



## ASSESSMENT OF BODY MASS INDEX MEASUREMENT IN PHARMACY PROFESSIONALS OF TELANGANA REGION

### Pharmaceutical

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### KEYWORDS

#### INTRODUCTION:

World Health Organisation (WHO) defines health as a state of complete physical, mental and social well-being and not merely absence of disease or infirmity.<sup>1</sup> Health screening services are the services provided by the health care professionals to screen the health status of individuals with or without positive signs and symptoms.<sup>2</sup> Pharmacist provided health screening services are blood glucose monitoring, blood pressure (BP) measurement, BMI calculation etc. Many factors affect the health at any age. The body mass index (BMI) is a reliable and valid identifier of weight for height for adults and children at increased risk for morbidity and mortality owing to overweight, obesity and underweight. The BMI is calculated as either weight (pounds) divided by height (in inches squared) multiplied by 703 or as weight (kg) divided by height (in meter's squared). This measure minimises the effect of height and correlates with other more precise measures of body fitness. One of the health screening services is BMI used to calculate the amount of fat content in individuals and categorises into underweight, normal weight, overweight and obesity. Screening for health problems in schools and colleges has been viewed as an appropriate and important part of school/college health services.<sup>3</sup>

Obesity is defined as state in which an individual's total body weight includes greater quantities of fat than is considered normal. Obesity is a growing epidemic, spanning all age groups from childhood to adulthood and is widely recognised as a major public health care problem worldwide. It is a health risk for several chronic diseases such as cardiovascular disease, stroke, type 2 diabetes and arthritis. Excess weight can be detrimental to good health and the desire weight loss is a major concern of many people. Diet and exercise (lifestyle modification) are the recommended first approach relatively simple to eat a well-balanced diet and exercise regularly, time constraints and ease of access to highly processed foods are hurdles that adults face in the fight against overweight and obesity. Obesity can be managed by diet, behavioural modification, prescription and non prescription medications, surgical procedures and other non drug therapy. Lifestyle advice, diet control and physical exercise reduces health risks associated to obesity.<sup>27</sup> To be effective and permanent weight loss requires permanent changes in eating habits, behavioural modification and regular exercises. From 1980 to 2012, the percentage of youth who were obese increased from 7% to nearly 18% in children (6-11 years) and 5% to nearly 21% in adolescents (12-19 years).<sup>25</sup>

BMI measurement program in schools and colleges may be conducted for surveillance and screening purposes. The surveillance programs assess the weight status of specific population (e.g. students in an individual school, college) to identify the percentage of students who are potentially at risk for weight related problem. Surveillance data are typically anonymous and can be used for many purposes; including identifying population trends and monitoring the outcomes of interventions. Initiatives include promoting healthy eating in schools, enhancing walking and cycling options for commuters and liaising with the food industry to reduce energy and fat content and to label foods appropriately. BMI screening programs assess the weight status of individual students to identify those at risk and provide students/parents with information to help them to take appropriate action.<sup>25</sup> This study attempted to calculate BMI measurement and

categorise and compare and correlate between two variables like age and height. The purpose of this study is to assess the weight status of individual students/participants to detect those who are at risk of weight-related health problems and refer them for assistance.

#### OBJECTIVE:

Assessment of Body Mass Index in pharmacy professionals.

#### METHODOLOGY:

##### Study Protocol:

The study protocol was prepared based on essential information extracted from primary, secondary, tertiary and others resources. It contained background, objectives, methodology, and literature review with few references in brief. It was used for obtaining institution ethics committee clearance and acts as tool or readymade information sheet during study period.

##### Study site:

This study was conducted in the department of clinical pharmacy situated in the college.

##### Study design and study period:

This study was prospective, observational study. The study duration was for five months from July 2018 to nov2018.

##### Study Materials:

The study requires weighing machine, measuring tape, and questionnaires. The weighing machine selected based on sensitivity, digital display and minimal cost. The validated measuring tape used for the marking purpose and to measure height in centimetre (cm). The questionnaires such as patient data collection form designed and developed. It contained demographics such as age, sex, occupation, food habits etc. It was used at the time of measuring the height and weight of the population the data is used for tabulating and calculating the findings and applied for the statistical analysis (Appendix- I).

##### Procedure to measure height:

- Ask the student/participant to remove shoes and bulky clothing.
- Place the sliding beam weights in the "zero" position before the student/participant steps on the scale.
- Ask the student/participant to stand still with both feet in the centre of the platform.
- Record the measurement to the nearest ¼ kg.
- Return the sliding beam weights to the "zero" position.

**Measure Height:** A standing marked in centimetre using standard measuring tape. A permanent surface marked place used. It is not an option, using measuring tape is preferred over plastic or cloth they may stretch and provide an inaccurate measurement. Measuring rods attached to scales should not be used. The head surface is not always stable and the measuring rod's hinge tends to become loose, causing inaccurate readings.

