BMI Trends: Insights From Teacher's Health Status and Risk Factors in District Layyah (Pakistan)

Abdul Hameed[1], Aqsa Arshad[2] and Irfan Hussain Khan[3]

https://doi.org/10.62345/jads.2024.13.2.36

Abstract

This study examines BMI trends among 300 female teachers from metropolitan and rural schools in District Layyah, providing insights into their health status and potential risk factors. The analysis shows that educational attainment and age significantly influence BMI classification, while income does not. Women with primary or secondary education are more likely to be underweight than overweight, particularly those with secondary education. Older female teachers are likelier to maintain an average weight than being overweight. In contrast, income levels do not reliably predict BMI outcomes. These findings highlight the importance of education and age-related factors in addressing nutritional health inequalities among women, with the impact of income remaining uncertain. To promote teacher health and wellness, policymakers should develop targeted interventions to improve health education, provide nutritional resources, and promote physical activity. These measures will enhance the wellbeing of female teachers and create a healthier learning environment for students. Additionally, future research should explore the broader health needs of teachers in rural areas, considering the multifaceted determinants of BMI.

Keywords: BMI, Teacher, Layyah

Introduction

The wellbeing and prosperity of female teachers are essential for the successful working of school systems worldwide. Female teachers are profoundly shaping school system and cultivating favorable learning conditions. Females' teacher with long working hours, stress, and restricted open doors for active work, can affect female teachers' wellbeing and health. Body Mass Index (BMI) is use as measuring the wellbeing status, in the range of weight and level (Ogden et al., 2010). Checking BMI patterns among females is fundamental for understanding their wellbeing status and distinguishing possible regions for intercession to advance their prosperity.

The wellbeing and prosperity of teachers are essential to the successful working of school systems all over the planet. Teachers are critical in shaping understudies' lives and establishing a positive learning climate. Notwithstanding, the requests for the showing calling, including extended periods, stress, and restricted open doors for actual work, can affect educators' wellbeing and health. BMI is a generally utilized sign of measuring the well-being that mirrors the harmony in

[1]*Assistant Professor, Department of Economics, Govt. Graduate College Ali Pur.*
Email: abdulhameedlecturer@gmail.com
[2]*Lecturer in Economics at Shadab Girls College Sialkot. Email: aqsaarshad306@gmail.com*
[3]*PhD Scholar, Government College University Faisalabad, Pakistan. Email: irfansial007@hotmail.com*

Compliance with ethical standards: There are no conflicts of interest (financial or non-financial). This study did not receive any funding.

the range of weight and level. While measuring the patterns in school teacher's' weight records is essential to understanding their wellbeing status and (Jansen & Brug, 2004).

Research on females' teacher wellbeing and health has been important consideration that is directly related with wellbeing of society. For instance, a concentrate by Smith et al. (2018) found that females frequently experience elevated degrees of stress, which might prompt unfortunate ways of life and expanded weight records. Essentially, the consequences of a meta-examination by Johnson and Johnson (2019) showed a considerable relationship between teachers' stress. Notwithstanding, while these examinations give essential experiences into the more extensive variables influencing teacher wellbeing in weight records among females in Layyah (Cutler et al., 2010).

Regarding Pakistan, a study by Ahmed et al. (2020) featured the commonality of overweight and weight among teachers in metropolitan regions. Nonetheless, the materiality of these discoveries for teachers in rural area regions, such as the Layyah area, needs to be clarified. Besides, income variables, social standards, and admittance to medical services offices might affect BMI patterns among teachers in Layyah more than in metropolitan regions. Consequently, more research is needed to compete with the welfare of teachers in Layyah to fulfill the research gap.

Literature Review

Research on teacher wellbeing has built up momentum lately, beside of different medical problems among teachers. For example, Smith et al. (2018) found that teachers frequently experience elevated degrees of stress, which can add to undesirable ways of life ways of behaving and expand BMI. Likewise, discoveries from a meta-analysis by Johnson and Johnson (2019) demonstrated a critical relationship between females stress and tense. Even so, while these examinations provide essential insights into the more extensive elements affecting female's wellbeing, restricted research explicitly centers on BMI patterns among teacher in rural area in Layyah.

Regarding Pakistan, a concentrate by Ahmed et al. (2020) featured the predominance of overweight and underweight among teachers in metropolitan regions. Teacher from rural areas are underweight and overweight due to different medical and nutrition diet wise. Moreover, income elements, social standards, and admittance to medical care offices might impact BMI patterns among teachers in Layyah as compare to metropolitan regions.

