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A Study of Health Related Quality of Life among Female College Students in Mumbai

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Abstract: ***Youth is the window of opportunity that sets the stage for a healthy and productive adulthood and to reduce the likelihood of health problems in later years. University life is a major transition which may affect the quality of life due to changes in physical, social and environmental interaction. The purpose of the study was to focus on different interrelated domains of health i.e. physical, emotional, mental and social wellbeing in college students. A total of 228 subjects were selected for the cross-sectional study. The SF-36 questionnaire was used for measuring health-related quality of life (HRQoL) of the study participants. The results indicated that the average BMI of the participants was 20.8 kg/m2. Out of 8 HRQoL Domains, average scores of 4 domains (Physical functioning, body pain, social role functioning and general health perceptions) were around 55% indicating moderate health scores. Assessing the quality of life in adolescent girls is vital for identifying key determinants that influence their well-being and would provide an overall understanding and will serve as a base in planning necessary interventions for young adults.***

Keywords: Health Related Quality of Life (HRQoL), SF-36, female students, wellbeing, health scores

I. INTRODUCTION

The concept of health-related quality of life (HRQOL) and its determinants have evolved since the 1980s to encompass those aspects of overall quality of life that can be clearly shown to affect health—either physical or mental (Centers for Disease Control and Prevention, 2000). Health-related quality of life (HRQOL) is a multidimensional concept that includes domains related to physical, mental, emotional, and social functioning (Barayan SS et al, 2018). The World Health Organization believes that good health is both a right of individuals and a resource for societies (WHO, 2019).

Health improvements increase access and equity to current educational institutions that are characterized by diversity (students age and ethnic origin, teaching styles, contents and values, curricula requirements, and so on) (Marta Gil Lacruz et al, 2020).

HRQOL questions have become an important component of public health surveillance and are generally considered valid indicators of unmet needs and intervention outcomes. Self-assessed health status is also a more powerful predictor of mortality and morbidity than many objective measures of health (DeSalvo KBet al., 2006).

Youth is a critical phase of life and a period of major physical, physiological, psychological, and behavioural changes. It is the window of opportunity that sets the stage for a healthy and productive adulthood and to reduce the likelihood of health problems in later years. Health-Related Quality of Life (HRQoL) therefore will be an useful indicator to assess overall health because it captures information on the physical and mental health status of individuals and the impact of health status on quality of life.

The SF-36 is one of the most commonly used instruments and is regarded by some as a “gold standard” measure of general HRQoL. It is a 36-item, self-administered instrument that takes less than 10 min to complete and quantifies HRQoL in multi-item scales that address eight different health concepts. Applications of the SF-36 include health policy evaluations, clinical practice and research, health intervention evaluations, and a general population surveying (Hemingway, Stafford, Stansfeld, Shipley, & Marmot, 1997; Ware & Sherbourne, 1992). Studies have implied that the SF-36 is valid, reliable, and suitable for HRQoL measurement (Ware, 2000; Abbott, Hobby, & Cotter, 2006). The SF-36 has been used in different countries, and similar conclusions about reliability, validity and stability have been reported (Hemingway et al., 1997; Hopman et al., 2006; Thumboo, Cheung, & Machin, 2005).

Health Related Quality of Life is a multidimensional concept which denotes self-perception of health. It is considered as an effective indicator of generalized health conditions. Colleges and Universities are increasingly interested in assessing and understanding HRQoL of their students. The objective of the study was to assess the Health Related Quality of Life (physical, emotional and social health) of young females using the SF 36 questionnaire.

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II. METHODOLOGY

The research was a descriptive cross-sectional study. Purposive sampling method was adopted. 228 first year degree college girl students aged 17 - 21 years from a suburban college in Mumbai were selected for the study and it was carried out over a period of nine months. Ethical clearance for the study was obtained. Written consent was taken from all the participants and their parents explaining the research objective and were assured complete confidentiality of the responses given by them.

