Hypothetical Study of Student's Academic Performance influenced by Parent's Educational and Financial Status

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Abstract
This research is conducted in order to analyze the student's academic performance at the secondary school level in Sindh province of Pakistan. The study was focused on the students who have passed the Matriculation level recently. The sample of size equal to 1097 secondary level students was randomly selected in a way that from each college roughly up to 150 students took part in the survey. The sample selection was further divided on gender $(Male = 448, Female = 649)$ and Locale $(Urban = 456, Rural = 641)$. A survey questionnaire was circulated for data collection. The statistical analysis based on Pearson's Chi-Square and Correlation models were carried out using the collected data. The conclusion was drawn from results that strongly revealed that the student's academic achievement at high school level was highly associated to their parent's educational level and socio-economic background. Therefore, it is strongly recommended that the financial condition of the population must be enhanced by taking suitable measures. The affected students should be awarded adequate financial assistance or scholarships to face such hardships of their learning career. Free laptops, learning materials, books, and stationery should also be provided.

Keywords
Academic Performance, Academic Achievement, Gender, Socio-Economic Background, Parental Education;

1. Introduction

Many research studies have been conducted to find the underlying aspects of effecting student's academic achievement and performance at schools. According to Jeynes (2002); Hochschild (2003) and Eamon (2005); the major findings revealed that the socio-economic and parental educational status are the main factors liable for the academic achievements of the students. Moreover, Thomson (2018), says that "this is firmly thought that adverse effects on student's performance are caused by their low socio-economic background" [1]. Poor financial conditions create extra pressure at home. It also causes major impediment towards access to resources required to assess performance at schools (Jeynes, 2002; Eamon, 2005). Further to this, studies conducted by Eamon (2005) and Hochschild (2003) revealed that early school drop off ratio is high for children belonging to families of low socio-economic background. Morakinyo (2003) suggested a constructive relationship between enhanced academic performance achieved by the students and better socio-economic status of their families in society.

Similarly, White (1982) states, "The family characteristic that is the most influential predictor of school performance is socio-economic status; the higher the socio-economic status of the student's family, the higher his academic achievement". White (1986) justified his statement in a meta data analysis conducted by himself where he found a convinced relationship between academic achievement of the students and their socio-economic status. In the meta study, the author's conclusion was based on positive correlation factors (ranges: -1 to -7) between the variables. This suggests that higher the socio-economic status better the academic performance presented by the students. Similarly, Kruse (1996) discoursed that students from lower socio-economic backgrounds have performed poorly at schools as compared to those who belong to higher socio-economic groups. The results show that there has been a significant statistical difference and transformation between academic achievements and accomplishments of lower socio-economic group as compared to those groups who belong to higher socio-economic groups and environments. Whereas the evidences shown from other Meta data study conducted by Serin (2008) revealed various other factors of socio-economic background including education level of the parents, annual income of families as well as occupation of the parents also influencing in some or other ways on student's educational achievement and performance in school [2]. Other researchers, Rouse and Barrow (2006) state that socio-economic status leaves the significant effects throughout life of a children.

Socio-economic factor also influences student's attitudes at schools and learning processes. Greenfield (1996) considers inconclusive outcome from the studies conducted to gage out the influence of student's attitude on their interests in science or achievements in science fields despite many science educators believe its significant role in student's learning process. It has been generally believed that student's academic achievements in science subjects are highly associated with student's overall attitude towards science. In this connection the focusing point of research

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activity was to investigate connection between cognitive and affective learning outcomes of the students. Wong & Fraser (1996). Many researchers have shown that student's achievements in science is highly and positively correlated with attitude towards science and eventually lead to student's careers in science (Parker & Gerber, 2000; Simpson & Oliver 1990).

From the above discussion it can be concluded that in sociological research studies, there is an established connection between parental socio-economic status in society and student's academic performance. According to Graetz (1995), nevertheless, disagreement exits over how to measure socio-economic status, but most studies indicate that low socio-economic status of family have adverse impacts on their performance in school compared to children from high socio-economic background.

2. Objectives of The Study

The following main objectives were set for this study:

- To know the status of student's academic performance on their gender and locale bases at secondary level in Sindh Province.
- To know about the influence of socio-economic factor on student's overall academic performance at secondary level in Sindh Province, Pakistan.
- To work out the connection between parental educational status and their children academic performance.
- To give recommendation to improve the situation and for further research.

