International Journal of Physiotherapy and Research,
Int J Physiother Res 2015, Vol 3(1):889-93. ISSN 2321-1822
DOI: 10.16965/ijpr.2015.104

Original Article

PREVALENCE OF OBESITY AMONG MUSCULOSKELETAL PATIENTS

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ABSTRACT

Objectives: The purpose of the study was to identify the prevalence of obesity among the musculoskeletal patients who attended musculoskeletal department of Centre for the Rehabilitation of the Paraleysed (CRP) to receive physiotherapy service. The study was conducted in order to find the information related to demography, prevalence of obesity by age and sex, the main musculoskeletal disorder among the obese participants, as well as the distribution of chronic disease including hypertension and diabetes among the obese participants.
Methodology: A cross sectional survey was conducted to collect data from 162 participants aged between 18-75 years.
Results: Prevalence of obesity was 12.3%, with 55% were $\geq$ 50 years and 45% were < 50 years, 60% of whom were females and 40% were males. Out of 162, 20 patients were obese who complained at least one musculoskeletal problem. Among the 20 patients osteoarthritis of the knee (10, 50%) was the most common musculoskeletal disorder followed by low back pain (7, 35%), ankle sprain (1, 5%), neck pain (1, 5%) and calcaneal spur (1, 5%). Most of the obese shared that they had no hypertension (13, 65%) and diabetes (17, 85%) where rest of the patients suffered with hypertension (7, 35%) and diabetes (3, 15%).
Conclusion: Prevalence of obesity is rapidly increasing day by day in the world. Now-a-days obesity is a burning question. It is essential to identify the prevalence of obesity among musculoskeletal patients of Bangladesh.
KEYWORDS: Prevalence, Obesity, Musculoskeletal disorder.

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Access this Article online

Quick Response code

DOI: 10.16965/ijpr.2015.104

International Journal of Physiotherapy and Research
ISSN 2321- 1822
www.ijmhr.org/ijpr.html

Received: 19-01-2015	Accepted : 29-01-2015
Peer Review: 19-01-2015	Published (O): 11-02-2015
Revised: None	Published (P): 11-02-2015

INTRODUCTION

The epidemic of obesity has become pandemic, defined as an epidemic occurring over a wide geographic area and affecting an exceptionally high proportion of the population. The rise in obesity rates was first noted in the United States, but has spread to other industrialized nations and it is even now being documented in developing countries. Indeed, the global extent of the obesity pandemic was formally recognized by the World Health Organization (WHO) in 1997, and worldwide obesity rates are increasing dramatically [1]. On the global scale, more than one billion adults are estimated to be overweight with at least 300 million of them qualifying as obese [2]. From 1960 to 2004, the prevalence of obesity in the United States has more than doubled among adults from 13.3% to 32.1%, while the percentage of Americans overweight during the same period has increased from 44.8% to 66%, with most of this rise occurring since 1980 [3]. The prevalence of overweight-obesity increased substantially in all countries. Comparing the first to the latest survey in Bangladesh, the prevalence of overweight-obesity increased from 2.7 to 8.9%, in Nepal, from 1.6 to 10.1% and in India, from 10.6 to 14.8% [4].

Obesity is defined as 'a physiological condition in which excess body fat has accumulated to an extent that can negatively affect health' [3]. The measure used most commonly to describe the level of fatness in populations is the body mass index (BMI). BMI is a weight-for-height measure, introduced as the Quetelet Index in the 1830s and widely used for the past several decades to estimate population trends in fat [5]. BMI is calculated as weight (kg)/height $(m)^2$. A BMI value in the range of < 18.5 kg/m^2 is defined as underweight, a BMI of 18.5-24.9 kg/m^2 is normal weight, 25-29.9 kg/m^2 is overweight, 30-34.9 kg/m^2 is obese class 1, 35-39.9 kg/m^2 is obese class 2 and 40 or >40 kg/m^2 is obese class 3 or morbidly obese [6]. Relation between BMI and the percentage of body fat depends on age and sex, and differs across ethnic groups. For example, Chinese people originating from the Shanghai region and living in New York City have a lower BMI but a higher percentage of body fat than white people of the same age and sex [7].

MATERIALS AND METHODS

A cross sectional survey was conducted with a sample of 162 participants between the age of 18-75 years who attended at the musculoskeletal physiotherapy unit of the Centre for the Rehabilitation of the Paralysed (CRP).

Sampling Procedure: The sample was selected by the convenience sampling method among the patients who attended at the musculoskeletal department of the Centre for the Rehabilitation of the Paralysed (CRP).

