Assessment of Parental Involvement & Related Factors for Students' Academic achievement in case of College of Natural Science, University of Gondar, Ethiopia

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Abstract

Background: Education is a primary need in this time of globalization. The parental involvement paradigm has long been recognized as centrally significant to children's educational attainment. The effect of parental involvement on youth academic performance appears to be a function of the type of involvement. This study aimed to assess parental involvement and related factors for students' academic achievement in university of Gondar, College of Natural Science.

Method: In order to achieve the objective of this study a sample of 120 students (87 male and 33 Female) from college of Science, University of Gondar, were selected using simple random sampling and stratified allocation. The instrument employed to collect data from students was structured questionnaire. Multiple linear regression model was used to assess the relationship of Current CGPA of students and the selected explanatory variables. Model assumptions were checked following the fitted regression model.

Result: The study revealed that parents financial support, advice, motivation and psychological support affected students' academic achievement. In addition, gender of students and education level of head of household were responsible for low academic achievement of students, whereas, residence place and family size didn't affect their achievement.

Keywords: Parental Involvement, Parental Related Factor, Academic Achievement, Multiple Linear Regression (MLR) model.

1. INTRODUCTION

Education is a primary need in this time of globalization [1]. Education is essential for the development of society. The more educated the people of a society are, the more civilized and well-disciplined the society might be [2]. Parental involvement is an individual right and responsibility for families, and a social need [3]. The parental involvement paradigm has long been recognized as centrally significant to children's educational attainment [4]. The home, child and school form a trio that creates a special climate that is desirable for effective education [5].

The effect of parental involvement on youth academic performance appears to be a function of the type of involvement. Parents can model positive attitudes and behaviors toward school and convey the importance of school [6]. Parental involvement styles have an effect on achievement at an individual and school level, even after accounting for the effect of context or background variables [7]. The impact of parental involvement on student academic achievement has been recognized by teachers, administrators, and policy-makers who consider parental involvement to be one of the integral parts of new educational reforms and initiatives [8]. The media portrays college parents as helicopters hovering over their children's daily existence and intervening with campus officials in ways that may disrupt students' academic growth [9]. Academic socialization is generally associated with academic success, whereas home-based involvement closely relates to school behavior [10].

The findings of the study showed a significant relationship between parental socio-economic conditions and academic achievements of the children in regional examination. The majority of students whose parents have better socioeconomic conditions performed better as compared to those children whose parents had low socio-economic condition [11]. A study showed that income level, rate of money given to satisfy basic and educational materials, parent's occupation, family size, parent's educational level, and parent's way of giving motivation were found to be a significant effect on academic performance of students at 5% level of significance [12]. Both emotional intelligence and parental involvement could predict academic achievement in high school students [13]. Parental involvement will significantly influence students' academic performance, single parenthood will significantly influence students' academic performance and that parental socio-economic status will significantly influence students' academic performance in agricultural Science [14].

Invitation from school was statistically correlated with role construction and parent self-efficacy but that student achievement was not statistically correlated with any of the scales from the parental involvement [15]. It was concluded that parental involvement has a significant impact on secondary student's achievement level. Hence, it was proved from the results of study that parental involvement plays a vital role in their children academic achievements [16]. It can be said that the impact of parental involvement arises from parental values and educational aspirations and that these are exhibited continuously through parental enthusiasm and positive parenting style [17]. Family stress also affects the student performance and reduces the performance of the student and affects negatively the student performance[18]. The quality of the student–teacher relationship fully mediated the relation between parent involvement and teacher ratings of the child's class-room academic performance [19].

In promoting achievement across elementary and secondary school levels, theories, research, and policies have identified the significant role of families, family–school relations, and parental involvement in education [20]. Given that parents have limited influence over the child's peer relationships, direct parental influence remains an opportunity to leverage those factors for the benefit of the child, including their academic achievement [21]. In a summative form, parental involvement also had different effects on the academic skills. A unit increase in the summed parental involvement led to 8% and 17% increase in spelling and reading skills and to a 10% decrease in arithmetic skills [22]. It was concluded that students' academic achievement in grade nine and ten was a function of parents' income, parents' education, parents' occupation, family size, and other variables. Hence, any intervention aimed at improving students' academic achievement need to consider these variables [23].

