

Shifting Perspectives: Addressing Bone and Muscle Health Concerns among Malaysian Adults

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ABSTRACT

Bone and muscle health issues have traditionally been associated with the aging process, often overlooked in younger demographics. The current study was carried out to determine the bone and muscle health among Malaysian adults aged 19 years old and above. A total of 9220 respondents enrolled in a bone and muscle screening conducted nationwide at various community settings. Our results revealed that around 30% of Malaysian adults had poor muscle strength and bone quality. Milk drinkers were found to have significantly higher bone quality ($t=2.441$, $p<0.05$) and hand grip strength ($t=2.656$, $p<0.01$) than non-milk drinkers. The findings highlight that poor bone health and muscle strength are not confined to older adults but are also prevalent among younger and middle-aged Malaysian adults, which support the emerging research in these areas. Efforts to promote milk drinking should be prioritised to mitigate these musculoskeletal issues in Malaysian adults, irrespective of age.

Keywords: Bone and muscle health, Malaysian adults, milk consumption

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INTRODUCTION

Bone and muscle health issues have traditionally been associated with the aging process, often overlooked in younger demographics. However, emerging research suggests that these concerns are not exclusive to older adults but are also affecting young and middle-aged adults (Chan et al., 2020; Kang et al., 2021). Factors such as sedentary lifestyles, poor

nutrition, inadequate exercise, and increasing prevalence of chronic conditions contribute to the compromised bone and muscle health in this population (Curtis et al., 2015; Kopiczko, 2020). Ignoring these issues during this period can lead to accelerated decline and increased risk of chronic diseases later in life. This paradigm shift necessitates a reevaluation of our healthcare strategies to encompass preventative measures and early intervention for this demographic. This study aimed to determine the bone and muscle health among Malaysian adults aged 19 years old and above.

METHODOLOGY

A total of 9220 respondents enrolled in the bone and muscle nationwide screening conducted between May 2022 to April 2023. Bone quality was conducted using an ultrasound heel scanner (Osteopro UBD2002A, Korea) while hand grip strength, as the proxy for muscle strength, was ascertained using a digital hand dynamometer (Camry EH101, China). Statistical analysis was performed using the IBM SPSS 29.0. Descriptive statistics were presented as frequency and percentage for categorical variables while mean and standard deviation for continuous variables. Pearson correlation test and independence t tests were performed to determine the associations of bone quality and muscle strength with age, gender, and consumption pattern of milk drinking, respectively. Statistical significance was set at $p < 0.05$.

RESULTS AND DISCUSSION

The mean age of the respondents was 47 ± 15 years old. Approximately two-thirds, half and one-third of the respondents were female, Chinese and Malays, respectively (Table 1). One in six respondents claimed to be a milk drinker. However, only slightly 30% of the respondents drank milk once (23.1%) or twice (7.4%) daily, respectively. A total of 31.9% and 14.8% of the respondents had moderate and poor bone qualities, respectively. Specifically, there were 17.0% males and 13.6% females at high risk of poor bone quality, with no significant difference between the males and females ($t=1.507$, $p=0.132$). Conversely, there were 37.5% and 31.1% of the male and female respondents had poor hand grip strength (HGS), respectively, with female respondents have significant lower hand grip strength compared to male respondents ($t=-8.35$, $p<0.001$). Age was correlated negatively with both bone quality score ($r=-0.264$, $p<0.001$) and muscle strength ($r=-0.278$, $p<0.001$). Bone quality of respondents was correlated positively with muscle strength ($r=0.122$, $p<0.001$). As depicted in Table 2, the bone quality score of the milk drinkers was significantly higher than the non-milk drinkers ($t=2.441$, $p=0.015$). Similarly, the milk drinkers had significantly higher HGS than the non-milk drinkers ($t=2.656$, $p=0.008$). These findings highlight the importance of incorporating milk into

Table 1
Characteristics of respondents

Variables	Mean±SD / n (%)
Mean age (years)	47±15.3
Age group distribution	
Young adults (19 – 39 years old)	3318 (36.0%)
Middle-aged adults (40 – 59 years old)	3551 (38.5%)
Older adults (≥60 years old)	2351 (25.5%)
Gender	
Male	3203 (34.7%)
Female	6017 (65.3%)

Table 2
Associations between selected characteristics with bone quality and muscle strength

	Bone Quality		Hand Grip Strength	
	Mean score	r/t values [#]	Mean score	r/t values [#]
Age		-0.264**		-0.292**
Gender				
Male	-0.81	0.37	29.50	-8.35***
Female	-0.76		21.15	
Consumption pattern of milk				
Drinker	-0.748	2.441*	24.06	2.656**
Non-drinker	-0.836		23.58	

Note. Data were analysed using the independent t-test or Pearson correlation test; *p<0.05; ** p<0.01; *** p<0.001

the habitual diet of Malaysian adults. It is generally recognised that milk provides an optimal source of essential nutrients such as calcium and protein, which could contribute meaningfully to the bone and muscle health (Auestad & Layman, 2021; Caroli et al., 2011). The main limitation of the current study was the cross-sectional nature of the study, therefore the cause-and-effect relationship between milk intake and muscle strength or bone quality could not be established.

CONCLUSION

The nationwide screening programme underscored a significant proportion of Malaysian adults do not habitually consume milk, which is associated with poor muscle strength and bone quality. Our findings highlight that poor bone health and muscle strength are not confined to older adults but are also prevalent among younger and middle-aged Malaysian adults. The implication of this study suggests that promoting milk consumption should be a priority to support optimal bone and muscle health status among Malaysian adults, irrespective of age.

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