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Original Research Paper

A Study of Scientific Aptitude of Women Teachers in Relation to Social Class and Marital Status

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ABSTRACT

The purpose of the present study was to find out the effect of Social Class and Marital Status on Scientific Aptitude of Women Teachers. 640 Women teachers were selected randomly from the schools out of 640, 160 were for each Social Class (General, OBC, SC and ST) out of each 160 group, 80 were married and 80 were Unmarried. For measurement of the Scientific Aptitude standardized 'Science Aptitude Test' developed by A.K.P. Sinha and L.N.K. Sinha, was used. Data were analyzed with help of 4x2 Factorial design of ANOVA. The result revealed that, significant individual effect for social class at the 0.01 level of significance, and interactional effect for social class and marital status at the 0.05 level of significance were found on Scientific Aptitude of Women teachers.

Keywords: *Scientific Aptitude, Social Class, Marital Status and Women Teachers*

This is science that is providing us new facilities for every aspect of life. We feel need of these science-gifts from birth till death, Further, science is universal in character. It has no barriers of any kind. Aptitude is not a specific skill; rather it is the capacity to acquire that specific skill (**Freeman, 1956**). If a teacher has no aptitude for teaching, he \she will not skilled or proficient in that task then there would be not effect of training given to him \her? whereas, right aptitude of a teacher, in any specific field, indicator his\her ability of her acquiring skills in that particular field, on the basis of which a prediction may be made regarding the amount of improvement of that person in that field, which further training might affect (**Rao, 1996**). Majority of the psychologist agree on the point that aptitude is innate, yet environmental factors on aptitude has also been recognized (**Rao, 1996**). As a matter of fact, is aptitude influenced by Social classes and locale of an individual? "Scientific aptitude is a complex of interacting hereditary and environmental determinants producing predisposition or ability in science. Through these abilities, it is possible to predict future accomplishment of a person in science"(Defined by Rao, 1996). In many studies it was found that scientific aptitude depends upon a variety of factors. Such as Presence of certain

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skills and persistence in learning science, motivation, social environment, and locality, satisfaction derived from learning science subject, socio-economic factors and cultural background are some of the important determination of scientific aptitude. Now question arises, what is the status of women teachers in the field of Scientific Aptitude, how much they appreciate science as a subject in general? The answer of these questions can be given after proper investigation. This short educational research is an attempt in this direction. In the present study an attempt as been made to study scientific aptitude of women teachers of higher secondary schools of Jabalpur District in relation to Social Class and Marital Status.

Objectives of the Study

1. To study scientific Aptitude of Women Teachers of higher secondary school in relation to Social Class
2. To Study Scientific Aptitude of Women Teachers of higher secondary school in relation to Marital Status.
3. To study Scientific Aptitude Women Teachers of higher secondary school in relation to Social Class and Marital Status.

Hypotheses of the study

1. There is no significant individual effect of social class on Scientific Aptitude of Women Teachers of higher secondary school.
2. There is no significant individual effect of Marital Status on Scientific Aptitude of Women teachers of higher secondary school.
3. There is no Bi-variate significant interactional effect between Social Class and Marital Status on Scientific Aptitude of Women Teachers of higher secondary school.

METHODOLOGY OF THE STUDY

For achieving objectives of present study descriptive survey method was used by the Investigator.

Population

All of the women teachers of higher secondary schools affiliated to M.P. Board and CBSE Board of Jabalpur district were taken as a population.

Sample of the study

The sample of the present study was consisted of 640 higher secondary school women teachers of Jabalpur district. In which 160 was from General Class, 160 from OBC, 160 From SC and 160 from ST, out of each 160 group 80 were Married and 80 were Unmarried were selected randomly.

Tools of the study

According to the need of the study Science Aptitude Tests(SAT) standardized tests is used by investigator which is constructed by Professor A.K.P. Sinha (R.S. University, Raipur) and Professor L.N.K. Sinha (Patna University)

Analysis and Interpretation of data

Objectives-1 Scientific Aptitude and Mental Health of women teachers in relation to social class

The first objective of the study was to study Scientific Aptitude of Women Teachers in relation to Social Class. There were four levels of Social Class namely General, OBC, SC and ST as independent variable and Scientific Aptitude as dependent variables. Thus the data were analyzed with the help of Univariate one way ANOVA and the results are given in Table number 4.1 to 4.2 and Graph Number 4.1.