The finding suggests that frequent provision of task-extrinsic reward for good academic performance by parents lowers the probability of selecting STEM majors in college, controlling for academic preparation, demographics, and family socioeconomic status [24]. The study revealed that parental involvement in their children's education significantly influenced their academic achievement in English language. On the basis of the finding it was concluded that when parents assist their children with their school work at home, children academic achievement is likely to be high [25].

The findings confirm that parent-child and parent-school involvement practices differentially influence student attitudes and behaviors, thereby indirectly affecting student achievement to

varying degrees [26]. The associations between parental involvement and academic achievement vary according to the school level, gender, and the subjects. Especially, different association between monitoring types of involvement and achievement is found between elementary and middle school [27]. Parental involvement and academic performance are positively related to school adjustment. In addition, parental involvement influences adolescents' school adjustment, regardless of academic performance, being a protective factor in that adjustment [28].

Parental involvement in school has been linked with academic achievement. As far as the authors' knowledge, there is no study done on the area in University of Gondar, College of Natural Science Students. In our point of thought, there is a gap between the parental involvement and student's academic achievement; especially at higher education level, so the study will investigate parental involvement and related factors for the academic achievement of their children in University of Gondar, College of Natural Science Students. In this study the researcher intended to investigate parental involvement and related factors for the academic achievement of students in University of Gondar, College of Natural Science Students as well as suggest the possible solution for the problem at hand. Specifically this study aimed to answer the following research questions with respect statistical data analyses: 1) is there a significant relationship between independents factors (explanatory variables) with (response variable - academic achievement)? 2) To provide recommendations about parental influence on students' academic performance based on the findings of the study.

1. Methods

Data Area

This study was planned to assess parental involvement and related factors for the academic achievement of students in University of Gondar, College of Natural Science. The University is found in Amhara region and located 738 km far from north of Addis Ababa, Capital city of Ethiopia.

Study Population

The Target Population that the researcher decided to use in this study was the number of all third Year College of Natural Science Students.

Study Design

Since, the data was collected across students almost at the same time; the design of this study could be described as quantitative cross sectional survey.

Sampling Technique

Simple Random Sampling was used for the sample selection process which is the basic probability selection scheme in which predetermined number of units is selected. Simple random sampling method is the selection of every possible sample units equally likely.

Sample Size Determination

Once of these points have been appraised and individually assessed, the investigators are in a better position to decide the size of the sample. Appropriate sample size is one of the means of gaining high precision. In this study, convenient sampling technique was used to obtain pupils to respond to the pilot survey questionnaire. This approach allowed the researcher to reach everyone who was available and willing to take part in the study. The following are the procedures to determine the sample size for the study. First, select some of the students from the target (study) population using random sampling method; collect the CGPA of the selected 30 students then, calculate the mean and variance of the students' CGPA. Finally, estimate the required sample size. Based on Cochran 1977 the sample size can be estimated as follows; the sample size "n" is estimated:

$$n \geq \frac{\frac{z^2_{a/2} s^2}{d^2}}{1 + \frac{z^2_{a/2} s^2}{d^2 N}} \tag{1}$$

$$n \geq \frac{n_o}{1 + \frac{n_o}{N}}$$

$$n_o = \frac{z^2_{a/2} s^2}{d^2} \tag{2}$$

Where, n = total sample size, N = total population, s^2 = the sample variance of CGPA, d = margin of errors assumed and a = level of significance. If $\frac{n_o}{N}$ is the small sample fraction says, less than 5% one can consider n_o as the required sample size n. Otherwise, calculate n by using $n \geq \frac{n_o}{1 + \frac{n_o}{N}}$, then, the value of s^2 from the above is, $s^2 = 0.2594$. For, $= 5\%$ $Z^2_{\alpha/2} = 1.96$, the margin of error considered for this study is, $d = 8\%$ and $N = 517$.

