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Assessment and Prevalance of Musculoskeletal Problems in Elderly in University Campus Peshawar

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ABSTRACT

Objectives: To assess and treat musculoskeletal disorders in older adults aged 60 and up who live on the Peshawar University campus.

Materials and Methods: Between January and April 2023, 103 elderly people (60 years of age and older) were randomly recruited from the university campus in Peshawar to participate in this community-based descriptive cross-sectional survey. While joint stiffness was assessed by palpation and inspection as part of a thorough physical examination, musculoskeletal diseases were investigated using history-based inquiries about joint and muscle discomfort. A non-stretchable measuring tape was used to determine the circumference of the leg. The information was gathered via semi-structured questionnaires. Microsoft Excel 2013 and SPSS version 20 were used to enter and analyze the data. To characterize the sociodemographic and morbidity characteristics, we used descriptive statistics.

Results: In the study population, 88% of people had musculoskeletal issues (91/103).. The musculoskeletal problems were almost equal in both the sexes. Of the total population, 66.99% (69/103) were facing difficulties in routine activities due to musculoskeletal problems. The females were having more problems in daily activities than males. The combined mean leg circumference of the total was 14.38 inches (SD 1.57 inches, 95% CI 14.08-14.69).

Introduction

The progressive loss of physiological function with aging, which includes a decline in productivity, is known as aging (1). Growing older is a natural and continuous process. The accumulation of a person's physical, psychological, and social changes over time is known as aging. Arthritis, osteoporosis, muscle weakness, reduced calf muscle circumference, and fractures are all examples of musculoskeletal problems. Hormonal imbalance and nerve weakening are its most frequent causes. Calcium and other nutrients are lost by the bones. They turn brittle and delicate (2). The joints lose their suppleness and become stiff. Joint fluid levels may drop. It's possible for the cartilage to start wearing away and rubbing together. Body mass that is lean declines.

Loss of muscular tissue is the main cause of this decline. Muscle tissue accumulates fat and lipofuscin. Muscle fibers get smaller. Rebuilding muscle tissue takes time. Missing muscle tissue can be replaced with tough fibrous tissue. This is particularly apparent in the hands, which may seem skeletal and thin. The World Health Organization (WHO) states that

one of the main reasons why older people become disabled is musculoskeletal problems. According to the WHO, back pain, osteoporosis, rheumatoid arthritis, and osteoarthritis are the four main debilitating MSK disorders. 9.6% of men and 18% of women over 60 have osteoarthritis, which is characterized as the loss of joint cartilage that results in pain and loss of function, mostly in the knees and hips. Research indicates that the incidence of osteoarthritis (KOA) in the knee is 7.50 percent, 10.9 percent, and 13.6 percent in China (4). It is reported to be 10.20% in Bangladesh and 5.78% in India. According to a Pakistani study, knee osteoarthritis (KOA) affects 25.00% of people in rural areas and 28.00% of people in urban areas (5). An inflammatory condition that typically affects numerous joints is rheumatoid arthritis.

The incidence and prevalence of rheumatoid arthritis rise with age until they begin to fall at age 70. The prevalence of rheumatoid arthritis ranges from 0.3% to 1% in the majority of industrialized nations; rates are lower in developing nations (3). The prevalence of rheumatoid arthritis in low- and middle-income nations was 0.42% in the Western Pacific, 0.62% in Europe, 1.25% in the United States, 0.37% in the Eastern Mediterranean, and 0.40% in Southeast Asia (6). A major risk factor for hip, vertebral, and distal forearm fractures is osteoporosis, which is characterized by low bone mass and degeneration of the microarchitecture.

By the age of 85, the overall prevalence of osteoporosis increases from 5% in women over 50 to 50% in men; the corresponding numbers are 2.4% and 20%. The most common musculoskeletal ailment is low back pain, which affects 4–33% of people at any given moment and nearly everyone at some point (7). The population of Pakistan is growing quickly, and the share of senior people is rising. The medical profession is beginning to view osteoporosis as a serious health issue. Although the exact number of (osteoporotic) hip fractures that occur each year is unknown, estimations based on a nationwide ultrasonography study suggest that 9.91 million people (7.19 million women, 2.71 million males) suffer from osteoporosis (8).