The Medical Outcomes Study-Short Form (SF-36) questionnaire was used for measuring health-related quality of life (HRQoL) of the study participants. The SF-36 which is regarded as a "gold standard" measure of general Health related Quality of Life (HRQoL). The SF-36 questionnaire was administered to the participants by the research personnel where they were briefed about the survey. Every question of the tool was explained. Data for the same was collected using google form. Participants were motivated to answer all the questions correctly and not leave any questions unanswered. After the data collection, the raw data was further analyzed to get the scores of each participant on eight health concepts of the SF36 Scale. This helped to estimate the HRQoL levels of each student and also the entire cohort.

III. RESULTS AND DISCUSSION

A cross-sectional study was conducted to assess the Health Related Quality of Life (physical, emotional and social health) of young females in an educational institution. 228 subjects were enrolled in this cross-sectional study, and were analyzed for their physical activity level and health related quality of life. The main aim of this study was to assess the Health Related Quality of Life (physical, emotional and social health) of young females using the SF 36 questionnaire.

The 228 participants were assessed for their anthropometric measurements which included height, current weight, body mass index (BMI), waist circumference (WC), hip circumference (HC), waist to hip ratio (WHR) as shown in Table 1.

Table 1. Anthropometric Details of the Study Participants

	Height (in cms)	Weight (in kg)	BMI	Waist Circumference (in cm)	Hip Circumference (in cm)	WHR (Waist Hip Ratio)	WHtR (Waist Height Ratio)
Mean (n=228)	157.7	51.6	20.8	73.78	89.70	0.84	0.47
SD	8.3	9.7	4.0	9.7	9.7	0.17	0.06
Min	124.8	33.0	13.8	58.0	63.5	0.36	0.36
Max	179.0	77.0	35.2	112.0	167.0	1.00	0.72

It was seen from table 1 that the mean height of the 228 participants was 157.7 cm ± 8.3 cm, mean current weight was 51.6 kgs ± 9.7 kgs, mean BMI was 20.8 ± 4.0 kg/m2, mean waist circumference was 73.78 ±9.7 cms, mean hip circumference was 89.70 ± 9.7 cms, mean waist hip ratio was 0.84 ±0.17. Of the 228 Participants, 20.6 % (N=47) participants had WC > 80 cms, while 38.6 % (N=88) had WHR >0.81.

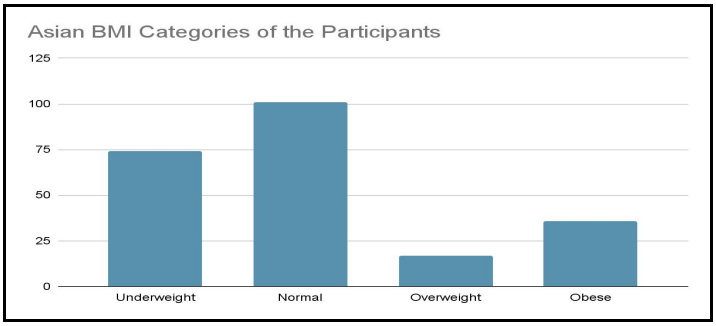


Figure 1: Asian BMI Categories of the participants.

As observed in Figure 1, when the participants were classified as per the Asian-BMI Categories, 74 participants were in the Underweight category, 101 participants in the normal category, 17 participants in the overweight category and 36 participants in the obese category as shown in figure 1. The present research data provided valuable insights into the measurement of BMI among adolescent girls and the prevalence of overweight and obesity in this demographic group. This result highlights the significance of monitoring BMI as an indicator of overweight and obesity among adolescents.

Martinis et al. (2020) highlighted the importance of assessing weight status using indicators like body mass index (BMI), waist-to-hip ratio (WHR), and waist-to-height ratio (WHtR) to identify risk factors for chronic diseases like metabolic diseases. It also stressed the prevalence of overweight and obesity in children and adolescents, underscoring the need for proper dietary habits, regular health care, and weight control during adolescence to prevent long-term health issues. An 8 year follow up study by Zvonar et al. (2022), revealed the persistence of overweight/obesity and abdominal obesity in the adolescent girls which could be tracked down into their childhood. This emphasizes the importance of early assessment, intervention and monitoring.