Then we estimate as:

$$n_o = \frac{(1.96)^2 * 0.2594}{(0.08)^2} = 155.705 \approx 156$$

Now we can compute $\frac{n_o}{N} = \frac{156}{517} = 0.03017 > 5\%$, the sample size should be estimated as:

$$n = \frac{156}{1 + \frac{156}{517}} = 119.8395 \approx 12$$

Finally, to find the estimated sample size for each stratum (department) of size N_h, we use stratification with proportional allocation of n_h, which is expressed by:

$$n_h = \frac{N_h}{N} * n \qquad (3)$$

Where, N = total number of the target population, N_h = the number of all third year students in the hth department (strata), $h = 1, 2, 3 \dots 8$, n_h = the sample size for each strata and n = the total sample size. $nh = \frac{Nh}{N} * n$

$$n_1 = \frac{N_1}{N} * n = \frac{130}{517} * 120 \approx 30$$

$$n_2 = \frac{N_2}{N} * n = \frac{73}{517} * 120 \approx 17$$

$$n_8 = \frac{N_8}{N} * n = \frac{50}{517} * 120 \approx 12$$

Table 1. The Estimated Sample Size from each Department

Department	N_h	n_h
Biology	130	30
Chemistry	73	17
Statistics	72	17
Mathematics	42	10
Physics	61	14
Biotechnology	49	11
Geology	40	9
Sport Science	50	12
Total	517	120

Study Variables

Academic achievement that can be measured by CGPA of the student was an outcome variable for this study. The independent variables are measured from structural questionnaires and those are

related to parental involvement and socio-demographic variables. Therefore, the independent variables included in this study were list out in **Table 2** below.

Table 2. Independent Variables with Coding Included in the Study

Variable	Coding	Variable	Coding
Gender	1=Male 2=Female	Residence place	1=Urban 2=Rural
Department of the student	1=Biology 2=Chemistry 3=Statistics 4=Mathematics 5=Physics 6=Biotechnology 7=Geology 8=Sport science	Education level for head of house head	1=Illiterate 2=Primary school 3=Secondary school 4=Diploma 5=1st degree and above
Monthly income	[Continuous]	Family size	[Continuous]
Financial support	1=Strongly disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly agree	Parent Advice	1=Strongly disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly agree
Parent Motivation	1=Strongly disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly agree	Psychological support	1=Strongly disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly agree

2.1.Statistical Data Analysis

Descriptive Statistics

Methods of organizing (tabulation and frequency distributions) would be used in order to obtain a certain indicators of data like measures of central tendency and measures of dispersion (variation) which summarized some important features of the data would be done for this study.

Multiple Linear Regression Model

In multiple linear regressions we have a dependent and two or more independent variables. This model is used to study the linear relationship among variables. The multiple regression models are also used for when the response variable is quantitative and continuous. Designating the single response variable by Y , the p independent variable $X_1, X_2, X_3, \ldots, X_p$ and the error term byε, the population model of multiple linear regressions is given by the following expression: The regression model is written as:

$$Y = \beta_0 + \beta_2 X_2 + \beta_2 X_2 + \cdots + \beta_p X_p + \varepsilon \tag{4}$$

Where Y is response variable (CGPA of students), β_0 is constant term, $\beta_1, \ldots \beta_p$, are unknown parameters, $i = 1, 2 \ldots p.$, $X_1, X_2 \ldots \ldots X_p$, are explanatory variables and ε is the error term. The model parameters are estimated by using least square estimation method in order estimate the unknown parameter for multiple linear regression model. The ordinary least square estimation can be done using:

$$\hat{\beta} = (\mathrm{x}'\mathrm{x})^{-1}\mathrm{x}'\mathrm{y} \tag{5}$$

Where; y is vector of observation of academic achievement, y(nxp) is invertible matrix of coefficient, y is matrix of factors affecting the academic achievement, β's are vectors of the coefficients of the explanatory (independent) variables and β (px1) is vectors of regression that is estimated from the data.

Regression Model Assumptions

- Multiple regression models should be linear and also parameter should enter the model in linear form (Linearity).
- Errors have normal distribution with mean vector zero (Normality).
- Variance of the errors at each fixed values of the independent variables is constant that is δ^2(Homoskedasticity).
- There should not be correlation between successive error terms. That is, $corr\ (\varepsilon i, \varepsilon j = 0)$. Autocorrelation occurs when the residuals are not independent from each other.
- There must not be significant relation between the independent variables. In other words, X has a n $\times$ k matrix of full rank (no Multicolinerity). It occurs when several independent

variables correlate at high levels with one another. Those model assumptions would have been checked using appropriate statistical tools.

Hypothesis Testing for Analysis of Variance (ANOVA)

Adequacy of the model in multiple linear regressions can be checked by testing the regression coefficient associated with the independent variable.

