (t=70.015, 44.688 and 17.448 respectively, $p<0.05$). It is seen that the mean scores of physically active perimenopausal women were highest in Role Physical, Mental Health and Bodily Pain when compared to physically inactive postmenopause women.

Keywords: Quality of life, physically active perimenopausal, physically inactive postmenopausal, women, role physical, mental health and bodily pain

Introduction
Health-Related Quality of Life (HRQOL)
The term quality of life (QOL) refers the general well-being of individuals and societies. The term is used in a wide range of contexts, including the fields of international development, healthcare, and politics. Quality of life should not be confused with the concept of standard of living, which is based primarily on income. Instead, standard indicators of the quality of life include not only wealth and employment, but also the built environment, physical and mental health, education, recreation and leisure time, and social belonging (Johnston, *et al*, June 2009) [1].

Health-related quality of life (HRQL) is a broad, multi-dimensional concept covering significant domains of daily functioning and subjective experience, such as physical functioning, role and social functioning, somatic sensation, perceived health, and subjective well-being. It is well documented that chronic medical morbidity has a strong negative impact on functional domains of HRQL (Stewart *et al*., 1989; Verbrugge & Patrick, 1995) [2, 3].

HRQL is the value that an individual assigned to the duration of life as modified by impairments, functional states, perceptions and social opportunities that are influenced by disease, injury, treatment or policy (Patrick D and Erickson J, 1993) [4].

Several recent reports have found some domains of HRQL to be affected by the transition from before to after menopause, with depressive symptoms tending not to be affected (Crawford S & *et al*., 2001) [5]. Women before the menopause transition compared with women who had begun the transition differed in reports of pain, role limitations, and vitality, but adjustments for symptoms (leaking urine, vaginal dryness, night sweats, and hot flashes) and other variables reduced differences in HRQL to non-significance in a large cross-sectional study (Covin, A. *et al*., 2003) [6].

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Estrogen alone as a postmenopausal hormone treatment continues to be offered for vasomotor symptom reduction, with collateral improvement reported in depression (Zweifel JO'Brien, 1997) [7] sexual functioning (Sarrell PM, 2000) [8] and cognitive functioning (Paganini, 1994) [9] all of which are components of HRQOL and an influence on global QOL.

Menopausal symptoms can affect women's health and wellbeing. It is important to develop interventions to alleviate symptoms, especially given recent evidence resulting in many women no longer choosing to take hormone replacement therapy. Though exercise may prove useful in alleviating menopausal symptoms, its effectiveness has been contradictory. There is some evidence for a positive association between exercise and health related quality of life and mixed evidence for the alleviation of vasomotor symptoms in menopausal women. Researcher feels it the need to fill the gap of survey in the area of changes in HRQOL in physically active and inactive menopausal women.

Menopause
Menopausal symptoms can affect women's health and wellbeing. It is important to develop interventions to alleviate symptoms, especially given recent evidence resulting in many women no longer choosing to take hormone replacement therapy.

The final menstrual period, which can be confirmed after 12 consecutive months without a period. This time marks the permanent end of menstruation and fertility. It is a normal, natural event associated with reduced functioning of the ovaries, resulting in lower levels of ovarian hormones (primarily estrogen) (https://www.menopause.org) [10].

Pre-menopause
The span of time from puberty (onset of menstrual periods) to perimenopause (https://www.menopause.org) [10].

Perimenopause
A span of time that begins with the onset of menstrual cycle changes and other menopause-related symptoms and extends through menopause (the last menstrual period) to 1 year after menopause. Perimenopause is experienced only with spontaneous (natural) menopause, not induced menopause. Also called the menopause transition (https://www.menopause.org) [10].

Postmenopause
The span of time after menopause (the final menstrual period) (North American Menopause Society) (https://www.menopause.org) [10].

