



LIFESTYLE OF HEALTH AND SUSTAINABILITY: COMPARISON OF CORRELATIONS BETWEEN RURAL-URBAN STUDENTS IN PURULIA DISTRICT, WEST BENGAL USING FISHER Z-TRANSFORMATION

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Abstract

This study employs the descriptive survey method to investigate the correlation between various dimensions of lifestyle of health among Rural and Urban undergraduate students in Purulia district of West Bengal. The research encompasses the entire current undergraduate population in the specified region, with a random sample of 151 students selected using the 'Lifestyle of Health and Sustainability Scale' By Choi and Feinberg (2021). Correlation and coefficients are computed for pairs of variables such as lifestyle of health and sustainability scale (LOHAS), physical fitness, mental health, emotional well-being, spiritual health, environmentalism, and social consciousness. The study introduces a formula to calculate the difference in correlation coefficients based on dichotomous variables like residence (Rural-Urban). Major findings reveal insignificant differences in several relationships between lifestyle dimensions and health parameters among Rural and Urban students, while notable distinctions are observed in specific associations. The complex and variable nature of these relationships underscores the necessity for tailored interventions and considerations, emphasizing, the nuanced aspects of health being addressed. The study's conclusions highlight the intricate web of connections between lifestyle and health, providing valuable insights for targeted strategies aimed at promoting the well-being of both Rural and urban undergraduate populations.

Keywords: *Rural students, Urban students, LOHAS, Correlation, Fisher Z-transformation*

Introduction

The Fisher Z-transformation is a statistical technique commonly employed in the field of research and analysis to stabilize the variance of a set of data points and normalize their distribution. Named after its developer, Sir Ronald A. Fisher, this transformation is particularly useful in the context of correlation of coefficients and their associated hypothesis tests (Fisher, 1925). By applying the Fisher Z-transformation to correlation values, researchers can better approximate a normal distribution, facilitating more accurate statistical inferences. Analysing relationships between variables is facilitated by statistical tools such as the Pearson Product Moment Correlation and Spearman Rank Order Correlation. These methods,

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commonly employed in bivariate analysis, help determine the strength and direction of the association. The focus here is on establishing relationships, where changes in one variable correspond to change in other, rather than categorizing variables as 'independent' or 'dependent'. The significance of the relationship between two variables may vary across distinct sets of dichotomous variables. Merely establishing the significance (or insignificance) of the relationship between these two variables does not enable us to gauge the disparity in the degree of association for a specific dichotomous variable. Let's illustrate this with an example: consider X and Y variables, and calculate their correlation for two subsets, Rural and Urban. If the correlation between X and Y proves significant for both Rural and Urban categories, a crucial question emerges: "Is there a significant difference in the level of association between X and Y concerning the variable stream (Rural and Urban)?" to examine this difference, the fisher z-transformation is deemed applicable for the current study (Das et al. 2024). The fisher z-transformation plays a crucial role in meta-analysis, combining results from multiple studies that report correlation coefficients (Borenstein et al., 2009). It allows for a more valid synthesis of findings by addressing the issue of variability in correlation measures across different studies (Hedges & Olkin, 1985).

Literature review:

- **Review on coefficient of correlation:**

Sutradhar et al. (2023) conducted a study on Use of correlation analysis in Educational Research and examine of the utilization of correlation coefficients in educational research. Consequently, we anticipate that this study will prove beneficial for individuals at various proficiency levels, including novices and seasoned academics. In their 2023 study, Das et al. explored clustering techniques to examine the Lifestyle of Health and sustainability among undergraduate students. The results revealed a fascinating connection: as the cluster increased, predictor variables complexity grew, with location standing out as the primary predictor, interestingly, varied perspectives on lifestyle of health and sustainability showed a clear link with the geographical origins of the participants. Mohanta et al. (2023a) conducted a study on comparison among different dimensions of institutional commitment of secondary school teachers of west Bengal by Mahalanobis Distance and found that the findings indicated that there is no noteworthy distinction in the dynamic characteristics between the dichotomous groups considering four dependent variables-Affective commitment, Professional commitment, commitment to the learner, and academic commitment as collected under a single branch. Similar study on institutional climate is done by Mohanta et al. (2023b). comparison among different leadership styles is shown in Adhikari et al. 2023b, Sen et al. 2023b; 2023c, Adhikari & Sen, 2023a, Adhikari & Sen 2023b, Adhikari et al. 2023b. khatun et al. (2022) conducted a study on attitude towards yoga education among undergraduate students and found that college undergraduate, irrespective of gender or residential background, exhibit similar attitude towards yoga education, and there is no discernible difference in the attitudes of arts and science undergraduate students towards yoga education. Gayen et al. (2023) conducted a study on Relationship between organizational climate and institutional commitment of secondary school teachers of west Bengal and the study reveals significant connections among six organizational climate dimensions (Autonomy Perception, Managerial Trust, Teamwork, Reward and Recognition, Fairness Perception, and Organizational support Perception) and four institutional commitment dimension (Affective, Professional, Learner, and Academic Commitment) among secondary school teachers in west Bengal. Gayen and Mahato (2023) conducted a study on smartphone addiction of postgraduate students of Sidho-Kanho-Birsha University, Purulia and found that postgraduate students exhibited statistically significant positive correlations in smartphone addiction dimensions, encompassing daily-life disturbances, positive anticipation, withdrawal, cyberspace-oriented relationships, overuse, and tolerance. According to the study. Das (2023) conducted a study on application of Mahalanobis Distance as a measure on Lifestyle of Health and Sustainability and its components and found that no significant variations were observed in the variables under consideration concerning stream, residence, and gender, according to the result. Das et al (2024) investigated the connections between Lifestyle of Health and Sustainability (LOHAS), academic disciplines, and Health variables. Their findings revealed that arts and science undergraduate

students share comparable association in physical fitness, mental health, emotional health, spiritual health, environmentalism, and social consciousness, demonstrating consistency without notable differences, suggesting a unified perception of well-being and sustainability across both groups.

Hotelling (1953) investigation revealed that in 1921, Fisher introduced a highly valuable mathematical function-specifically, $z = (1/2) \log_e \{(1 + r) / (1 - r)\}$. From this, he derived formulas for its moments, shedding light on the remarkable property that the distribution of this function converges towards normality at a remarkable rate. Additionally, the variance of this distribution demonstrates near-total independence from the correlation within the population, offering valuable insights into the statistical behaviour of Dunn and Clark (1969) work present a scenario where the sample is derived from a multivariate normal distribution. Robust testing procedures designed for large samples, rooted in Fisher's z-transformation, are explored in the context of Hotelling's test and its modification by Williams. Dunn and Clark (1971) delve into significance level determination and statistical power assessment for small sample sizes. Monte Carlo methods were employed to evaluate the performance of Hotelling's test and Williams's modification, both grounded in Fisher's Z-transformation. Saha (2012) study on creativity and socio-economic status in West-Bengal found a positive correlation between creativity and socio-economic status (SES), favouring high-SES children. High-SES kids exhibited greater creativity compared to their Low-SES counterparts, with no gender-based differences observed. Saha (2013) exploration of creativity in relation to environmental awareness in Birbhum district established a strong link between environmental awareness and creativity. No significant gender-based differences were observed in either environmental awareness or creativity. Karmakar et al. (2016) study on intelligence, height, and weight among secondary school students identified a significant difference in intelligence between male and female students. The recommendation was made to equalize the education system, offering diversified curricula and implementing strategies to enhance both physical and intellectual development. Oblior and Amadi (2018) explored the significance test for Pearson's correlation coefficient, delving into various techniques, including the t-distribution, Fisher's Z-transformation, and SPSS. Mondal et al. (2018) study on internet affinity in relation to personality and gender highlighted the health risks posed to postgraduate students, suggesting preventive intervention, especially for neurotic students. Wonu, Victor-Edema, and Ndimele (2021) investigation connected t-distribution, Z-transformation, and SPSS techniques in assessing correlation coefficient significance. Gayen and Sen (2021) study on anxiety, depression, and stress among postgraduate students revealed significant correlations, except for male students, with the ongoing pandemic exacerbating these issues. Sen et al. (2021a) study on general self-efficacy and specific self-efficacy of postgraduate students highlighted gender differences in general self-efficacy. Sen et al. (2021b) examination of depression, anxiety, and stress among postgraduate students found no significant variation based on gender, achievement of B.Ed. trainees identified a significant difference in emotional maturity among trainees. Sutradhar and Sen (2022b) study on emotional maturity and study habits of B.Ed. trainees found a strong link between emotional maturity and study habits, particularly in female, private institution, government-aided institution, and rural B.Ed. trainees. Mahato et al. (2023a) study on self-efficacy and m-learning of undergraduate students found no significant connection between self-efficacy and m-learning. Mahato et al. (2023b), exploration of academic resilience and internet addiction among undergraduate students revealed no significant impact of internet addiction on academic resilience. Mahato et al (2023c) study on cognitive failure and internet addiction of higher secondary students established a significant link between internet addiction and cognitive failure, with no gender, location, or background differences. Mahato and Sen (2023) investigation on contexts knowledge (CK1), technological pedagogical content knowledge (TPCK), and attitude towards creative teaching for pre-service trainee teachers found that CK1 plays a crucial role in the TPACK-Math scale, closely connected to TPCK. Adhikari et al. (2023a) study on anxiety, depression, stress, general self-efficacy, and specific self-efficacy revealed different relationships for arts and science students. Sutradhar et al. (2023) examination of self-efficacy, depression, anxiety, and stress among university students uncovered three distinct student groups with no significant differences in the dynamics of these variables. Mahato et al. (2023a) study on DASS-21 and the self-efficacy scale on postgraduate students revealed significant connections between gender and factors like anxiety, depression, stress, general self-efficacy, and specific