It is anticipated that these numbers would rise to 12.91 million in 2050 and 11.3 million in 2020. As people age, they lose bone density and mass, especially women after menopause (9)

Materials And Technique

The senior residents of the university campus in Peshawar who are 60 years of age or older were the subjects of a community-based descriptive cross-sectional study. A geographical map was used to select the location, and 100 households in the vicinity were surveyed house by house. The first house was chosen while standing near a mosque and spinning a bottle. The house to which the bottle's neck pointed was the first to be evaluated. Beginning with this house, each subsequent house was surveyed. Our study covered all individuals above the age of 60. We got informed verbal consent and included individuals who agreed in our study.We omitted those who were severely unwell, bedridden, or reluctant to engage. Calf muscle circumference was measured in order to assess the nutritional status of an individual.12.00 inches (30.5 cm) was labelled as normal calf muscle circumference (10). The musculoskeletal problems were assessed by using history based questions about joint pain and muscle pain whereas joint stiffness was assessed by inspection and palpation according to general physical examination. Leg circumference was measured by using a non-stretchable measuring tape. A semi-structured questionnaire-based survey was administered by enumerators, and Microsoft Excel 2013 and SPSS version 20 were used to analyze the data.

Results

According to our survey, 11.65% (12/103) were normal whereas, 88.35% (91/103) were having musculoskeletal problems in which 15.53% (16/103) were having joint pain, 2.91% (3/103) were having joint stiffness, 10.68% (11/103) were having muscle pain, 13.59% (14/103) were having joint pain and stiffness, 20.39% (21/103) were having joint and muscle pain, 2.91% (3/103) were having joint stiffness and muscle pain, whereas 22.33% (23/103) were having all three problems. Of total population, musculoskeletal disorders were slightly more among males (50.55%, 46/91) than females (49.45%, 45/91).

Of the total male population, 17.86% (10/56) were normal whereas, 82.14% (46/56) were having musculoskeletal problems. 23.21% (13/56) were having joint pain, 5.36% (3/56) were having joint stiffness and 8.92% (5/56) were having muscle pain, 16.07% (9/56) were having joint pain and stiffness, 16.07 % (9/56) were having joint and muscle pain, 1.78% (1/56) was having joint stiffness and muscle pain, whereas 10.71% (6/56) were having all three problems. 95.74

(45/47) of the entire female population had musculoskeletal issues, whereas 4.25% (2/47) were normal. 6.38% (3/47) were having joint pain, 12.78% (6/47) were having muscle pain, 10.63% (5/47) were having joint pain and stiffness, 25.53 % (12/47) were having joint and muscle pain, and 4.25% (2/47) were having joint stiffness and muscle pain, whereas 36.17% (17/47) were having all three problems.

Figure 1., shows musculoskeletal disorders in different age groups of males According to the data, the elderly aged 66–70 years had the highest prevalence of musculoskeletal problems, followed by the 71–75 and 60–65 age groups.

