

Original Article

MUSCULOSKELETAL PROBLEMS AND WORK-RELATED FACTORS AMONG MIDDLE-AGED RURAL HOMEMAKERS

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ABSTRACT

Background: Bangladeshi rural women, who spend 14-20 hours daily on homemaking duties, often suffer from musculoskeletal problems due to poor ergonomics and repetitive actions. These disorders affect productivity and quality of life due to lack of awareness and preventive measures. The study aims to assess musculoskeletal problem prevalence among middle-aged rural homemakers, identify contributing factors, and recommend health interventions.

Methods: A cross-sectional study was conducted in Dohar Upazila, Bangladesh to find out musculoskeletal problems and work-related factors among middle-aged rural homemakers. The study covered 121.41 square kilometers and involved face-to-face interviews and a semi-structured questionnaire. Data were analyzed for accuracy, outliers, inconsistencies and missing values. The study aimed to assess the relationship between musculoskeletal problems and personal, socio-demographic and work-related factors.

Results: The study surveyed 347 respondents aged 30-59 years, with 49.6% falling within the 30-39 age groups. The majority was Muslim, 38.2% completed primary education, and 88.8% were married. Family structures consisted of 64.0% nuclear and 36.0% joint families. Health issues included asthma (13.3%), heart disease (10.1%), hypertension (29.7%), diabetes (17.0%), osteoarthritis (52.4%), previous trauma (18.2%), and rheumatoid arthritis (6.1%). Musculoskeletal problems were most prevalent (74.0%) among individuals aged 30-39, with married individuals reported the highest incidence (83.4%). Factors such as awkward work posture, forceful exertion and weight handling were found to be significant ($p < 0.005$).

Conclusion: Musculoskeletal problems, often caused by faulty posture, forceful exertion, heavy weight lifting, poor education, manual assistance, age and educational level, can impact on homemakers and cause disability particularly by household tasks. Corrective interventions, awareness program and community educational facilities for rural homemakers are urgently needed and have the potential to reduce misery and musculoskeletal problems among homemakers.

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Key Words: Musculoskeletal Problems, Work-Related Factors, Middle-Aged Rural Homemakers

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INTRODUCTION

Bangladesh, a densely populated country with 169.3 million people, predominantly relies on agriculture in its rural areas¹. Women traditionally undertake homemaking responsibilities, which are physically demanding and involve numerous tasks such as cooking, cleaning and childcare. Rural women, constituting half of the population, spend 14-20 hours daily on homemaking duties, leading to musculoskeletal problems due to repetitive actions and poor ergonomics^{1,2}.

Musculoskeletal disorders (MSDs) are a significant public health concern globally, affecting over 1.7 billion people and contributing to disability. These disorders result from various factors including physical strain, repetitive movements and prolonged poor posture, particularly common among homemakers. Despite being a major occupational hazard, awareness and preventive measures for MSDs among homemakers remain low, exacerbating their health issues³. Work-related MSDs, which include issues like low back pain and repetitive strain injuries, significantly impact productivity and

quality of life. Factors such as heavy lifting, awkward postures and repetitive motions contribute to MSD development⁴.

Ergonomic principles can mitigate these risks, but their adoption remains limited, especially in informal household settings⁵. Rural homemakers face additional challenges due to the strenuous nature of their tasks and lack of access to healthcare. Musculoskeletal problems not only affect their daily lives but also impose burdens on their families. Despite being a major occupational health concern, rural homemakers often neglect their own health, leading to long-term complications⁶.

Efforts to address musculoskeletal problems among rural homemakers require awareness campaigns, education on proper posture and ergonomics and implementation of preventive strategies. Research in this area is crucial for developing targeted interventions and improving the overall well-being of rural homemakers in Bangladesh⁷.

