

A Comparative Analysis of Physical and Mental Well-being Among Hostelers and Home Residence Students

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Abstract

The current study sought to evaluate the physical and mental health status of students living in hostels versus those residing at home, utilizing the Carnel Medical Index (CMI). The CMI comprises various sub-variables that include both physical systems and psychological dimensions. Two groups, hostelers and students who live at home, were tested, and ANOVA was used to find any big differences. The results showed that there were statistically significant differences ($p < 0.05$) in a number of sub-variables, such as the eyes and ears, the respiratory system, the teeth, the skin, the habit, the inadequacy, and the overall CMI scores. Hostelers exhibited markedly elevated values in these domains when contrasted with students residing at home, suggesting a comparatively inferior health status. It is important to note that the average CMI score for hostelers (4.03 ± 0.25) was much higher than the average score for people who lived at home (3.06 ± 0.09). The CMI's physical and mental health components also showed big differences between the groups, with hostelers getting higher scores in both categories. This suggests that they have more health problems. The results show how living in a hostel affects students' health and stress the need for better health monitoring, counselling, and lifestyle changes for students who live in hostels. This study provides significant insights for educational institutions and healthcare providers to develop targeted health promotion strategies.

Keywords: Carnel Medical Index, physical health, mental health, hostelers, home-residing students, student health

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I. Introduction

The impact of residential environments on individual health status has become a significant focus of research, especially in educational contexts where students live in hostels or at home. Living arrangements can have a big impact on stress levels, hygiene, dietary habits, and overall mental and physical health (Singh et al., 2018; Sharma & Verma, 2020). The Carnel Medical Index (CMI) is a complete way to look at many areas of health, including physical systems (like the respiratory, cardiovascular, and musculoskeletal systems) and mental health issues like anxiety, tension, and depression (Carnel, 2003).

Living in a hostel, while often linked to independence and social exposure, can also lead to worsening health due to irregular routines, poor diet, heightened academic pressure, and diminished familial support (Kaur & Sandhu, 2019). Research demonstrates that hostellers experience a greater prevalence of health issues, including respiratory tract infections, dental complications, gastrointestinal disturbances, and emotional stress, in comparison to students residing at home (Patel et al., 2021). Moreover, psychological factors such as feelings of inadequacy, depression, and anxiety are frequently reported to be more common among students living in hostels (Rathod & Nayak, 2017).

The current study aims to evaluate and contrast the health profiles of hostel-dwelling and residential students utilizing the CMI and its sub-variables. This research seeks to elucidate the influence of residence on health behaviors and outcomes among youth populations by identifying statistically significant differences in both physical and mental health domains.

II. Methodology

For the present study four hundred players pertaining to different part of Tripura, India were selected. Age of all the players were ranging from 14 years to 18 years. Both male and female subjects were selected for the present study. All the players were the participant of national level tournaments. Prior consent were taken from respective coaches and players were informed precisely regarding the purpose and procedure of the data collection. Simple Random Sampling Procedure was employed for the selection of subjects. All subjects were selected from district coaching centre, state coaching centre and state schools. The physical health, mental health, and anxiety were selected as variables for the present study. The gender (female and male) were considered as

independent variable while physical and mental health retrieved from Carnel Medical Index (CMI) having 18 sub variables were considered as dependent variables. In the current study, an investigation was conducted to learn more about the effects of anxiety on physical and mental health of athletes.

The carnel medical index (1949) is used to assess the physical and psychological health. The physical and mental health are evaluated using the carnel medical index. The survey consists of 195 open-ended questions written in informal language that people with reading comprehension can understand. The subjects only had to circle one to indicate Yes or NO to each question, making administration simple. A to L section of the questions showed physical distress, while M to R segment showed psychological distress. The questions were divided into different categories. The distribution of all the 'Yeses' could also be noted which makes us possible to localize the medical problem of the subject for example: If Yeses are scattered throughout all sections then medical problem is likely to be diffused. It more than two or three yes answers on the second section. It suggests psychological disturbance. Moreover, this CMI Questionnaire measures both physical and psychological health simultaneously, so the researcher selected this scale.

Statistical Analysis

The SPSS (statistical package for social science - IBM, USA) was used to analyze the data using a general model. Every fixed effect's statistical significance was assessed using the F-test. The statistical significance was assessed with alpha set at 0.05. One-Way ANOVA was calculated.

III. Findings

Table 1: Showing the comparison in the characteristics of Carnel Medical Index between hostel resident and home resident groups.