Step 1: Identify the null and alternative of hypothesis:

Ho: $\beta1 = \beta2 = \beta3 = \cdots \beta k = 0$ (the model is not adequate to fit the data)

Ha: $\beta i \neq 0$ for at least one $i = 1,2,3, \ldots k$ (the model is adequate to fit the data)

Step 2: Fix the level of significance and the tabulated value: $\alpha = 0.05$ (default value)

Step 3: Find the test statistic

$$Fcal = \frac{MSR}{MSE} \tag{6}$$

$$\text{Where, MSR} = \frac{SSR}{df} = \frac{SSR}{(p+1)-1} \text{ and,}$$

$$MSE = \frac{SSres}{df} = \frac{SSres}{n-(p+1)}$$

Step 4: Decision and rejection region: Decion rule reject Ho if, $f\,cal > f\,tab$

Step 5: Conclusion: Rejecting the null hypothesis implies that the adequacy of the model to fit the data very well.

3. Results

A common first step in data analysis is to summarize information about variables in the data set, such as the averages and variance of variables. There were a total of 120 respondents (students), and the maximum CGPA of the student is 3.97 and the minimum CGPA is 2.00 with the average value of CGPA 3.067 its standard deviation and variance were 1.54155 and 0.204 respectively.

The following table presented the mean and standard deviation of Family average monthly income, Family size (in number), financial support, advice, motivation, and psychological support. Each of the items was designed in the form of five rating scales which are called Lickert scales. These are strongly disagreeing, disagree, neutral, agree and strongly agree. The values given were, 1, 2, 3, 4, and 5 respectively. The average value was obtained by dividing the sum of ratio scales (i.e.,

1+2+3+4+5=15) by number of Lickert scales that is 5 [29] and those measurements were considered as a continuous variable.

Table 3. Descriptive Statistics for Response Variable

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Current CGPA value	120	2.00	3.97	3.067	.4515	.204
Valid N (listwise)	120					

Table 4. Descriptive Statistics for Continuous Explanatory Variables

Variables	Mean	Std. Deviation
Family Average Monthly Income	3754.4	2.495
Family Size (In Number)	1.79	1.883
Financial Support	3.58	0.74
Parent's Advice	3.62	0.69
Psychological Support	3.32	0.90
Motivation	3.44	0.53

There were higher numbers of male respondents 87 (72.5%) than that of female 33 (27.5%). Majority of the respondents were come from rural 63 (52.5%) and 57 (47.5%) were from urban. The educational status of head of household for respondents were; 39 (32.5%) 1st degree and above, 29 (24.2%) illiterate, 18 (15%) secondary school, and 17 (14.2%) primary school & diploma both equal.

Correlation Analysis

The correlation analysis used to indicate the strength of association between continuous variables was presented in the following Table 6 below. The sig. value (p-value) is less than 5% (.05), default significance level, showed the existence of correlation between current CGPA and a variable. According to the categorization principle family average monthly income, financial support, parent

advice, parent motivation and psychological support have moderate positive correlation with current CGPA. On the other hand, family size (in number) has the significance level greater than 5% (.05) implied that there was no correlation between family size and current CGPA.

Table 5. Frequency distribution for Demographic Variables

Demographic variable		Frequency	Percent
Gender	Male	87	72.5
	Female	33	27.5
Residence place	Urban	57	47.5
	Rural	63	52.5
Department	Biology	30	25.0
	Chemistry	17	14.2
	Statistics	17	14.2
	Mathematics	10	8.3
	Physics	14	11.7
	Biotechnology	11	9.2
	Geology	9	7.5
	Sport Science	12	10.0
Educational Level of Head of Household	Illiterate	29	24.2
	Primary School	17	14.2
	Secondary School	18	15.0
	Diploma	17	14.2
	1st Degree & Above	39	32.5

Linear Regression Analysis

Regression Analysis describes the relationship between the dependent variable (current CGPA) and the respective independent variables. The following table displayed the overall significance of the regression model. The hypothesis test of analysis of variance (ANOVA) is stated as:

H_0: $\beta1 = \beta2 = \beta3 = \ldots\ldots\ldots \beta8 = 0$ (There is no significant predictor variable in the model) versus H_1: $not\ H_0$ (At least one predictor variable contributes significantly to the model).