Data Collection: Data were collected through face to face interview by a structured questionnaire. Data collection tools were weight machine, measurement tape, scale and calculator. Height was measured in standing position without shoes, using a wall-mounted height tape. Weight was measured when the subject wore light indoor clothes, without shoes and empty pockets. Body mass index (BMI) was calculated as weight in kilograms divided by height in meters squared and subjects were stratified into obese (BMI $\geq$ 30kg/m^2), overweight (BMI 25 – 29.9 kg/m^2) and normal (BMI 18 – 24.9 kg/m^2).

Ethical Consideration: The study was approved by the ethical review committee of Bangladesh Health Professions Institute (BHPI) and department of Physiotherapy also permitted to conduct the study as well. Informed consent was taken from the participants prior to data collection. Participants were allowed to withdraw from the study any time and without any notification. Participants were also aware about the study purpose. The necessary information was kept secure to ensure confidentiality.

RESULTS

Among the 162 participants, the majority were males (98, 60%) and the rest were female (64, 40%). Most of the participants were less than 50 years (125, 77%) and $\geq$ 50 years (37, 23%) with a mean age of 40.48 (SD ±13.67) years. The mean body mass index was 25.57 (SD±4.14). Among all the participants, 48.2% were normal, 39.5% were overweight and 12.3% were obese (Table – 1).

Table 1: Demographic information of the participants.

	Participants (n)	Percentage (%)
Age		
<50 years	125	77
≥50 years	37	23
Sex		
Male	98	60
Female	64	40
Obesity		
Normal	78	48.2
Overweight	64	39.5
Obese	20	12.3

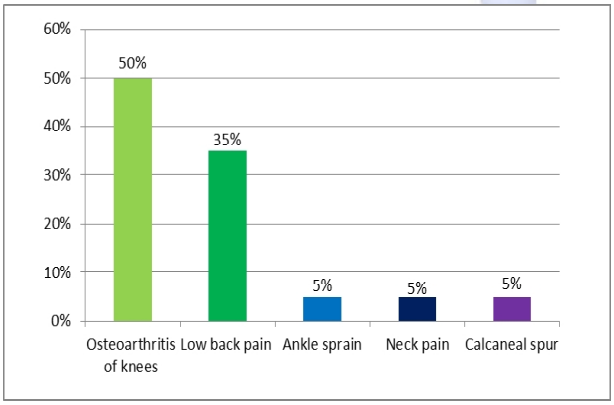
Prevalence of obesity was 12.3%, with 55% were ≥ 50 years old and 45% were < 50 years old, 60% of whom were females and 40% were males. Prevalence of obesity by age and sex was presented on Table – 2.

Table 2: Prevalence of obesity by age and sex.

	Participants (n)	Percentage (%)
Age		
<50 years	9	45
≥50 years	11	55
Sex		
Male	8	40
Female	12	60

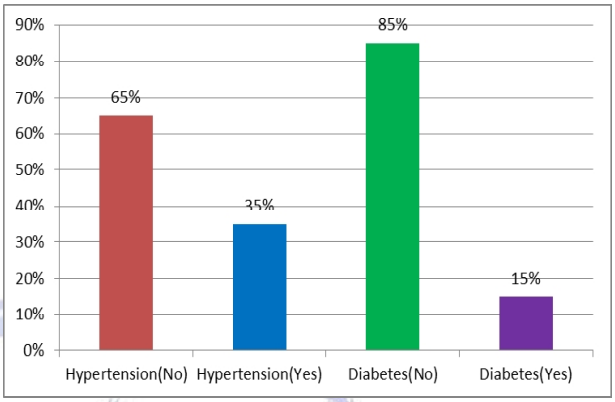
Among the 162 musculoskeletal patients, 20 were obese who complained at least one musculoskeletal problem. Among them osteoarthritis of the knee (10, 50%) was the most common musculoskeletal disorder followed by low back pain (7, 35%), ankle sprain (1, 5%), neck pain (1, 5%) and calcaneal spur (1, 5%) Figure – 1.

Fig. 1: Distribution of the main musculoskeletal disorders of the obese.



Among the musculoskeletal patients who were obese, most of them did not suffer diabetes (17, 85%) followed by those who did not have hypertension (13, 65%) leaving a small number of patients with diabetes (3, 15%) and hypertension (7, 35%) Figure – 2.

Fig. 2: Hypertension and diabetes among the obese participants.



