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Journal homepage: www.Sjournals.com**Original article****Anxiety assessment and Waist to hip ratio in medical students****P. Ashok***Department of Physiology, Bharati Vidyapeeth medical college, Pune 46, India.*

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ABSTRACT

The connection between obesity and common mental health disorders is an important public health issue. The purpose of this study is to assess the anxiety among undergraduate students and to evaluate its correlation with obesity. Anxiety is easily assessed by Zung Self Rating Anxiety Scale questionnaires as they are easy to understand by the participants. This study was planned to assess anxiety using in young obese adults. Zung Self Rating Anxiety Scale (SAS) of 1 year MBBS students and To correlate waist to hip ratio (WHR) with anxiety levels. 56 were males and 82 were females medical students were included in the study. Without knowing the interpretation of the scoring system, subjects were asked to fill the anxiety inventories in speculated time using Zung Self Rating Anxiety Scale (SAS), a 20-item self-report assessment device which included measures of state and trait anxiety. There was no statistical significance in the anxiety score between male and female group even though the mean levels of Zung were higher in WHR >0.9 and > 0.8 in male and female subjects respectively. This study demonstrated no statistically significant difference in anxiety scores of overweight and normal weight young adults. Also there is no statistically significant association between anxiety and WHR. This type of study will help in detection of high anxiety students at an early stage which will be helpful in implementation of preventive measures at an early age. This will prevent harmful effects of stress on body functions.

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1. Introduction

Stress, a humongous never ending social problem has been affecting the world population on daily basis from the period of civilization and is affecting our health and wellbeing till this date. It is an extremely adaptive phenomenon in human, contributing to anyone's survival, activities and performance. It is something that we all experience at times. With stress comes a sloppy and irritated lifestyle and in turn affects the psychological and physical health.

Excess fat may be general or abdominal fat has been shown to be associated with several adverse outcomes including diabetes, hypertension and ischaemic heart disease (Ohlson L.O et al 1985, Ducimetiere P et al 1986) Risk factors for abdominal fatness include genetic factors, age and gender. Most recently, it has been hypothesized that psychological factors, as well as behavioral factors, may play a part in development of obesity. Individuals with upper body obesity, as assessed by the waist-hip ratio (WHR), are at greater risk for developing diabetes mellitus and cardiovascular diseases. Lack of exercise and stressful lifestyle has been associated with upper body fat distribution. Also WHR is the most commonly used tools for assessing general as well as central or abdominal obesity because of their simplicity and low cost. There are studies suggesting correlation of obesity with anxiety in western world (Tara, W et al 2008, Jorm, A.F et al 2003) but less information is available in the Indian population. The connection between obesity and common mental health disorders is an important public health issue. Both these conditions have major implications for health care systems across the globe and account for a significant proportion of the global burden of disease (Mental health and chronic physical illnesses 2010). Individuals who suffer from both obesity and common mental health disorders may also face particular risks to health and well-being, as it is likely that the conditions may perpetuate each other. The purpose of this study is to assess the anxiety among undergraduate students and to evaluate its correlation with obesity. Anxiety is easily assessed by Zung Self Rating Anxiety Scale questionnaires as they are easy to understand by the participants. Therefore, this study was planned to assess anxiety using Zung Self Rating Anxiety Scale (SAS) of 1 year MBBS students and To correlate Waist to Hip ratio (WHR) with anxiety levels

2. Materials and methods

The study was a cross sectional study. It was conducted in Department of Physiology Bharati Vidyapeeth University Medical College Pune 43. The study Period is March 2012 –September 2012. The research protocol was approved by college ethical committee and informed consent obtained from each subject prior to inclusion in the study. 138 medical students were involved in the study. Out of which 56 were males and 82 were females. They were divided as per their $WHR < 0.8$ and $WHR \geq 0.8$. After obtaining written informed consent they were asked to fill the anxiety questionnaire. Without knowing the interpretation of the scoring system, subjects were asked to fill both the anxiety inventories in speculated time. After obtaining written informed consent they were asked to fill the anxiety questionnaire. Without knowing the interpretation of the scoring system, subjects were asked to fill the anxiety inventories in speculated time. Subjects with history of cardiovascular diseases like rheumatic heart disease, coronary heart disease or congenital heart disease, respiratory diseases like bronchial asthma, COPD or tuberculosis, history of smoking and alcohol subjects with severe anemia, Physical disability, history of any chronic illness like hypertension and diabetes mellitus were excluded from the study. For Zung Self Rating Anxiety Scale (Zung, W.W.K., 1971), a 20-item self-report assessment device which included measures of state and trait anxiety. Answering the statements a person should indicate how much each statement applies to him or her. Each question is scored on a Likert-type scale of 1-4. Overall assessment is done by total score. The total scores range from 20-80. They are again divided into score with 20-44 as Normal Range, 45-59 Mild to Moderate Anxiety Levels, 60-74 Marked to Severe Anxiety Levels, 75-80 Extreme Anxiety Levels. For waist to hip ratio (WHR), waist circumference (in cm) was measured at a point mid-way between the lower rib and iliac crest with the measuring tape centrally positioned 1cm below the umbilicus. (Han, T.S 2006) Hip circumference was measured (cm) over light clothing at the widest girth of the hip. For waist and hip circumference two consecutive readings will be made at each site on a horizontal plane without compression of the skin. The subject stood with feet close together, arms at the side, body weight evenly distributed and would be wearing little clothing. Measurements were taken at the end of a normal expiration. The mean was taken as the final reading. WHR was calculated by dividing waist circumference by hip circumference. Each measurement was repeated twice. If the measurements were within 1 cm of one

another, the average was calculated. If the difference between the two measurements were exceed 1 cm, then both the measurements will be repeated. WHR of 0.9 was considered normal for Males and 0.8 for Females.