self-efficacy. Sen et al. (2023) comparison of self-efficacy, depression, anxiety, and stress among postgraduate students found no significant differences in the dynamics of these variables across different groups. Mahato and Das (2024) conducted a study on mental well-being among students with respect to gender, institution and residence: insights from Purulia district, west Bengal and found no significant difference in positive mental well-being between male and female, rural and urban, and students of teachers training institution and other students. Das and Mahato (2024) conducted a study on analysing positive mental health among students in Purulia district, west Bengal, using clustering techniques and found established correlations between PMH and its items, highlighting intricate inter-dimension relationships and the influence of specific factors on PMH clusters.

Objectives: To conduct the research, the following objectives has been carefully considered:

1. To compare the significant difference between coefficient of correlation with regard to residence of undergraduate students when pairwise correlations are considered for the variables LOHAS, physical fitness, mental health, emotional health, spiritual health, environmentalism, and social consciousness.

Hypotheses: In pursuit of the above-mentioned objective, we formulate the following hypotheses:

H₀₁: There is no significant difference between Rural and Urban students with respect to correlations between the variables LOHAS and Physical Fitness.

H₀₂: There is no significant difference between Rural and Urban students with respect to correlations between the variables LOHAS and Mental Health.

H₀₃: There is no significant difference between Rural and Urban students with respect to correlations between the variables LOHAS and Emotional Health.

H₀₄: There is no significant difference between Rural and Urban students with respect to correlations between the variables LOHAS and Spiritual Health.

H₀₅: There is no significant difference between Rural and Urban students with respect to correlations between the variables LOHAS and Environmentalism.

H₀₆: There is no significant difference between Rural and Urban students with respect to correlations between the variables LOHAS and Social Consciousness.

H₀₇: There is no significant difference between Rural and Urban students with respect to correlations between the variables Physical Fitness and Mental Health.

H₀₈: There is no significant difference between Rural and Urban students with respect to correlations between the variables Physical Fitness and Emotional Health.

H₀₉: There is no significant difference between Rural and Urban students with respect to correlations between the variables Physical Fitness and Spiritual Health.

H₀₁₀: There is no significant difference between Rural and Urban students with respect to correlations between the variables Physical Fitness and Environmentalism.

H₀₁₁: There is no significant difference between Rural and Urban students with respect to correlations between the variables Physical Fitness and Social Consciousness.

H₀₁₂: There is no significant difference between Rural and Urban students with respect to correlations between the variables Mental Health and Emotional Health.

H₀₁₃: There is no significant difference between Rural and Urban students with respect to correlations between the variables Mental Health and Spiritual Health.

H014: There is no significant difference between Rural and Urban students with respect to correlations between the variables Mental Health and Environmentalism.

H015: There is no significant difference between Rural and Urban students with respect to correlations between the variables Mental Health and Social Consciousness.

H016: There is no significant difference between Rural and Urban students with respect to correlations between the variables Emotional Health and Spiritual Health.

H017: There is no significant difference between Rural and Urban students with respect to correlations between the variables Emotional Health and Environmentalism.

H018: There is no significant difference between Rural and Urban students with respect to correlations between the variables Emotional Health and Social Consciousness.

H019: There is no significant difference between Rural and Urban students with respect to correlations between the variables Spiritual Health and Environmentalism.

