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Assessing Physical Activity, Perceived Stress and Sleep Quality in Urban and Rural Higher Secondary School Students: A Comparative Study

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ABSTRACT

Background And Need of Research: Developing countries, such as India, are undergoing a rapid epidemiological transition due to increased urbanization and socioeconomic development, resulting in dramatic changes in lifestyle, including physical activity, a diet high in fat, sugar, and salt, sleep, levels of stress etc. Physical activity for adolescents can provide benefits for physical and mental health So, the need of the study is to compare physical activity, perceived stress and sleep quality of higher secondary school students of rural and urban.
Methods: An Observational Study Was Conducted in The Different district of Ahmedabad higher secondary Schools. Physical activity, Perceived stress scale And Pittsburgh sleep quality index Questionnaire Were Filled from Students of Both the Gender in urban and rural students.
Result: SPSS version 29 Software is used for data analysis. The analysis showed that urban population showed higher levels of perceived stress (mean=22.53) compared to rural population (mean=16.85). Rural population had higher physical activity levels (mean=1935.92) compared to urban population (mean=1504.72). No significant difference was found in sleep quality between the two populations.
Conclusion: The study found that urban students experience higher stress levels and lower physical activity compared to their rural counterparts. However, no significant difference was found in sleep quality between the two groups.

Keywords: Physical Activity, Stress, Sleep

INTRODUCTION

Developing countries, such as India, are undergoing a rapid epidemiological transition due to increased urbanization and socioeconomic development, resulting in dramatic changes in lifestyle, including physical activity, a diet high in fat, sugar, and salt, and a high level of mental stress. (1) The urban population participates in more physical activity than the rural population. This condition is aided by the facilities and forms of sports that flourish more in cities than in rural areas. (2) According to data, 7% of the current population is obese, Additionally, 13% of the population has elevated blood pressure, and 21% of heart disease is thought to be caused by an increased BMI. (3)

Obesity, overweight, and insufficient sleep patterns raise cardiovascular risk factors such as hypertension in school students and adolescents, which is now emerging as a newer health problem in developing nations such as India. (4) Inadequate sleep habits, both in terms of quality and quantity, are linked to an increased frequency of cardiovascular risk factors like hypertension as well as an increased risk of adverse

cardiovascular outcomes like stroke and myocardial infarction. Recent changes in food habits include increased consumption of fast-food outlets rather than nutritious and healthy foods, stress, playing video games in spare time, watching television, and a lack of physical activity.

At some point in their lives, everyone is under stress. Report on academic success and negative occurrences impacting health and quality of life, according to the economic model of stress, stress is a relationship between a person and their environment that is driven by something to change the person's home so that the person can respond to the problem to the best of his or her capacity, Stress is defined in psychology as a mix of stress and anxiety. Stress reduction can be desirable, useful, and healthy. The social environment, particularly family and community friends, but also various partners, can impact and be influenced by physical exercise. [5] So, aim of the study is to compare physical activity, perceived stress and sleep quality between urban and rural higher secondary school students.

MATERIALS & METHODS

An observational study was conducted on higher secondary school going students from rural as well as urban region of Ahmedabad. Data was collected through convenient method. A total of 170 students were selected out of which 85 were from rural region and 85 were from urban region. All the students were selected on the basis of Inclusion and Exclusion criteria. The study included both male and female participants between the ages of 15 and 17 who expressed their willingness to participate. Those with metabolic disorders (such as diabetes), recent fractures or trauma, cardio-respiratory conditions (like COPD or asthma), postural deformities, or neurological disorders (such as CP, epilepsy, or stroke) were excluded. Additionally, individuals with current illnesses like fever, cold, or cough were not included. These criteria were implemented to select appropriate participants and account for medical conditions and illnesses that may have an impact on the study outcomes. Ethical clearance was obtained from the ethical committee of the institute. Participants filled out a short questionnaire that included demographic information (age, gender, phone number) & details of their medical history and screening of stress, physical activity and sleep were done through PSS, IPAQ and PSQI.

The Perceived Stress Scale (PSS) is a widely used psychological instrument designed to assess an individual's perception of stress in their life. The Perceived Stress Scale (PSS) is a reliable measure with a reported reliability coefficient of 0.86.[6] It consists of 10 questions, each scored on a scale ranging from 0 to 4. The response options are as follows: 0 = Never, 1 = Almost never, 2 = Sometimes, 3 = Fairly often, and 4 = Very often. The total scores on the PSS can range from 0 to 40, with higher scores indicating higher perceived stress.