Variables	Hostel		Home		ANOVA	
	Mean ± SE	SD	Mean ± SE	SD	F-Value	p-Value
A	0.08 ± 0.03	0.31	0.01 ± 0.005	0.1	11.4	p<0.05
B	0.08 ± 0.03	0.27	0.02 ± 0.01	0.13	9.4	p<0.05
C	0.03 ± 0.02	0.18	0.04 ± 0.01	0.19	0.006	NS
D	0.17 ± 0.05	0.43	0.10 ± 0.01	0.32	2.14	p<0.05
E	0.04 ± 0.02	0.21	0.04 ± 0.01	0.2	0.02	NS
F	0.08 ± 0.003	0.27	0.02 ± 0.001	0.15	6.53	p<0.05
G	0.02 ± 0.01	0.15	0.01 ± 0.00	0.13	0.03	NS
H Female	0.07 ± 0.03	0.33	0.07 ± 0.01	0.32	0.007	NS
H Male	0.08 ± 0.04	0.34	0.07 ± 0.02	0.07	0.04	NS
I	0.08 ± 0.03	0.3	0.07 ± 0.01	0.3	0.02	NS
J	0.0 ± 0.0	0	0.0 ± 0.0	0	0	NS
K	0.04 ± 0.02	0.2	0.02 ± 0.01	0.14	1.3	NS
L	0.13 ± 0.03	0.34	0.06 ± 0.01	0.25	4.7	p<0.05
M	1.24 ± 0.10	0.98	0.91 ± 0.04	0.81	10.8	p<0.05
N	0.25 ± 0.04	0.47	0.24 ± 0.03	0.45	0.07	NS
O	0.15 ± 0.04	0.36	0.18 ± 0.02	0.4	0.55	NS
P	0.49 ± 0.07	0.69	0.40 ± 0.03	0.59	1.34	NS
Q	0.50 ± 0.06	0.66	0.38 ± 0.03	0.58	2.71	NS
R	0.47 ± 0.06	0.64	0.38 ± 0.03	0.6	1.36	NS
CMI	4.03 ± 0.25	2.4	3.06 ± 0.09	1.7	17.7	p<0.05

The alphabets in the variable column denote A= eye and ear, B = respiratory system, C = cardiovascular system, D = teeth, E muscular system, F = skin, G = nervous system, H = female genital system, male genital system, I = fatigability, J = frequency of illness, K = miscellaneous disease, L = habit, M = inadequacy, N = depression, O = anxiety, P = sensitivity, Q = anger, R = tension, and carnel medical index

The table 1 demonstrated the comparison of carnel medical index and its sub variables namely eye and ear, respiratory system, cardiovascular system, teeth, gastrointestinal leaver and gall bladder, muscular system, skin, nervous system, female genital system, male genaital system, futigaility, frequency of illness, miscelinous disease, inadequacy, depression, anxiety, sensitivity, anger, tension, and carnel medical index between hosteler and home residence groups. The inferential analysis (ANOVA) revealed statistically ($p < 0.05$) significant difference in eye and ear, respiratory system, teeth, skin, habit, inadequacy, and CMI variable of carnel medical index. Statistically high level of eye and ear (0.08 ± 0.003) is seen in hostelers as compare to that of home (0.01 ± 0.005) residence groups. Similarly, the respiratory system showed that the hosteler (0.08 ± 0.003) group has significantly ($p < 0.05$) higher respiratory system issue as compare to home (0.02 ± 0.001) residence groups. The teeth issue of hosteler (0.17 ± 0.05) showed significantly ($p < 0.05$) higher value than home (0.10 ± 0.01) groups. The skin of hostelers (0.08 ± 0.003) group is showing significantly ($p < 0.05$) higher skin issues than home (0.02 ± 0.001) group. The habit of hostel group depicted higher value (0.13 ± 0.003) than home (0.06 ± 0.002) group.

The inadequacy of hosteler group (1.24 ± 0.01) is significantly higher than home (0.91 ± 0.04) groups. Similarly, the CMI showed statistically ($p < 0.05$) significant difference between the groups. Statistically higher CMI (4.03 ± 0.25) is seen in hosteler group as compare to that of home (3.06 ± 0.09) groups. In contrast, rest variables of the carnal medical index did not show significant ($p > 0.05$) difference between hosteler and home groups in the present study.

Table 2: Showing the comparison physical health and mental health aspect of Carnel Medical Index between hostellers and home residence groups.

Variables	Hostel		Home		ANOVA	
	Mean \pm SE	SD	Mean \pm SE	SD	F-Value	p-Value
Physical Health	0.91 ± 0.12	1.14	0.55 ± 0.05	0.89	9.589	$p < 0.05$
Mental Health	7.15 ± 0.43	4.1	5.58 ± 0.17	3.1	15.292	$p < 0.05$

The table 2 demonstrated the comparison of physical health and mental health aspects of carnal medical index as function of residence. The inferential analysis (ANOVA) revealed statistically ($p < 0.05$) significant difference in physical and mental health aspect of carnal medical index between hosteler and home residence groups. Both the variable namely physical health and mental health disease depicted statistically ($p < 0.05$) significantly difference between the groups. The physical health of hostel (0.91 ± 0.12) group is significantly higher than hostel (0.55 ± 0.05) group. Similarly, Mental health of hostel residence (7.15 ± 0.43) group is found to be significantly higher as compare to that of home (5.58 ± 0.17) groups in the present study.

IV. Discussion

The study reveals significant differences in physical and mental health parameters between hostellers and home-residing students, as measured by the Carnel Medical Index (CMI). Hostellers are at a higher risk of health complications due to increased exposure to infectious agents, poor hygiene practices, and inadequate dietary habits. They often have irregular sleep patterns, unbalanced diets, and are exposed to higher levels of stress due to academic pressure and lack of familial support. Mental health differences were also pronounced, with hostellers reporting higher levels of inadequacy, anxiety, and depression. The study highlights the importance of residence-based health screening and mental health interventions within educational institutions. Proactive health promotion strategies, such as regular medical check-ups, nutritional counselling, stress management workshops, and the availability of on-campus mental health professionals, are essential for mitigating the negative impact of hostel living on student well-being. Some CMI sub-variables, such as cardiovascular issues, gastrointestinal disorders, and nervous system conditions, did not show significant differences between the groups, suggesting that these health factors may be influenced more by genetic predispositions or broader lifestyle factors unrelated to residence.

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