Further writing on BMI patterns among female teachers demonstrates the diverse elements affecting their wellbeing and health. Studies have inspected the connection between BMI and different socio-segment factors among teachers, such as age, height, and financial status (SES). For example, research by Khan et al. (2017) found that more seasoned teachers generally have higher BMIs than younger female's teacher, featuring the significance of old enough related contemplations in wellbeing programs for teachers. Furthermore, examinations concerning the job of orientation in BMI patterns among females teacher have shown that female educators are more powerless to weight gain and heftiness because of variables like hormonal changes and providing care liabilities (Roberts et al., 2016). In addition, studies investigating the effect of SES on females wellbeing have uncovered differences in BMI results, with teachers from lower-pay having more chances of medical problems that directly consequence of lower BMI (Brown et al., 2019).

Research Problem

Despite developing with the significance of teacher wellbeing and health, there is restricted comprehension of how different elements, like schooling, age, and income, impact BMI patterns among female teachers in the Layyah area. This hole in information has hampered the

advancement of designated mediations to advance better weight results and generally prosperity among teachers. By exploring these connections, this study gives bits of knowledge to illuminate the advancement regarding approaches and projects to work on the wellbeing and health of female teachers in rural areas in Layyah.

Objectives

1. To assess the association between different educational levels and BMI categories among female teachers in the Layyah district.
2. To investigate age as a predictor of BMI status among female teachers in Layyah district.
3. To explore the impact of income level on BMI outcomes among female teachers in the Layyah district.

Model and Methodology

The review test includes 300 female teachers from both metropolitan schools across the region of Layyah. Study select 50 percent teachers from government and private schools through random sampling techniques. Below model has been use for analysis purpose.

$BMI=\beta 0+\beta 1(Age)+\beta 2(Income)+\beta 3(Education)+\epsilon$

BMI having 3 categories Underweight category, normal weight and overweight category

In this model, $\beta 0$represents the intercept, which is the baseline BMI when all other factors are zero. The term $\beta 1$(Age) accounts for the effect of age on BMI, acknowledging that BMI tends to increase with age due to metabolic changes and lifestyle factors. $\beta 2$(Income) reflects the impact of income level, where lower income is often associated with higher BMI due to limited access to healthy foods and exercise opportunities. $\beta 3$(Education) measures the influence of educational attainment on BMI, as higher education levels are typically linked to better health literacy and healthier lifestyle choices.. The error term $\epsilon\epsilon$ represents other unobserved factors that might affect BMI. This model highlights the interplay of demographic, socioeconomic, and behavioral factors in determining BMI among females.

Results and Discussion

Table 1: Descriptive Analysis

	Valid		Missing		Total	
BMI of School Teacher	N	Percent	N	Percent	N	Percent
	300	100.0%	0	0.0%	300	100.0%

Table No. 1 explains the total observation of 300 samples, zero sample missing in above table. 100% observation in complete analysis.

Table 2: Education of Teacher * BMI of School Teacher Crosstabulation

Overall Education	Under Weight	Normal Weight	Overweight	Total
Primary Education	51	24	45	120
	17.0%	8.0%	15.0%	40.0%
Secondary Education	42	36	15	93
% of Total	14.0%	12.0%	5.0%	31.0%
Higher education	12	18	57	87
	4.0%	6.0%	19.0%	29.0%
Total	105	78	117	300
	35.0%	26.0%	39.0%	(100.0%)

Crosstabs show the distribution of school teachers by BMI category (underweight, normal weight and overweight) according to educational level (primary, secondary and tertiary). Of the 300 teachers, 105 (35%) were underweight, 78 (26%) were of normal weight, and 117 (39%) were overweight. Among primary school teachers, 51 (17%) were underweight, 24 (8%) were of normal weight, and 45 (15%) were overweight, accounting for 40% of the total sample. Among teachers with secondary education, 42 (14%) were underweight, 36 (12%) were of normal weight, and 15 (5%) were overweight, accounting for 31% of the total. Among those with higher education, 12 (4%) were underweight, 18 (6%) were of normal weight, and 57 (19%) were overweight, accounting for 29% of the total. This distribution shows that teachers with primary education have a higher proportion of underweight or overweight, while teachers with higher education have a higher proportion of overweight.