3. Research Hypothesis

On the above discussed objectives of the study, following null hypotheses were drawn;

$\boldsymbol{H1}$: There is no significant association prevails between student's academic achievements on the basis of gender discrimination.

$\boldsymbol{H2}$: There is no significant association between student's academic achievement and their locale.

$\boldsymbol{H3}$: There is no significant association between student's academic achievement and their parental socio-economic status.

$\boldsymbol{H4}$: There is no significant association between student's academic achievement and their parental educational status.

4. Method

This study was descriptive in nature and survey type. Pearson's Chi-Square model was used to verify null hypotheses and Pearson's Correlation Coefficient was used to investigate the level of impact between the variables. Data was initially recorded in Microsoft Excel spreadsheets. A computing software SPSS was used later for data analysis and production of results.

4.1 Population and Sampling

The study is conducted to find out the effects of socio-economic background based on demographic variables and parental financial and educational status on student's academic achievement at secondary school level. The students taking science as major in their intermediate level and have recently passed matriculation (SSC) examination.

The students belong to various colleges and Higher Secondary Schools (HSS) of Hyderabad division. Participants are randomly selected. All students were belonged to "Science-Group" while they were in SSC or Matriculation.

Balanced proportion of rural and urban population lives in Hyderabad division as well as population is based on different socio-economic and ethnic backgrounds. For the data collection purpose Hyderabad division was divided into two locality regions (1) Urban and (2) Rural; and the sample was composed on the basis of gender (1) Male and (2) Female.

The sample of size equal to 1097 secondary level students was randomly selected from different colleges and higher secondary schools of Hyderabad division in Sindh province in such a way that from each college roughly up 100 to 150 students took part in the survey. The sample selection was further divided on (1) Gender and (2) Locale.

- Gender: $(Male = 448, Female = 649)$ and
- Locale: $(Urban = 456, Rural = 641)$.

Two colleges or HSS were selected randomly from rural districts including Matiari, Tando Mohammad Khan, Jamshoro, and Dadu districts. Whereas, six colleges were selected from Hyderabad urban district. Colleges were also selected on gender basis.

4.2 Instrumentation

A survey questionnaire was developed to get the data from the participants based on the parameters of Gender, Town, Institute Name, Matriculation Grade, Subject he/she like the most, , Parent's Financial Status i.e. Annual Income, and Parent's Education Level.

Table-1. Students Grade Distributions based on Gender (Female, Male), and Locale (Rural, Urban)

Academic Achievement in SSC / Matriculation	Grade Distributions based on Gender				Grade Distributions based on Local				Total Grade Distributions	
	Female Students		Male Students		Rural Territory		Urban Territory			
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Grade: A1	167	25.73	94	20.98	176	27.46	85	18.64	261	23.79
Grade: A	273	42.06	201	44.87	286	44.62	188	41.23	474	43.21
Grade: B	172	26.50	107	23.88	143	22.31	136	29.82	279	25.43
Grade: C	29	4.47	39	8.71	27	4.21	41	8.99	68	6.20
Grade: D	8	1.24	7	1.56	9	1.40	6	1.32	15	1.37
***Total* = 1097**	**649**	**100.0**	**448**	**100.0**	**641**	**100.0**	**456**	**100.0**	**1097**	**100.0**

5. Data Analysis

5.1 Students Grade Distributions

The record was categorically distributed as per obtained Grades: "A1", "A", "B", "C", and "D". Since they were presently studying in college, and taken admission on the basis of their "Pass" grade, hence logically none of them was a "Failure" student. All relevant data is recorded in Table-1.

5.1.1 Student's Grade Distributions based on Gender

Among total collected samples of 1097 size, the gender-wise grade distribution was made among "Female" and "Male" students only. The composition of "Female" student was 59.16% (649) while "Male" students were 40.84% (448).

5.1.2 Student's Grade Distributions based on Locale

Among total collected samples of 1097 size, the Locale-wise grade distribution was made among students residing in "Rural" and "Urban" territories. The composition of "Rural" territory students was 58.43% (641) while the "Urban" territory students were 41.57% (456).

