



### Short Communication

## A survey on relationship between BMI and physical activity level among women in Bohra community of Mumbai, India

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### Abstract

Woman constitute the soul of her family, thereby requires the women in the family to be healthy that allows her to take care of her family members and their health. Woman specially, after getting married, have multiple roles to shoulder their family responsibilities. Woman unknowingly, tend to place undue stress while fulfilling their duties, that leads to neglecting their own health. After a certain age, and once they have completed the pregnancy process, their bodies undergoes a physiological and psychological transformation. Woman face various problems such as Obesity and its root cause is lack of physical activity that leads to problem of Cardio - Vascular diseases like coronary artery diseases, heart attack and stroke, that eventually endangers their health. The Bohra community, which is a trader community and is well educated and progressive amongst the other sects of Islam. Their uniqueness makes community differ from others. Bohra community's unique identity amongst other sects is their ability to follow such customs like following a spiritual leader, implementing schemes like community kitchen that makes greater impact on women's life and they are free to do other things such as pursuing their own education, child's education, empowering themselves etc. This study was conducted on 375 women staying in various Dawoodi Bohra community residential complex around Mumbai. The study was conducted by measuring anthropometric measurements such as BMI using Full Body scanner and Physical Activity Level score was collected by filling questionnaire of International Physical Activity Questionnaire. The statistical analysis was done using Vassar Stats computational package. Correlation and regression was used to find out relationship between BMI and Physical Activity Level. In conclusion, the study showed that there is a negative significant relationship between BMI and Physical Activity Level among women in Bohra community.

**Keywords:** BMI, Physical Activity Level, Women, Bohra community.

### Introduction

Earlier in the 19<sup>th</sup> century woman had to do lots of work at home. The daily routine began in the following way - after coming out of bed and completing routine morning duties along with silent prayer to deities, women used to be engaged in making arrangement of breakfast for children and all the family members, sweeping the house with surrounding area by cowdung, washing utensils, chopping the vegetables for cooking. After having lunch, either they were taking rest for some time or engaging themselves for preparing pickles etc. In the evening they used to prepare tiffin for family members. They also used to go for a walk and chat with neighbours or to enquire about ailed person. This was considered as social duties. Before dawn they used to be engaged in preparing dinner. So the daily life of a women was full of works in which cooking was the primary duty for a wife. It portrays an image of continuous domestic duties being performed on a daily basis, and it can be viewed as a never-ending operation. Women's need to see that whether keeping everything at proper place and keep house expenses under budget. The entire household activities were performed by women.

House wives in the performance of domestic chores indicated more time allotment. In mid of 19<sup>th</sup> century there was industrial revolution took place and with the help of electricity, the life of women were changed. With technological gadgets, which are helpful for easing this domestic burden. All the machines which help women in housing work saves their time. It helps in saving time and physical energy. It results in less physical activity and leads overweight or increasing in percentage of body fat. Leading a sedentary life style can be a prime reason for various health conditions.

**BMI:** The Belgian astronomer, mathematician, statistician and sociologist, Adolphe Quetelet, who worked from 1830 to 1850 during that time he developed what he called "social-physics" devised the fashionable term "body mass index" (BMI) that was calculated by the formula as physical body weight divided by squared height. It has become the medical standard, in recent years, to calculate overweight and obesity using the body mass index (BMI). Although crudely devised, BMI is considered to be the foremost sought after method to measure obesity. In fact, BMI is used by various sources that publish information related to health and other social factors in deriving the framework of

being obese and therefore the dangers associated with it. In cross-sectional comparisons, BMI doesn't directly calculate proportion of body fat, however it provides a lot of accurate measure of overweight and obesity than looking forward to weight alone. BMI is simple method to correlate risk of health problems with loads of other related means relating these factors amongst a given population. The higher the value of BMI, the higher is one's food intake. The BMI lower to 22 indicate poverty or lesser quantity of diet being taken than the specified amount of food while BMI greater than 25 indicates lavishness and more amount of food intake than the needed quantity and low physical activity level of an individual is assessed as overweight. The BMI reaching 30 indicates obesity and high risk of getting weight related diseases like atherosclerosis, type 2 diabetes, heart condition, hypertension<sup>1</sup>. BMI may be an assessment tool which will specify whether a person is underweight or if they need a healthy weight, excess weight, or obesity<sup>2</sup>. The person who's BMI is outside the healthy range, it may lead to increase their health risks significantly.

**Physical Activity Level:** Physical Activity Level is the person's daily physical activity for performing their daily work, that indicates the total energy expenditure done by that person. As per a study published in the journal of Sport and Health Science, being overweight along with lack of physical activity can reduce the efficiency of your body system. However, staying physically active all day long can help to improve the response of your system and even reduce the respiratory problems. A lack of physical activity increases the problem of cardiac infraction, colon and lymphoma, hypertension, osteoporosis, anxiety and depression, and other diseases. Women should get 60 minutes or more physical activity daily. They should engaged in aerobics, muscle-strengthening and bone strengthen activities daily to improve their health and reduce their risk of developing chronic disease<sup>3</sup>. Since 1975, the global obesity rate has almost tripled. In 2016, 1.9 billion adults aged 18 and up were found to be overweight in a study of adult humans. In most countries around the world, the population is suffers from being overweight and obesity kills more people than underweight. It demonstrates how inactivity can have a substantial negative effect on one's wellbeing. International Physical Activity Questionnaire (IPAQ) is a tool developed specially for population surveillance of adult physical activity.