Table No. 4.1 Summary Uni-variate ANOVA for Scientific Aptitude

Source of Variance	Sum of Squares	df	Mean square	F-Value
Social Class	14538.430	3	4846.143	14.071**
Error	219044.381	637	344.409	

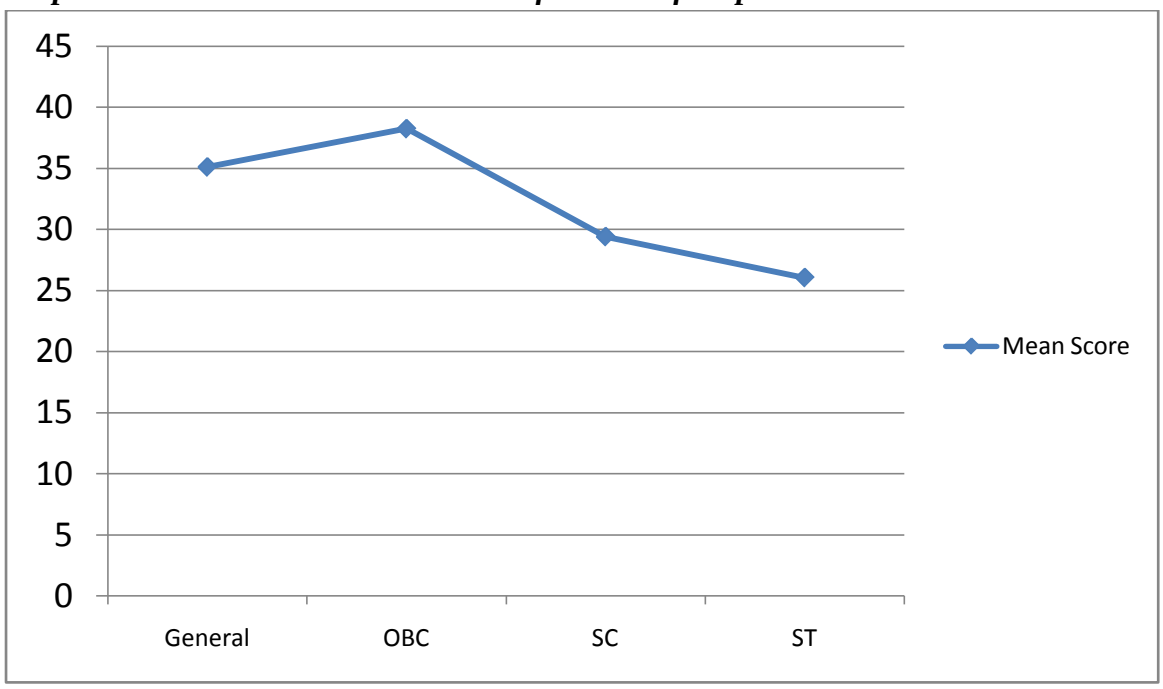
***= Significant at 0.01 level of significance*

Table No. 4.2 Social Class wise Mean and significance for Scientific Aptitude

Number	Social class	Mean	OBC	SC	ST
General	160	35.13	N.S.	P<0.01	P<0.01
OBC	160	38.27	-----	P<0.01	P<0.01
SC	160	29.42	-----	-----	N.S.
ST	160	26.06	-----	-----	-----

N.S. = Not Significant.

Graph 4.1 Social Class wise mean score for Scientific Aptitude



From table number 4.1 it is evident that F- value for Scientific Aptitude was 14.07 which was significant at 0.01 level with df=3/636. It shows that mean score of Scientific Aptitude of Women Teachers belonging to General, OBC, SC, and ST differed significantly. So there

was significant effect of Social Class on Scientific Aptitude of higher secondary school Women Teachers. Thus, **the Null Hypothesis H01 "**There is no significant effect of Social Class on Scientific Aptitude of Women Teachers" **is rejected**.

