A Comparative Study of Achievement in Mathematics among Rural and Urban Secondary School Students in Relation to their Mental Health

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Abstract

The present study was undertaken to study the comparison of Achievement in Mathematics among rural and urban secondary school students in relation to their Mental Health. A sample of 120 students of 10th class from Govt. schools of district Moga was selected. Product Moment Method of correlation and t-test were used to analyze the data. Mental Health Battery by Singh and Sen (2009) and Achievement test in Mathematics was self prepared by investigator were administered. The results showed that there is significant difference between mean scores of achievement in Mathematics among rural and urban secondary students. The results of the study showed a positive and significant correlation between achievement in Mathematics and Mental Health of rural as well as urban area secondary school students.

Keywords: Achievement, Mathematics, Secondary Students and Mental Health.

Introduction

Education is a very old concept and educating oneself and as well as to others to gain knowledge has evolved from ancient times. Education is of vital importance as it helps us to acquire the requisite skills for survival and also helps us in gaining knowledge which in turn helps us think and reason effectively. This help us to improvise on things and constantly invent to attain better outcomes. Education helps one to understand the process of change and adjust to it. Education helps the people to become useful members of society and gaining knowledge for oneself has become vital.

Academic achievement is the end product of all educational endeavors from initial stages of education to higher levels of education. The main concern of all the educational efforts is to see the learner's achievement to be maximum or at least optimum upto desired level of expectancy. Academic achievement is used invariably only to reflect on the levels of performance by the recepients i.e. learners as per the prescribed cause content. Academic achievement of the pupil refers to the knowledge attained and skills developed in the school subjects, generally indicated by the marks obtained in tests, may be teacher made or standardized following psychometric principles. The term 'Academic' has been derived from term 'academy' which means a school where special types of instructions are imparted. 'Achievement means successful accomplishment or performance in a particular area. According to Dictionary of Education (2002), "It is a measure of knowledge gained through informal education indicated by test score, grade, point, average and degree. It depends upon a number of factors, most important factor which influences the academic achievement is the financial status of students. According to Busmas and Aggarwal (2003), "Achievement as the place emphasis on the knowledge attainment of skill developed in academic subject.

Mental Health

Mental health which today is recognized as an important aspect of one's total health status is a basic factor that contributes to the maintenance of physical health as well as social effectiveness. It is a normal state of well being, and in the words of Johns, Sutton and Webster, 'is a positive but relative quality of life. It is a condition which is characteristic of the average person who meets the demands of life on the basis of his own capacities and limitations.' By the word 'relative' we imply that the degree of Mental Health which an individual enjoys at a time is continuously changing. It is not mere absence of mental illness

that constitutes Mental health. On the other hand, it is a positive, active quality of the individual's daily living.

Moodie and Jenkins (2005) "Good mental health protects us and helps us to avoid risk-taking behaviours that contribute to poor mental health." Princeton University (2007) "Mental health is a term used to describe either a level of cognitive or emotional well being or an absence of mental health."

Studies Related to Mental Health

Kantomaa et al (2010) conducted a study which examined whether physical activity, Mental Health and socio-economic position were associated with the overall academic performance and future educational plans of adolescents aged 15-16 years. They used a sample of 7002 boys and girls from the Northern Finland Birth Cohort 1986. Data were collected by a postal enquiry in 2001-02. Multivariable logistic regression model were estimated and adjusted for family structure and all variables in the models. In the fully adjusted models, higher levels of physical activity and high parental socio-economic position were associated with higher overall academic performance and future plans for higher education. High scoring on behavioral problems was related to lower level of physical activity, fewer behavioral problems and higher socio-economic position were independently associated with high self-perceived overall academic performance and plans for higher education among adolescents.

Tyagi (2010) in her study "Mental health of students studying in Gurukul and Government schools" and found that Gurukul students have better mental health than the government school students.

Marathe (2012) conducted study on "A study of Mental Health Among College Teacher" and found that senior and junior college teacher have same mental health but there is difference between the mental health of male and female teachers." Puri (2013) conducted study on "Mental Health of Pupil Teachers as related to their value and creativity" and found that creativity is not related to bear mental health of pupil teacher.

Emergence of the Problem

Education plays a vital role in building a society. A modern society cannot achieve its aims of economic growth, technical development and cultural advancement without fully harnessing the talents of its citizens. Educationists thus strive to develop fully the intellectual potential of the students and make efforts to see that their potentialities are fully realized and channelized for the benefit of the individuals and that of the society. A few studies have been conducted among secondary school students to find out the relationship between achievement in Mathematics and their Mental Health. Hence, no definite conclusion can be drawn regarding the comparison of achievement in mathematics of rural and urban secondary school students in relation to their mental health. Therefore, investigator has decided to take up the problem.

Objectives of the Study

1. To compare the significance of differences between mean scores of Achievement in mathematics of rural and urban Secondary school students.
2. a) To find the relation between Achievement

in Mathematics and Mental Health of secondary school students.
   b) To find the relation between Achievement in Mathematics and Mental Health of rural secondary school students.
   c) To find the relation between Achievement in Mathematics and Mental Health of urban secondary school students.

Hypotheses

1. There will be no significant difference between mean scores of achievement in Mathematics of rural and urban secondary school students.
2. a) There will be no significant relationship between achievement in mathematics and mental health of secondary school students.
   b) There will be no significant relationship between achievement in mathematics and mental health of rural secondary school students.
   c) There will be no significant relationship between achievement in mathematics and mental health of urban secondary school students.