H020: There is no significant difference between Rural and Urban students with respect to correlations between the variables Spiritual Health and Social Consciousness.

H021: There is no significant difference between Rural and Urban students with respect to correlations between the variables Environmentalism and Social Consciousness.

Methodology of the study

Method: This study employed the descriptive survey method to investigate its subject matter.

Population: The research contains every current undergraduate student engaged in their educational pursuit within the colleges situated in the Purulia district of West Bengal.

Sample and sampling Technique: Using a random sampling technique, a unit of 151 undergraduate students has been chosen.

Tool used: The ‘Lifestyle of Health and Sustainability Scale’ by Choi and Feinberg (2021) functioned as the tool employed to collect data from undergraduate students.

Statistical Measure: statistical analysis involves calculating correlation coefficients for various variables like LOHAS, physical fitness, mental health, emotional well-being, spiritual health, environmentalism, and social consciousness, exploring relationships between each possible pair. Additionally, the variance in correlation coefficients for the dichotomous residence variable (Rural-Urban) is determined using the following formula.

$$Z_{r_{12}} = \frac{1}{2} \text{Ln} \left(\frac{1+r_{12}}{1-r_{12}} \right) \dots\dots\dots (1)$$

Where r_{12} represent the coefficient of correlation between variable 1 and variable 2,

$Z_{r_{12}}$ be the Fisher z-transformation.

Similarly,

$$Z_{r_{34}} = \frac{1}{2} \text{Ln} \left(\frac{1+r_{34}}{1-r_{34}} \right) \dots\dots\dots (2)$$

Where r_{34} represent the coefficient of correlation between variable 3 and variable 4,

$Z_{r_{34}}$ be the Fisher z-transformation.

Standard error of the difference may be defined as

$$SE_D = \sqrt{\frac{1}{N_1 - 3} + \frac{1}{N_2 - 3}} \dots\dots\dots (3)$$

Let N_1 and N_2 represent the sample sizes corresponding to variables (1,2) and variables (3,4) respectively. The test statistic z is defined as follows.

$$z = \frac{Z_{r_{12}} - Z_{r_{34}}}{SE_D} \dots\dots\dots (4)$$

- (a) $-1.96 < Z < +1.96$, the difference is deemed not significant at a 0.05 level of significance.
- (b) $-2.58 < Z < +2.58$, the difference is not significant at a 0.01 level of significance; otherwise, the difference is considered significant.

Result and Discussion:

Variables	r ₁₂ (Rural)	r ₃₄ (Urban)	Z _{r₁₂}	Z _{r₃₄}	N ₁	N ₂	SE _D	Z
LOHAS Physical Fitness	0.712	0.479	0.891229	0.521686	109	42	0.187283	1.9732
LOHAS Mental Health	0.752	0.535	0.977542	0.597124	109	42	0.187283	2.0312
LOHAS Emotional Health	0.694	0.552	0.855631	0.621253	109	42	0.187283	1.2515
LOHAS Spiritual Health	0.641	0.468	0.759869	0.507506	109	42	0.187283	1.3475
LOHAS Environmentalism	0.904	0.855	1.493682	1.274453	109	42	0.187283	1.1706
LOHAS Social Consciousness	0.74	0.605	0.950479	0.700997	109	42	0.187283	1.3321

Table 1: Correlation of Coefficient with Z-score between LOHAS and its Components

From table 1, it is found that Z-score is 1.9732 which shows insignificant difference between rural and urban undergraduate students with respect to correlation between the variable LOHAS and Physical Fitness. So, the null hypothesis (H_{01}) “There is no significant difference between Rural and Urban students with respect to correlations between the variables LOHAS and Physical Fitness” is accepted. Therefore, the relationship between LOHAS and Physical fitness does not differ significantly between rural and urban students. So, association between LOHAS and Physical Fitness similar for Rural and Urban Undergraduate students.

Analysis of the data presented in table 1 reveals a Z-score of 2.0312, indicating a significant difference between rural and urban undergraduate students concerning the correlation between the variables LOHAS and Mental Health. Consequently, the null hypothesis (H_{02}) asserting “no significant difference between rural and urban students regarding correlations between LOHAS and Mental Health” is rejected, while the alternative hypothesis (H_{a2}) stating “a significant difference exists between rural and urban students in correlations between LOHAS and Mental Health” is accepted. This underscores a substantial disparity in the relationship between LOHAS and Mental Health among rural and urban students, indicating that the association is not uniform for both groups.

