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Barriers and benefits to physical activity among menopausal women: a cross-sectional study

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Abstract: ***Background:*** *Menopause is a critical physiological transition characterized by the cessation of ovarian function and significant hormonal shifts, which often lead to vasomotor symptoms, metabolic alterations and psychological distress. While physical activity is a primary non-pharmacological intervention for managing these symptoms, participation rates remain suboptimal in many populations.* ***Objective:*** *This study aimed to determine the prevalence of physical activity, identify perceived benefits and barriers to exercise and assess self-efficacy levels among menopausal women in Surat, Gujarat.* ***Methods:*** *A cross-sectional design was utilized to recruit 385 menopausal women (aged 45–65 years). Data were collected using the International Physical Activity Questionnaire-Short Form (IPAQ-SF), Exercise Benefit/Barrier Scale (EBBS) and Self-Efficacy to Exercise (SEE) scale. Anthropometric measurements including Body Mass Index (BMI) and Waist-to-Hip Ratio (WHR) were also recorded to assess health risks.* ***Results:*** *Anthropometric analysis revealed that 44.9% of participants were overweight and 69.1% exhibited a high-risk WHR, indicating significant cardiovascular vulnerability. Regarding activity, 48.8% reported moderate physical activity levels. While 51.4% perceived high benefits of exercise, only 37.1% demonstrated high self-efficacy. Statistical analysis confirmed that self-efficacy and perceived benefits were significantly correlated with physical activity levels ($p < .001$).* ***Conclusion:*** *Menopausal women in this cohort face substantial cardiovascular risks linked to central adiposity. Despite recognizing exercise benefits, engagement is hindered by high perceived barriers and low-to-moderate self-efficacy. Targeted physiotherapy interventions must address these cognitive-behavioral barriers to improve health outcomes and reduce the burden of chronic disease in this demographic.*

Key Words: *Menopause, Physical Activity, Self efficacy, Barriers and Facilitators, Women's Health, Central Adiposity*

1. INTRODUCTION:

Menopause is defined as the permanent cessation of menstrual periods resulting from the loss of ovarian follicular activity, typically confirmed after 12 months of amenorrhea **[1, 2]**. This transition involves a sharp decline in estrogen and progesterone, which triggers physiological shifts including vasomotor instability, metabolic alterations and psychological distress **[2, 3]**. Beyond immediate symptoms like hot flashes and night sweats, the withdrawal of estrogen exerts a profound impact on the cardiovascular and musculoskeletal systems. Aging during this period contributes significantly to sarcopenia—the progressive loss of muscle mass, quality and neuromuscular function—which increases the risk of falls and functional dependence **[1]**.

Current evidence suggests that the menopausal transition is associated with an adverse shift in body composition, specifically an increase in visceral adiposity and a decrease in lean body mass **[4, 5]**. These changes are often accompanied by a decline in habitual physical activity, creating a vicious cycle of weight gain

and reduced metabolic rate **[6, 7]**. Research indicates that the psychological impact of menopause including anxiety and sleep disturbances, can further diminish a woman's motivation to engage in exercise, thereby exacerbating the risk of chronic non-communicable diseases **[8, 9]**.

Regular physical activity (PA) is a critical non-pharmacological intervention known to alleviate symptoms and reduce the incidence of osteoporosis, metabolic syndrome and cardiac diseases **[10, 11]**. Systematic reviews have highlighted that structured exercise can improve bone mineral density and insulin sensitivity, providing a protective effect similar to hormone replacement therapy without the associated risks **[12, 13]**. Despite these established benefits, many midlife women fail to meet the recommended 150 minutes of moderate-intensity activity per week, with participation rates particularly low in developing regions **[6, 14]**. In the Indian context, unique cultural roles, extensive domestic responsibilities and lack of social support often act as significant deterrents to personal health maintenance **[15, 16]**. Understanding the specific barriers and self-efficacy levels is therefore essential for physiotherapists to design effective, culturally sensitive lifestyle interventions that address both the physical and cognitive hurdles faced by menopausal women **[17, 18, 19]**.

