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ASSOCIATION BETWEEN MUSCULOSKELETAL PAIN AND HOUSEHOLD ACTIVITIES AMONG HOUSEWIVES

Original Research

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ABSTRACT

Background: Musculoskeletal pain is a common health issue that can be acute or chronic, affecting bones, muscles, ligaments, tendons, and nerves. Housewives, as integral contributors to household functioning, often engage in repetitive, physically demanding tasks that predispose them to musculoskeletal pain. Despite their significant role, limited research has been conducted to explore the impact of prolonged household activities on musculoskeletal health, particularly in regions like Bahawalpur, Pakistan. Understanding this relationship is essential to inform preventive strategies and improve their quality of life.

Objective: The study aimed to investigate the association between musculoskeletal pain and household activities among housewives, focusing on its prevalence, affected anatomical sites, and relationship with the duration of household tasks.

Methods: A cross-sectional study was conducted involving 384 housewives from Bahawalpur City over three months, from December 2022 to February 2023. Data collection utilized the Nordic Musculoskeletal Questionnaire, Numeric Pain Rating Scale, and a self-structured questionnaire. Participants were recruited through purposive sampling to include housewives actively engaged in household activities. Data analysis was performed using SPSS version 25. Variables such as household tasks, pain intensity, and time spent on activities were examined to determine correlations and statistical significance.

Results: The study revealed that cooking (90.4%), dishwashing (78.1%), chopping (68.2%), sweeping (61.2%), and washing clothes (66.4%) were the most frequently reported household activities. Pain predominantly affected the low back (62.2%), shoulder (52.6%), and neck (45.1%). Pain intensity assessment showed that 52.9% of participants experienced moderate pain, 30.2% reported mild pain, and 16.9% suffered severe pain. Time spent on household activities showed a significant correlation with pain severity, with prolonged working hours (>8 hours) being associated with severe pain (p=0.00).

Conclusion: The study concluded that musculoskeletal pain is significantly associated with prolonged household activities among housewives, with the low back, shoulder, and neck being the most commonly affected regions. These findings underscore the need for ergonomic interventions and preventive measures to reduce the burden of musculoskeletal disorders in this population.

Keywords: Household activities, Housewives, Low back pain, Musculoskeletal pain, Neck pain, Nordic Musculoskeletal Questionnaire, Numeric Pain Rating Scale.

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INTRODUCTION

Musculoskeletal disorders (MSDs) encompass conditions affecting the muscles, tendons, peripheral nerves, or vascular system and are defined by the World Health Organization (WHO) as issues unrelated to acute or immediate occurrences (1). These disorders are pervasive, impacting approximately one in ten individuals worldwide, with women demonstrating a notably higher prevalence of 11.2% compared to 7.2% in men. Consistently, research has revealed that women report greater levels of musculoskeletal pain than men, with anthropometric and physiological differences primarily contributing to this disparity (2, 3).

Musculoskeletal (MSK) pain, a significant medical and socioeconomic concern, can manifest as acute or chronic pain involving bones, muscles, ligaments, tendons, and nerves (4). This pain is often categorized into five distinct regions—upper and lower extremities, head, neck, and torso—where women exhibit higher prevalence rates across most anatomical sites (5). Notably, low back pain is frequently highlighted as a predominant issue, particularly among housewives, who often report pain in multiple anatomical regions simultaneously (6).