Statistical analysis was done by using appropriate statistical test. P value of <0.05 was considered as significant. Anxiety scores were analyzed using non parametric test like MW test.

3. Results

There was no statistical significance in anxiety score between WHR<0.9 and WHR≥ 0.9 group, even though the mean levels of ZUNG were higher in WHR≥0.9 than WHR< 0.9 in male subjects. There was no statistical significance in the anxiety score between WHR<0.8and WHR≥ 0.8 group even though the mean levels of Zung were higher in WHR≥ 0.8 than WHR< 0.8 in female subjects.

Table 1

Comparison of anxiety score by ZUNG according to WHR in male group

ZUNG method	WHR		MW test Z Value	P Value
	< 0.9 (n=42)	≥ 0.9 (n=14)		
Anxiety score Mean ± SD	35.12 ± 8.24	41.5 ± 14.6	1.29	>0.05

Table 2

Comparison of anxiety score by ZUNG according to WHR in female group

ZUNG method	WHR		MW test Z Value	P Value
	< 0.8 (n=59)	≥ 0.8 (n=23)		
Anxiety score Mean ± SD	35.59 ± 9.30	36.67 ± 9.08	0.59	>0.05

4. Discussion

In the present study we have assessed anxiety among undergraduate students and its correlation with obesity. Warschburger et al in 2005 found that obese children and adolescents might experience significant restrictions in their emotional well-being. Psychological problems suggested to be associated with obesity with negative self esteem, increased anxiety and depression levels. However, this clinical observation did not always coincide with the results of other studies. The magnitude of association between weight status and the occurrence of psychological problems varies and it suggests that obesity does not inevitably lead to psychosocial strain.

In table 1 no statistical significance was found between anxiety scores in subjects with WHR< 0.9 and WHR≥ 0.9 but the mean levels of anxiety by Zung method were higher in male subjects with WHR≥0.9 than WHR<0.9. According to study alone by Nelson TL in 1999 certain psychological states and behaviors might be associated with increased abdominal fatness indicated by WHR. In our study we have found no statistical significance between anxiety scores in subjects having WHR<0.8 and WHR≥ 0.8 group but the mean levels of anxiety by Zung method were higher in female subjects with WHR≥ 0.8 than WHR< 0.8 (Table 2). It was suggested that gender differences in mechanisms that might be responsible for depressive symptoms, multiple factors or circuitry neurotransmitters and hormonal systems could be demonstrated as well. But according to some studies by Marco Piccinelli in 2000 and Loewenthal K, et al in 1995 there was no gender difference for anxiety and depression as determinants of gender differences in depressive disorders were far from being established and their combination into integrated aetiological models continued to be lacking.

Our study found different findings than some other study (Jorm, A.F et al 2003) investigated the association of obesity with anxiety, depression and emotional well-being in different age groups. They observed that obesity had an association with anxiety, depression and lower well-being in women, but not in men. Warschburger et al

in 2005 found that obese children and adolescents might experience significant restrictions in their emotional well-being. Psychological problems suggested to be associated with obesity with negative self esteem, increased anxiety and depression levels. However, this clinical observation did not always coincide with the results of other studies. The magnitude of association between weight status and the occurrence of psychological problems varies and it suggests that obesity does not inevitably lead to psychosocial strain. But according to some studies by Marco Piccinelli in 2000 and Loewenthal K, et al in 1995 there was no gender difference for anxiety and depression as determinants of gender differences in depressive disorders were far from being established and their combination into integrated aetiological models continued to be lacking. Various studies showed (.Roberts, R.E. et al 2003 ,.Herva, A, 1966 , Obesity P.K.,2005) certain psychological states and behaviors might be associated with increased abdominal fatness by correlating psychological behavior with WHR. Some studie (,.Herva, A, 1966 ,Obesity P K 2005) have shown that obesity during adolescence was associated with depression during young adulthood. Since so few studies have examined gender differences in depression and their relation to neuropsychological patterns, firm conclusions can't be drawn. However, some speculations can be offered and some suggestions can be outlined for potentially fruitful future research. There is a relative lack of longitudinal studies, testing several variables simultaneously for their ability to predict the appearance of depressive episodes and related gender differences. Objective parameters like serum or salivary cortisol should be done to correlate the findings with questionnaires.

5. Conclusion

This study demonstrated no statistically significant difference in anxiety scores of overweight and normal weight young adults. Also there is no statistically significant association between anxiety and WHR. This type of study will help in detection of high anxiety students at an early stage which will be helpful in implementation of preventive measures at an early age. This will prevent harmful effects of stress on body functions as discussed earlier. There is bi-directional association between obesity and common mental health disorders like anxiety. Hence, we should encourage patients to engage in behaviors that will help to improve obesity and common mental disorders, such as stress management, exercise and lifestyle modifications instead of simply dieting or taking medication. Also, this study will help in detection of high anxiety in students at an early stage which will be helpful in implementation of preventive measures at an early age. This will prevent harmful effects of stress on body functions as discussed earlier.

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