5.1.3 Student's Grade Distributions Overall

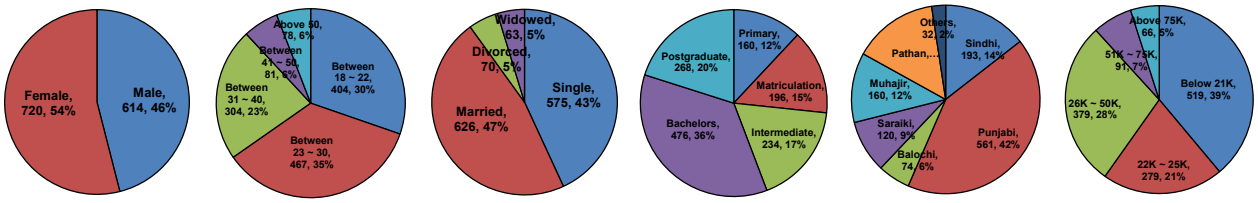
Among total collected samples of 1097 size, 23.79% (261) have secured "A1" Grade in their Matriculation (SSC). Whereas Grade "A" were 43.21% (474), Grade "B" were 25.43% (279), Grade "C" were 6.20% (68), and Grade "D" were 1.37% (15).

5.1.4 Grade-wise Distribution of Female Students

Among overall 649 Female students, 25.73% (167) have secured "A1" Grade in their Matriculation (SSC). Whereas Grade "A" were 42.06% (273), Grade "B" were 26.5% (172), Grade "C" were 4.47% (29), and Grade "D" were 1.24% (8).

5.1.5 Grade-wise Distribution of Male Students

Among overall 448 Male students, 20.98% (94) have secured "A1" Grade in their Matriculation (SSC). Whereas Grade "A" were 44.87% (201), Grade "B" were 23.88%



(a) Gender (b) Age (c) Marital Status (d) Education (e) Ethnic Group (f) Income

Fig.5. Analytical Graphs for Survey Demography.

Table-2. Pearson's Chi-Square Analysis of Student's Performance According to Gender Distribution

Analysis According to Gender	Value	df	p-Value
Pearson's Chi-Square	12.565	4	0.014
Likelihood Ratio	12.416	4	0.015
Total No. of Valid Cases (N)	**1097**		

(107), Grade "C" were 8.71% (39), and Grade "D" were 1.56% (7).

5.1.6 Grade-wise Distribution of Rural Territory

Among overall 641 Rural territory students, 27.46% (176) have secured "A1" Grade in their Matriculation (SSC). Whereas Grade "A" were 44.62% (286), Grade "B" were 22.31% (143), Grade "C" were 4.21% (27), and Grade "D" were 1.40% (9).

5.1.7 Grade-wise Distribution of Urban Territory

Among overall 456 Urban territory students, 18.64% (85) have secured "A1" Grade in their Matriculation (SSC). Whereas Grade "A" were 41.23% (188), Grade "B" were 29.82% (136), Grade "C" were 8.99% (41), and Grade "D" were 1.32% (6).

5.2 Analysis on Academic Performance of Students

5.2.1 Pearson's Chi-Square Results (Gender Distribution)

A comparison of the student's performance is graphically presented in Fig.1 according to their Gender distribution of Female and Male students. It can be seen that female students slightly performed better than their male counterparts in SSC/matriculation examinations.

A relationship between the variables is statistically analyzed and recorded in Table-2. The Pearson's Chi-Square test results indicate that a significant association is found between the variable $\chi^2(4) = 12.565$, and p-Value which is $p < 0.05$. This rejects the null hypothesis and confirms that "the gender based student's achievement exists and female students performed better than male students".

Table-3. Pearson's Chi-Square Analysis of Student's Performance According to Locale / Territory Distribution

Analysis According to Gender	Value	df	p-Value
Pearson's Chi-Square	26.11	4	0.000
Likelihood Ratio	26.08	4	0.000
Total No. of Valid Cases (N)	**1097**		

5.2.2 Pearson's Chi-Square Results (Locale Distribution)

A comparison of the student's performance is graphically presented in Fig.2 according to their Locale based distribution on Urban and Rural territories of Hyderabad division. It can be seen that students belonging to Rural areas performed better in SSC/Matriculation examination than their counterparts living in Urban areas.

A relationship between the variables is statistically analyzed and recorded in Table-3. The Pearson's Chi-Square test results indicate that significant association is found between the variable $\chi^2(4) = 26.11$, and p-Value which is $p < 0.05$. This rejects the null hypothesis and confirms that "the Locale based student's achievement exists and the students belonging to Rural areas in Hyderabad division performed better than the students living in Urban areas".