Since sig. value (.000) is less than 5% significance level, so the null hypothesis (H₀) is rejected and at least there is one Explanatory variable which affects the current CGPA of students in the model. Hence, the overall regression model is significant.

Table 6. Correlation Analysis

		Family Monthly Average Income	Family Size (in Number)	Financial Support	Parent Advice	Parent Motivation	Psychological Support
Current CGPA value	Pearson Correlation	.406	.007	.367	.443	.391	.577
	Sig. (2-tailed)	.000	.609	.000	.011	.000	.001
	N	120	120	120	120	120	120

Table 7. Analysis of Variance (ANOVA)

Model	Sum of Squares	DF	Mean Square	F	Sig.
Regression	1134.300	13	87.254	495.761	*0.000*
Residual	18.860	107	0.176		
Total	1153.160	120			

From the model summary **Table 7** the value of Adjusted R-Square (R^2) is 0.977 implied that about 97.7% of variation in Current CGPA (dependent variable) is expressed in the variation of set of predictor variables (Gender, Residence place, Family's average monthly income, Education status for head household, Family size, Financial support, Advice, Motivation, and Psychological support). In addition, the Durbin Watson statistics $= 1.987 \approx 2$ showed that there was no autocorrelation problem on the regression model.

Table 8. Model Summary

Model	R	R Square	Adjusted R Square	Durbin-Watson
	.989[a]	.979	.977	1.987

Estimating Regression Model Coefficients

The following **Table 9** presented the coefficient of individual explanatory variables with the corresponding to sig. value (p-value).

When the set of predictor variables include categorical variable with more than two levels, it is mandatory to use dummy variable in the regression model. Dummy variable is an artificial variable

which is created to represent an attribute with two or more district categories. These variables are also called indicator variables. We usually use 0 and 1 to represent: "0" for the absence of attribute, and "1" for the presence of attribute. In this study the variable Education level of head household is categorical with five levels (illiterate, primary school, secondary school, diploma, first degree and above). If a categorical variable has m levels or categories, then $(m - 1)$ dummy variables are required and each of them takes value 0 & 1. Let the notation "D" represent dummy variable.

Hence, the multiple linear regression model given by:

$$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 D_1 + \beta_{10} D_2$$
$$+ \beta_{11} D_3 + \beta_{12} D_4 + \varepsilon \qquad\qquad (7)$$

Where: X_1 =Gender, X_2 = Residence place, X_3 = Family average monthly income, X_4 = Family size (in number), X_5 =financial support, X_6 = parent advice, X_7 = parent motivation, X_8 = parent psychological support, and the dummy variable created, $D_1, D_2, ..., D_4$ are education level of head of household for primary school, secondary school, diploma and 1st degree & above respectively.

Table 9. Estimated Coefficients for each Explanatory Variable

Variables	Unstandardized Coefficients		Standardized Coefficients	t-Statistic	Sig. value
	B	Std. Error	Beta		
Gender	.297	.097	.171	3.062	.003
Residence Place	.105	.090	.116	1.167	.245
Family Monthly income	.084	.013	.057	6.462	.000
Family Size	.017	.022	.073	.773	.434
Financial Support	.374	.067	.135	5.582	.001
Advice of Parent	.234	.069	.035	3.391	.003
Motivation of Parent	.150	.102	.182	1.467	.145
Psychological Support	.346	.048	.091	7.208	.000
Education Level of Head of household*					
Illiterate	---	---	---	7.359	.000

Primary School	-.035	.013	-.027	-2.692	.000
Secondary School	.138	.037	.109	3.73	.000
Diploma	.252	.067	.196	3.761	.000
First Degree and Above	.585	.125	.089	4.680	.000

illiterate household head is taken as a reference category.--for Gender "Female" is as a reference.

The individual hypothesis test of each explanatory variable $(\beta j's)$ is:

$$H_0: \beta_j = 0 \quad \text{Versus} \quad H_1: \beta_j \neq 0$$

Decision Rule: reject H_0 if the sig. value (p-value) is less than 5% (.05), and inferred the explanatory variable is significant to the model, implied it has an effect for the students' academic performance.