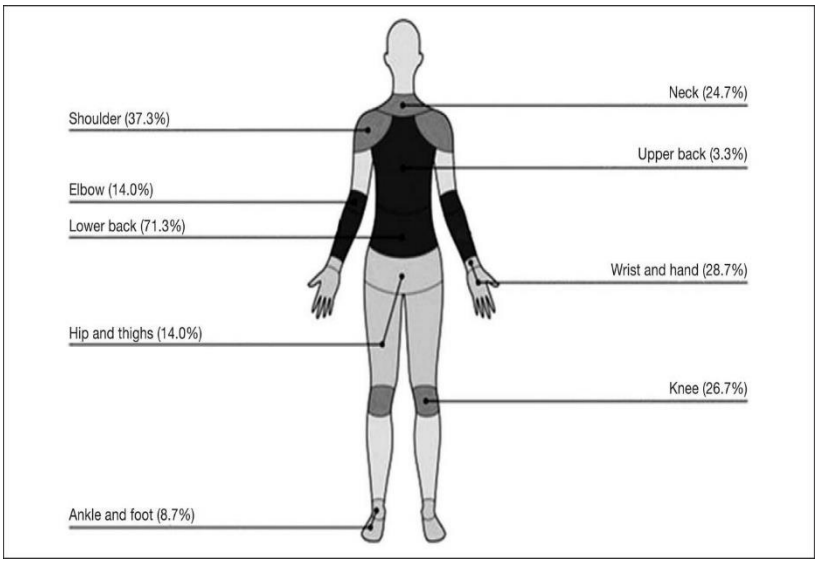


Figure 1 Sites of Musculoskeletal Pain in Different Regions of the Body

Musculoskeletal pain affects individuals universally at some point in their lives, driven by daily routines that impose repetitive or excessive strain, recent traumatic events, or underlying muscle and bone conditions. These factors often culminate in acute post-traumatic pain or chronic discomfort, reducing quality of life and productivity, particularly among women (7). As the second leading cause of disability globally, musculoskeletal disorders substantially impact quality of life, underscoring the burden they impose on individuals and healthcare systems (8, 9).

Several risk factors, including age, education, socioeconomic status, duration of household activities, and limited social support, exacerbate musculoskeletal discomfort among housewives. On average, women engage in a variety of physically demanding tasks over extended periods daily without breaks or vacations, contributing to cumulative musculoskeletal stress. These activities—such as cleaning, cooking, lifting, and caregiving—require significant physical and emotional effort, often performed as unpaid labor (12, 13, 14). Poor ergonomic practices, extended static postures, and insufficient recovery periods further compound these challenges, leading to functional limitations and diminished quality of life over time (10, 11).

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Despite the widespread prevalence of MSK disorders among women, particularly housewives, limited research has been conducted in regions such as Pakistan to explore the association between household activities and musculoskeletal pain. Addressing this gap is critical to developing targeted interventions aimed at reducing the burden of these conditions and improving the overall well-being of affected populations. The objective of this study is to investigate the relationship between musculoskeletal pain and household activities among housewives, contributing to a deeper understanding of this pervasive health issue.

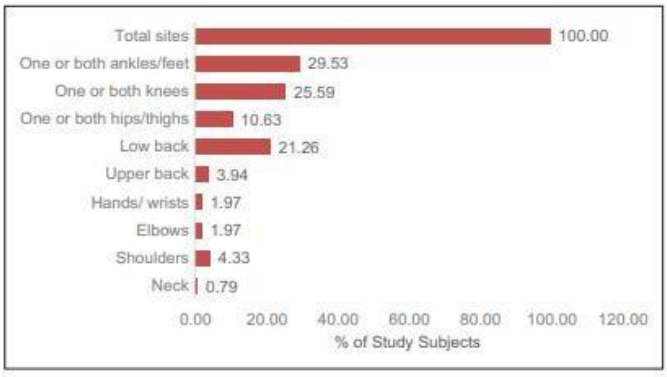


Figure 2 % of MSK Pain in Different Sites of Body

METHODS

A cross-sectional study was conducted involving 384 housewives from Bahawalpur City to investigate the association between household activities and musculoskeletal pain. Data collection was carried out over a period of three months, from December 2022 to February 2023, following the approval of the study's synopsis by the relevant authorities. Participants were recruited using a purposive sampling method to ensure inclusion of housewives actively engaged in household activities. Data was gathered through validated tools, including the Nordic Musculoskeletal Questionnaire, Numeric Pain Rating Scale, and a self-structured questionnaire specifically designed for the study. The questionnaires were administered face-to-face to ensure accurate responses and minimize missing data.

The collected data was analyzed using SPSS version 25. Demographic data revealed that the majority of participants were within the 25–34 years age group, accounting for 52.3% (n=201), followed by 23.2% (n=89) in the 35–44 years age group, 16.9% (n=65) in the 45–54 years group, 6.3% (n=24) in the 55–64 years group, and 1.3% (n=5) aged above 65 years. These findings highlighted that a significant proportion of the participants were in their most physically active years, which could potentially influence the nature and prevalence of musculoskeletal symptoms.

Additionally, participants were classified based on their lifestyle into active and sedentary categories. The analysis revealed that 87.5% (n=336) of the housewives reported an active lifestyle, characterized by physically demanding household chores and caregiving responsibilities, while 12.5% (n=48) described their lifestyle as sedentary. These proportions suggest that the majority of participants engaged in continuous physical activity throughout the day, which might predispose them to musculoskeletal strain and discomfort.

One notable limitation in the study design is the absence of specific details regarding the criteria used to define "active" and "sedentary" lifestyles. Clear operational definitions and standardized measures would have enhanced the rigor and reproducibility of these classifications. Additionally, the study could have benefited from stratifying participants' household workload or physical activity levels into more detailed subcategories to provide deeper insights into their impact on musculoskeletal pain. These elements could potentially limit the interpretation and generalizability of findings related to lifestyle patterns.

