



## Relationship of Mental Exertion and Obesity Between Secondary and Higher Secondary Level School Teachers

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## ABSTRACT

The study aims to analyze the relationship between psychological condition and physiological condition of secondary and higher secondary level school teachers. Borg scale was used to evaluate the perceived exertion as a psychological parameter and BMI was used to measure the obesity as a physiological parameter among school teachers. Seventy one secondary and higher secondary level school teachers were chosen among the age between twenty five to forty years for the study. The data was analyzed using mean, Standard deviation, t test, ANOVA test and Pearson correlation. The study has revealed that the higher secondary level school teachers' mental exertion was higher than secondary level school teachers. There is no significance difference found in case of obesity between two groups.

## KEYWORDS

Mental exertion, Obesity, School teachers

## 1. Introduction:

Teachers are an extremely important facet of any society for a multitude of reasons. They are the people who educate the youth of society who in turn become the leaders of the next generation of people. Teachers are the people who are teaching children and imparting knowledge upon them in their most impressionable years, what these kids learn from their teachers at a young age will most likely stay with them in some facet for the rest of their lives. So, teachers certainly have a significant mark on the development of young children and even older children alike, as they are teaching them and helping them develop their knowledge so that they can go on in life and be responsible and productive members of society.

Therefore the teachers should be mentally and physically efficient to develop alertness and stability to the future generations. If the teacher is not sound in physical and mental health then future learners will be affected. According to [World Health Organization](#) (2005) mental health includes "subjective well-being, perceived self-efficacy, autonomy, competence, intergenerational dependence, and self-actualization of one's intellectual and emotional potential, among others. WHO further states that the well-being of an individual is encompassed in the realization of their abilities, coping with normal stresses of life, productive work and contribution to their community (WHO 2005). However, cultural differences, subjective assessments, and competing professional theories all affect how "mental health" is defined (WHO 2006).

The [World Health Organization](#) (WHO) also defined physical health in its broader sense in 1946 as "a state of complete physical, mental, and social [well-being](#) and not merely the absence of disease or infirmity (WHO 2002, 2005).

According to Pandey (2003), teachers can lead to a variety of negative outcomes including emotional exhaustion, feelings of depersonalization, and a sense of failure with one's personal accomplishment due to occupational stress, which leads to physical and mental exertion. Burnout is one of the major reasons that teachers leave the teaching profession, a loss that results in added costs in training and hiring for the field of education.

Srivastava et al. (1996) conducted a study for impact of mental health on the level of burnout of the teachers. They revealed that teachers with low mental health are more prone to burnouts than the teachers of average and high mental health.

It has also been known from another study that the teaching job is highly associated with oxidative stress and metabolic syndrome, including cardiovascular risk. It was seen that, there was a strong correlation established between oxidative stress markers. MDA and GSH are reversely responsible for each other (Saha 2014).

## 2. Objectives of the Study

1. To compare the mental health by perceived exertion rating of secondary level school teachers and higher secondary level school teachers.
2. To find out the difference in obesity secondary level school teachers and higher secondary level school teachers.
3. To find out any relationship between mental health and physical health between secondary level school teachers and higher secondary level school teachers.
4. To find out the relationship between years of job experience and mental health and physical health between secondary level school teachers and higher secondary level school teachers.

## 3. Materials &amp; Methods:

3.1. Subjects: After completion of questionnaire study, physiological and mental health studies have been conducted after randomly taken seventy one secondary level and higher secondary level school teachers who are non-smokers, non-alcoholic as well as completed self-reported questionnaire. They all have been working in secondary and higher secondary level school in Hooghly district. Their ages were in between twenty five to forty.

## 3.2. Psycho-physiological variables studied:

- a) Test of Perceived Exertions Rating

Perceived stress was recorded by Borg (1978) method at definite time intervals and different tasks to measure mental or mental exertion resulting from work.

## 3.3. Physiological variables studied:

- b) Body Mass Index (B.M.I)

Physical parameter such as stature and body weight was measured with an anthropometric rod and a properly calibrated weighing machine respectively. Body Mass Index (BMI) was calculated from the anthropometric data (Poskitt, 2000). It was calculated as:  $BMI = \text{Weight (Kg)} / \text{Height (meter)}^2$ .

On the basis of BMI, obesity is graded as follows:

**BMI in adult**

	Kg/m <sup>2</sup>
Under weight	<19
Normal	19-24.9
Obesity	
Grade I	25-29
Grade II	30-40
Grade III	>40

**4. Data Analysis:** The data was analyzed into a personal computer by using statistical software for social science (SPSS) version 16.0 for windows. All variables were stressed into SPSS 16.0 version for the analysis using descriptive statistics, t test, test of ANOVA and Pearson's correlation test.