All Physical elements are included in the IPAQ. Physical activity that involves recreation, transportation (e.g. walking or cycling), occupational (i.e. work), within the sense of everyday, family and community activities that often involve household tasks, play, games, sports or scheduled exercise, as recommended by WHO for adults aged 18–64, is included in the IPAQ<sup>4</sup>.

**BMI and Physical Activity level:** According to Kesava Chandran; a cross sectional study was done on physical activity for maintaining normal grades of BMI. It showed that BMI grades correlate with body fat and percentage of body fat related

to individuals physical activity level and with future health risks, whereby it was concluded that regular physical activity helps to reduce of becoming overweight or obese<sup>5</sup>.

Amy R Weinstein et al. conducted a study to better understand the combined impact of physical activity and body mass index on the risk of coronary heart disease in women. Increased physical activity levels significantly reduce the risk of Coronary Heart Disease (CHD) associated with an elevated BMI. Higher BMI and physical inactivity were found to be individual factors<sup>6</sup>.

Habiba Sulemana et al conducted a comparative analysis on the relationship between physical activity and body mass index in adolescent adults, they found a statistically significant inverse relationship between overall physical activity level and BMI<sup>7</sup>.

In M Fogelholm study the data indicate that the risk for all cause and cardiovascular mortality was lower in individuals with high BMI and good aerobic fitness, compared with individuals with normal BMI and poor fitness<sup>8</sup>.

**Women in Bohra Community:** Bohra sect is taken into account to be a close-knit, progressive trader community, amongst the followers of Islam. Bohra sect belongs to the Ismaili branch of Shia Islam, which mainly resides in India, Pakistan, Yemen, US, UK and Gulf countries. This community largely follows the directives issued from time to time by their head, Dai Mutlaq, in their common language, Lisan-ul-dawwat and their distinct identity is further emphasized by the common traditional attire, Ridah for ladies and Pyjama and Saya, White Topi with golden border<sup>9</sup>. In all cities round the world, they follow a community kitchen from where just one time food is served to every and each family named Faizal-Mawaid-ul-Burhaniya. This way women are liberal to work and be financially independent. This community firmly believes in empowering the ladies and hence gives equal opportunities to the boys and girls to urge western education, along with the normal values of Islamic education<sup>10</sup>. Being a trader and rich community they have sedentary life style. The women in bohra community is having sedentary life style leads to less burden of work at home. It results in higher percentage of body fat and facing lots of health risk like back pain, frequent headache, frequent cold cough, diabetes, high blood pressure etc.

**Need of the study:** i. The findings of this study will aid in determining the association between BMI and Physical Activity Level in the women of Mumbai's Bohra Community. ii. The findings of this study will aid in determining the relationship of BMI and Physical Activity Level in the women of Mumbai's Bohra Community. iii. This study will indicate the correlation between BMI and Physical Activity level. iv. This study will help to the women to identify their physical activity level and motivate them to take care of their overall health. v. The role of BMI and physical activity in women's daily lives will be demonstrated in this report.

**Table-1:** Relationship between BMI and physical activity level.

	BMI (X)	Physical Activity Level (Y)	ΣX	Σ Y	X <sup>2</sup>	Y <sup>2</sup>	Correlation <sup>®</sup>	Coefficient of determination (r <sup>2</sup> )	Slope
Sample size	358		-	-	-	-	-	-	-
Mean	25.3497	1.5112	9075.2	12216.5	235892.74	935	-0.0693	0.0048	-0.00983
Variance	16.3556	0.329	-	-	-	-	-	-	-
Std. Dev	4.0442	0.5736	-	-	-	-	-	-	-
Std. Error	0.2137	0.0303	-	-	-	-	-	-	-

**Hypothesis:** i. H<sub>0</sub>: There is no relationship between BMI and Physical Activity Level within the women population of Bohra Community in Mumbai. ii. H<sub>1</sub>: There is a relationship between BMI and Physical Activity Level within the women population of Bohra Community in Mumbai.

**Methodology**

The design of the study was the survey method. The study was planned to conduct a survey research on BMI and Physical Activity Level of women population in Bohra community in and around Mumbai. BMI was calculated by using anthropometric measurement. Physical Activity Level of women was calculated by using IPAQ questionnaire.

**Statistical Analysis:** The statistical analysis was done using Vassar Stats computational package. Correlation and regression was used to find out relationship between BMI and Obesity.

**Results and discussion**

The observed value of r (358) = -0.0693 shows a negative correlation between Body Mass Index and Physical Activity Level that indicates no statistical significance. The slope = -0.00983 shows a negative linear relationship between BMI and Physical Activity Level at p = 0.001 level of significance. That is, the null hypothesis is accepted, there is no relationship between BMI and Physical Activity Level within the women population of Bohra Community in Mumbai.

**Conclusion**

Good health is the critical component of well-being, productivity of people and a country's economic process rate. Level of health shows the event of the society. This Good health level is influenced by different indicators like employment, income, educational attainment, social groups, level of awareness. BMI has great impact on women health. It's easiest and cheapest method for keeping a view on overall health.

**Suggestion:** To create awareness among women, community should planned and organized different camp for health check – up. Arrange health expert talk about BMI, Physical Activity Level, fitness and health. Motivate women for regular exercise and aware them for their fitness level through BMI. Arrange recreational activities only for women that encourage and

motivate them to participate. Arrange survey for their physical status.

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