The mean anthropometric measurements (Waist Circumference and Hip Circumference) when classified according to the Asian BMI-Categories is presented in Table 2.

Table 2: Mean anthropometric measurements (Waist Circumference and Hip Circumference) when classified according to the Asian BMI-Categories

No. of Subjects	Body Mass Index (kg/m^2)	Waist Circumference (cms)	Hip Circumference (cms)	WHR
N=74	Underweight (<18.5)	70.2 ± 9.5	87.0 ±10.2	0.69 ± 0.30
N=101	Normal (18.5-22.9)	73.0 ± 6.6	88.0 ± 11.4	0.56 ± 0.39
N=17	Overweight (23-24.9)	78.7 ± 14.3	90.3 ± 15.4	0.53 ± 0.41
N=36	Obese (>25)	81.0 ±10.8	101.1 ± 19.4	0.65 ± 0.34

It can be observed from the above table that of the total 228 participants, 32.5 % (N=74) participants were in the underweight category. Although, majority of the participants (N=101) were classified as Normal BMI category, around 8 % were classified in the Overweight category (N=17) while 16 % were included in the Obese category (N=36). It is important to note that the waist circumference increased as the BMI increased across the BMI Categories. Interestingly, the participants from the obese BMI category had the widest waist circumference which was above the normal cut-off. Waist circumference of above 80 cm is considered to be high risk for metabolic syndrome and cardiovascular diseases.

In a study by Tskhvedadze et al. 2022, it was reported that BMI is an important indicator of generalized obesity while WHR is a better tool to assess and evaluate visceral obesity in a community setting. The health risks are known to be associated with overweight and obesity in adolescent girls are significant and can have long-term consequences. These may include development of metabolic diseases such as Type 2 diabetes and Fatty liver disease and other psychosocial consequences.

The 228 participants were assessed for their health related quality of life using the SF-36 Questionnaire and are presented in Table 3.

Table 3: HRQOL Scores of Participants

Domains	Sections	Scores
Physical Health	Physical Functioning	55.7 ± 16.4 (13.0-83.0)
	Body Pain	55.3 ± 42.2 (0.0-100.0)
	Vitality	61.2 ± 24.2 (0.0-100.0)
	Physical Role Functioning	74.3 ± 28.4 (0.0-100.0)
Social Health	Social Role Functioning	55.0 ± 30.2 (0.0-100.0)
	General Health Perceptions	54.0 ± 14.8 (17.0-8.0)
Emotional Health	Emotional Role Functioning	76.9 ± 29.6 (0.0-100.0)
	Mental Health	68.0 ± 26.3 (6.0-100.0)

Data presented as Mean ± SD (Min-Max)

It can be seen from Table 3 that with regards to the Physical Health, the mean scores of the 228 participants for the physical functioning section was 55.7 ± 16.4, indicating that the participants were moderately disabled for the physical functioning. The mean scores for body pain was 55.3 ± 42.2, which indicated that the participants were experiencing moderate body pain which may be impacting their physical functioning. The participants fared well in terms of Vitality and physical role functioning, reporting mean scores of 61.2 ± 24.2 and 74.3 ± 28.4 respectively. With regards to Social Health, the participants reported moderate disability in the social role functioning with the mean scores of 55.0 ± 30.2, which indicate their capability to adapt to societal norms. The mean scores of general health perceptions were evaluated to be 54.0 ± 14.8.

The sections of emotional health are emotional role functioning (indicating regulation of emotions) and mental health. The mean score of emotional role functioning was reported to be 76.9 ± 29.6 while that of mental health was evaluated as 68.0 ± 26.3.

Research has shown that factors like social support, dietary habits, sleep quality, and depression significantly impact the health-related quality of life (HRQoL) in adolescent girls (Shin et al., 2022).