The International Physical Activity Questionnaire (IPAQ) is a self-report tool consisting of seven items designed to assess physical activity across four different domains within the past seven days. It has an intra-class reliability of 0.80.[7] The questionnaire evaluates the frequency and duration of vigorous activity, moderate activity, and walking. Additionally, participants report the amount of time spent sitting throughout the week, although this information is not considered in the analysis of physical exercise. By combining the reported frequency and duration of each type of activity, the total time spent on walking, moderate exercise, and intense activity per week is calculated. Summing up these three categories provides an estimation of the total amount of physical exercise undertaken in a week.

The Pittsburgh Sleep Quality Index (PSQI) is a widely used assessment tool for measuring sleep quality. The PSQI is a reliable assessment tool with a reported reliability coefficient of 0.829.[8] It consists

of 19 self-rated questions that evaluate sleep quality. The questionnaire produces a global score ranging from 0 to 21, with higher scores indicating more severe difficulties in all areas of sleep. The PSQI assesses seven components of sleep quality, including subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. Each component is rated on a Likert-type scale. The scores for each component are then combined to generate an overall sleep quality score. The PSQI provides valuable insights into various aspects of sleep quality and its impact on daily functioning.

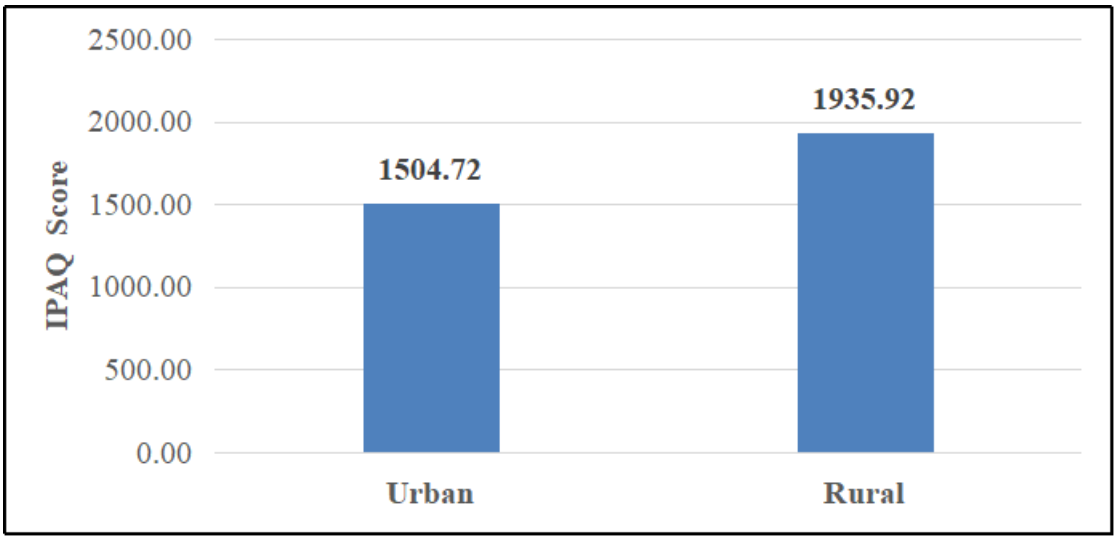
Statistical Analysis: Statistical analysis was done by using SPSS version 29 software. Data was collected from diff. schools of urban as well as rural region. To check the distribution of data test of normality (Kolmogorov-Smirnov) was used and data was not normally distributed. Therefore, Mann Whitney U test was used to compare of physical activity, perceived stress and sleep quality of higher secondary students of urban and rural region.

RESULT

The study compared rural and urban populations in terms of perceived stress, sleep quality, and physical activity levels. The results indicated that the urban population had higher levels of perceived stress, with a mean score of 22.53 (SD=1), compared to the rural population with a mean score of 16.85 (SD=18). This suggests that individuals in urban areas may experience greater stress. Interestingly, the rural population showed higher levels of physical activity, with a mean score of 1935.92 (SD=620.64), while the urban population had a lower mean score of 1504.72 (SD=1032.62) on the International Physical Activity Questionnaire. These findings imply that rural residents tend to engage in more physical activity compared to their urban counterparts. However, there was no significant difference in sleep quality between the two populations, as both rural and urban participants had similar mean scores on the Pittsburgh Sleep Quality Index (8.07 rural, SD=2.38; 8.12 urban, SD=2.37).