2. MATERIALS AND METHODS :

Study Design and Participant Recruitment

The researchers conducted a prospective cross-sectional study to examine the intersection of physical health and psychological perception in menopausal women residing in urban areas of Surat, Gujarat. A total of 385 participants were recruited through purposive sampling. Inclusion criteria required women to be between the ages of 45 and 65 and to have experienced at least one year of amenorrhea, ensuring the data reflects a stabilized postmenopausal hormonal environment **[5]**. Participants with severe cognitive impairments, unstable cardiovascular conditions or acute orthopedic injuries that would preclude even mild physical activity were excluded to ensure the safety and validity of the self-reported data.

Anthropometric and Physiological Assessment

To assess the metabolic and cardiovascular risk profile of the cohort, standardized anthropometric measurements were recorded. Body Mass Index (BMI) was calculated to categorize general obesity, while the Waist-to-Hip Ratio (WHR) was utilized as a more sensitive marker for central adiposity—a key predictor of metabolic syndrome in menopausal populations **[7]**. Measurements were taken using a calibrated digital scale and a non-stretchable measuring tape at the narrowest part of the torso and the widest part of the hips, following World Health Organization (WHO) protocols.

Quantification of Physical Activity

Physical activity levels were quantified using the International Physical Activity Questionnaire-Short Form (IPAQ-SF) **[8]**. This validated tool measures the frequency and duration of vigorous activity, moderate activity and walking over the previous seven days. Data were converted into Metabolic Equivalent of Task (MET-minutes per week) to categorize participants into low, moderate or high activity levels, providing a standardized metric for comparison against global health recommendations.

Psychometric Evaluation of Perceptions and Confidence

The cognitive and behavioral dimensions of exercise were evaluated using two primary scales:

a) **Exercise Benefit/Barrier Scale (EBBS):** This 43-item instrument used a 4-point Likert scale to evaluate the internal struggle between perceived health rewards (e.g., "Exercise improves my muscle tone") and perceived obstacles (e.g., "Exercise takes too much time") **[20]**.
b) **Self-Efficacy to Exercise (SEE) Scale:** To measure the psychological resilience of the participants, the SEE scale was utilized to quantify their confidence in maintaining an exercise regimen under nine specific challenging conditions, such as during inclement weather or when feeling tired **[10]**.

3. RESULTS AND ANALYSIS :

Statistical analysis was performed using SPSS (Version 26.0). Descriptive statistics characterized the demographic and anthropometric profile, while Pearson's correlation coefficients were calculated to determine the strength of the relationship between self-efficacy, perceived benefits/barriers and actual physical activity levels. The significance level was set at $p < 0.05$.

Table 1: Frequency Distribution of Participants Based on Socio-demographic Details

Variable	Category	Frequency	Percentage
Marital Status	Single	7	1.8
	Married	281	73.0
	Divorced	6	1.6
	Widow	91	23.6
Level of Education	Illiterate	82	21.3
	Primary	136	35.3
	Secondary	53	13.8
	Higher secondary	58	15.1
	University	56	14.5
Occupation	Home maker	254	66.0
	Professional	52	13.5
	Hand work	68	17.7
	Retired	11	2.9
Socioeconomic Condition	< 25,000	50	13.0
	25,000–50,000	100	26.0
	50,000–1 lakh	141	36.5
	> 1 lakh	94	24.4

Table 2: Frequency Distribution of Participants Based on Reproductive Characteristics

Variable	Category	Frequency	Percentage
Time since Menopause	< 5 years	149	38.7
	5–10 years	126	32.7
	> 10 years	110	28.6
Parity	Nulliparous	22	5.7
	1–2 Children	201	52.2
	≥ 3 Children	162	42.1
Hysterectomy	Yes	85	22.1
	No	300	77.9
HRT Use	Yes	2	0.5
	No	383	99.5

Table 3: Frequency Distribution of Participants Based on Health Risk Indicators

Variable	Category	Frequency	Percentage
BMI	Underweight	4	1.0
	Normal Weight	93	24.2

	Overweight	173	44.9
	Obesity Class I	89	23.1
	Obesity Class II	19	4.9
	Obesity Class III	7	1.8
WHR	Low Risk	60	15.6
	Moderate Risk	59	15.3
	High Risk	266	69.1