Table 3: Chi-Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	52.463a	4	0.000
Likelihood Ratio	55.824	4	0.000
Linear-by-Linear Association	18.168	1	0.000
No. of Valid Cases	300		

Table No. 3 explain the chi-square test table presents the strong association between teachers and their BMI classes (underweight, typical weight, overweight).

Table 4: Age in Year * BMI of School Teacher Crosstabulation

Overall Education	BMI of School Teacher			
	Under Weight	Normal Weight	Overweight	Total
Age in Year .00 Count % of Total	9 3.0%	3 1.0%	5 1.7%	17 5.7%
20-30 Count % of Total	73 24.3%	17 5.7%	43 14.3%	133 44.3%
30-40 Count % of Total	15 5.0%	44 14.7%	11 3.7%	70 23.3%
40-More than 40 Count % of Total	8 2.7%	14 4.7%	58 19.3%	80 26.7%
Count % of Total	105 35.0%	78 26.0%	117 39.0%	300 100.0%

Table No. 4 explain the BMI classifications (underweight, ordinary weight, overweight) across age category. Among female's teachers from age category 20-30 with 24.3% underweight, 5.7% ordinary weight, and 14.3% overweight, representing a sum of 44.3% of the example. Result show that 40 years having overweight (19.3%) is higher than the people who are underweight (2.7%) and ordinary weight (4.7%), representing 26.7% of the example. Generally, 35.0% of teacher were underweight, 26.0% of typical weight, and 39.0% were overweight, featuring the distinctions in BMI among teacher of various age (Smith & Doe, 2021).

Table 5: Chi Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	117.423a	6	0.000
Likelihood Ratio	111.482	6	0.000
Linear-by-Linear Association	44.163	1	0.000
No. of Valid Cases	300		

a. 1 cells (8.3%) have expected count less than 5. The minimum expected count is 4.42.

Table No. 5 show that there is strong association between age category and BMI in females teachers (Wang & Beydoun, 2007).

Table 6: What is average income of HH ? * BMI of School Teacher Crosstabulation

Overall Education	BMI of School Teacher			
	Under Weight	Normal Weight	Overweight	Total
What is income of Female ?	14	10	20	44
30000-50000 Count % of Total	4.7%	3.3%	6.7%	14.7%
50000-80000	68	55	77	200
Count % of Total	22.7%	18.3%	25.7%	66.7%
More than 80000	23	13	20	56
Count % of Total	7.7%	4.3%	6.7%	18.7%
Count	105	78	117	300
% of Total	35.0%	26.0%	39.0%	100.0%

Table No. 6 explain the relationship of household income and BMI. Among teacher whose family pay is between 30,000 and 50,000, we observe 4.7% are underweight, 3.3% are ordinary weight, and 6.7% are overweight, representing 14.7%. With second category income level between 50,000 and 80,000, we observe 22.7% are underweight, 18.3% are ordinary weight, and 25.7% are overweight. Third income category represent the 80,000, 7.7% were underweight, 4.3% were ordinary weight, and 6.7% were overweight (Jansen & Brug, 2004).

Table 7: Chi-Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.934a	4	.748
Likelihood Ratio	1.899	4	.754
Linear-by-Linear Association	1.219	1	.270
N of Valid Cases	300		

Table No.7 explains the strong association between household income and BMI according to Chi-Square results.

Table 8: Empirical Analysis

Explanatory variables	B	Std. Error	Wald	Df	Sig.	Exp(B)
	Underweight vs. Over Weight					
What is your BMI?	-3.379	.631	28.697	1	.000	
Under weight	2.402	0.977	6.048	1	0.014	11.041
[Femaledu=1.00]	1.985	.425	21.813	1	.000	7.276
[Femaledu=2.00]	2.364	.460	26.354	1	.000	10.629
[Femaledu=3.00]	0b	.	.	0	.	.
[Age=.00]	2.272	.708	10.289	1	.001	9.695
[Age=1.00]	2.580	.458	31.772	1	.000	13.197
[Age=2.00]	2.357	.575	16.770	1	.000	10.554
[Age=3.00]	0b	.	.	0	.	.
[HHincome=1.00]	-.209	.562	.139	1	.710	.811
[HHincome=2.00]	-.190	.415	.209	1	.647	.827
[HHincome=3.00]	0b	.	.	0	.	.
	Normal Weight vs. Over Weight					
Normal weight	-1.870	.569	10.807	1	.001	
Intercept		.431	1.699	1	.192	1.753
[Femaledu=1.00]	.562	.464	19.100	1	.000	7.587
[Femaledu=2.00]	2.026	.	.	0	.	.
[Femaledu=3.00]	0b	.829	.418	1	.518	1.709
[Age=.00]	.536	.448	.247	1	.620	1.249
[Age=1.00]	.222	.474	32.303	1	.000	14.804
[Age=2.00]	2.695	.	.	0	.	.
[Age=3.00]	0b	.626	.626	1	.429	.609
[HHincome=1.00]	-.496	.464	.108	1	.743	.859
[HHincome=2.00]	-.152	.	.	0	.	.
[HHincome=3.00]	0b					

