

Chapter 1

Introduction

1.1 Background

Population aging is a phenomenon occurring worldwide, including in Indonesia and according to Indonesia Law No. 13 in 1998 on Older Adults Welfare, an older adult is a resident who has reached the age of sixty years or older. It is expected that in 2050, the Indonesian older adult population will reach 61.7 million and it will correspond to 19.2% of the population. The increasing rate of this population reflects the improvements in the productivity and health status of older adults. However, a study found that while life expectancy has risen to 71.34 years in Indonesia, the healthy life expectancy is only 63-64 years. Thus, one of the challenges that occurs is to maintain the quality of life of older adults as aging is typically associated with a decline in functional abilities and health (BPS, 2023; Hayati & Kamso, 2024; Juanita et al., 2022).

Among other aging-related diseases, sarcopenia, a condition characterized by reduced muscle function and loss of muscle mass, is estimated to affect 5-13% of older adults aged 60-70 years old, which continuously increases with age (Mao et al., 2023). A study conducted by Harimurti et al. (2023) also found that the prevalence of sarcopenia among older adults in Indonesia was 17.6%. It happened because muscle mass decreases at an annual rate of 1-2% by age 50, and a greater decline in muscle strength, accounting for 3% per year after the age of 60 (von Haehling et al., 2010). Therefore, muscle loss is inevitably observed in all humans, but with a varying degree of functional loss (Larsson et al., 2018).

One of the factors that can increase the risk of sarcopenia is the dietary pattern and lifestyle of older adults. Leitão et al. (2022) mentioned that the alteration of dietary patterns and lifestyle can promote healthy aging, increasing the well-being of older adults by developing and maintaining their functional abilities. In the case of sarcopenia, several studies have stated that prevention can be achieved by consuming protein,

vitamin D, and antioxidant supplements along with regular physical activity (Seo & Lee., 2022; Wang et al., 2023). Based on a previous study, older adults are recommended to consume at least 1.0 to 1.2 g/kg body weight/day of protein with a higher rate of leucine for optimal stimulation of muscle protein synthesis. It was said that adequate consumption can treat and limit age-related declines, especially if it is combined with regular physical activity as well as resistance training to maintain muscle function, mass, and strength (Deutz et al., 2014).

Currently, studies that correlate physical activity and dietary habits to muscle strength and among older adults in Indonesia remain limited. Most existing studies concerning muscle strength investigate the effect of strength training and physical exercise, and no existing literature regarding protein consumption was identified. Thus, this study focuses on finding the association between the protein consumption which includes the quantity, quality, and timing of the intake or physical activity to the muscle strength of older adults.

1.2 Objective

This study aims to investigate whether protein consumption (quantity, quality, and timing) and/or physical activity level are associated with the muscle strength of older adults aged 60 to 79 in Jakarta, Indonesia.

1.3 Hypothesis

H_0 : Protein consumption and/or physical activity level are not significantly associated with muscle strength of older adults.

H_1 : Protein consumption and/or physical activity level are significantly associated with the muscle strength of older adults.