

UNIVERSITI TEKNOLOGI MARA

**RISK OF FALLS, FEAR OF FALLS
AND THEIR CORRELATION WITH
HISTORY OF FALLS,
ANTHROPOMETRICS AND
SARCOPENIA IN COMMUNITY-
DWELLING OLDER ADULTS**

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ABSTRACT

Falls represent a significant and escalating concern among older adults. This issue is compounded by a vicious cycle wherein the risk of falls intertwines with the fear of falling. This cycle is further complicated by a variety of associated factors including history of falls and anthropometric measurements that contribute to heightened concerns among older adults. The present study is to examine the association and the predictors of risk of falls and fear of falls, including the history of falls, anthropometric measurements along with sarcopenia indices (SARC-F, SARC-Calf, muscle mass, muscle strength and physical performances) in older adults residing in a community-setting. This is a cross-sectional study was conducted, recruiting 315 participants aged ≥ 60 years from selected cities in Selangor, Malaysia. The risk of falls was assessed using the timed-up-and-go test, and the fear of falling was measured using the short International Fall-efficacy scale (short FES-I). Sarcopenia was screened using the SARC-F and SARC-Calf tools. The assessment of sarcopenia parameters includes muscle mass (Bioelectrical Impedance Analysis), strength (handgrip dynamometer), physical performance (5-times chair stand). The history of falls was recorded through self-administered questions. Data were analyzed using the independent t-test and chi-square for interval and categorical data, respectively. The Pearson chi-square and Binary logistic regression analysis were employed to identify relationships and influences on fall-related parameters. Result showed a history of falls is significantly associated to risk and fear of falls ($p < 0.05$). Conversely, no anthropometric variable showed association with these falls parameters. Moving on, all sarcopenia parameters including muscle strength and physical performances showed correlation to risk and fear of falls except for muscle mass that only showed significant affect to individual with high risk of falls. After adjusting for age and gender, individual with high risk of falls had a significant ($p = 0.001$) lower muscle mass (OR 0.627; CI 0.522-0.755), muscle strength (OR 1.069; CI: 1.034-1.105), physical performance (OR 0.787; CI: 0.895-0.986) while those with high fear of falls only had significant low physical performance (OR 1.086; CI: 1.014-1.163, $p = 0.018$) compared to those with low risk and fear of falls. In summary, the findings of present study underscore the importance of assessing sarcopenia indices when evaluating fall-related risks and fears in older adults. The results suggest that factors such as muscle strength and physical performance are closely linked to both the risk and fear of falls. Further research is needed to explore the longitudinal aspects of these associations and to inform the development of tailored preventive measures for this at-risk population.

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Thank You for this beautiful journey.

God bless us!

Thank you for the wonderful journey oh Lord.

May the matter we learned and discussed, serve as a catalyst, to move us forward, and cause us to advance, and see growth in all areas of our lives. May we leave here recognizing, that You are the God of wisdom, and You are willing to lead us forward.

Amen

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter presents the background of the study to emphasize the significance of its completion. The problem statement is then provided to support the need for the current research. This chapter also covers the current study's research objectives and hypotheses. Finally, the significance of the study, scope, and operational definitions of the key terminologies utilized in the study were presented.

1.2 Background of the Study

The global population of individuals aged 60 years and above is expected to experience significant growth worldwide. The United Nations, Department of Economic and Social Affairs (2017) projects that the number of older adults will increase from 962 million in 2017 to 2.1 billion by 2050. Similarly, the World Health Organization (2022) predicts that by 2030, there will be 1.4 billion people aged 60 years and older, and this number will further rise to 2.1 billion by 2050. These demographic changes are primarily attributed to declining fertility rates, improved longevity, and advancements in technology (Taasim, 2020; United Nations, Department of Economic and Social Affairs, 2017).

As the number of older adults continues to rise, Malaysia is witnessing a clear trend towards an aging population. The recent demographic statistics Malaysia for the first quarter indicate that the percentage of the older adult population has increased a million from 2023, making a total of 3.8 million, for those aged 60 years old and above (DOSM, 2024). The World Health Organization defines an aging population as one where 7.0 percent of the