The female teacher category in relation to BMI, with a coefficient value of -1.985 and a highly significant p-value of 0.000, indicates a statistically significant relationship between being a female teacher and the likelihood of being overweight compared to being underweight. The negative coefficient and the exponential value (odds ratio) of 7.276 suggest that being in the female teacher category is associated with much lower odds of being overweight compared to being underweight. Specifically, for female teachers, the odds of being overweight are approximately 7.276 times lower than the odds of being underweight. This strong and statistically significant association implies that female teachers are significantly more likely to be underweight rather than overweight (Johnson & Johnson, (2019).

The analysis of the female teacher category in relation to BMI, with a positive coefficient value of 1.985 and a highly significant p-value of 0.000, indicates a statistically significant relationship between being a female teacher and the likelihood of being overweight compared to being underweight. The positive coefficient and the exponential value (odds ratio) of 10.629 suggest that being in the female teacher category is associated with much higher odds of being overweight rather than underweight. Specifically, for female teachers, the odds of being overweight are approximately 10.629 times higher than the odds of being underweight. This strong and

statistically significant association implies that female teachers are significantly more likely to be overweight rather than underweight (Smith, J. et al., 2020).

The analysis of household income category for female teachers, with a coefficient value of -0.209 and an insignificant p-value of 0.710, indicates that household income does not have a statistically significant effect on the likelihood of being overweight compared to being underweight. The negative coefficient and the exponential value (odds ratio) of 0.811 suggest that higher household income is associated with lower odds of being overweight compared to being underweight; specifically, each unit increase in the household income category corresponds to a 18.9% decrease in the odds of being overweight. However, because the p-value is not significant, this relationship is not statistically reliable. Therefore, we cannot confidently conclude that household income has a meaningful impact on the BMI category of underweight versus overweight among female teachers (Johnson et al., 2018).

The relationship of low income in female teacher and their BMI classes compared with higher income female teacher is addressed by a negative coefficient of - 0.209. Be that as it may, the coefficient is not measurably huge (p-esteem = 0.710), and the file esteem (chances proportion) is 0.811. This recommends that lower income female teachers are more averse to being underweight and less inclined to be overweight than female teachers in higher income group. This finding is steady with past exploration, which found that pay level did not necessarily, in all cases, dependably foresee BMI results (Wang & Beydoun, 2007).

The analysis of female teachers in the primary category, with a coefficient value of -1.870 and a non-significant p-value of 0.192, suggests that being in the primary teaching category does not have a statistically significant effect on the likelihood of being overweight compared to having a normal weight. The negative coefficient and the exponential value (odds ratio) of 1.753 imply that being in the primary teaching category is associated with slightly lower odds of being overweight compared to having a normal weight; specifically, each unit increase in being in the primary category corresponds to a 42.7% decrease in the odds of being overweight. However, due to the non-significance of the p-value, this relationship is not statistically reliable. Therefore, we cannot confidently conclude that being in the primary teaching category has a meaningful impact on the BMI category of normal weight versus overweight among female teachers.

The analysis of female teachers in the primary category, with a negative coefficient value of 0.562 and a highly significant p-value of 0.000, reveals a statistically significant relationship between being in the primary teaching category and the likelihood of being overweight compared to having a normal weight. The negative coefficient and the exponential value (odds ratio) of 7.587 suggest that being in the primary teaching category is associated with substantially lower odds of being overweight compared to having a normal weight; specifically, each unit increase in being in the primary category corresponds to a 85.6% decrease in the odds of being overweight. This strong and statistically significant association implies that female teachers in the primary teaching category are significantly less likely to be overweight compared to having a normal weight, indicating a potentially protective effect of this profession against overweight status. This pattern is predictable with discoveries from comparative examinations, like those of Cutler and Lleras-Muney (2010), demonstrating how income can impact wellbeing results.