Physically Active
In this study the researcher has defined the term physically active to those who achieved MET scores above 6000 MET - min/week. The MET scores were calculated from the amount of physical work out in any form inspite of their daily routine of household work or job. It included walking, running, gardening and any leisure activity. (Guidelines for data processing and analysis of International Physical Activity Questionnaire (IPAQ) November 2005) [11].

Physically Inactive
In this study the researcher has defined the term physically inactive to those who did not achieve MET scores above 6000 MET - min/week. The MET scores were calculated from the amount of physical work out in any form inspite of their daily routine of household work or job. It included walking, running, gardening and any leisure activity. (Guidelines for data processing and analysis of International Physical Activity Questionnaire (IPAQ) November 2005) [11].

Role Physical: Assesses the impact of the physical health on vocational and avocational activities.

Mental Health: Assesses the frequency of 4 major mental health dimensions: anxiety, depression, loss of behavior/emotional control and psychological well-being.

Bodily Pain: Captures the frequency of pain and the extent of interference with normal activities due to pain.

Objective of the Study
The following were the objective of the present study:
- To compare the selected health related quality of life between physically active perimenopausal and physically inactive postmenopausal women.
- To assess the selected health related quality of life in physically active perimenopausal women.
- To assess the selected health related quality of life in physically inactive postmenopausal women.

Methodology
Selection of Subjects
For the purpose of the present study 50 physically active perimenopausal women and 50 physically inactive postmenopausal women from various regions of Bilaspur and Raipur were selected. The sampling method for the study was stratified purposive random sampling. The age group of the subjects ranged from 40- 65 years.

Selection of Variables
The following HRQOL variables were selected for the present study:
- Role Physical
- Mental Health
- Bodily Pain

Criterion Measures
1. Health related quality of life (HRQOL) assessed through SF-36 Questionnaire.
2. IPAQ – The physical activity level was assessed using the International Physical Activity Questionnaire. The questionnaire was used to assess physical activity undertaken across a comprehensive set of domains including Leisure time physical activity, domestic & gardening (yard) activities, work related physical activity and transport related physical activity.

Administration of Questionnaire
1. Health related quality of life
Purpose: The SF-36® Health Survey is a generic outcome measure designed to examine a person's perceived health status.

Instrument Type: Self-report Questionnaire (generic health status measures). It is a brief (36 item) scale developed by Stewart, Hayes and Ware (1988) [12] from items included in the Medical Outcome Study. The SF-36 has a single item covering change in health status over the last year and an 8 multi - item scales.

Structure: The SF-36® Health Survey includes one multi-item scale measuring each of the following eight health concepts: physical functioning (PF); role limitations because of physical health problems; bodily pain (BP); social functioning; general mental health (psychological distress and psychological wellbeing); role limitations because of emotional problems; vitality (energy/fatigue); and general health perceptions. The SF-36 can also be divided into two aggregate summary measures the Physical Component Summary (PCS) and the Mental Component Summary (MCS) (Ware *et al* 1995) [11].

Scoring: The SF-36® Health Survey items and scales were constructed using the Likert method of summated ratings (Ware & Hays 1988) [12]. Answers to each question are scored (some items need to be recoded). These scores are then summed to produce raw scale scores for each health concept which are then transformed to a 0 - 100 scale. Scales is set up so that a higher score indicates better health.

2. International Physical Activity Questionnaire

Both perimenopausal and postmenopausal women were asked to fill IPAQ questionnaire for assessing their physical activity level.The questionnaire was administered on the subjects to inquire about the previous 7 days version of physical activity levels. Additionally, questions relating to "work" will be modified to "college" to reflect the population being samples. IPAQ assesses physical activity undertaken across a comprehensive set of domains including:

a) Leisure time physical activity.
b) Domestic and gardening (yard) activities.
c) Work-related physical activity.
d) Transport-related physical activity.

