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Prevalence of Barriers in Obese Adults Related to Functional Mobility

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Abstract

Background: Obesity and overweight are excessive fat accumulation that causes many health-related problems and it also affects the physical activities of daily living. WHO is classified into four categories-overweight, mild obesity, moderate obesity, and severe obesity. This study includes personal, environmental, and social barriers. **Objectives:** This study is aimed to assess the prevalence of barriers in obese adults related to functional mobility. **Methods:** A total of 100 participants ages 30-60 years, were selected by random sampling method according to inclusion and exclusion criteria. Participants were evaluated by the Time up-and-go test used to access functional mobility. The data was collected via circulated Google forms. **Results:** About 39% of the 51-60 age group individuals faced more difficulties during physical activities as compared 30-40 and 41-50 age groups. Moderate and severely obese individuals are more prone to experiencing barriers during physical activity as compared to overweight and mild obesity individuals. It is worse in females than in the male population. According to statistical analysis, about 62% of females and 38% of males experience problems during physical activity. **Conclusion:** The present study shows that moderate and severely obese individuals faced barriers during physical activity as compared to overweight individuals. Commonly, females are more prone to face barriers than males

Keywords: Barriers, Functional Mobility, Obesity

1. Introduction

Overweight and obesity are defined as abnormal excessive body fat that increases the risk of health problems. Obesity is a chronic and non-communicable disease that causes activity limitations and restricted participation during ADL activities and IADL activities. According to the World Health Organization (WHO) criteria, the severity of obesity depends on Body Mass Index (BMI), which is a simple and commonly used parameter to classify obesity. It is defined as a person's weight in kilograms divided by the square of height in meters (kg/m^2). A BMI less than 18.5kg/m^2 is considered underweight, 18.5-24.9 kg/m^2 is normal weight, 25-29.9 kg/m^2 is considered overweight or pre-obese, and 30-40 kg/m^2 is considered obese. The obese category is subdivided into 3 classes Class 1 obesity: 30-34.9 (mild obesity) Class 2 obesity: 35-39.9 (moderate obesity) Class 3 obesity: Above 40 (severe obesity)[1]. The prevalence of overweight and obesity has been increasing nowadays. According to the World Health Organization, about 1.5 billion adults are obese, over these 200 million men and 300 million women are obese[2].

Obesity may cause health complications and a decline in functional mobility. Functional mobility is the ability of people to move from one place to another place, walk independently and safely to accomplish functional activities or walk at moderate speed, and move around the environment to participate in activities of daily

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living[3,4]. Lifestyle modifications, lack of physical activities, and dietary habits may help decline mobility in obese individuals[3]. Mobility promotes physical function, and independent living and it improves the quality of life. It is also essential for completing Physical Activities of Daily Living [PADL] and Instrumental Activities of Daily Living [IADL]. Obesity hurts functional mobility. The people engaged in physical activity are labelled as the International Classification of Functioning and Disability (ICF). It consists of structural impairment, functional impairment, and personal and environmental factors[3].

Mobility limitations such as unable to walk outdoors in bad weather, the inability to walk without support, and feeling breathlessness while stair climbing and brisk walking. Obese people have a sedentary lifestyle and lack physical activity. Sedentary behaviour includes sitting, reclining, or lying position; severely obese people may difficult to achieve light physical activities such as walking inside the home, bathing, or changing clothes whereas moderate-vigorous physical activity includes outdoor activities such as active walking and exercises[5]. Obese people may face several barriers to participation. These barriers include personal and environmental barriers and social barriers.

Personal barriers include lack of energy and poor physical and mental health, laziness or lack of interest and motivation, lack of time, lack of confidence, lack of skills, lack of information, feeling embarrassed, a non-enjoyment of exercise. Social barriers include a lack of social support and lack of culturally acceptable facilities as barriers, such as lack of spouse support, lack of family support, lack of proper counselling, lack of children support, and lack of awareness. Environmental barriers include lack of adequate facilities, weather conditions, poor walking surfaces, not enough lightning at night, no benches to sit or rest, lack of accessibility to places for exercise, lack of cost-effective facilities, and lack of a safe outdoor environment[2,6].