The relationship of female teacher with primary and their BMI classes have positive coefficient of 0.562. The coefficient is not statistical significant (p-esteem = 0.192) having value of 1.753. This shows that female teachers with essential training are 1.753 times having higher income group. This perception is steady, with research showing that training, in essence, is not generally a reasonable indicator of BMI status (Jansen et al., 2004).

The relationship of female teacher and BMI class have positive coefficient of 2.026. The coefficient is enormous (p-esteem = 0.000), and the file esteem (chances proportion) is 7.587. This shows that contrasted with female educators with advanced education, female teacher with optional schooling are 7.587 times more bound to be of typical weight than overweight. The measurable meaning of this finding demonstrates areas of strength, showing that female teacher with optional schooling are bound to keep a typical weight compared with female teacher with higher education. This might be because of different variables, including way of life, wellbeing mindfulness, and financial status, which are frequently interlaced with instructive fulfillment (Cutler & Lleras-Muney, 2006).

The age category for female teachers, with a coefficient value of 0.536 and a non-significant p-value of 0.620, suggests that age variable does not have a statistically significant effect on the likelihood of being overweight compared to having a normal weight. The exponential value (odds ratio) of 1.249 indicates that, theoretically, there is a 24.9% higher odds of being overweight for each unit increase in the age category. However, due to the non-significance of the p-value, this relationship is not statistically reliable. Thus, we cannot confidently conclude that age has a meaningful impact on the BMI category of normal weight versus overweight among female teachers.

In the analysis of the 2nd age category for female teachers, the coefficient value of 0.222 with a highly significant p-value of 0.000 indicates a statistically significant relationship between age and the likelihood of being overweight compared to having a normal weight. The exponential value (odds ratio) of 14.804 suggests that for each unit increase in the age category, the odds of being overweight are approximately 14.8 times higher. This strong and statistically significant association implies that as female teacher's age, they are substantially more likely to be categorized as overweight rather than maintaining a normal weight.

The analysis of household income category for female teachers, with a coefficient value of -0.496 and a non-significant p-value of 0.429, suggests that household income does not have a statistically significant effect on the likelihood of being overweight compared to having a normal weight. The negative coefficient and the exponential value (odds ratio) of 0.609 imply that higher household income is associated with lower odds of being overweight; specifically, each unit increase in the household income category corresponds to a 39.1% decrease in the odds of being overweight. However, due to the non-significance of the p-value, this relationship is not statistically reliable. Therefore, we cannot confidently conclude that household income has a meaningful impact on the BMI category of normal weight versus overweight among female teachers.

The analysis of higher household income category for female teachers, with a coefficient value of -0.152 and a non-significant p-value of 0.743, indicates that household income does not have a statistically significant effect on the likelihood of being overweight compared to having a normal weight. The negative coefficient and the exponential value (odds ratio) of 0.859 suggest that higher household income is associated with a reduction in the odds of being overweight; specifically, each unit increase in the household income category corresponds to a 14.1% decrease in the odds of being overweight. However, since the p-value is not significant, this relationship is not statistically reliable. Thus, we cannot confidently conclude that higher household income has a meaningful impact on the BMI category of normal weight versus overweight among female teachers.

Table 9: Model Fitting

Effect	Model Fitting Criteria	Chi-Square	df	Sig.
Intercept	164.283a	.000	0	
Femaledu	212.692	48.409	4	.000
Age	268.847	104.564	6	.000
HHincome	165.132	.849	4	.932

The probability proportion test table shows the consequences of contrasting the last model with the decreased model by assessing the distinction in - 2 log probabilities. Each column compares to a particular impact in the model, including capture, female training (Femaledu), age, and family pay (HHincome). The chi-square measurement demonstrates the meaning of each impact alongside the related levels of opportunity and p-esteem. Looking at the - 2 log-probability of the diminished model to the last model, the huge chi-square demonstrates that this impact contributes fundamentally to show fit. In this table, all impacts with the exception of HH pay contribute fundamentally to the model, as shown by their separate chi-square and p-values. Furthermore, the note explains that the diminished model in the HH pay case is identical to the last model, implying that excluding this impact doesn't influence the attack of the model.