**5. Result and Discussion:**

Descriptive statistics have been calculated for each of the three variables of secondary and higher secondary level school teachers and the results are presented in Table 1. In many of the variables mean value have been shown a tendency for accumulating around the tense about extreme, and mean values of some variables have been shown a tendency for accumulating around the midpoint of the scale.

Table 1.Descriptive statistics of Secondary level School teachers

Secondary level school teachers	N	Mean	S.D.	Max	Min
Experience(yrs)	71	9.143	3.135	15	4
Perceive exertion	71	16.762	1.921	20	13
Obesity	71	23.973	1.748	27	21

Table 2.Descriptive statistics of Higher Secondary level School teachers

Higher Secondary level school teachers	N	Mean	S.D.	Max	Min
Experience(yrs)	71	9.381	3.653	15	2
Perceive exertion	71	18.143	1.824	20	13
Obesity	71	23.462	1.890	26	19

From table no. 1 and table no. 2 that perceives exertion has demonstrated as high in higher secondary level school teachers than secondary level school teachers. It has also been shown that experience and obesity level are almost same in two groups.

Table 3. ANOVA statistical significance test for variables of secondary school teachers.

Source of Variation	Sum of Squares	d.f.	Mean Squares	F	Level of Significance
between	2305.	2	1152.		
error	331.5		5.525	208.6	0.001
total	2637.				

The probability of this result, assuming the null hypothesis, is less than .0001

It has been revealed from the table no 3 that there is a statistical difference in 0.001 levels between working experience; perceive experience and obesity of secondary level school

teachers.

Table 4. ANOVA statistical significance test for variables of higher secondary school teachers.

Source of Variation	Sum of Squares	d.f.	Mean Squares	F	Level of Significance
between	3123.	2	1062.		
error	404.9		6.749	157.3	0.001
total	2528.				

The probability of this result, assuming the null hypothesis, is less than .0001

The P value is 157.3 in table 4 which indicates that there is also a statistical significance difference between working experience; perceive experience and obesity of higher secondary level school teachers.

Table 5.T test for perceive exertion between two groups.

Perceive Exertion	N	Mean	S.D.	P value
Secondary level school teachers	71	16.762	1.921	0.022
Higher Secondary level school teachers	71	18.143	1.824	

There is a statistically significant difference between the input groups (P = 0.022).

Table 6. Mann-Whitney Rank Sum Test for obesity between two groups.

Obesity	N	Mean	S.D.	P value
Secondary level school teachers	71	23.957	1.748	0.383
Higher Secondary level school teachers	71	23.462	1.890	

There is not a statistically significant difference between the input groups (P=0.383)

It has been revealed from the table 5 that higher secondary level school teachers suffer more in perceive exertion than secondary level school teachers. So t test indicates that there is strong statistical significance difference in between secondary level school teachers and higher secondary level school teachers in respect of perceive exertion. It has also been revealed from table 6 that there is no statistical significance difference in between secondary level school teachers and higher secondary level school teachers in respect of obesity.

Table 7. Pearson Product Moment Correlation test between variables.

Secondary level	Experience	Perceive Exertion	Obesity
School teachers			
Experience	0	0.0806 0.728	-0.0581 0.802
Perceive Exertion	0.0806 0.728	0	-0.0538 0.817
Obesity	-0.0581 0.802	-0.0538 0.817	0

There are no significant relationships between any pair of variables in the correlation table ( $P > 0.050$ ).

Table 8. Pearson Product Moment Correlation test between variables.

Higher Secondary	Experience	Perceive Exertion	Obesity
level School teachers			
Experience	0	0.0589 0.800	-0.0333 0.886
Perceive Exertion	0.0589 0.800	0	-0.132 0.569
Obesity	-0.0333 0.886	-0.132 0.569	0

There are no significant relationships between any pair of variables in the correlation table ( $P > 0.050$ ).

Table 7 and 8 are revealed that no significance relationship is found between experiences, perceive exertion and obesity in between secondary level school teachers and higher secondary level school teachers.

### 6. Conclusion

It has been concluded that higher secondary level school teachers suffer more in psychological stress than secondary level school teachers. There was a statistical significance difference found between each variable in each group. But no statistical difference was found between two groups in respect of obesity. Significantly statistical difference was found between two groups in respect of perceive exertion. No statistical relationship was found between each variable in each group. It has also been shown that there was no relationship found between obesity and mental exertion between two groups. It has been concluded that psychological stress was more in higher secondary level school teachers and secondary level school teachers but no difference was found in between two groups in respect of physiological point of view.

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