People with obesity may spend a lot of time completing Physical Activities of Daily Living [PADL] including bathing, getting dressed, and moving from one place to another place, and Instrumental Activities of Daily Living [IADL] including transportation, and shopping activities as compared to normal people. Obese people may experience difficulty in climbing one flight upstairs, brisk walking on a flat surface, and jogging 100 meters on a flat surface without any rest. One study revealed that obese people almost need triple the amount of time as compared to the same age group in persons without obesity. BMI >40 kg/m^2 is associated with decreased balance and difficulty in maintaining balancing activities such as one-leg stance[7].

2. Materials and Methods

This observational study was carried out in Krishna College of Physiotherapy, Deemed to be University, Karad

Subject Criteria: 100 participants were included between the ages of 30-60 years with BMI>25 kg/m^2, including all occupations. Exclusion criteria were subjects with BMI<25 kg/m^2 and active obese with no barrier disabled population.

Procedure: It was an observational study that was conducted in the local population and the duration of the study was 6 months. The study was approved by the ethical committee of the institute. The sample size was 99. A random sampling method was used. A Google form was created and circulated among groups via social media platforms. All 100 participants willingly consented and participated in the study. The participants were taken based on inclusion and exclusion criteria. The participants were made aware of the study. The proper consent from the participants was taken. The data was collected by using a questionnaire. Studies were included if the participants were aged between 30-60 years and BMI>25 kg/m^2. A self-report questionnaire is used to collect the data. Participants were asked to sign an informed consent form. Demographic characteristics like Age, Weight, Height, and Gender were taken. Functional mobility limitation was studied with the following question: "Are you able to walk indoors and outdoors?" The response options were Yes, with a lot of difficulties, no, with no difficulties, and the last option Sometimes, with some difficulties The circulated form was submitted by each individual, and data was collected from those Google forms.

3. Results

Table 1. Outcome results of subjects according to age group

Age	Frequency (n)	Percentage (%)
30-40	31	31%
41-50	30	30%
51-60	39	39%

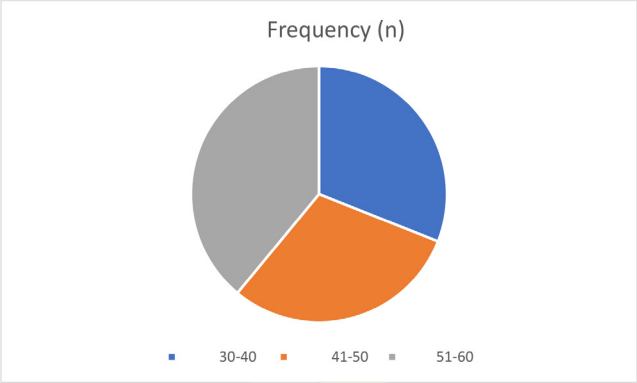

Figure 1. Shows the age group of participating individuals.

Figure 1 shows that 51-60 years age group individuals are more in the population (39%) while 30-40 and 41-50 age group individuals are less in the population as compared to the 51-60 age group. A p-value of age group 0.0072. Age group information is important to factor in the evaluation of barriers to obese adults.

Table 2. Outcome results of subjects according to gender

Gender	Frequency (n)	Percentage (%)
Male	38	38%
Female	62	62%

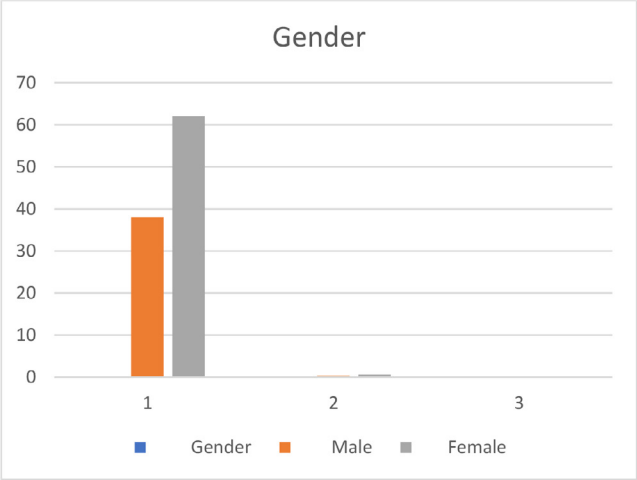

Figure 2. Gender-wise analysis of obesity-related problems.

