



Design and manufacture of a custom-designed bed chair for elderly

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According to the World Health Organization (WHO), the elderly is every individual over 60 years old. This age may vary according to the conditions of each country in relation to Public Policies. The elderly tend to have diminishing regenerative capacities, which can lead, for example, to fragility, a process of increasing vulnerability, predisposition to functional decline and, in the most advanced stage, death. In addition, physical or emotional changes can also compromise the quality of life of these people. There are devices on the market capable to contribute to better mobility and independence for the elderly. The design of a bed support chair for the elderly will positively add to the quality of life of these individuals who are bedridden. With the use of this chair, they will be able to sit on the edge of the bed, avoiding complications from immobility, such as pneumonia and pressure ulcers, as they spend most of their time lying in the same position. The present study aimed to design and build a support chair for a bed suitable for the use of the elderly in situations of immobility. The material used in the manufacture was polyvinyl chloride (PVC), used in hydraulic installations. It has a low cost and it is mechanically resistant for this purpose. In a previous visit, data were collected such as weight and height of the elderly, and analysis of the environment for sizing and construction of the chair. In addition to the data collection, a finite element simulation was performed using the Ansys Academic software to analyze the efforts on the chair during its use. Through the dimensioning and analysis of efforts, it was possible to build four models to meet the demand for an asylum in the city of Campos dos Goytacazes. Users obtained a positive and immediate return on the use of the chair and the benefits provided by it.

Keywords: Support Chair. Polyvinyl Chloride. Simulation.

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