DISCUSSION

According to the study 12.3% (BMI ≥ 30 kg/m^2) were obese and 39.5% (BMI 25 – 29.9 kg/m^2) were overweight who were at risk of being obese. The obesity prevalence in musculoskeletal department at CRP was higher than that in France (7%) and United Kingdom (9%) but lower than that in the United States (20.9%) [8]. In the National Health Assessment and Nutrition Examination Survey for 1999 through 2002 found that about 65% of American adults were overweight or obese: 30% were overweight (BMI ≥ 25 kg/m^2) and 35% were obese (BMI ≥ 30 kg/m^2) [9]. There is a huge difference in the prevalence of obesity in America because it was the overall national prevalence of obesity among Americans compared with the result of this study which covered the small area of Bangladesh. Other reasons can be the life-style, food habit, alcohol consumption of the American. A study based on National Health Survey of Pakistan (1990–1994) the prevalence of obesity was 10.3% (BMI ≥ 27 kg/m^2) [10]. Ministry of Health Malaysia (1996) in the Second National Health and Morbidity Survey reported that overall prevalence of obesity of 12.3 % [11]. Above all the results are nearly similar to this study.

This study showed that 55% of the obese were equal or greater than fifty years old and 45% of the obese were less than fifty years. It indicates that the prevalence of obesity increases with

age. Another study was done in 14 provinces in China in population of age 35-85 shows the highest total prevalence of obesity 13.94% [12]. A study found that for males, the prevalence of obesity increased with age and peak at age 40-49 years and for the females, the prevalence of obesity also increase with age but peak at 50-59 year [11]. The 2004 Survey of Health, Ageing and Retirement in Europe shows that the prevalence of obesity (BMI >or=30) over 50 years of age ranges from 12.8% to 20.2% in Sweden and 12.3% to 25.6% in Switzerland [13]. So obesity prevalence was also higher in older adults. This may be due to increased sedentary lifestyle with age accompanied by a change in body composition leading to higher lean body mass proportion.

The results also showed that the prevalence of obesity was higher in females 60% as compared to 40% in males. Ministry of Health Malaysia (1996) also showed that the prevalence of obesity was significantly higher in females that are 14.7% as compared to 9.8% in males [11]. Another study of national survey for Great Britain in 2002 found that 23% men and 25% women were obese [14].

The study also found that musculoskeletal complain of obesity is more in weight bearing joints of lower limb (osteoarthritis of knee 50%, ankle sprain and calcaneal spur were respectively 5%) and lower back region (low back pain 35%). A number of studies have reported that obesity is related to a variety of musculoskeletal disorders ranging from osteoarthritis (in both the knee and hip) to joint pain [15]. For example, the greater prevalence of osteoarthritis with increasing body weight has been reported in several cross-sectional studies [16]. It has been reported that a 6-10 kg weight loss in morbidly obese subjects is associated with a relief from pain in the lower back, ankles, and feet [17]. In a cross-sectional study of almost 13,000 men and women in the Netherlands, a BMI greater than 25 was associated with 14% to 48% higher risk of low back pain [18]. Another study showed that the prevalence of low back pain among the obese in Saudi Arabia was 30% [19]. The difference of result of the study due to different studies has used different cut points for overweight and obesity. Some did not use the World Health Organization–recommended BMI cut points to define overweight and obesity.

The study found that most of the participants had no hypertension (13, 65%) and diabetes (17, 85%) where rest of the patients suffered with hypertension (7, 35%) and diabetes (3, 15%). Result indicates that the percentage of hypertension and diabetes were not associated with the BMI. Type 2 diabetes were found in 7% of the adult population (>25 years of age) and 10–50% in the minority communities including Asians in the United States [20]. A study in Shimla, India, the prevalence of diabetes was shown to be 4.9 % [21]. Another study in Bangladesh found that the rate for systolic and diastolic hypertension as 23.2% and 13.6% respectively [22].

CONCLUSION

The prevention and control of obesity in developing countries deserve urgent attention since the disease is expected to double in these countries in the next 20 to 25 years. The problems of obesity in Bangladesh is also increasing day by day as like as the whole world. In light of the perspective of Bangladesh overweight and obesity can turn into big social issues. As the problem of obesity has increased substantially in the past decade, there is an urgent need for a national strategy for health promotion towards the reduction of overweight and obesity among the Bangladeshi people. Study indicated that prevalence of obesity increases with age.

Conflicts of interest: None

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How to cite this article:

Md. Salah Uddin, Muhammad Millat Hossain, Md. Shofiqul Islam, Md. Obaidul Haque, Umma Kulsum, Ehsanur Rahman, Mohammad Habibur Rahman, Md. Fazlul Karim Patwary. PREVALENCE OF OBESITY AMONG MUSCULOSKELETAL PATIENTS. Int J Physiother Res 2015;3(1):889-893.
DOI: 10.16965/ijpr.2015.104