

# Obesity, hypertension, and body weight management in diabetes mellitus patient aged between 40 and 70 years

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## ABSTRACT

**Introduction:** Diabetes mellitus is a widely prevalent metabolic disorder characterized by hyperglycemia. Obesity, hypertension, lack of regular exercises, and sedentary lifestyle are the major risk factors apart from genetic origin. The impact of this disorder and its consequences are not aware among elderly people. Thus, this survey study aims to create awareness and to evaluate the prevalence of obesity, hypertension, and body weight management behaviors in people with diabetes mellitus. **Materials and Methods:** A total of 100 elderly people aged between 40 and 70 years having diabetes mellitus were subjected to a list of standard and approved questions. The questionnaire is based on their basal metabolic index, hypertension, and body weight management behavioral traits. All the data were collected and analyzed systematically for any association between the parameters involved. **Results:** From the survey questionnaire, it is inferred that among the 100 subjects that majority of the people with diabetes mellitus knows the consequence of it and its association with obesity, hypertension, and irregular management of their body weight but reluctant to follow and maintain it due to several reasons. **Conclusion:** From the survey analysis of this study, many elderly individuals are aware of the consequences but remain reluctant to follow due to age-induced exhausted thoughts. However, this can be overcome by their will power and motivated behavioral thought to follow these steps to stay fit and energized.

**KEY WORDS:** Basal metabolic index, Body weight management, Diabetes mellitus, Elderly people, Hypertension, Obesity

## INTRODUCTION

Abnormally increased basal metabolic index (BMI) is a major risk factor for cardiovascular diseases, which are the leading cause of death.<sup>[1]</sup> Hypertension is very common in obese patients and is linked to major risk factors for premature death such as hyperglycemia and physical inactivity.<sup>[2]</sup> Obesity-related hypertension is a distinct phenotype in view of its complex pathophysiology that involves adipose tissue dysfunction, adipokine alterations, insulin resistance, dysfunctional immunity, inappropriate activity of the sympathetic nervous and renin-angiotensin-aldosterone systems, and abnormal renal and vascular function.<sup>[3]</sup> Management of obesity-related hypertension is a major challenge. The pathophysiological key of this

form of hypertension is excessive fat accumulation; thus, weight reduction is recommended as the first-line therapy for the treatment of obesity-related hypertension.<sup>[4]</sup>

Despite the overwhelming evidence that weight reduction lowers blood pressure (BP) in hypertensive and non-hypertensive obese patients, weight loss does not lower BP in all persons, and some issues remain unclear.<sup>[5]</sup> It is not known that reducing body weight is effective in decreasing BP among obese patients who are undergoing combined antihypertensive therapy. Furthermore, the weight loss required in reducing BP is reported to be higher than that required to decrease triglycerides and glucose.<sup>[6]</sup>

The amount of weight loss needed to normalize BP in obese hypertensive individuals is undefined. Several guidelines for the management of overweight and obesity in adults reported that in obese subjects with elevated cardiovascular risk, systolic BP and diastolic BP decreased by approximately 3 and 2 mm/Hg,

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respectively, after an increase of 5% weight loss, with modest and variable reductions in BP at <5% weight loss.<sup>[7]</sup> It is unclear whether or not the concomitance of cardiometabolic risk factors affects the BP-lowering effect of weight loss.<sup>[8,9]</sup>

Diabetes mellitus is a widely prevalent metabolic disorder characterized by hyperglycemia.<sup>[10]</sup> Obesity, hypertension, lack of regular exercises, and sedentary lifestyle are the major risk factors apart from genetic origin.<sup>[11,12]</sup> The impact of this disorder and its consequences is not aware among elderly people. Thus, this survey study aims to create awareness and to evaluate the prevalence of obesity, hypertension, and body weight management behaviors in people with diabetes mellitus.