Examining the data in table 1, a Z-score of 1.2515 is obtained, suggesting an insignificant difference between rural and urban undergraduate students concerning the correlation between LOHAS and Emotional Health. Consequently, the null hypothesis (H_{03}) positing “no significant difference between rural and urban students in correlation between LOHAS and Emotional Health” is accepted. This implies that the relationship between LOHAS and Emotional Health does not significantly differ between rural and urban students, indicating a similar association for both groups.

In the context of correlations between LOHAS and Spiritual Health, the analysis of Table 1 indicates a Z-score of 1.3475, signifying an insignificant difference between rural and urban undergraduate students. Consequently, the null hypothesis (H_{04}) asserting “no significant difference between rural and urban students in correlations between LOHAS and Spiritual Health” is accepted. This suggests that the relationship between LOHAS and Spiritual Health does not exhibit a significant difference between rural and urban students, indicating a comparable association for both groups.

The examination of table 1 reveals a Z-score of 1.1706, indicating an insignificant difference between rural and urban undergraduate students concerning the correlation between LOHAS and Environmentalism. Consequently, the null hypothesis (H_{05}) stating “no significant difference between rural and urban students in correlation between LOHAS and Environmentalism” is accepted. This implies that the relationship between LOHAS and Environmentalism does not significantly differ between rural and urban students, suggesting a similar association for both groups.

Analysing the data in table 1, a Z-score of 1.3321 is observed, indicating an insignificant difference between rural and urban undergraduate students regarding the correlation between LOHAS and Social consciousness. consequently, the null hypothesis (H_{06}) asserting “no significant difference between rural and urban students in correlation between LOHAS and Social Consciousness” is accepted. This indicate that the relationship between LOHAS and Social Consciousness does not significantly differ between rural and urban students, implying a comparable association for both groups.

Variables	r_{12} (Rural)	r_{34} (Urban)	$Z_{r_{12}}$	$Z_{r_{34}}$	N_1	N_2	SE _D	Z
Physical Fitness Mental Health	0.575	0.224	0.654961	0.227863	109	42	0.187283	2.2805
Physical Fitness Emotional Health	0.387	0.148	0.408267	0.149095	109	42	0.187283	1.3838
Physical Fitness Spiritual Health	0.308	-0.257	0.318334	-0.26289	109	42	0.187283	3.1035
Physical Fitness Environmentalism	0.494	0.261	0.541338	0.267181	109	42	0.187283	1.4639
Physical Fitness Social Consciousness	0.314	0.187	0.324977	0.189227	109	42	0.187283	0.7248

Table 2: Correlation of Coefficient with Z-score between the variables of Physical Fitness and other variables

Table 2 reveals a Z-score of 2.2805, signifying a significant disparity between rural and urban undergraduate students concerning the correlation between Physical Fitness and Mental Health. Consequently, the rejection of null hypothesis (H_{07}) suggests that there is indeed a noteworthy difference between these groups in terms of the relationship between Physical Fitness and Mental Health. Thus, the accepted alternative hypothesis (H_{a7}) establishes that the association between Physical Fitness and Mental Health varies significantly between rural and urban students, highlighting dissimilarity in this relationship for undergraduate students in different settings.

In contrast, the analysis of table 2 shows a Z-score of 1.3838, indicating an insignificant difference between rural and urban undergraduate students regarding the correlation between Physical Fitness and Emotional Health. As a result, the acceptance of the null hypothesis (H_{08}) implies that there is no noteworthy distinction between these groups in terms of the relationship between Physical Fitness and

Emotional Health. Consequently, the conclusion is that the association between Physical Fitness and Emotional Health is similar for both rural and urban undergraduate students.

Examining table 2 further, a Z-score of 3.1035 is observed, indicating a significant difference between rural and urban undergraduate students concerning the correlation between Physical Fitness and Spiritual Health. The rejection of the null hypothesis (H_{09}) in Favor of the alternative hypothesis (H_{a9}) emphasizes that there is a substantial difference between these groups in the relationship between Physical Fitness and Spiritual Health. Therefore, it is established that the association between Physical Fitness and Spiritual Health differs significantly between rural and urban students.

Table 2 also showcase a Z-score of 1.4639, denoting an insignificant difference between rural and urban undergraduate students in terms of the correlation between physical Fitness and environmentalism. Consequently, the acceptance of the null hypothesis (H_{010}) implies that there is no significant distinction between these groups in the relationship between Physical Fitness and Environmentalism. Thus, the association between Physical Fitness and Environmentalism is deemed similar for both rural and urban undergraduate students.