In order to know which Social Class's mean score of Scientific Aptitude was significantly higher, the data was further analyzed with the help of Duncan's Multiple Range Test and the results are given in Table No. 4.2. It can be seen that mean score of Scientific Aptitude of higher secondary school Women Teachers belonging to General Social Class, SC Social Class and ST Social Class, differ significantly at the 0.01 level of significance. The mean score of Scientific Aptitude of General Women Teachers were 35.13 which were significantly higher than SC and ST Women Teachers whose mean score of Scientific Aptitude was 29.42 and 26.06 respectively. Thus General higher secondary school Women Teachers are found to have significantly at par Scientific Aptitude than SC and Women higher secondary school Teachers.

It can be seen that mean score of Scientific Aptitude of higher secondary school Women Teachers belonging to OBC Social Class, SC social class and ST Social Class differ significantly at the 0.01 level of significance. The mean score of Scientific Aptitude of OBC Women Teachers was 38.27, which was significantly much higher than SC and ST higher secondary school Women Teachers whose mean score of Scientific Aptitude was 29.42 and 26.06 respectively. Thus, it can be said that OBC higher secondary school Women Teachers are found to have significantly better Scientific Aptitude than SC and ST higher secondary school Women Teachers. [Vide Table No. 4.2]

Interpretation and Discussion- (Table No. 4.1, 4.2, 4.3 and 4.4 Graphs No. 4.1 and 4.2)
Significant difference was found between social class and scientific aptitude, result shows that General and OBC women Teachers are found to have significantly high scientific aptitude than SC and ST women Teachers. The present finding is accordance with the finding of **Satyanandam (2009)** found that students belonging to upper and lower classes differ significantly and **Coldas and Bankstone (2012)** studied the relationship between social class and achievement in science and found a significant difference. From table no.4.1 and Graph No. 4.1 it is evident that mean score of General and OBC Women Teachers are significantly higher than SC and ST Women Teachers. An examination of the of the individual items of scientific Aptitude dimension indicate that General and OBC Women Teachers as compared with SC and ST women teachers have higher experimental bent, ability to reason and solve problems. This could be because of initial exposure of educational and scientific environment.

Objective-2 Scientific Aptitude and Mental Health of higher secondary Women Teachers in relation to Marital Status

The second objective of the study was to study Scientific Aptitude of higher secondary school Women Teachers in relation to Marital Status. There were two levels of Marital Status namely Married and Unmarried, as independent variable and Scientific Aptitude as dependent

variable. Thus the data were analyzed with the help of univariate one way ANOVA and the results are given in Table number 4.3 and Graph Number 4.2