Structure

The IPAQ is used to assess PA during the past 7 days. There are two versions, the long form (27 items) and the short form (7 items), which can be self administered or administered during in-person or telephone interviews. The IPAQ used in the present study is the long version which covers four domains of PA: occupational (6 items), transportation (6 items), household/gardening (6 items) and leisure-time activities (6 items), time spent sitting (2 items).The IPAQ

Long form asks details about the specific types of activities undertaken within each of the four domains. The items in the IPAQ long form were structured to provide separate domain specific scores for walking, moderate-intensity, vigorous-intensity activity within each of the work, transportation, domestic chores and gardening (yard) and leisure-time activities. The questionnaire also includes two questions about the time spent on sitting as an indicator of sedentary behavior. The number of days per week and the time spent on walking per day as well as moderate and vigorous activities from all four domains were recorded. Computations of the total scores of the long form were done with the summation of the duration (in minutes) and frequency (days) for all the types of activities in all domains. Domain specific scores or activity specific sub-scores was calculated. Domain specific scores require summation of the scores for walking, moderate-intensity and vigorous intensity activities within the specific domain and activity - specific scores require summation of the scores for the specific type of activity across domains.

Administration Method and Scoring

The IPAQ data were converted to metabolic equivalent scores (MET-minweek-1) for each type of activity, by multiplying the number of minutes dedicated to each activity class by the specific MET score for that activity. METs are multiples of resting metabolic rate and a MET- minute is computed by multiplying the MET score of an activity by the minutes performed. The MET score weighs each type of activity by its energy expenditure. Based on the MET value, groups were divided into physically active and inactive women. Scores above 6000 MET - min/week are in physically active group and those MET scores below 6000 MET – min/week are in physically inactive group.

Statistical Method

A detailed descriptive statistics i.e. mean, standard deviation, minimum and maximum scores on each test selected sub-scales of health related quality of life ware calculated. To compare the selected HRQL variables between physically active and inactive women Independent sample t-test were used. The level of significance was set at 0.05.

Result and Findings of the Study

Table 1: Descriptive Statistics of Selected Sub-Scales of Health Related Quality of Life of Physically Active Perimenopausal and Physically Inactive Postmenopausal Women

Variables	GROUPS	N	Mean	Std. Deviation	Std. Error Mean
Role Physical (RP)	Physically Active Peri	50	98.00	9.897	1.400
	Physically Inactive Post	50	.00	.000	.000
Mental Health (MH)	Physically Active Peri	50	91.04	2.976	.421
	Physically Inactive Post	50	41.44	7.262	1.027
Bodily Pain (BP)	Physically Active Peri	50	91.370	10.412	1.4725
	Physically Inactive Post	50	35.630	20.046	2.8350

Table no.1 reflects the number of subjects in the physically active perimenopausal and physically inactive postmenopausal category mean and standard deviation on various selected sub scales of health related quality of life.

It is evident from the above table that the mean and standard deviation values obtained on various sub-scales of physically active perimenopausal women were 98.00+9.897; 91.04+2.976; 91.370+10.412; respectively.

Further explaining, the above table shows that the mean and standard deviation values obtained on various sub-scales of physically inactive postmenopausal women were 00+.000; 41.44+7.262; 35.630+20.046; respectively.

After going through the various selected subscales of HRQL in physically active perimenopausal and physically inactive postmenopausal women, it is seen that the mean scores of physically active perimenopausal were highest in Role Physical, Mental Health and Bodily Pain when compared to physically inactive postmenopause. Before we interpret these means, we can examine the results through Independent T-test. To find out significant difference in various sub-scales of health related quality of life (HRQL) between physically active perimenopausal and physically inactive postmenopausal women, Independent T-test was employed and result are depicted in table no.2.

Table 2: Independent T-Test

		t- test for equality of means						
		T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
RP	Equal variances assumed	70.015*	98	.000	98.000	1.400	95.222	100.778
	Equal variances not assumed		49.000	.000	98.000	1.400	95.187	100.813
MH	Equal variances assumed	44.688*	98	.000	49.600	1.110	47.397	51.803
	Equal variances not assumed		65.004	.000	49.600	1.110	47.383	51.817
BP	Equal variances assumed	17.448*	98	.000	55.7400	3.1946	49.4004	62.0796
	Equal variances not assumed		73.646	.000	55.7400	3.1946	49.3741	62.1059

*Significant at 0.05 level.