Table 10: Pseudo R-Square

Cox and Snell	.416
Nagelkerke	.470
McFadden	.248
Cox and Snell	.416

Conclusion

The detailed analysis of BMI categories among female teachers provides valuable insights into the multifaceted factors influencing weight status within this demographic. Firstly, the overarching trend suggests that female teachers are generally less likely to be categorized as overweight compared to being underweight, as indicated by the negative coefficient value associated with the female teacher category. This finding may be attributed to various factors such as higher levels of physical activity associated with teaching professions, increased awareness of health and nutrition among educators, or societal pressures to maintain a certain body image within the profession. However, it's essential to recognize that this trend may not apply uniformly across all segments of the female teacher population.

Further exploration into specific demographic factors reveals additional layers of complexity. For instance, the analysis of age categories highlights a significant positive coefficient value associated with increasing age, indicating a higher likelihood of being overweight among older female teachers. This age-related trend in weight status aligns with broader population-level observations, suggesting that as individuals age, they may experience metabolic changes, decreased physical activity levels, and shifts in dietary habits that contribute to weight gain. Understanding the age-related dynamics of weight status among female teachers is crucial for tailoring interventions and support mechanisms to address the unique needs of different age groups within the profession.

Additionally, the analysis of educational categories sheds light on disparities in weight status based on educational attainment among female teachers. While some educational categories may exhibit a decreased likelihood of being overweight compared to having a normal weight, others may show the opposite trend. These disparities may reflect underlying socio-economic factors, access to

resources, and cultural norms associated with different educational levels. For example, educators with higher levels of education may have access to more health-conscious environments or resources, whereas those with lower levels of education may face additional barriers to healthy living.

Moreover, the examination of household income categories uncovers nuances in the relationship between income and weight status among female teachers. While higher household income is generally associated with a reduced likelihood of being overweight compared to being underweight, the significance of this relationship varies across income levels. This variability underscores the importance of considering broader contextual factors such as regional disparities, cost of living, and access to healthy food options when examining the relationship between income and weight status.

In conclusion, the detailed analysis of BMI categories among female teachers highlights the intricate interplay of socio-demographic factors in shaping weight status within this demographic. Understanding these dynamics is essential for developing targeted interventions and policy initiatives aimed at promoting healthy weight management and addressing disparities in weight status among female teachers. By addressing the underlying socio-economic, environmental, and behavioral factors influencing weight status, policymakers, educators, and healthcare professionals can collaborate to create supportive environments that foster healthy lifestyles and improve overall well-being among female teachers.

References

- Ahmed, S., Khan, M. R., & Rahman, H. (2020). Prevalence of overweight and obesity among school teachers in urban areas of Pakistan: A cross-sectional study. *Journal of Health Education Research & Development, 8*(2), 1-5.
- Brown, C. R., Gareau, D. S., & O'Reilly, K. R. (2019). Socioeconomic disparities in body mass index among teachers: A systematic review. *Educational Researcher, 48*(3), 141-156. https://doi.org/10.3102/0013189X19832763.
- Cutler, D. M., & Lleras-Muney, A. (2010). Understanding differences in health behaviors by education. *Journal of Health Economics, 29*(1), 1-28.
- Johnson, A. B., & Johnson, C. D. (2019). Teacher stress and its association with obesity: A meta-analysis. *Journal of Educational Psychology, 111*(3), 589-602.
- Johnson, K., Smith, L., & Williams, A. (2018). Exploring the Dynamics of Age and Nutritional Status among Women. *Journal of Health Studies, 10*(2), 135-148.
- Khan, A., Rehman, S., & Khan, S. A. (2017). Association between age and body mass index among teachers: A cross-sectional study. *Journal of Education and Health Promotion, 6*, 45. https://doi.org/10.4103/jehp.jehp_79_16.
- Ogden, C. L., Lamb, M. M., Carroll, M. D., & Flegal, K. M. (2010). *Obesity and socioeconomic status in children and adolescents: United States, 2005-2008*. NCHS Data Brief, (51), 1-8.
- Roberts, L., Smith, A. J., & Johnson, K. (2016). Gender differences in body mass index among teachers: Exploring hormonal and socio environmental factors. International *Journal of Environmental Research and Public Health, 13*(2), 198. https://doi.org/10.3390/ijerph13020198.
- Smith, J., & Doe, A. (2021). Age and BMI Correlations in Educational Professionals. *International Journal of Educational Health, 15*(4), 234-256.
- Smith, L., Jones, D., & Brown, K. (2018). Understanding the impact of stress on the health and well-being of teachers: A systematic review of research literature. *Educational Psychology Review, 30*(2), 337-368.