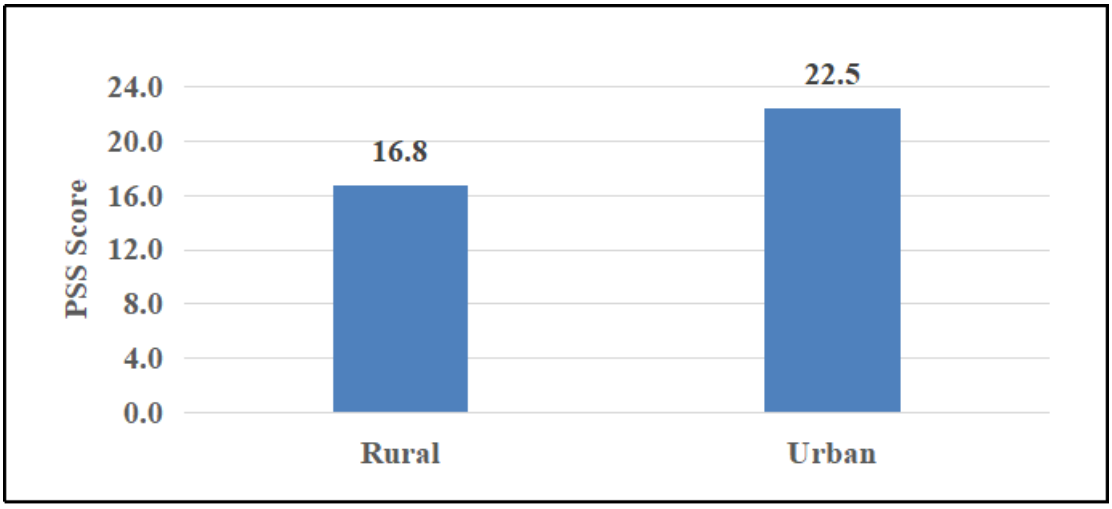
Table I: - Mean and p-values of urban and rural students

	RURAL	URBAN	p (VALUE)
Perceived stress scale	16.8 ± 5.18	22.5 ± 3.1	<0.001
International physical activity Questionnaire	1935.92 ± 620.64	1504.72 ± 1032.62	<0.001
Pittsburgh sleep quality index	8.07 ± 2.38	8.1±2.37	=0.911



Graph 1: - Mean of IPAQ among urban and rural students.

Graph 2: - Mean of PSQI among urban and rural students.



Graph 3: - Mean of PSS among urban and rural students.

DISCUSSION

This study included a total sample of 182 students from different schools in Ahmedabad. This study found that in urban areas, the students had low physical activity and high stress, whereas in rural areas, they had high physical activity and low stress.

A study reported that the level of physical activity among rural and urban youths greatly affected their physical fitness. [9,10] For example, although two adolescents may both live in a rural area or have a similar household income, their experiences, perspectives, and behaviour may differ based on their race. Indeed, inter-sectionality has been used as a framework for examining interactions among factors associated with health disparities in minority populations. [11,12,13]

Rural adolescents are more affected by their mental health problems. In contrast to previous studies showing that rural and urban youth in Canada experience similar levels of stress. [14] Taking into account that youth living in rural areas tend to experience a more positive life than urban youth.[15,16] In modern society, where over nutrition, a sedentary lifestyle, and sleep deprivation are typical traits, chronic exposure to environmental stress potentially contributes to development of obesity.[17]

Guo X, Wang J et.al that cross-sectional studies showed that short sleep duration was associated with a greater risk for hypertension and long sleep duration also increased the risk for hypertension but there was no evidence of publication bias. Pooled analysis from the longitudinal studies

indicated a significant association between short sleep duration and hypertension. [18]

In summary, this study reveals that urban students exhibit low physical activity and high stress levels, while rural students demonstrate high physical activity and low stress levels. The findings underscore the influence of location, race, and mental health on health disparities among youth. Additionally, the study highlights the potential impact of environmental stress, sedentary lifestyles, and sleep deprivation on physical activity.