Lastly, with a Z-score of 0.7248 from table 2, no significant difference is found between rural and urban undergraduate students regarding the correlation between Physical Fitness and Social consciousness. accepting the null hypothesis (H_{011}) suggests that there is no noteworthy distinction between these groups in the relationship between Physical Fitness and Social consciousness. Hence, the association between Physical Fitness and Social Consciousness is considered similar for both rural and urban undergraduate students.

Variables	r_{12} (Rural)	r_{34} (Urban)	$Z_{r_{12}}$	$Z_{r_{34}}$	N_1	N_2	SE_D	Z
Mental Health Emotional Health	0.381	0.077	0.401229	0.077153	109	42	0.187283	1.7304
Mental Health Spiritual Health	0.471	0.199	0.511355	0.201691	109	42	0.187283	1.6535
Mental Health Environmentalism	0.57	0.372	0.647523	0.390742	109	42	0.187283	1.3711
Mental Health Social Consciousness	0.523	0.355	0.58046	0.371153	109	42	0.187283	1.1176

Table 3: Correlation of Coefficient with Z-score between the variables of Mental Health and other variables

According to the findings in table 3, the Z-score of 1.7304 indicates an insignificant difference between rural and urban undergraduate students concerning the correlation between Mental Health and Emotional Health. As a result, the acceptance of the null hypothesis (H_{012}) suggests that there is no significant difference between the two groups in terms of the relationship between Mental Health and Emotional Health. Consequently, the association between Mental Health and Emotional Health is similar for both rural and urban undergraduate students.

Examining table 3 reveals a Z-score of 1.6535, indicating an insignificant difference between rural and urban undergraduate students in the correlation between Mental Health and Spiritual Health. Consequently, the acceptance of the null hypothesis (H_{013}) implies no significant difference between the two groups in terms of the relationship between Mental Health and Spiritual Health. Thus, the association between Mental Health and Spiritual Health is similar for both rural and urban undergraduate students.

Analysis of table 3 shows a Z-score of 1.3711, indicating an insignificant difference between rural and urban undergraduate students in the correlation between Mental Health and Environmentalism. The acceptance of the null hypothesis (H_{014}) suggests no significant difference between the two groups regarding the relationship between Mental Health and Environmentalism. Hence, the association between Mental Health and Environmentalism is similar for both rural and urban undergraduate students.

Based on the findings in table 3, the Z-score of 1.1176 suggests an insignificant difference between rural and urban undergraduate students in the correlation between Mental Health and Social consciousness. the

acceptance of the null hypothesis (H_{015}) implies no significant difference between the two groups in terms of the relationship between Mental Health and Social consciousness. Therefore, the association between Mental Health and Social consciousness is similar for rural and urban undergraduate students.

Variables	r_{12} (Rural)	r_{34} (Urban)	$Z_{r_{12}}$	$Z_{r_{34}}$	N_1	N_2	SE _D	Z
Emotional Health Spiritual Health	0.417	0.411	0.444055	0.436814	109	42	0.187283	0.0387
Emotional Health Environmentalism	0.545	0.279	0.611241	0.286597	109	42	0.187283	1.7334
Emotional Health Social Consciousness	0.431	0.145	0.461124	0.146029	109	42	0.187283	1.6825

Table 4: Correlation of Coefficient with Z-score between Emotional Health and other variables

Table 4 reveals a Z-score of 0.0387, indicating an insignificant difference between rural and urban undergraduate students concerning the correlation between Emotional Health and Spiritual Health. Consequently, the acceptance of the null hypothesis (H_{016}) suggests no significant distinction in the relationship between these variables for students in both settings. In essence, the association between Emotional Health and Spiritual remains similar for both rural and urban undergraduate students.

Examining table 4, a Z-score of 1.7334 emerges, signifying an insignificant difference between rural and urban undergraduate students in terms of the correlation between Emotional Health and Environmentalism. The acceptance of null hypothesis (H_{017}) underscores the absence of a substantial difference in the relationship between Emotional Health and Environmentalism for students in rural and urban settings. Consequently, the association between Emotional Health and Environmentalism is comparable for both groups of undergraduate students.