##### Procedure:

Before you begin, ask the student/participant to remove shoes, hat and bulky clothing such as coats and sweaters. Direct the student/participant to stand erect with shoulders level, hands at sides, heels

together and Wight evenly distributed on both feet. The student's feet should be flat on the floor or foot piece, with heels comfortable together and touching the base of the vertical board. There are four contact points between the body and the stadiometer: head, upper back, buttocks and heels.

Ask the student/participant to look straight ahead. When the chin is correctly positioned, the back of the head may no longer make contact with the board.

Ask the student to breathe in and maintain his or her position. Lower the headpiece until it firmly touches the crown of the head and is at a right angle with the measurement surface. Check the contact points to endure the lower body stays in the proper position and the heels remain flat. Read the measurement at eye level.

Record the height to the nearest 1/8 inch.

### Study procedure

Investigators measured height and weight of an individual by asking their consent. The data is noted in a suitable designed patient data collection form investigators calculated the BMI of all individuals using standard formula. BMI measured for the students of the college. The

### RESULTS:

Total number of BMI measured in 275 participants out of 277. Two participants refused to BMI measurement.

### Gender details:

Out of 275, 85(30.90%) males and 190(69.09%) females (Table No. 01).

**Table No. 01 Gender details of participants (n=275)**

Gender	Number (Percentage)
Male	085(30.90)
Females	190(69.09)

### Age details:

Out of 275 participants, adolescents 34(12.26%), adults 240(87.27%) and geriatrics 01(00.36%). More details shown in Table No. 02.

**Table No. 02 Age details of participants (n=275)**

Age category	Number (Percentage)
Adolescents (12 to 18 years)	034(12.36)
Adults (18 years to 60 years)	240(87.27)
Geriatrics (more than 60 years)	001(00.36)

### Details of food type pattern of participants (n=275)

Vegetarians were 31(11.27%) and non-vegetarians were 244(88.72%) out of 275 participants (Table No. 05).

**Table No. 05 Det6aisl of food type pattern of participants (n=275)**

Food type	Male	Female	Total
Vegetarian	08(02.90)	023(08.36)	031(11.27)
Non-vegetarian	77(28.00)	167(60.72)	244(88.72)

### Details of different BMI levels of participants (n=275)

Abnormalities found in participants 108(39.27%) based on BMI category. Participants were categorised based on average BMI levels into underweight 47(17.09%), normal 167(60.72%), overweight 48(17.45%) and obese 13(04.72%) out of 275 participants (Table No. 06).

**Table No. 06 Details of categories of BMI levels in p0articipants (n=275)**

BMI categories	Male	Female	Total
Underweight (<18.5)	13(04.72)	034(12.36)	047(17.09)
Normal (18-25)	54(19.63)	113(41.09)	167(60.72)
Overweight (25-30)	15(05.45)	033(12.00)	048(17.45)
Obese (>30)	03(01.09)	010(03.67)	013(04.72)

**DISCUSSION:** There were more number of students who were missed to participate in the study, because they are absent on the day of screening. Alternative attempt note made for screening for absentees. This study has more number of female students than male students. Two students refused to participate in the study. Students refused to measurement of BMI may be bullying and teasing in the college and in society. BMI reporting is likely to promote weight and fat-related stigma where adults/students are at risk for being called names and

experiencing criticism and subsequent shame related to their appearance. Research slows taunting, teasing and size discrimination, self-esteem affect psychological health in the youth. Even refused, to guaranteed assured by participant that the privacy and confidentiality of results kept. BMI is a key factor in tracking adolescents and adults overall health status, no matter if they fall outside or within the healthy weight range<sup>22</sup>. Highest number of participants was students are in the age group of 18 years to 26 years. Only one geriatric participant attended in this study.

It found that majority of participants were non-vegetarians 244(88.72%). This may be the one of the cause for the fat accumulation in the body resulting in obesity and other cardiac problems<sup>5</sup>. Nutrition had direct effect on health and specifically cause under nutrition category based on BMI value<sup>26, 27,28,29,30</sup>. Study demonstrated that "residing (vicinity) areas, behavioural mechanisms, associated with a greater degree of residents adiposity increase over time"<sup>17</sup>.

It found that 108(39.27%) participants were deviated from BMI category. Most of them were in the category underweight 47(17.09%) and overweight 48(17.45%). Majority of them were students. Immediate attention referral and screening required for further follow-up and management. Pharmacists are health care member and where role and responsibility is expanded to patient care and public health<sup>19</sup>. The entry and availability of fast food may be one of the major risk factor for the development of obesity.

All health care professional should take pro active plan to screen by means of conducting health camps in different locations in the community. BMI screening camp in schools and colleges help to tackle this situation. Studies showed the implementation<sup>2</sup> and guidelines to initiate BMI screening surveillance in schools and colleges<sup>23,25</sup>. Similar studies conducted and shown nearly same findings<sup>1, 3</sup>. Life style changes important factors for cause of obesity<sup>15,31</sup>.

### CONCLUSION:

This study demonstrated that abnormalities categories found based on BMI value in majority of students in the early stage of adult age is warning of health status of individuals. The finding is an alarm health care professionals specifically pharmacists to detect and screen of BMI values in support and co-ordination with other health care professionals thereby preventing complications.

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