CONCLUSION

The study concluded that urban students experience higher stress levels and lower physical activity compared to their rural counterparts. However, no significant difference was found in sleep quality between the two groups. To gain a better understanding, future research should include a larger sample size, encompassing different age groups and zones within Ahmedabad. Considering additional factors that influence stress, sleep, and physical activity would also be beneficial. These factors may include socioeconomic status, family dynamics, access to recreational facilities, and academic pressures. By conducting more comprehensive research, effective interventions can be developed to improve the well-being of students in both urban and rural areas.

Declaration by Authors

Ethical Approval: Approved

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Conflict of Interest: None

REFERENCES

1. Mohan V. Why Are Indians More Prone to Diabetes.Journal of Association of Physicians of India. 2004;52:468-74. PMid:15645957.
2. Prasetyo Y. Kesadaran masyarakat berolahraga untuk peningkatan kesehatan dan pembangunan nasional. Medikora. 2013;11(2).
3. Varshitha A. Comparison of blood pressure and BMI in college students. Journal of Pharmaceutical Sciences and Research. 2015 Oct 1;7(10):849.
4. Arora B, Patel S. Overweight and Obesity in Ahmedabad school going students: Magnitude in relationship to hypertension and associated risk factors. Indian Journal of Pharmacy Practice. 2017;10(1).
5. Chandan KP, Shivappa R. Academic stress among higher secondary school students: an overview. International Journal of Creative Research Thought (IJCRT). 2020;8(10)
6. Siqueira Reis R, Ferreira Hino AA, Romélio Rodriguez Añez C. Perceived stress scale: reliability and validity study in Brazil. Journal of health psychology. 2010 Jan;15(1):107-14.
7. Dinger MK, Behrens TK, Han JL. Validity and reliability of the International Physical Activity Questionnaire in college students. American journal of health education. 2006 Nov 1;37(6):337-43.
8. Scialpi A, Mignolli E, De Vito C, Berardi A, Tofani M, Valente D, Galeoto G. Italian validation of the Pittsburgh sleep quality index (PSQI) in a population of healthy students: a cross sectional study. International journal of environmental research and public health. 2022 Jul 26;19(15):9132.
9. Davy BM, Harrell K, Stewart J, King DS. Body weight status, dietary habits, and physical activity levels of middle school-aged students in rural Mississippi. Southern medical journal. 2004 Jun 1;97(6):571-8.
10. Paxton RJ, Estabrooks PA, Dzewaltowski D. Attraction to physical activity mediates the relationship between perceived competence and physical activity in youth. Research quarterly for exercise and sport. 2004 Mar 1;75(1):107-11.
11. .Ray R. An Intersectional Analysis to Explaining a Lack of Physical Activity Among Middle Class Black Women. Sociol. Compass. 2014;6:780–791.
12. López N., Vargas E., Juarez M., Cacari-stone L., Bettez S. What's Your "Street Race"? Leveraging Multidimensional

Measures of Race and Intersectionality for Examining Physical and Mental Health Status among Latinxs. Sociol. Race Ethn. 2018;4:49–66.
13. Evans C.R. Adding interactions to models of intersectional health inequalities: Comparing multilevel and conventional methods. Soc. Sci. Med. 2019;221:95–105
14. Elgar FJ, Arlett C, Groves R. Stress, coping, and behavioural problems among rural and urban adolescents. Journal of adolescence. 2003 Oct 1;26(5):574-85.
15. Haugen MS, Villa M. Big Brother in rural societies: Youths' discourses on gossip. Norsk Geografisk Tidsskrift-Norwegian Journal of Geography. 2006 Sep 1;60(3):209-16
16. Rauhut D, Littke H. 'A one way ticket to the city, please!'on young women leaving the Swedish peripheral region Västernorrland. Journal of rural studies. 2016 Feb 1;43:30 - 10.
17. Mousumi B, Blanca O, Blandine L. Stress and obesity: the role of the hypothalamic–pituitary–adrenal axis in metabolic disease. Curr Opin Endocrinol Diabetes Obes. 2009;16(5):340-6. http://dx.doi.org/10.1097/MED.0b013e32832fa137PMid:19584720 PMCid:PMC2858344
18. Guo X, Zheng L, Wang J, Zhang X, Zhang X, Li J, Sun Y. Epidemiological evidence for the link between sleep duration and high blood pressure: a systematic review and meta-analysis. Sleep medicine. 2013 Apr 1;14(4):324-32.

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