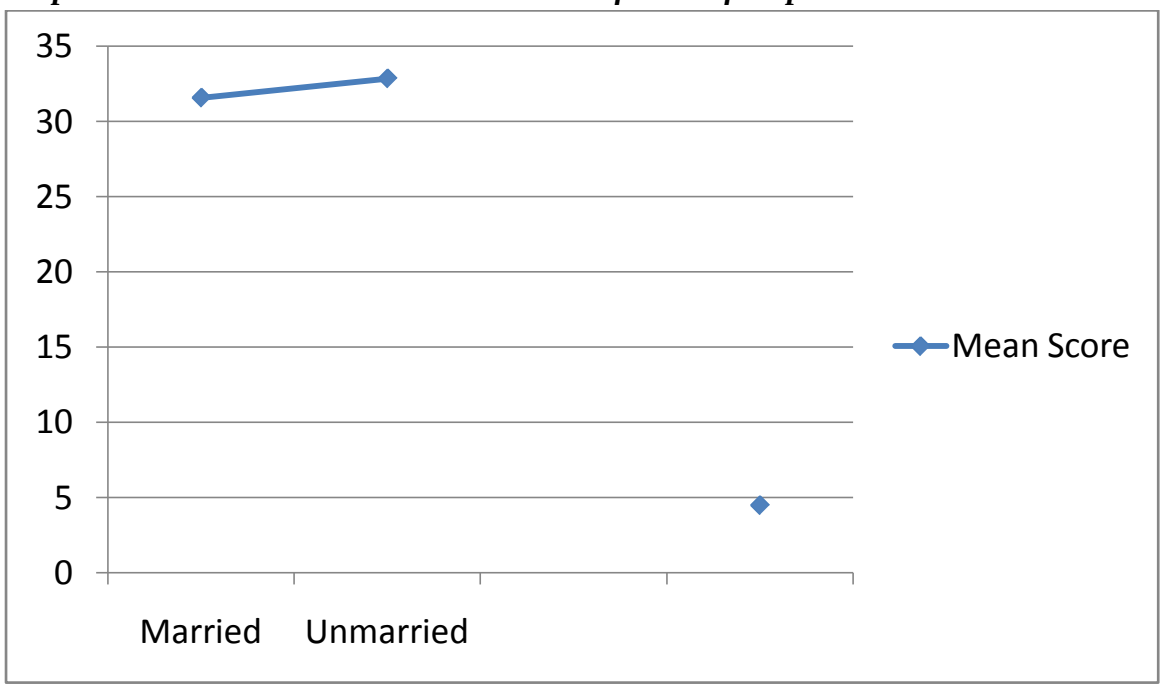
Table No. 4.3 Summary of Uni-variate ANOVA for Scientific Aptitude

Source of Variance	Sum of Squares	df	Mean Square	F
Marital Status	263.939	1	263.939	.722
Error	233318.872	638	365.704	

Table No. 4.4 Number, Mean and Standard Deviation for Scientific Aptitude

Variable	Marital Status	Number	Mean	Standard Deviation
Scientific Aptitude	Married	320	31.58	17.49
	Un-married	320	32.86	20.63
	Total	640	32.22	19.12

Graph No. 2 Marital Status wise Mean score of Scientific Aptitude



From table Number 4.3, it is clear that F-value for Scientific Aptitude was .722. Which was not significant with df =1/638. It shows that mean score of Scientific Aptitude of higher secondary school Women Teachers belonging to Married and Unmarried groups not differed significantly.

So there was not significant effect of Marital Status on Scientific Aptitude of Women Teachers. Thus, **the Null Hypothesis H02** "There is no significant effect of Marital Status on Scientific Aptitude of Women Teachers" **is not rejected.**

Objective-3 Scientific Aptitude and Mental Health of higher secondary school Women Teachers in relation to bi-variate interactional effect of Social Class and Marital Status

The third objective of the study was to study bi-variate interaction Between Social Class and Marital Status on Scientific Aptitude of Women Teachers. There were two independent variables Social Class with four levels namely General, OBC, SC and ST and Marital Status with two levels Married and Unmarried. Scientific Aptitude was as dependent variables. Thus the data were analyzed with the help of 4X2, Factorial Design ANOVA and the results are given in Table number 4.4 to 4.5 and Graph Number 4.3

