

Article

## The Interaction of Ergonomic and Anthropometric Factors in Occasional Chair Design for Elderly Malaysians

Izzat Zainuddin <sup>1</sup> and Musdi Shanat <sup>2,\*</sup>

<sup>1</sup> Faculty of Applied and Creative Arts, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia; [ijatharith0302@gmail.com](mailto:ijatharith0302@gmail.com) (I.Z)

\* Correspondence: [smusdi@unimas.my](mailto:smusdi@unimas.my) (M.S)

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**Abstract:** This research focuses on furniture ergonomics, specifically the occasional chair for elderly Malaysian. An ergonomics study in furniture design is essential to ensure its full functionality meets user satisfaction. The design must comfort the end user and reduce the risk of injury. Additionally, different ergonomic requirements must be considered depending on the age and environment of the user. As a result, to avoid injury and provide comfort to users, this study prioritises ergonomics chair design for a group of users in Malaysia, the elderly aged 60 and above. This study proposes a new design to meet the ergonomics requirements of elderly users. The vital need to meet comfort and reduce injuries for the elderly can be met through the study of ergonomics for the elderly, which can be applied to products in the future. The researcher has set the design parameter according to the anthropometric data from the Business and Institutional Furniture Manufacturers Association (BIFMA) standards. The assessment outcomes determine the ergonomic dimension requirements to provide comfort and safety. The suggested dimensions when through the simulation ergonomics analysis. The result shows that the new recommended dimensions comply with the Rapid Upper Limb Assessment (RULA). In conclusion, ergonomic design needs for the elderly due to lacking physical and mental strength.

**Keywords:** ergonomics; anthropometry; elderly furniture



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### 1. Introduction

The world's population is a matter of discussion for all researchers because it is one of the causes of the problems that may arise. United Nations Department of Economic and Social Affairs. Population Division (2015) reported that there is mounting evidence that population explosion, economic advancement, rising standards of living, and increased consumption have contributed to altered land use patterns, substantial energy use, and the loss of precious resources, with more obvious signs of global warming and degradation of the environment than ever before. The world's population is saturating every region of the globe. Researchers now have the chance to constantly acquire new findings that will benefit the