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Association Between Muscle Strength and the Risk of Dysphagia Among Elderly in Kuala Nerus, Terengganu

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Abstract

Dysphagia affects 5 to 10% of Malaysia's elderly population [1]. Dysphagia is a sort of anomaly that causes discomfort and difficulty swallowing that could be caused by age-related disorders such as stroke, malignancy, and muscle diseases [2]. If left unaddressed, swallowing impairment can lead to social isolation, aspiration pneumonia, and nutritional issues [3–5]. As predicted by 2030, Malaysia will have a 14% rise in the population aged ≥ 60 years old [6]. Thus, a rise in age-related illnesses such as sarcopenia, Parkinson's disease (PD), and dementia may lead to an increase in the prevalence of dysphagia among the elderly.

This cross-sectional study was conducted from April to June 2022 in a rehabilitation center in Kuala Nerus with 61 participants aged ≥ 60 years old. The muscle strength was measured using the Camry Electronic Hand Dynamometer, which helps to assess the overall muscle strength from a handgrip [7]. This device is light and comes with grooves for finger placement that is more ideal for usage by the elderly. Meanwhile, the risk of dysphagia was evaluated using the Malay version of the 10-item Eating Assessment Tool (M-EAT-10) since it applies to a wide spectrum of swallowing problems [8].

The mean age of participants was (65.67 ± 5.62 years) with 43% being males and 57% being females. Most of the participants were married (77%), have more than one comorbidity (56%), and originates from B40 households (62%). Those who scored ≤ 2 in EAT-10 were 29 (48%) participants while 32 (53%) participants scored ≥ 3 showing a risk of dysphagia. Analysis showed 58% of males presented muscle strength of below 26.00 kg while 42% have normal muscle strength. Similarly, 54% presented with muscle strength of below 18.00 kg while 46% have normal muscle strength among females. There is an association between muscle strength and the risk of dysphagia for both males ($p = 0.001$) and females ($p < 0.001$).

This study found a higher prevalence of those at risk of dysphagia compared to those with no risk of dysphagia. There is also an association between muscle strength and the risk of dysphagia for both genders in this study [9,10].

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Table 1: Sociodemographic information (n = 61)

Variables	Frequency (%)	Mean (SD)
Age, year		65.67 ± 5.62
Gender		
Males	26 (42.6)	66.39 ± 5.89
Females	35 (57.4)	65.14 ± 5.45
Marital status		
Single	3 (4.9)	
Married	47 (77.0)	
Divorced	2 (3.3)	
Widower	9 (14.8)	
Comorbidity		
No comorbidity	3 (4.9)	
One comorbidity	24 (39.3)	
More than one comorbidity	34 (55.7)	
Household income		
B40	38 (62.3)	
M40	19 (31.3)	
T20	4 (6.6)	
M-EAT-10 score		
< 3	29 (47.5)	
≥ 3	32 (52.5)	

Dysphagia was significantly associated with muscle strength among the elderly in Kuala Nerus. Some limitations in this study include the lack of participants and the source of the population.

Keywords
Dysphagia, Elderly, Muscle strength

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