RESULTS

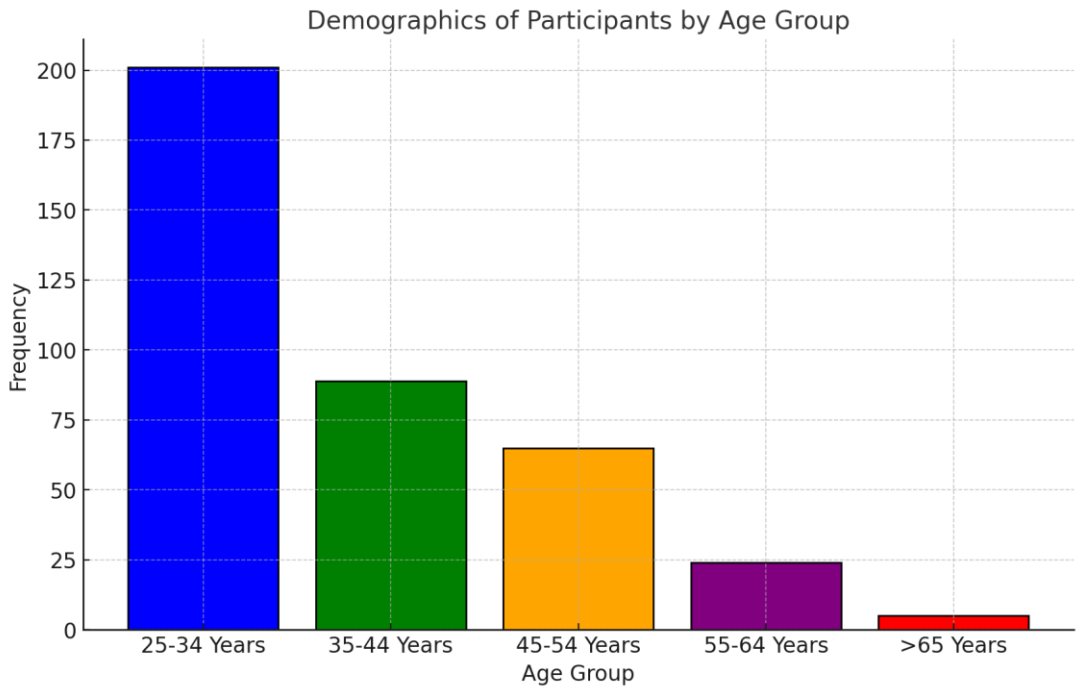
The study included 384 housewives from Bahawalpur City, with the majority (52.3%) aged between 25–34 years, followed by 23.2% in the 35–44 years group, 16.9% in the 45–54 years group, 6.3% in the 55–64 years group, and only 1.3% aged above 65 years. Lifestyle analysis revealed that 87.5% of the participants led an active lifestyle, engaging in regular physical activities such as household chores, while 12.5% were categorized as sedentary. Pain intensity was assessed using the Numeric Pain Rating Scale (NPRS), where 30.2% reported mild pain (1–3), 52.9% reported moderate pain (4–6), and 16.9% experienced severe pain (7–10).

Analysis of time spent performing household tasks showed that 30.2% of participants worked for 2–4 hours daily, 30.5% for 4–6 hours, 22.7% for 6–8 hours, and 16.7% for over 8 hours. An association was observed between the duration of household work and the severity of pain. Participants working 2–4 hours daily mostly experienced mild pain, while those working 4–6 and 6–8 hours reported moderate pain. Severe pain was primarily observed in housewives spending more than 8 hours on household tasks, highlighting a significant relationship between prolonged activity and pain severity.

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Household activities, including cooking (90.4%), dishwashing (78.1%), chopping (68.2%), sweeping (61.2%), and washing clothes (66.4%), were identified as contributors to musculoskeletal pain. Statistical analysis indicated significant associations between cooking, chopping, sweeping, dishwashing, time spent on household activities, and the severity of pain ($p < 0.05$). Musculoskeletal pain predominantly affected the lower back (62.2%), shoulders (52.6%), and neck (45.1%). The findings emphasize the cumulative burden of prolonged physical tasks on musculoskeletal health among housewives.



The bar chart illustrates the distribution of participants across different age groups, highlighting that the majority (52.3%, n=201) were aged 25–34 years. This was followed by 23.2% (n=89) in the 35–44 years group, 16.9% (n=65) in the 45–54 years group, 6.3% (n=24) in the 55–64 years group, and only 1.3% (n=5) aged above 65 years. The data emphasizes that most participants were in the younger to middle-aged brackets, which aligns with the physically demanding nature of household responsibilities.