Method

Descriptive Survey method was used for the present study.

Sample of Study

A random sample of 120 students was taken in the present study. The target sample was of secondary school class 10th students belonging to government rural and urban area schools of District Moga.

Tools Used

1. Achievement Test in Mathematics was prepared by the investigator.
2. Mental Health Battery by Singh and Sen (2009).

Statistical Techniques Used

1. The descriptive statistical data techniques such as Mean, Median, Mode, Standard Deviation, Skewness and Kurtosis were used for studying the nature of distribution of scores.
2. Product moment method of correlation and t-ratio was used to test the hypotheses. Fischer's Z-coefficient was worked out.

Results

Hypothesis - 1

"There will be no significant difference between mean scores of achievement in Mathematics of rural and urban secondary school students."

In order to test this hypothesis, Mean difference in achievement score in mathematics of rural and urban area secondary school students was computed, which is shown in Table – 1.

Table - 1

Mean difference in Achievement scores in Mathematics of Rural and Urban Area Secondary School Students

N	Area	Mean	SD	Critical Ratio
60	Rural	20.416	6.969	0.268 NS
60	Urban	20.083	6.664	

(NS stands Non-Significant at 0.01 Level of Significance)

Table–1 shows that t-value is not significant at both levels of significance. The value of mean among rural area students is 20.416 and the value of

mean in urban area students is 20.083. The value of critical ratio is 0.268, which is below the value 2.58 at 0.01 level of significance and below the value 1.96 at 0.05 level of significance, hence it is not significant at both the levels of significance. This is showing that the hypothesis -1 which states that there exists no significant difference between mean scores of achievement in mathematics of rural and urban area secondary school students is accepted. The achievement score in mathematics among rural area secondary school students is higher than urban area due to better study habits and attitude towards mathematics of rural area students than urban area students.

Hypothesis – 2(A)

"There exists no significant relationship between achievement in mathematics and mental health of secondary school students."

Product Moment Method of correlation was worked out between scores of achievement in mathematics and mental health of secondary school students.The value of correlation is presented in Table – 2.

Table - 2
Showing Correlation between Achievement in Mathematics and Mental Health of Total Sample of Secondary School Students

Variable	Number	Correlation
Achievement in Mathematics Mental Health	120	0.407**

(** Significant at 0.01 level of significance)
Significant value at 0.05 level = 0.181
Significant value at 0.01 level = 0.235

Table – 2 shows that the value of correlation is 0.407, which is significant at both 0.05 level and 0.01 level of significance. Hence , our hypothesis 2 (a), which states that there exists no significant relationship between achievement in mathematics and mental health of secondary school students is rejected.

Hypothesis - 2(B)

"There exists no significant relationship between achievement in mathematics and mental health of rural secondary school students."

Product Moment Method of correlation was worked out between scores of achievement in mathematics and mental health of rural secondary school students. The value of correlation is presented in Table – 3.

Table - 3
Showing Correlation between Achievement in Mathematics and Mental Health of Rural Secondary School Students

	Variable	Number	Correlation
1.	Achievement in Mathematics	60	0.441**
2.	Mental Health		

(** Significant at 0.01 level of significance)
Significant value at 0.05 level = 0.254
Significant value at 0.01 level = 0.331

Table-3 shows that the value of correlation is 0.441, which is more than the table value at 0.05 and 0.01 level of significance. Hence our result is significant. Hence, hypothesis 2(b), whichstates that

there exists no significant relationship between achievement in mathematics and mental health of rural secondary school students is rejected.

Hypothesis – 2(C)

"There exists no significant relationship between achievement in mathematics and mental health of urban secondary school students."

Product Moment Method of correlation was worked out between scores of achievement in mathematics and mental health of urban secondary school students. The value of correlation is presented in Table - 4.

Table 4 Showing Correlation between Achievement in Mathematics and Mental Health of Urban Secondary School Students

	Variable	Number	Correlation
1.	Achievement in Mathematics	60	0.392**
2.	Mental Health		

(** Significant at 0.01 level of significance) Significant value at 0.05 level = 0.254
Significant value at 0.01 level = 0.331

Table -4 shows that the value of correlation is 0.392, which is more than table value at 0.05 level and 0.01 level of significance. Hence, our hypothesis 2(c), which states that there will be no significant relationship between achievement in mathematics and mental health of urban secondary school students is rejected.

Educational Implications

The educational implications of the present study are:

1. Teachers as well as the parents of students should pay attention to the students sincerely. Students should be taught in an interesting way by using effective techniques to reduce mental stress.
2. Conducive environment should be created in which students do not feel threatened. Students should be encouraged to work hard and to understand the value of mathematics.
3. Teachers should themselves exhibit and show a restrained and balanced health that can have a healthy impact on the all round development of the students. Therefore, teachers must be trained in stress management studies.
4. Yoga and meditation programmes can be included in the school curriculum to enhance the mental health of school going students.
5. Secondary schools, state ministries of education, teachers should organize periodic seminar and workshops for students, parents and teachers to promote positive attitude towards mathematics.
6. To strengthen the mathematical concepts of students mathematics labs should be structured in the schools. So that students can learnby doing.
7. Financial grants should be provided by the government to manage and arrange these mathematics labs.
8. Incentives and awards should be given to teachers to enhance their performance.

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