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Research Article

**ASSESSMENT OF RELATIONSHIP OF OBESITY AND
HYPERTENSION AMONG LOCAL POPULATION OF
PAKISTAN****Dr Muhammad Bilal Iftikhar¹, Dr Sarmad Elahi¹, Dr Malik Samiullah²**¹Islamic international medical college Rawalpindi (RIU),²DHQ Hospital, Khushab**Article Received:** April 2019**Accepted:** May 2019**Published:** June 2019**Abstract:**

Introduction: Hypertension is a modifiable and major risk factor for coronary artery disease, heart failure, cerebrovascular disease and chronic renal failure.

Objectives of the study: The main objective of the study is to analyze the relationship of obesity and hypertension among local population of Pakistan.

Methodology of the study: This cross-sectional study was conducted at Islamic international medical college Rawalpindi (RIU) during September 2018 to March 2019. The data was collected from 100 patients of both genders. The data was collected through a questionnaire. Data on demographic, socioeconomic and health-related variables were collected with a questionnaire validated in local languages. Dietary data were collected with a food-frequency questionnaire.

Results: The data was collected from 100 patients. The mean and median ages of the study participants were 35 and 32 years old respectively. The overall prevalence of overweight and obesity, weighted to the general Pakistani population, was 25.0% (95% CI 21.8–28.2%). The prevalence was highest, 42.8%, among women aged 35–54 years but was also high among those aged 15–24 years, at 12.4% for men and 13.8% for women. **Conclusion:** It is concluded that 1 in 4 people in Pakistan over the age of 15 years is overweight or obese. We have demonstrated alarming rates of obesity among youths and women, indicating where, in particular, interventions should be targeted.

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INTRODUCTION:

Hypertension is a modifiable and major risk factor for coronary artery disease, heart failure, cerebrovascular disease and chronic renal failure. It is also recognized as a global chronic, non-communicable disease and a “silent killer” due to its high mortality rates and lack of early symptoms. One-quarter of the world’s adult population is hypertensive, and it is estimated that by 2025 this figure is likely to increase to 29% [1]. The Framingham Study also demonstrated that both men and women had an increase in blood pressure with increased overweight. Persons in the highest body mass index quartile had a 16 mmHg higher systolic blood pressure and a 9 mmHg higher diastolic blood pressure than persons in the lowest body mass index quartile. In this study, the systolic blood pressure increased 4 mmHg for each 4.5 kg of increased weight. Insurance industry data have also shown a positive relationship between overweight or obesity with hypertension. Hypertension with a prevalence of 30% throughout the world is considered a major concern. Hypertension has a direct relationship with many diseases and can cause damage to the heart, kidneys, brain, lungs, and is associated with end organ failure. A study conducted on the adult population in 2000 showed that an estimated 26.4% (972 million) adults suffered from hypertension. The number was predicted to increase by approximately 60% in the year 2025 to a total of 29.3% (1.56 billion) [2].

Hypertension is a major public health problem due to its high prevalence all around the globe. Around 7.5 million deaths or 12.8% of the total of all annual deaths worldwide occur due to high blood pressure. It is predicted to be increased to 1.56 billion adults with hypertension in 2025. Raised blood pressure is a major risk factor for chronic heart disease, stroke, and coronary heart disease [3]. Elevated BP is positively correlated to the risk of stroke and coronary heart disease. Other than coronary heart disease and stroke, its complications include heart failure, peripheral

vascular disease, renal impairment, retinal hemorrhage, and visual impairment [4].

OBJECTIVES OF THE STUDY:

The main objective of the study is to analyze the relationship of obesity and hypertension among local population of Pakistan.

METHODOLOGY OF THE STUDY:

This cross sectional study was conducted at Islamic international medical college Rawalpindi (RIU) during September 2018 to March 2019. The data was collected from 100 patients of both genders. The data was collected through a questionnaire. Data on demographic, socioeconomic and health-related variables were collected with a questionnaire validated in local languages. Dietary data were collected with a food-frequency questionnaire. All women aged 40 years or under were asked whether they were currently pregnant. Physicians at mobile examination centres performed a standardized physical examination that included 2 blood pressure readings obtained at least 20 minutes apart from the right arm by means of a mercury sphygmomanometer with the subject sitting. BMI was calculated as weight (in kilograms) divided by height squared.

STATISTICAL ANALYSIS:

The data was collected and analysed using SPSS version 20.0. All the values were explained after performing t-test.

RESULTS:

The data was collected from 100 patients. The mean and median ages of the study participants were 35 and 32 years old respectively. The overall prevalence of overweight and obesity, weighted to the general Pakistani population, was 25.0% (95% CI 21.8–28.2%). The prevalence was highest, 42.8%, among women aged 35–54 years but was also high among those aged 15–24 years, at 12.4% for men and 13.8% for women.

Table 01: Analysis of relationship of obesity and hypertension

| Age, yr | Overweight or obese women | | Overweight or obese men | |
|---------|---------------------------|------------------|-------------------------|------------------|
| | No. | % (95% CI)† | No. | % (95% CI)† |
| 15-24 | 195/1373 | 13.8 (10.5-17.1) | 179/1352 | 12.4 (9.0-15.8) |
| 25-34 | 263/983 | 26.3 (21.6-31.0) | 225/904 | 24.1 (19.3-28.9) |
| 35-44 | 340/777 | 42.8 (37.1-48.5) | 231/712 | 31.4 (26.8-36.0) |
| 45-54 | 263/623 | 41.3 (35.4-47.2) | 161/559 | 28.2 (22.6-33.8) |
| 55-64 | 140/444 | 33.0 (27.6-38.4) | 114/427 | 24.9 (20.1-29.7) |
| ≥ 65 | 95/358 | 25.1 (19.5-30.7) | 109/460 | 21.4 (17.7-25.1) |
| All | 1296/4558 | 28.2 (24.7-31.7) | 1019/4414 | 22.0 (18.9-25.2) |

DISCUSSION:

In the National Health Survey of Pakistan, blood was drawn without a requirement of fasting. Diabetes was defined as a blood glucose concentration of 140 mg/dL (7.8 mmol/L) or greater or a history of diabetes. This definition diverges from the standard criterion of a fasting blood glucose concentration of more than 126 mg/dL (7.0 mmol/L) [5,6]. Discussions around the global epidemic of obesity have often used the future tense for the developing world. We have shown that current rates of overweight and obesity are already unacceptably high among youths. This is of considerable concern for a number of reasons. Obesity tends to track within individuals and populations: obese children become obese adults [7].

Clinical diagnosis of hypertension requires persistent elevation of blood pressure on repeated visits. However, the mean of multiple readings on the same day (2 readings in the National Health Survey of Pakistan) is considered acceptable for epidemiologic studies and has been used to diagnose hypertension in other surveys. In the National Health Survey of Pakistan, blood was drawn without a requirement of fasting [8]. Diabetes was defined as a blood glucose concentration of 140 mg/dL (7.8 mmol/L) or greater or a history of diabetes [9]. Thus, we believe that these findings are robust. We acknowledge that some dimensions of socioeconomic status may not have been adequately captured, the food-frequency questionnaire was not validated, and information on physical activity was not collected. However, there have been few high-quality cohort studies in the developing world that have assessed associations between obesity and incident disease, and we believe that reverse causality is not a major problem for conditions that are largely asymptomatic [10].

CONCLUSION:

It is concluded that 1 in 4 people in Pakistan over the age of 15 years is overweight or obese. We have demonstrated alarming rates of obesity among youths and women, indicating where, in particular, interventions should be targeted.

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