Figure 2 indicates that females are more prone to experiencing problems due to obesity as compared to males. 0.1500 is the P value according to gender-wise category.

Table 3. Outcome result of subjects according to Body Mass Index (BMI).

BMI Categories	Frequency (n)	Percentage (%)
Overweight	69	69%
Mild obesity	27	27%
Moderate obesity	3	3%
Severe obesity	1	1%

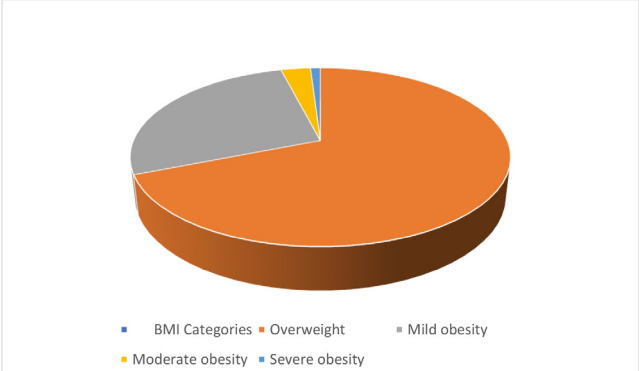

Figure 3. BMI variations among the participated population.

Figure 3 indicates BMI variations among the participated population, about 31% of participants fall into the mild, moderate, and severe obesity categories while 69% of participants fall in the overweight category. The p-value of the BMI category is 0.2120.

4. Discussion

This is the first study to determine the prevalence barriers to obesity during functional mobility, which include personal, environmental, and social barriers. This study has produced some important findings. Firstly, it shows that moderate and severely obese people experience difficulty walking. This was shown to be worse in females than in males. When age groups were taken into consideration, there was no significant difference that signified an increased or decreased barrier in functional mobility, with differences ranging from 1% to 9%. According to our study, physical inactivity is an important barrier to functional mobility.

A previous study in Saudi Arabia indicates the prevalence of physical inactivity was 40.6% using an international physical activity questionnaire and this study includes obese and non-obese individuals. One study concludes that women with children are

particularly likely to report a Lack of social support as an important barrier to physical activity[6]. One study concludes that, as the BMI increases, physical activity decreases and environmental barriers increase. The rate of physical activity decreases, especially in women. This study summarizes real mobility i.e. enacted mobility and how barriers and facilitators influence mobility in older adults. It also concludes mobility-related disability[5]. This includes measures of quality of life and functional mobility showing an association between obesity, impairments of body function and structures, and personal and environmental factors that contribute to mobility disability. Obese people have a greater risk of falls and injuries than non-obese people[3].

The study consists of the impact of obesity on activities of daily living and it indicates that obese people may need more time to complete ADL as compared to non-obese people. This study reported that obese people spend almost triple the amount of time doing daily activities. Severe obesity is associated with an increased risk of falls and difficulty in maintaining balance[7]. Oliver Hamer suggests fear-related barriers to physical activity in adults with obesity, this aims to identify how fear impacts physical activity in obese individuals[8]. There is a high number of personal and environmental barriers in obese adults. This study reported that personal barriers the more common than environmental barriers among adults with overweight[9]. This study reveals that, personal and environmental barriers in old age people. This study was conducted on only old age people and the progression of mobility declines in older people[10]. People with mobility disability and obesity have more severe comorbidities which increases the unemployment risk[11]. Increasing BMI promotes an increased risk of lower health-related quality of life (HRQoL) and a lack of participation in society[12]. Our hypothesis in this study is that obesity status affects functional mobility. Class 3 obesity is more prone to experience barriers than overweight and obese individuals.

5. Conclusion

The study concludes that obese individuals faced barriers during activities of daily living and also instrumental activities of daily living. According to the gender category, females are more prone to experiencing barriers during physical activity. According to the age group, 51-60 age group individuals are commonly facing barriers during physical activity than other age groups. Moderate and severely obese individuals are experiencing difficulty during brisk walking, maintaining or continuing speed during walking, ascending and descending stairs and they are also noticed fatigue during day-to-day activities, while overweight individuals experience a minimum barrier during physical activities. They are facing problems commonly during jogging and running.

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