### MATERIALS AND METHODS

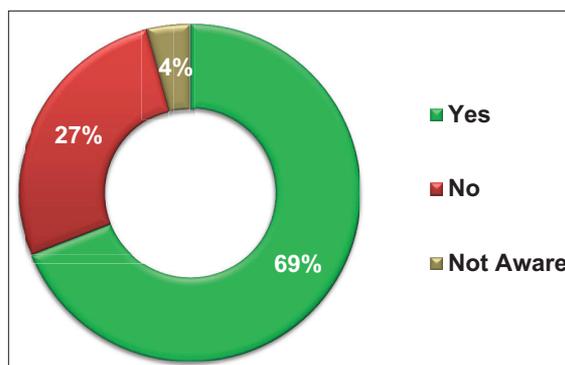
A total of 100 elderly people aged between 40 and 70 years having diabetes mellitus were subjected to a list of standard and approved questions. The questionnaire is based on their BMI, hypertension, and body weight management behavioral traits. Each survey question contains multiple related answers, of which the subjects are intimated to choose as their individual response. Based on the response of individual question among the total subjects, the percentage of answer preference is represented. All the data were collected and analyzed systematically for any association between the parameters applied.

### RESULTS

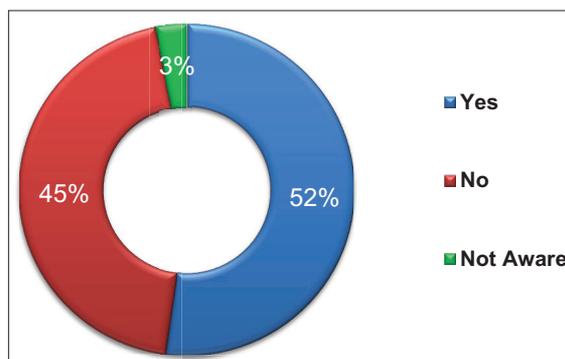
From the survey questionnaire, it is inferred that among the 100 subjects, 69% of population said “yes,” 27% said “no,” and 4% said “Not aware” for the question that whether diabetes mellitus is associated with obesity. To evaluate the knowledge on the association between diabetes mellitus and hypertension, 52% responded “yes,” 45% said “no,” and 3% said “Not aware.” To find the frequency of people doing physical activity among diabetes mellitus subjects, 34% of people were doing regular exercise, 41% of people were doing simple daily activity, 18% of people were doing exercise once in a while, and 7% of people were not bothered about their health conditions. The responses obtained through various survey questions are analyzed and represented in graphical pie chart format for easy interpretation which is shown in Figures 1-3.

### DISCUSSION

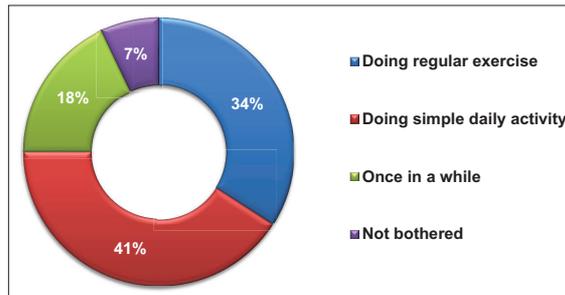
Reduction of body weight can be achieved through various strategies such as strict and standard balanced diet, regular physical activity/exercises, and reasonably effective methods for control over



**Figure 1:** The percentage of response on the association between diabetes mellitus and obesity



**Figure 2:** The percentage of response on the knowledge of the association between diabetes mellitus and hypertension



**Figure 3:** The percentage of response on the frequency of diabetic people doing physical activity

hypertension, keeping insulin level under control even in obese condition.<sup>[13,14]</sup> A proper awareness of these management strategies over obesity, hypertension, and body weight management among diabetic elderly subjects can make much difference in keeping them healthy and proper control over such diseased conditions.<sup>[15,16]</sup> This will surely help them to reduce the unnecessarily intended treatment expenditures associated with pharmacological therapy and the various side effects caused by them.<sup>[17]</sup> Furthermore, it may reduce the intake of tablets which has long-term side effects on various systems of the body.<sup>[18]</sup> Such lifestyle modification should also be continued even under pharmacotherapy to reduce the biochemical unwanted manifestations which might harm the body and its functionality.

## CONCLUSION

Body weight reduction, maintenance of insulin level under control, and regular daily physical activity are the first and foremost important step in the treatment of hypertension-induced obesity-associated diabetes condition. It is evidently achieved by these strategies without any harmful side effects rather than undergoing pharmacological therapies. From the survey analysis of this study, many elderly individuals are aware of the consequences but remain reluctant to follow due to age-induced exhausted thoughts. However, this can be overcome by their will power and motivated behavioral thought to follow these steps to stay fit and energized.

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