MATERIALS AND METHODS

A cross-sectional study was conducted to investigate musculoskeletal problems and work-related factors among middle-aged rural homemakers aged 30-59 in Dohar Upazila, covering 121.41 square kilometres bordered by Nawabganj, Sri Nagar, and Sirajdikhan in the southernmost part of Dhaka District, Bangladesh from January to December, 2021. The upazila, divided into nine wards and 26 mahallas with 31,645 households, had a total population of 226,439 according to the 2011 Bangladesh census, with 47.27% males and 52.73% females, located 55 kilometres from Dhaka city. The study focused on married homemakers primarily engaged in household activities such as cooking, cleaning, childcare, and animal care. Convenience sampling was employed, selecting participants based on specific criteria, including being permanent residents of Dohar Upazila. Data collection involved face-to-face interviews conducted at participants' homes, ensuring no disruption to their routine activities, using a pretested questionnaire covering personal and socio-demographic information, health conditions, household activities, and musculoskeletal issues. The researcher read questions aloud to ensure clarity and recorded responses, maintaining confidentiality and a

comfortable environment to encourage truthful responses. Data was checked for completeness and entered into SPSS version 26 for analysis, focusing on personal and socio-demographic information, household activities, and musculoskeletal problems, categorizing variables such as age groups, family income, and duration of physical activities. The association between musculoskeletal problems and personal, socio-demographic, and work-related factors was analysed using the chi-square test. Prior to data collection, official permission was sought from the Director of NIPSOM, and respondents were briefed about the study's aims and objectives, informed of their right to participate or decline participation.

RESULTS

The study surveyed 347 respondents aged 30-59 years, with a mean age of 41.25±8.66 years. The majority (49.6%) were within the 30-39 age groups, with 97.1% being Muslim, 38.2% had completed primary education, and 88.8% were married. Family structures consisted of 64% nuclear and 36% joint/extended families.

Monthly family income ranged from 3000 to 2,00000 taka, with a mean of 34342.94±29197.563 taka. The duration of homemaking ranged from 3 to 47 years, with 55.6% having been homemakers for 20 years or more. The average daily duration of household activities was 6.95±2.397 hours.

Pain or ache in nine body regions during household activities was prevalent over the past 7 days and 12 months. In the past year, musculoskeletal problems were most prevalent among individuals aged 30-39 years, with 128 reporting such issues. As age increased, there was a corresponding increase in musculoskeletal problems. Those who completed only primary education had the highest incidence of pain or ache in the last year.

Significant relationships were found between musculoskeletal problems and both age and level of education. Individuals who took breaks during household tasks had the lowest incidence of musculoskeletal problems, while those who worked in awkward positions, exerted heavy force, or carried/lifted heavy weights reported higher rates of musculoskeletal problems.

Table 1: Determination of socio-demographic variables among the study population

Variables	f (%)
Age	Minimum: 30 years Maximum: 59 years Mean±SD: 41.25±8.66 years
Religion	Muslim 337 (97.1) Hindu 10 (2.9)
Education	Illiterate/Sign Only 81 (23.3)

	Below Primary	65 (18.7)
	Secondary	39 (11.2)
	Higher secondary or above	30 (8.6)
Marital status	Married	308 (88.8%)
	Widow	30 (8.6%)
	Separated	9 (2.6%)
Family type	Nuclear	222 (64.0)
	Joint	125 (36.0)
Monthly family income	≤49,999	250 (72.1)
	50,000-99,999	75 (21.6)
	1,00000-1,49,000	16 (4.6)
	1,50,000-2,00000	06 (1.7)

Table 2: Distribution of the respondents by level of perceived stress

Region	During last 7 days	During last 12 months
Neck	37 (10.7)	37 (10.7)
Shoulders	53 (15.3)	56 (16.1)
Upper back	56 (16.1)	57 (16.4)
Lower back	217 (62.5)	230 (66.3)
Elbows	45 (13.0)	45 (13.0)
Wrist/Hands	56 (16.1)	59 (17.0)
Hips/Thighs	41 (11.8)	42 (12.1)
Knees	154 (44.4)	161 (46.4)
Ankle/Feet	61 (17.6)	64 (18.4)