Table 4 shows the scores of different sections of SF 36 Questionnaire when classified as per the BMI.

Table 4: HRQoL Scores when classified as per Asian-BMI Categories

	Underweight (<18.5 kg/m^2)	Normal (18.5-22.9 kg/m^2)	Overweight (23-24.9 kg/m^2)	Obese (>25 kg/m^2)	P Value
Physical Functioning	58.0 ±15.4	56.2 ± 16.8	46.8 ±12.9	53.7 ±17.6	0.07
Body Pain	57.4 ±41.2	55.5 ± 43.0	55.9 ± 46.4	50.0 ±41.4	0.86
Vitality	61.2 ± 24.1	62.0 ±25.5	59.4 ±22.1	59.7 ± 22.1	0.95
Physical Role Functioning	79.2 ± 26.1	72.2 ± 29.9	66.2 ± 29.6	74.0 ± 27.4	0.25
Social Role Functioning	58.8 ± 31.2	56.7 ± 29.4	52.3 ± 27.3	43.3 ± 30.0	0.71
General Health Perceptions	55.8 ± 15.8	53.9 ± 14.4	50.7 ± 16.9	52.0 ± 12.9	0.45
Emotional Role Functioning	81.1 ± 26.8	75.7 ± 31.8	73.5 ± 29.5	73.1 ± 29.3	0.49
Mental Health	68.7 ± 24.9	70.9 ± 27.0	65.4 ± 25.2	59.4 ± 26.7	0.15

Data presented as Mean ± SD

Table 4 shows the scores of different sections of SF 36 Questionnaire when classified as per the BMI. It was observed that the Physical functioning score declined as the BMI increased, with the overweight category scoring the lowest. Similarly, the body pain score decreased as the BMI increased, suggesting the decrease in pain resistance with increasing BMI. Likewise, the vitality scores also decreased with the increasing BMI, such that level of energy reduces and fatigue sets in early as the BMI increases. The scores associated with Social health domain, namely social role functioning and general health preferences also decreased as the BMI increased.

This suggests that limitations arise in social activities as the BMI increases. The scores associated with Mental health functioning are seen to be decreasing as the BMI increases. Such as subjects experience limitations in their emotional involvement or limitations in activities due to emotional problems as the BMI increases. This provides a valuable insight that the well-being is reduced and psychological distress increases as the BMI increases. This suggests a complex interplay between the physical health and mental well-being of the subjects. However, none of these associations were seen to be statistically significant.

Research indicates that overweight and obesity negatively affect the HRQOL of adolescents (Barbero et al., 2014). A study reported that the relationship between BMI and HRQOL is nuanced, impacted by gender and age, challenging the idea that obesity is the main driver of reduced HRQOL, particularly among women and in terms of mental health (HRQOL) (Apple et al., 2018).

IV. CONCLUSION

Assessing the quality of life in adolescent girls is crucial for understanding and addressing various aspects of their well-being. Assessing the quality of life in adolescent girls through self-report questionnaires allows for a comprehensive evaluation of their well-being across different dimensions, including emotional and social components. By evaluating these factors, interventions can be developed to improve their overall quality of life.

Understanding the unique challenges faced by adolescent girls, such as menstrual health, social support, and psychological well-being, is essential for providing targeted support and interventions to enhance their quality of life. Obesity can also lead to weight-related discrimination, increased absenteeism, and reduced work performance, emphasizing the broader impact of BMI on various aspects of life, including work and social interactions. Psychological factors play a significant role in the quality of life of obese individuals, with negative impacts from social judgments and criticisms affecting self-esteem and overall well-being. In conclusion, the impact of BMI on quality of life is influenced by a multitude of factors, including gender, age, mental and physical health domains, and societal perceptions. Physical activity is positively related to HRQoL, while sedentary behaviour is negatively related. The association between physical activity, body composition, and fitness on HRQoL among adolescents has received less attention. Understanding these complexities is crucial for addressing the challenges faced by individuals with varying BMI levels in maintaining a good quality of life. Assessment of health related quality of life research would support improved decision making for current and future students in all domains of health.