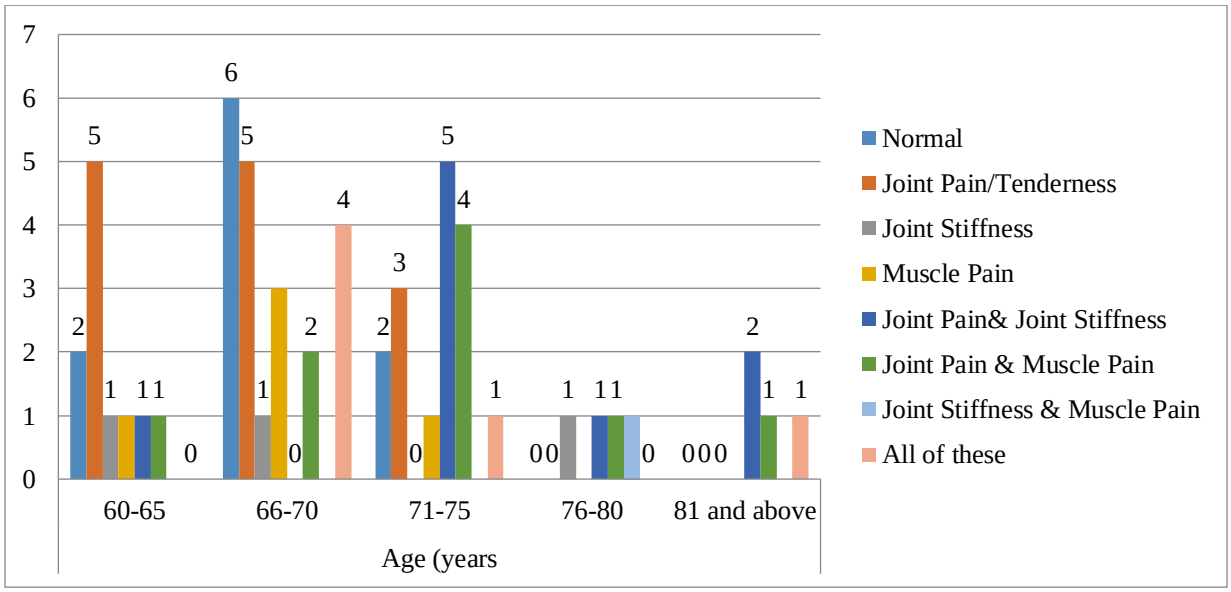

Figure 1., shows Musculoskeletal disorders in elderly 60 years and above with frequencies in males

Figure 2. shows musculoskeletal disorders in different age groups of males. The older adults between the ages of 60 and 65 had the highest prevalence of musculoskeletal problems, followed by those between the ages of 66 and 70 and 76 and 80.

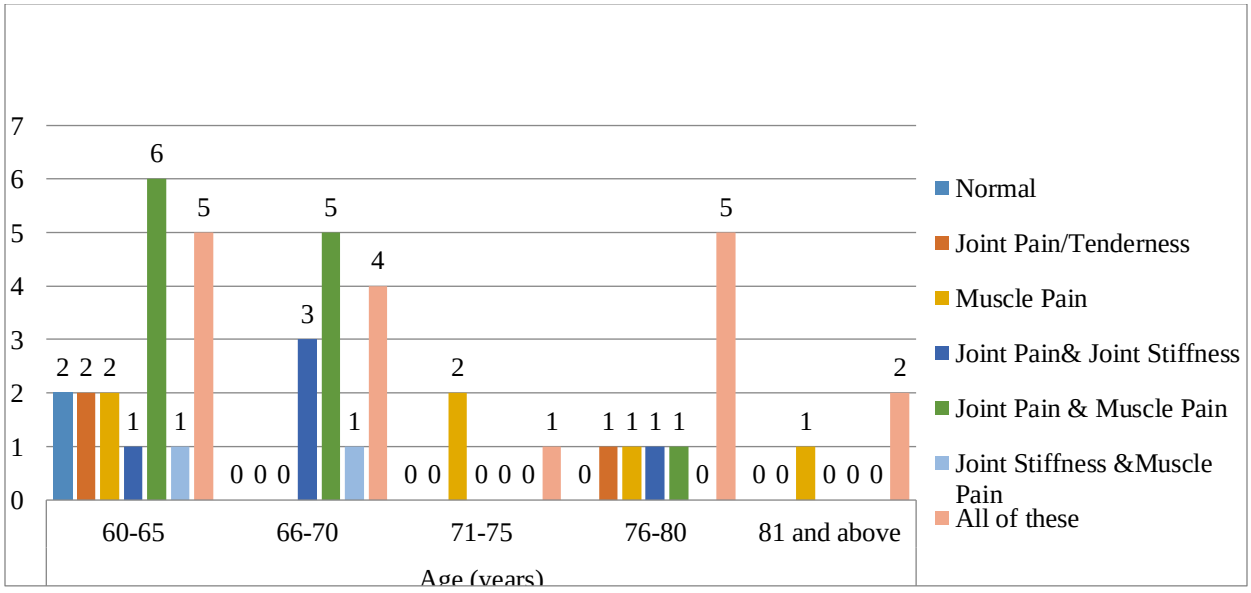

Figure 2 shows musculoskeletal disorders in elderly 60 years and above with frequencies in females

Of the total population, 66.99% (69/103) were facing difficulties in routine activities, while 33.11% (34/103) were not. Of the male population, 55.35% (31/56) were facing difficulties, while 44.64% (25/56) were not. Of the female population, 80.85% (38/47) were facing difficulties, while 19.14% (9/47) were not. Females were facing more difficulties in daily activities (36.89%, 38/103) than males (30.09%, 31/103).