Thus, the corresponding fitted multiple linear regression model is:

$$\hat{Y} = .297X_1 + 0.084X_3 + 0.374X_5 + 0.234X_6 + 0.374X_6 + 0150X_7 + 0.346X_8$$
$$- 0.035D_1 + .138D_2 + .252D_3 + 0.585D_4 \tag{8}$$

Where, $\hat{Y}$ is Current CGPA of students, $X_1 = $ Gender, $X_3 =$ Family Average Monthly Income, $X_5 =$, Financial Support, $X_6 = $ Parent Advice, $X_7 =$, Parent Motivation, $X_8 =$ Psychological Support, $D_1 =$ Primary School, $D_2 = $ Secondary School, $D_2 =$ diploma & $D_4 =$ 1st degree & above. Note: Positive and significant estimated coefficients revealed, there was a direct relationship between Current CGPA of students and parent involvement and related factors.

✎ The coefficient $\beta_1 = .297$ showed that, the current CGPA of male students is .297 times higher as compared to female students, keeping other variables constant. Or, the expected difference of male and female students' CGPA is .297. Similarly, the students' CGPA having education level primary school headed household is .035 times lower as compared to illiterate headed household students, keeping other variables constant. Or, the expected difference of primary school & illiterate headed household students' CGPA is -.035; the students' CGPA having education level diploma headed household is .252 times higher as compared to illiterate headed household students, keeping other variables constant; the students' CGPA having education level 1st degree and above headed household is .585 times higher as compared to illiterate headed household students, keeping other variables constant.

After controlling the effect of gender and education level of head of household, the current CGPA of a student is increased by 8.4% with 1% increase in family average monthly income, keeping

other variables constant. The student's current CGPA is increased by 37.4%, 23.4%, 15% and 34.6% with 1% increase in financial support, parent advice, parent motivation and psychological support respectively, keeping other variables constant and control the effect of the gender of students and education level of head of household.

Checking for Regression Model Assumptions

Once we estimated the regression model coefficients', it is necessary of assessing whether the underlined model assumptions are satisfied or not? For this study, the assumption of Normality, Linearity, homoscedasticity, no Autocorrelation and no multicollinearity were checked and presented below.
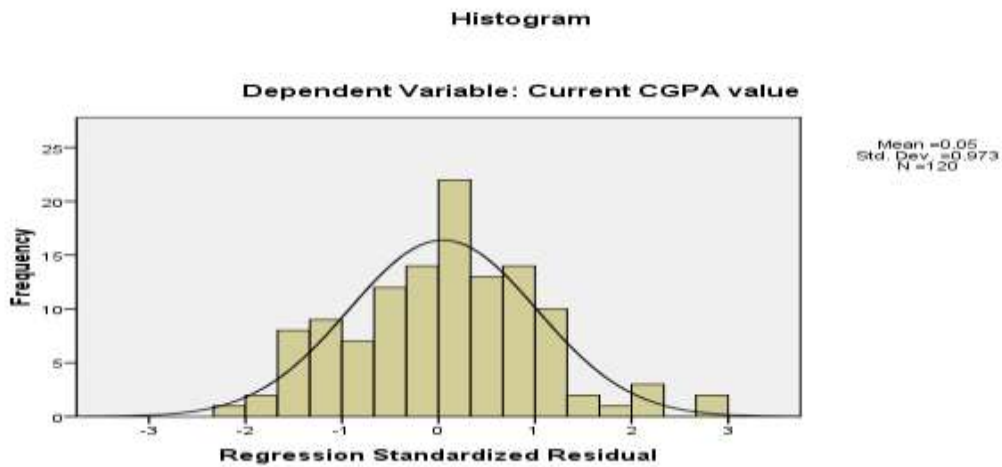

Fig 1. Histogram

From the above **fig. 1** histogram plot almost all the spike lies under the normal curve. Hence, this showed that the assumption of normality of error term is satisfied.
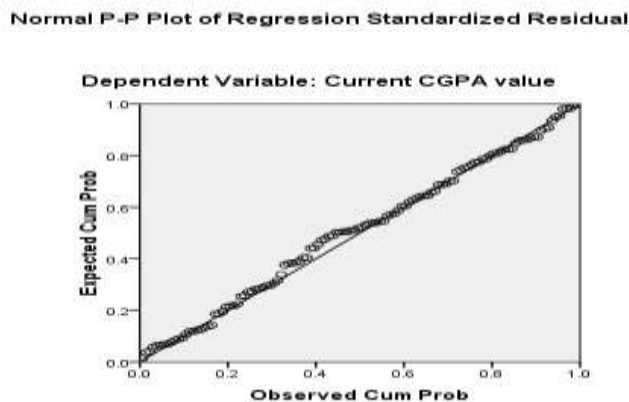