Figure 3 Demographics Of Participants By Age Group

Table 1: Routine Lifestyles

Lifestyle	Frequency	Percent
Active	336	87.5
Sedentary	48	12.5
Total	384	100.0

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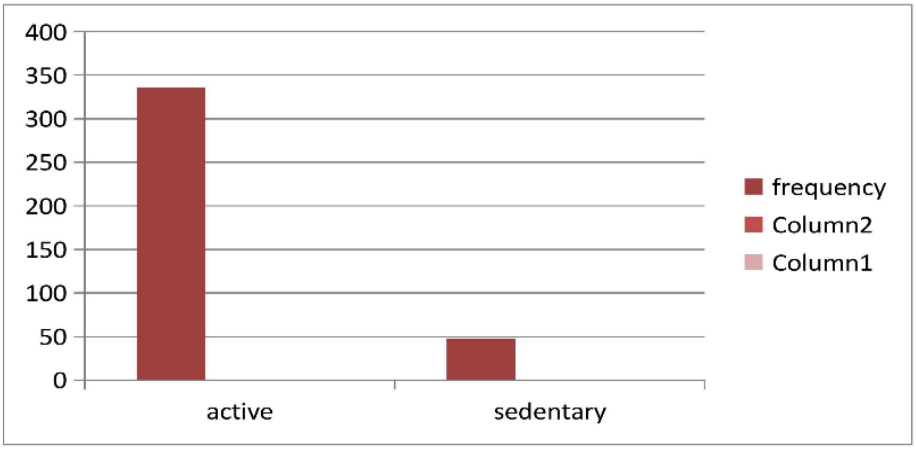


Figure 4 Routine Lifestyles

Above table and graph shows that 87% of the housewives had active lifestyle and 12% had sedentary lifestyle. Below is the representation of the same data in the form of a bar chart.

Table 2: Pain Intensity (NPRS)

Pain	Frequency	Percent
1-3	116	30.2
4-6	203	52.9
7-10	65	16.9
Total	384	100.0

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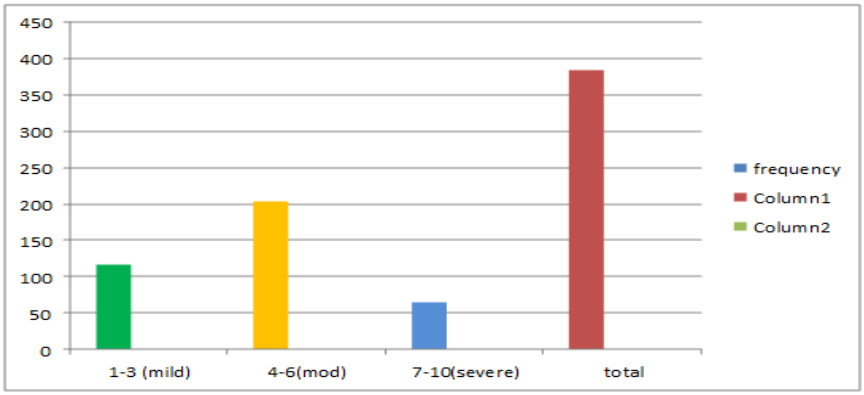


Figure 5 Pain Intensity (NPRS)

Figure. This table shows that 30.2 % of the housewives were experiencing pain ranging between 1-3(mild) while 52.9% of them were experiencing pain ranging between 4-6(moderate) and 16.9% of them were experiencing pain ranging between 7-10(severe). The same is represented in the form of a bar chart below.

Table 3: Hours Spent While Working

Time	**Frequency**	**Percent**
2-4	116	30.2
4-6	117	30.5
6-8	87	22.7
>8	64	16.7
Total	384	100.0
Performance of Household Activities		
Household Activity	**Frequency**	**Percent**
Cooking	347	90.4
Sweeping	235	61.2
Chopping	262	68.2
Washing Dishes	300	78.1
Washing Clothes	255	66.4

The data highlights that 30.5% of housewives spent 4–6 hours daily on household tasks, followed closely by 30.2% spending 2–4 hours, 22.7% working for 6–8 hours, and 16.7% working for over 8 hours. Among specific household activities, cooking was the most common, with 90.4% of participants engaged, followed by dishwashing (78.1%), chopping (68.2%), washing clothes (66.4%), and sweeping (61.2%), reflecting the extensive physical workload shouldered by housewives daily.