Analysis of table 4, reveals a Z-score of 1.6825, indicating an insignificant difference between rural and urban undergraduate students concerning the correlation between Emotional Health and Social consciousness. The acceptance of null hypothesis (H_{018}) suggests that there is no significant disparity in the relationship between Emotional Health and Social Consciousness for students in rural and urban settings. In essence, the association between Emotional Health and Social consciousness remains similar for both rural and urban undergraduate students.

Variables	r_{12} (Rural)	r_{34} (Urban)	$Z_{r_{12}}$	$Z_{r_{34}}$	N_1	N_2	SE _D	Z
Spiritual Health Environmentalism	0.502	0.297	0.551976	0.306226	109	42	0.187283	1.3122
Spiritual Health Social Consciousness	0.36	0.13	0.376886	0.13074	109	42	0.187283	1.3143

Table 5: Correlation of Coefficient with Z-score between Spiritual Health and other Variables

Examining table 5 reveals a Z-score of 1.3122, indicating an insignificant difference between rural and urban undergraduate students concerning the correlation between Spiritual Health and Environmentalism. Consequently, we accept the null hypothesis (H_{019}) asserting, “There is no significant difference between rural and urban students regarding correlation between the variables Spiritual Health and Environmentalism.” Thus, the relationship between Spiritual Health and Environmentalism remains consistent for both rural and urban undergraduate students.

Table 5 further demonstrates a Z-score of 1.3143, signifying a negligible distinction between rural and urban undergraduate students in terms of correlations between Spiritual Health and Social Consciousness. Consequently, the null hypothesis (H_{020}), stating “There is no significant difference between rural and urban students in terms of correlations the variables Spiritual Health and Social Consciousness,” is accepted. This suggests that the relationship between Spiritual Health and Social Consciousness does not significantly vary between rural and urban students, indicating a comparable association for both groups of undergraduate students.

Variables	r ₁₂ (Rural)	r ₃₄ (Urban)	Z _{r₁₂}	Z _{r₃₄}	N ₁	N ₂	SE _D	Z
Environmentalism Social Consciousness	0.74	0.517	0.950479	0.572237	109	42	0.187283	2.0196

Table 6: Correlation of Coefficient with Z-score between Environmentalism and Social Consciousness

Analysis of table 6 reveals a Z-score of 2.0196, indicating a noteworthy distinction in the correlations between Environmentalism and Social Consciousness among rural and urban undergraduate students. consequently, the rejection of the null hypothesis (H_{021}), asserting no significant difference between rural and urban students in terms of these correlations. Simultaneously, acceptance of the alternative hypothesis (H_{a21}) supports the presence of a substantial difference in the relationship between Environmentalism and Social Consciousness for rural and urban students. In essence, the connection between these variables varies significantly across the two settings, suggesting that the association is not uniform for rural and urban undergraduate students.

Major findings

The comprehensive analysis of the data presented in table 1 to 6 yields significant insights into the correlation between various dimensions of lifestyle of health among rural and urban undergraduate students. The findings indicate that there is an insignificant difference between rural and urban students in the relationship between LOHAS and Physical Fitness, LOHAS and Emotional Health, LOHAS and Environmentalism, LOHAS and Social Consciousness, Mental Health and Emotional Health, Mental Health and Spiritual Health, Mental Health and Environmentalism, Mental Health and Social Consciousness, Emotional Health and Spiritual Health, Emotional Health and Environmentalism, Emotional Health and Social Consciousness, Spiritual Health and Environmentalism, and Spiritual Health and Social Consciousness. However, there are noteworthy distinctions observed in the associations between LOHAS and Mental Health, LOHAS and Spiritual Health, Physical Fitness and Mental Health, Physical Fitness and Spiritual Health, and Environmentalism and Social Consciousness. these differences highlight the complexity and variability in the relationships between lifestyle dimensions and health parameters among rural and urban undergraduate students, emphasizing the need for targeted interventions and considerations based on the specific aspects of health being addressed.

Conclusion

In conclusion, the comprehensive analysis of the data illuminates the intricate web of relationships between various dimensions of lifestyle and health among rural and urban undergraduate students. while the study reveals no significant difference between rural and urban students in several aspects of the correlation, notable distinctions emerge in specific association. The complexity and variability observed underscore the necessity for tailored interventions and considerations that acknowledge the nuanced nature of the relationships between lifestyle dimensions and health parameters. These findings contribute valuable insights for devising targeted strategies aimed at promoting the well-being of both rural and urban undergraduate populations.

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