Table no. 2 above clearly indicate that there were significant difference obtained in Role Physical, Mental Health and Bodily Pain (The selected sub-scale of health related quality of life) between active perimenopausal and inactive postmenopausal women, since t- values obtained was 70.015, 44.688 and 17.448 respectively at p value of 0.05 level.
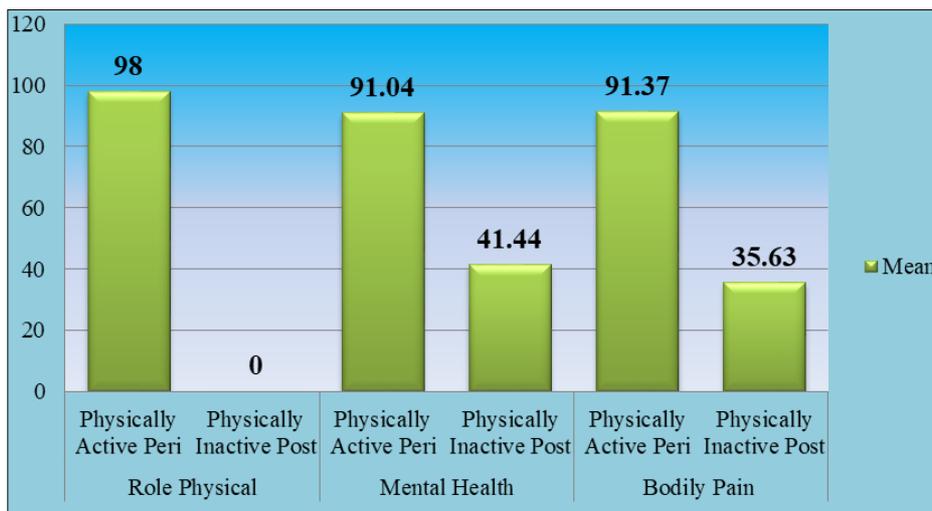

Fig 1: Graphical representation of mean scores of Physically Active Perimenopausal and Physically Inactive Postmenopausal Women in relation to Selected Sub-Scales of Health Related Quality of Life

Discussion and conclusion of Results
Analysis of data pertaining to the assessment of various selected sub-scales of health related quality of life (HRQOL), Role Physical, Mental Health and Bodily Pain between active perimenopausal and inactive postmenopausal women revealed significance differences. it is seen that the mean scores of physically active perimenopausal were highest in Role Physical, Mental Health and Bodily Pain when compared to physically inactive postmenopausal women.

The probable reason for higher mean of HRQOL variables in physically active perimenopausal women is the physical activity level. Due to regular physical activity there is greater improvement in variables of HRQOL in perimenopausal women. Inactive lifestyle of postmenopausal women might be the probable reason for reduced HRQOL subscales. The findings are supported by study conducted by researchers. Studies on physically inactive postmenopausal women did not show significant difference than active postmenopausal women in HRQOL variables, due to the probable reason being lack of regular exercise. It's been supported by the study conducted by the Song & Ahn (2009) [13], where the postmenopausal women performing Tai Chi exercise had significant values of sub-scales of health perception and mental functioning than non-participants. They concluded that Tai Chi exercise favorably affected cardiovascular health and quality of life in postmenopausal women after 6 months.

The result is also supported by study conducted by Luoto & Moilanen (2012) [14] on menopausal women (sedentary symptomatic women, age 43-63 years) who showed significant improvement in physical functioning and role physical when undergone aerobic training. The study also showed that aerobic training, a form of physical activity may improve the quality of life among slightly overweight women. Menopause stage is also the probable reason for reduced HRQOL variables in postmenopausal stage. Bodily symptoms are more prominent in postmenopausal stage than perimenopausal stage.

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