5.3 Annual Parental Income

Annual income in Million Pakistani Rupees (PKR) of the parents belonging to the respondent students is given in Table-5. It can be seen that most of the students belong to lower-middle class to middle class group having parent's earning less than 0.1 Million to 1 Million rupees per Annum.

According to the collected responses, the annual parental income of 4.6% (50) students lies in the group of greater than PKR 2 million Rupees i.e. Rs. 20 Lacs per annum having

Table-4. Parental Education Level

Parental Education Level	Frequency	Percentage
Both parents finished Graduate degree	160	14.6
One parent finished Graduate degree	241	22.0
Both parents went for College degree	175	16.0
One parent went for College degree	132	12.0
Both parents finished High School	91	8.3
One parent finished High School	66	6.0
Both parents attended Primary School	85	7.7
One parent attended Primary School	49	4.5
One/Both attended Madrasah (Religious School)	23	2.1
Both parents are illiterate	75	6.8
Total	**1097**	**100.0**

Table-5. Parent's Financial Status and Annual Income

Annual Income (PKR, Approx.)	Monthly Income Approx.	Frequency	Percentage
Greater than 2 Million (Rs. 20 Lacs)	Rs.1,66,667/-	50	4.6
Greater than 1.5 Million (Rs. 15 Lacs)	Rs.1,25,000/-	61	5.6
Greater than 1 Million (Rs. 10 Lacs)	Rs.83,333/-	99	9.0
Greater than 0.5 Million (Rs. 5 Lacs)	Rs.41,667/-	214	19.5
Greater than 0.1 Million (Rs. 1 Lakh)	Rs.8,333/-	279	25.4
Less than 0.1 Million (Rs. 1 Lac)	Rs.8,333/-	394	35.9
Total		**1097**	**100.0**

Table-6. The Standardized Residuals

Student's Academic Performance vs Parent's Financial Status					
Annual Income (PKR, Approx.)	**A1**	**A**	**B**	**C**	**D**
Greater than 2 Million (Rs. 20 Lacs)	2.3	− 0.6	− 0.5	− 1.8	− 0.8
Greater than 1.5 Million (Rs. 15 Lacs)	0.9	− 0.5	− 0.9	0.6	1.4
Greater than 1 Million (Rs. 10 Lacs)	1.3	− 0.1	− 1.2	0.3	− 0.2
Greater than 0.5 Million (Rs. 5 Lacs)	2.1	0.1	− 1.7	− 0.7	− 0.4
Greater than 0.1 Million (Rs. 1 Lakh)	− 0.5	− 0.1	0.0	1.3	− 0.3
Less than 0.1 Million (Rs. 1 Lac)	− 3.0	0.4	2.4	− 0.4	0.4

monthly income Rs.1,66,667/- approx., whereas 5.6% (61) were found in the group of greater than PKR Rs. 1.5 million i.e. Rs. 15 Lacs per annum having monthly income Rs.1,25,000/- approx., 9% (99) were found in the group of greater than PKR Rs. 1 million i.e. Rs. 10 Lacs per annum having monthly income Rs.83,333/- approx., 19.5% (214) in the group of PKR Rs. 0.5 million i.e. Rs. 5 Lacs per annum having monthly income Rs.41,667/- approx., 25.4% (279) in the group of PKR Rs. 0.1 million i.e. Rs. 1 Lac per annum having monthly income Rs.8,333/- approx., whereas 35.9% (394) student's parents come under the group of less than PKR Rs. 0.1 million i.e. Rs. 1 Lac per annum having monthly income of Rs.8,333/- approximately which is much low.

5.4 Parental Education level

Education level received by the parents of the respondents is recorded in Table-2. According to survey record, among 1097 respondents, 14.6% i.e. 160 respondents were found as "Both parents have finished Graduate degree", 22% i.e. 241 were those where "One parent either mother or father have finished graduate degree", 16% i.e. 175 were "Both parents who went for college degree", 12% i.e. 132 were "One parent either mother or father who went for college degree", 8.3% i.e. 91 were found "Both parents who finished their high school", 6% i.e. 66 were "One parent either mother or father who finished high school", 7.7% i.e. 85 were "Both parents who attended primary school only", 4.5% i.e. 49 were "One parent either mother or father who attended primary school only", 2.1% i.e. 23 were "Either one or both parents attended Madrasah i.e. Religious School" whereas 6.8% i.e. 75 were families where "Both parents were found illiterate".

This could be reflected that most of the parents are highly or moderately educated and finished graduation or college level education.