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Table 4: Crosstab (Time Spent doing Household Activities*Pain)

		How much pain you experience?			Total
		1-3	4-6	7-10	
How much time you spend doing House-hold activities?	*2-4*	116	0	0	116
	4-6	0	117	0	117
	6-8	0	86	1	87
	>8	0	0	64	64
Total		116	203	65	384

This table shows that out of 384 housewives, 116 were spending 2-4 hours in household activities and were experiencing mild pain ranging between 1-3 on NPRS, 117 were spending 4-6 hours in household activities and were experiencing moderate pain ranging between 4-6 on NPRS, 87 were spending 6-8 hours in household activities and 86 of them were experiencing moderate pain ranging between 4-6 on NPRS and 1 was experiencing severe pain ranging between 7-10 on NPRS, last 64 were spending more than 8 hours in household activities and were experiencing severe pain ranging between 7-10 on NPRS.

Table 5: Association of Different Variables with Pain

Variables	Parameters	Value	Df	Asymp. Sig. (2-sided)
Cooking & Pain	Pearson Chi Square	13.692 a	2	.001
Chopping & Pain	Pearson Chi Square	18.643 a	2	.000
Sweeping & Pain	Pearson Chi Square	37.930 a	2	.000
Washing Dishes & Pain	Pearson Chi Square	7.118 a	2	.028
Time Spent doing household activities & Pain	Pearson Chi Square	760.290 a	6	.000
Total Sample Size	384			

The above table shows that the most frequently reported household activities among housewives included cooking (90.4%), sweeping (61.2%), chopping (68.2%), dishwashing (78.1%), and washing clothes (66.4%). The sites commonly involved in musculoskeletal pain were the low back (62.2%), shoulder (52.6%), and neck (45.1%). The majority of housewives reported moderate pain (52.9%), followed by mild (30.2%) and severe pain (16.9%).

DISCUSSION

The study revealed that 62.2% of housewives experienced low back pain, which was the most commonly reported site of musculoskeletal pain among participants. This finding aligns with research conducted on rural housewives in Kanpur, where 83% reported low back pain that interfered with daily activities (16). Such observations underscore the physical strain imposed by household tasks, which often involve repetitive and prolonged movements. These tasks, such as cooking, chopping, and dishwashing, were found to have a significant association with musculoskeletal pain, similar to studies that identified ergonomic challenges like inappropriate kitchen shelf heights and inconvenient postures as key contributing factors (17).

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While this study identified low back pain as the most prevalent issue, contrasting evidence from research on working women and housewives highlighted the shoulder as the most commonly affected region, suggesting variability in pain prevalence depending on occupational and demographic factors (18). The findings of this research also resonate with a study from Chhattisgarh, India, where 60% of housewives reported musculoskeletal discomfort, predominantly low back pain (37.95%), bilateral knee pain (39.27%), and hip pain (19.47%) (19). Such regional variations highlight the role of lifestyle, socio-cultural practices, and ergonomic conditions in shaping the prevalence and distribution of musculoskeletal disorders.

The use of validated tools like the Nordic Musculoskeletal Questionnaire and Numeric Pain Rating Scale strengthened the reliability of this study's findings by accurately assessing the association between household activities and pain severity. However, limitations included the absence of data on confounding factors such as body mass index, pre-existing medical conditions, and ergonomic interventions, which could have influenced the outcomes. The study's focus on housewives in Bahawalpur City limits the generalizability of findings to other populations. Furthermore, while this research highlighted a strong association between prolonged working hours and musculoskeletal pain ($p=0.00$), studies from North India identified age as an additional risk factor, suggesting that a broader approach is needed to address the multifaceted nature of these disorders (21).

The results demonstrated a clear connection between prolonged household tasks and pain, with low back pain being the most prominent. These findings are consistent with prior research conducted in Bangladesh and other regions, which emphasized the impact of awkward postures and repetitive physical activities on musculoskeletal health (13, 20). This study contributed valuable insights into the burden of musculoskeletal pain among housewives but highlighted the need for further research incorporating ergonomic assessments, preventive strategies, and diverse populations to develop targeted interventions.

CONCLUSION

The study concluded that musculoskeletal pain was significantly associated with the duration of household activities, highlighting that prolonged engagement in physically demanding tasks increased the likelihood of experiencing pain. These findings underscore the impact of household responsibilities on the physical well-being of housewives, emphasizing the need for awareness, ergonomic adjustments, and preventive measures to reduce the burden of musculoskeletal discomfort and improve their overall quality of life.

AUTHOR CONTRIBUTIONS

Author	Contribution
Muhammad Hafeez*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Erlina Abdullah	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Muhammad Zia Ul Haq	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Shabana Rahim	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published

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