Table 4: Correlation between IPAQ, EBBS, and SEE among Participants

	IPAQ Total	**EBBS Benefit**	**EBBS Barrier**	**EBBS Total**	**SEE**
IPAQ Total	1	.285**	.169**	.271**	.159**
EBBS Benefit		1	.660**	.973**	.666**
EBBS Barrier			1	.816**	.539**
EBBS Total				1	.679**
SEE					**1**

*Note: ** Correlation is significant at the 0.01 level (2-tailed).*

4. DISCUSSION :

Cardiovascular Vulnerability and Adiposity in Menopause

The anthropometric data from this study is particularly striking, as the high prevalence of central obesity suggests that over two-thirds of this population is at an immediate risk for metabolic and cardiovascular complications. During the menopausal transition, the systemic decline in estrogen prompts a significant shift in adipose tissue distribution from peripheral regions to visceral depots **[4, 7]**. This visceral fat is not merely a storage site; it is an active endocrine organ that secretes pro-inflammatory cytokines, driving systemic inflammation and insulin resistance **[3, 5]**.

Socio-demographic Influences and the Domestication of Activity

Much of the moderate activity reported in the IPAQ-SF may stem from domestic chores rather than structured health-promoting exercise. While household labour is physically demanding, it often lacks the sustained heart rate elevation and specific mechanical loading (such as high-impact or resistance work) necessary to prevent sarcopenia or provide cardiovascular protection **[21, 13]**. Furthermore, high percentages of lower education levels correlate with reduced health literacy, leading to cultural myths that menopause should be a time of "slowing down" or physical rest **[20, 16]**.

The Perception-Action Gap: Benefits versus Barriers

The results from the EBBS highlight a gap between knowledge and behaviour. Barriers are multifaceted, ranging from lack of family support to environmental factors such as unsafe walking paths or extreme weather **[8, 19]**. The perceived effort required to overcome logistical and environmental hurdles remains a significant deterrent to regular participation, even when the benefits are acknowledged **[16, 9]**.

The Role of Self-Efficacy as a Behavioural Driver

Self-efficacy is a critical driver of physical activity. Women with high confidence (SEE) possess the cognitive resilience to navigate around obstacles, such as fatigue or busy schedules **[10, 8]**. This highlights the need for cognitive-behavioural strategies within physiotherapy to help women build confidence during stressful life periods **[10, 14]**.

Integrating Hormonal Decline and Musculoskeletal Health

Estrogens deficiency accelerates the loss of bone mineral density, while lack of mechanical loading further exacerbates this decline. These women are at a heightened risk for osteoporotic fractures and frailty **[1, 12]**.

Exercise acts as a vital hormonal and mechanical substitute required to preserve the structural integrity of the musculoskeletal system **[7, 13]**.

Clinical Implications for Physiotherapy Practice

Physiotherapists must transition from simple exercise prescription to comprehensive behavioural coaching. Clinicians should employ strategies like motivational interviewing to build self-efficacy **[13]**. Interventions should prioritize resistance training for sarcopenia and high-intensity aerobic activity for visceral fat reduction **[1, 12]**. Creating community-based programs provides the social support necessary to transition from domestic labour to structured exercise **[7, 13]**.

5. CONCLUSION :

This study demonstrates that menopausal women in Surat, Gujarat, are characterized by alarmingly high levels of central adiposity and body mass index, placing them at an elevated risk for chronic cardiovascular and metabolic diseases. While there is a general awareness of the benefits of physical activity, actual participation is significantly hindered by a complex interplay of low educational attainment, high perceived environmental and social barriers, and insufficient self-efficacy. The correlation analysis underscores that improving a woman's confidence in her ability to exercise is as crucial as the physical intervention itself.

Scientifically, these findings suggest that the menopausal transition in the Indian context is a period of high physiological risk that is not currently being mitigated by lifestyle behaviors. Physiotherapists and public health practitioners must move beyond standard care to develop culturally sensitive, community-based interventions that emphasize behavioral change and barrier management. Future research should focus on the longitudinal impact of self-efficacy-enhancing programs on long-term health outcomes in menopausal women to refine clinical guidelines for this underserved demographic.

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