5.5 Relationship between Academic Performance and Financial Conditions

In Fig.3 Comparison of student's performance vs financial conditions of the families Fig.3 the performance of the students (their matric grades) is compared against financial conditions of their families. Here we can see that students belonging to higher income group families achieve higher grades. Perhaps, this is due to their higher access to resources as compared to lower income group families. In order to further analyze the relationship between the variables, analysis of the standardized residuals is given in Table-5. The positive standardized residuals (residuals divided by standard deviation) indicate that there was higher number of respondents belonging to certain grades for the students belonging to certain financial group than expected. Whereas, the negative standardized residuals indicate opposite to that. It can be seen clearly that higher grades or better performance of the students is more than expected for high income group respondents. Pearson's Chi-Square test is also conducted to verify the relationship between the student's performance and parental financial conditions. The data shown in Table-6 indicates significant association between the variable ($X2(20) = 42.4$, $p < .005$) exists. Which further confirms that student's achievement is highly associated with their financial conditions. Table-6 indicates that significant positive correlation exists between annual income (financial condition) of the parents and student's academic performance ($r = 0.131$ and $p = 0.00$) at correlation significance level of 0.01, therefore, the null Hypothesis "there is no significant relationship between Parental financial condition and student's academic performance" is rejected.

5.6 Relationship between Academic Performance and Parental Education Level

It is commonly considered that children belonging to educated families perform better in schools (Simpson & Oliver, 1990). Here we present a graphical comparison in Fig.4. In the figure performance of the students is compared against their parental education level. Here we can see that students belonging to highly educated families achieve higher grades. In order to further analyze the association between the variables, analysis of the standardized residuals is given in Table-7. The positive standardized residuals indicate that students belonging to higher level of parental education get higher grades than expected. Whereas, the negative standardized residuals indicate opposite to that. It can be seen clearly that higher grades or better performance of the students is more than expected for students belonging to higher educated families. Pearson's Chi-Square test shown in Table-8 indicates significant relationship between the student's performance and parental education level i.e, $X2(36) = 150.86$, $p < .005$. Significant positive correlation also exists between parental education level and student's academic performance ($r = .245$ and $p = 0.00$) at correlation

significance level of 0.01, hence, the null Hypothesis "there is no significant relationship between Parental education level and student's academic performance" is rejected.

6. Results and Discussion

This study was conducted to investigate the underlying factors effecting student's performance at school and primarily focused to find the connection between student's performance or achievement and parental financial conditions and educational background. Further to this, impact of demographic factor also studies. The gender base impact revealed that female students slightly perform better as compared to their male counterparts in matriculation (Class-IX-X) examinations. Similarly, students Locale base difference in performance revealed that students belonging to Rural areas of Hyderabad division performed better as compared to those who lives in Urban areas of the same division.

One of the significant finding of the study is based on analyzing the impact of socio-economic condition on students 'performance in school. It can be easily concluded from the study that those students belonging high income group has performed better in their matriculation results. Further to this, it was also found that student's performance was positively correlated with family income. The study discloses that the family whose annual income is above 1.5 million has significant positive effect on students 'academic performance. The findings of this study are in complete agreement with previously findings of the studies conducted in Khyber-Pakhtunkhwa Province of Pakistan by Ghazi, et al. (2013). Another major finding of this study disclosed the impact of parental education level on their children's performance in school. It can easily be concluded from this study conducted in Sindh province, that students belonging highly educated families perform better in schools and significant positive correlation exists between the parameters.

7. Conclusion

The study was aimed to work out the association between the parent's socio-economic conditions and education level and their children's academic performance at Secondary level in Sindh, Pakistan. Significant association was found between the parameters. Higher the financial condition and education level of the parents, better their children perform in the schools.

In the past years, major research activities have been undertaken which showed socio-economic background of the parents does have significant effect on their children's academic achievements. The findings of this research study conducted in Sindh province also follow the previous findings. But still it is not clear yet how this effect is transferred. This indicates new ways that need to be followed to develop fully understanding of this phenomenon. In order to fully understand the impact for parental socio-economic status and educational level on their children's performance in schools, research studies need to be conducted on various education levels especially primary and secondary levels. Further to this studies need to be conducted for identifying and characterize underlying factors might be affecting student's performance, such as parental role, school environment, teacher's role, as well as use of modern technological gadgets such as mobile phones and tablets. In order to enhance student's performance at schools, their parental financial conditions need to be improved.

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