Table 1. Gender-wise age distribution of elderly population facing difficulties in daily activities, which were 66.99% (69/103), out of which 36.9% (38/103) were females and 30.1% (31/103) were males. The relative difficulties in activities were more in age 81 years and above, as shown.

Table 1. People over 60 who have trouble with everyday tasks, along with the percentages of people in each age group

Ages (years)	Male		Female		Total
	Difficulty in Daily Activities		Difficulty in Daily Activities		
	Yes	No	Yes	No	
	n=31 (%)	n=25 (%)	n=38 (%)	n=9 (%)	n=103 (%)
60-65	4 (13.33)	7 (23.33)	13 (43.33)	6 (20.00)	30(100)
66-70	10(29.4)	11(32.35)	11(32.35)	2(5.80)	34(100)
71-75	9(47.36)	7(36.84)	3(15.78)	0(0.00)	19(100)
76-80	4(30.76)	0(0.00)	8(61.54)	1(7.60)	13(100)
81 and above	4(57.1)	0(0.00)	3(42.9)	0(0.00)	7 (100)

Figure 3. Of the population, in our survey, 67.96% (70/103), 70.00% (72/103) and 37.86% (39/103) had difficulty in walking, toileting and stair climbing as shown.

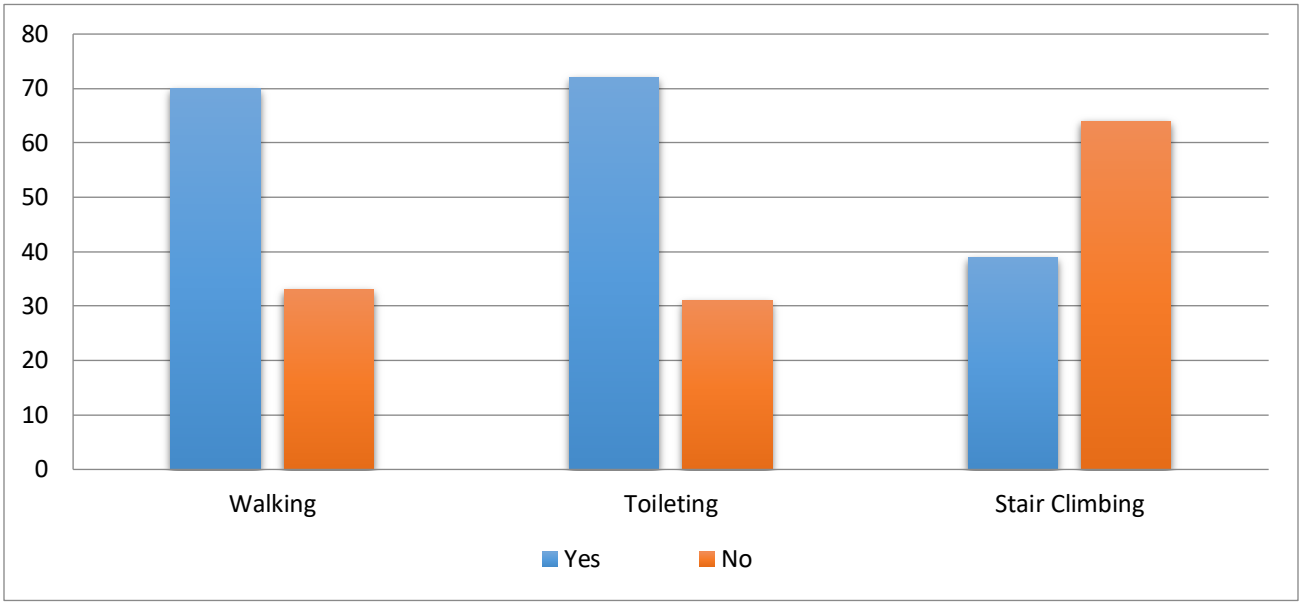

Figure 3. shows; difficulty in daily activities in total population in age above 60 years

Of the total population, 63.11% (65/103) were using medication for musculoskeletal disorders, while 26.89% (38/103) were not. Of the male population, 55.35% (31/56) were using medication, while 44.63% (25/56) were not. Of the female population, 72.34% (34/47) were using medications, while 27.65% (13/47) were not. Use of medication was higher in females (33.00%, 34/103) than males (30.09%, 31/103)

Including both males and females, the population's mean leg circumference was 14.38 inches (SD 1.57 inches, 95% CI 14.08-14.69). The overall mean leg circumference of males was 14.35 inches (SD 1.61 inches, 95% CI 13.93-14.77) while in females it was 14.43 inches (SD 1.53 inches, 95% CI 13.99-14.86). The maximum leg circumference among males was 20.00 inches, whereas minimum was 10.00 inches while, maximum leg circumference among females was 18.50 inches, whereas minimum was 11.5 inches.