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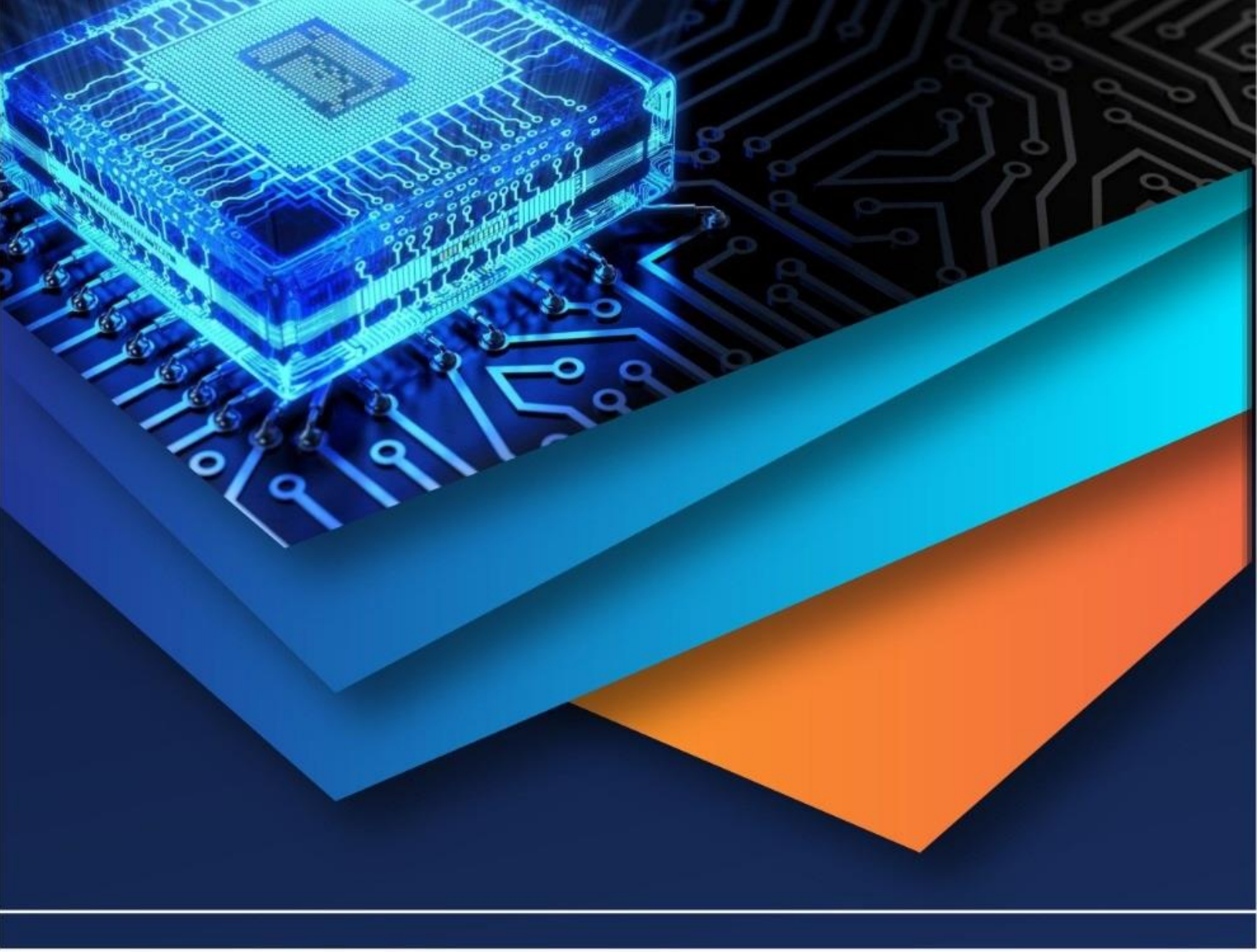
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