Table 3: Association between musculoskeletal problems (pain or ache) of respondents and their personal, socio-demographic characteristics and work-related factors

Traits	P value
Age of the respondents	.000
Level of education	.000
Family type	.778
Total number of family members	.864
Monthly family income	.142
Engagement in any physical activities	.302
Per day duration of physical activities	.258
Any break during household works	.557
Doing any work in awkward position	.008
Doing any work with heavy force	.030
Carrying/ lifting heavy weight during household works	.004

DISCUSSION

The cross-sectional study aimed to determine musculoskeletal problems and associated work factors among middle-aged rural homemakers of Dohar Upazila of Dhaka district. A total of 347 married homemakers aged 30 to 59 were conveniently selected and data were collected through face-to-face interviews using a semi-structured questionnaire. The majority of respondents (49.6%) were in the age group of 30-39 years with a mean age of 41.25 years, indicating a middle-aged population. Compared to a previous study in which surveyed women aged 30-59, our findings showed similar age distribution trends⁷. Regarding religion, 97.1% of respondents were Muslim, aligning with the findings of another study,

who reported a predominance of Hindu homemakers in rural areas⁸. In terms of education, most respondents had primary education (38.2%), consistent with another study findings that a significant proportion completed high school⁷. The majority of respondents were married (88.8%), with similar findings reported by previous study⁷. Regarding family structure, 64.0% had nuclear families, differing slightly from same study findings, which reported a higher proportion of nuclear families⁷. Monthly family income ranged from 3000Tk to 2,00000Tk, with 72.1% earning ≤49,999Tk, inconsistent with another study finding in a rural area of Barisal division⁹. Physical activity engagement was low, with 71.5% not engaging in any activity, dissimilar to another study findings¹⁰. Among those engaging in physical activities, most

(64.6%) performed activities for up to 30 minutes, similar to same study findings¹⁰. The prevalence of various health conditions such as asthma, heart disease, and diabetes among respondents was noted, consistent with previous studies by another study^{7,10}.

The majority of respondents had been homemakers for ≥ 20 years (55.6%), spending an average of 6.95 hours per day on household activities, dissimilar with the findings of another studies^{2,7,11}. Assistance for household activities was common, with 76.4% receiving help, consistent with previous studies^{7,1,12}.

Many respondents reported pain or ache during household activities, with the lower back being the most commonly affected body part, similar to previous studies^{7,9,13-16}. Significant associations were found between musculoskeletal problems and age, education, working posture, exertion of heavy force and lifting heavy weights during household activities, consistent with previous research. In summary, the study highlights the prevalence of musculoskeletal problems among rural homemakers and identifies factors associated with these issues, providing insights for interventions and support programs tailored to this population.

CONCLUSION

Musculoskeletal problems are prevalent in society, affecting homemakers and causing disability. Musculoskeletal diseases, if left untreated, can cause lifelong pain and impairment. Musculoskeletal problems can be prevented by better education and receiving manual assistance for home duties.

Age and educational level, poor ergonomics in household tasks, such as heavy weight lifting, working with heavy force, uncomfortable working posture are associated with musculoskeletal problems.

LIMITATIONS AND RECOMMENDATIONS

limitations such as convenience sample selection, lack of generalizability, challenges in data collection due to the COVID-19 pandemic, and reliance on self-reported musculoskeletal issues were encountered. Recommendations for future research and interventions include enhancing awareness programs and educational facilities for rural homemakers, conducting larger-scale studies to validate findings and explore contributing factors, expanding research to include participants from various regions, utilizing study results for policy making regarding physiotherapy services and preventive measures and advocating for occupational safety regulations and ergonomic knowledge dissemination through seminars and demonstrations organized by local governments and women's empowerment organizations.

DECLARATION

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