Table 2 According to the survey, the highest mean leg circumference was found in the age group 66-70 years which was 15.59 inches, while the lowest leg circumference was for the age group 60-65 years i.e. 14.15 inches. In females, those of age group 66-70 were having highest mean leg circumference i.e. 14.85 inches with and lowest was for age group 81 years and above which was 13.67 inches. Males of age group 81 years and above were found to have highest mean leg circumference which is 15.75 and age group 60-65 years were having lowest leg circumference i.e. 13.86 inches.

Table 2 Measurements of leg circumferences in inches by sex in age groups above 60

Ages (years)	**Male**	**Female**	**Total**
	Mean (SD, 95% CI)	**Mean (SD, 95% CI)**	**Mean (SD, 95% CI)**
60-65	13.86 (1.14, 13.19-14.54)	14.32 (1.24, 13.76-14.87)	14.15 (1.20, 13.72-14.58)
66-70	14.43 (0.37, 13.84-15.02)	14.85 (2.00, 13.76-15.94)	14.59 (1.63, 14.04-15.14)
71-75	14.59 (2.27, 13.48-15.71)	14.33 (0.58, 13.68-14.99)	14.55 (2.09, 13.61-15.49)
76-80	14.00 (0, 14.00-14.00)	14.33 (1.73, 13.20-15.46)	14.23 (1.42, 13.46-15.00)
81 and above	14.62 (1.80, 12.86-16.39)	13.67 (1.15, 12.36-14.97)	14.21 (1.52, 13.09-15.34)

Discussion

Musculoskeletal problems were the most prevalent disorder among our study population. Almost 88% of the population (91/103) was having musculoskeletal problems in one form or the other; most of which were having joint and muscle pain. A high prevalence of musculoskeletal disorders in elderly was also reported by Rene Fejer and Alexander Ruhe. Vandana Nikumb reported that 55.6% of the study population was having musculoskeletal disorders (11). Other studies also reported similar findings (12)(13). The comparatively high prevalence of musculoskeletal problems in our community can be attributed to our lifestyles. Obesity and sedentary lifestyle are the important risk factors. As regular exercise is not given much importance right from the beginning so it causes problems in later life as inadequate physical activity decreases the muscle mass and weakens the bones. Smoking (another risk factor) is of common practice nowadays (14). The diet we take is not healthy and balanced. Chronic nutritional deficiencies are also there that cause weakness and musculoskeletal pain. Another reason could be incorrect posture that occurs as a result of one’s daily

activities (15). As people usually don't care about it so they end up with having pain and physical disability. Occupational and economic factors are also there. There are some other issues as well in our society like adulteration of food that also affects one's health. Additionally, if there is a family history of the disease, risk will be higher (16).

Gender-wise differences were also found in our study. Females were having more of such problems than males (17). More than 3/4th of the females were having problems in performing daily routine activities. Similar gender-wise differences were also reported in a study by Rene Fejer and Alexander Ruhe. The main reason for this was obesity and sedentary lifestyle (18). Also this might be explained by the fact that the females in their later age are more vulnerable to osteoporosis as estrogen production is decreased after menopause that results in weakening of bones (19). Females in our society usually don't care about their nutrition, they don't like to take milk in their diet regularly due to which vitamin D and calcium deficiencies have become extremely common nowadays. All these factors have got significant effects on musculoskeletal health (20).

Calf muscle circumference were measured in this study which showed significant result of mean 14.38 inches (36.5 cm) which was more than a study in which it was about 12 inches (31 cm). This showed that the geriatric population is well nourished and more attention is given on nutritional status.

Conclusion

The study's findings revealed that a significant proportion of the elderly suffered from musculoskeletal disorders, forcing them to rely on family members. The study's findings revealed a need for geriatric counselling centres that can address both physical and psychological requirements. Elderly persons must have access to proper prosthetic and orthotic centres, as well as physiotherapy departments, in order to receive correct treatment.

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