Table No. 4.4 Number, Mean and Standard Deviation for Scientific Aptitude

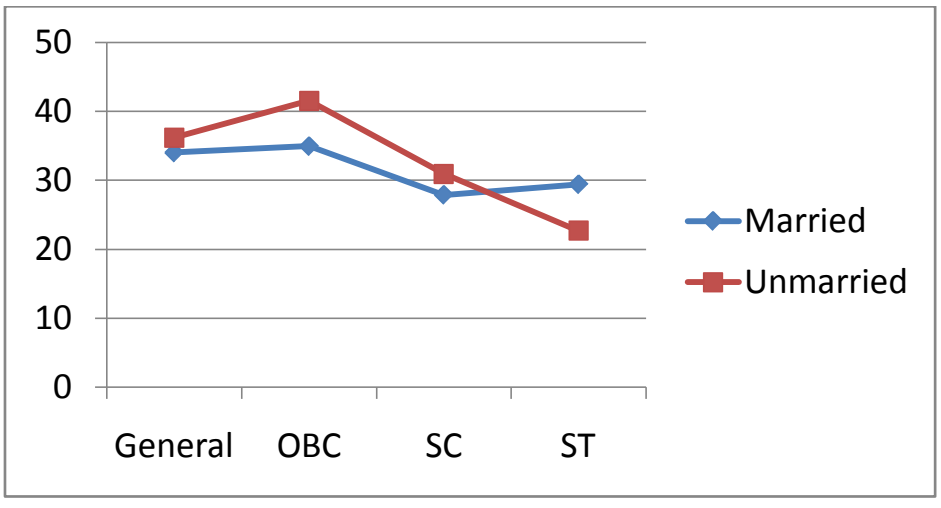
Group	Social Class	Marital Status	Mean	Std. Deviation	N
Scientific Aptitude	GENERAL	Married	34.0375	17.24393	80
		Un-married	36.2125	21.10894	80
		Total	35.1250	19.24380	160
	OBC	Married	34.9750	17.79061	80
		Un-married	41.5625	26.03787	80
		Total	38.2688	22.47283	160
	SC	Married	27.8750	15.74671	80
		Un-married	30.9625	16.71234	80
		Total	29.4187	16.25948	160
	ST	Married	29.4125	18.34183	80
		Un-married	22.7000	10.93641	80
		Total	26.0563	15.42450	160

Table No. 4.5 Summary 4X2 Factorial design ANOVA for Scientific Aptitude

Source of variance	Sum of Squares	df	Mean Squares	F
Social Class x Marital Status	3844.705	3	1281.568	3.768*
Error	214935.737	632	340.088	

*= significant at 0.05 level of significance

Graph 3 Social Class and Marital Status wise Mean score of Scientific Aptitude



From table Number 4.4, it is clear that F-value for interactional effect between Social Class and Marital Status on Scientific Aptitude was 3.76, which was significant at 0.05 level of significance with df =3/637. It shows that mean score of Scientific Aptitude of higher secondary school Women Teachers belonging to Social Class and Marital Status differed significantly. So there was significant interactional effect of Social Class and Marital Status on Scientific Aptitude of higher secondary school Women Teachers. Thus, **the Null Hypothesis HO1** "There is no significant interactional effect of Social Class and Marital Status on Scientific Aptitude of higher secondary school Women Teachers" **is rejected.** Further from table number 4.5, it can be seen that mean score of Scientific Aptitude of General-Unmarried, OBC-Unmarried and SC-Unmarried higher secondary school higher secondary school Women Teachers were 36.21, 41.56 and 30.96 respectively, which were significantly higher than General-Married, OBC-Married and SC Married whose mean score of Scientific Aptitude were 34.03, 34.97 and 27.87 respectively. Thus General-Unmarried, OBC-Unmarried and SC-Unmarried higher secondary school Women Teachers are found to have significantly better Scientific Aptitude than General-Married, OBC-Married and SC-Married higher secondary school Women Teachers.

It is noticeably seen that the mean score of Scientific Aptitude of higher secondary school Women Teachers belonging to ST-Married was 29.41 which was significantly higher than ST-Unmarried whose mean score of Scientific Aptitude was 22.70. Thus ST-Married Women Teachers are found to have significantly better Scientific Aptitude than ST-Unmarried higher secondary school Women Teachers.

CONCLUSION

1. There was significant effect of Social Class on Scientific Aptitude of higher secondary schools' Women Teachers.
2. There was not significant effect of Marital Status on Scientific Aptitude of higher secondary schools' Women Teachers.
3. There was significant interactional effect of Social Class and Marital Status on Scientific Aptitude of higher secondary schools' Women Teachers.
4. General-Unmarried, OBC-Unmarried and SC Unmarried higher secondary Women Teachers are found to have significantly higher Scientific Aptitude than General-Married, OBC-Married and SC-Married higher secondary Women Teachers.
5. It is noticeably concluded that ST-Married higher secondary Women Teachers have significantly higher Scientific Aptitude than ST-Unmarried higher secondary Women Teachers.

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Conflict of Interests: The author declared no conflict of interests.

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