Fig 2. Normal P-P Plot

The points of normal p-p plot (**fig. 2**) are lined on the straight line, this indicated there was a linear relationship between current CGPA of students and the set of explanatory variables, implied that linearity of a regression model is satisfied.
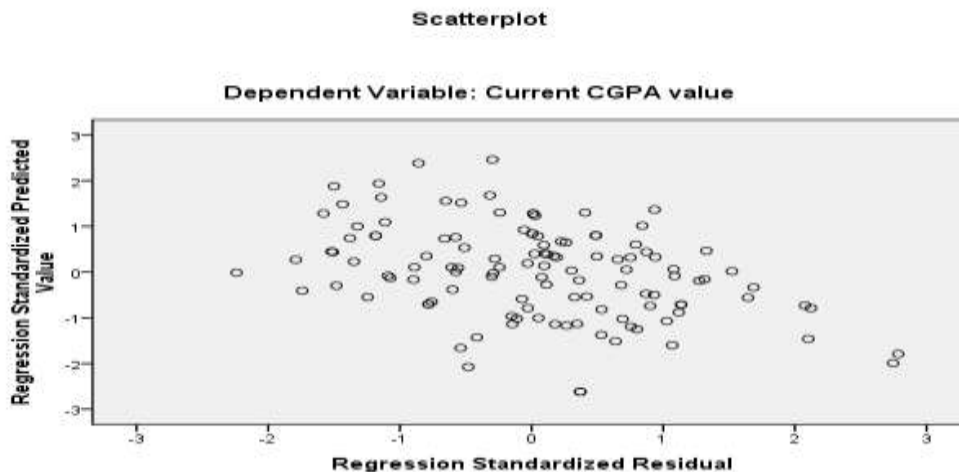
Fig 3. Scatter Plot

From **fig. 3** plot of standardized fitted values against the standardized residuals, we observed that the spread of the residuals are the same throughout (i.e. there is no any systematic patterns). The non-systematic random pattern indicated the error terms are homoskedastic (constant variance), there is no hetroscedasticity problem.
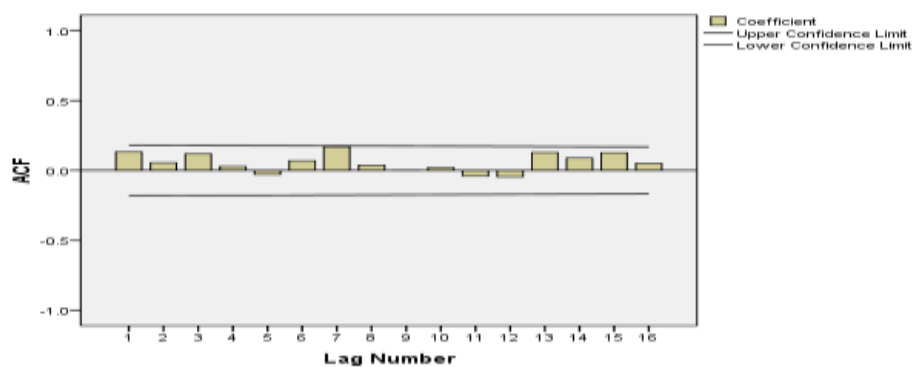
Fig 4. Partial Autocorrelation function (PACF)

In **fig. 4** Above the Partial Autocorrelation function *(PACF)* showed there is no spike outside the confidence interval. Thus, there is no autocorrelation problem of the error terms in the model.

Table 10. Residual Statistic

	Minimum	Maximum	Mean	Std. Deviation
Predicted Value	2.6000	3.4546	3.0672	.18152
Residual	-1.12565	.94205	.00000	.41340
Std. Predicted Value	-2.574	2.134	.000	1.000
Std. Residual	*-2.642*	*2.211*	*.000*	*.970*
a. Dependent Variable: Current CGPA value				

From the above **Table 10** of residuals statistics indicate the mean of std. residual is .000 std. Deviation is $0.970 \approx 1$ which implied that the error term has mean zero and approximately constant variance, $(\varepsilon \sim iid\ (0, \sigma^2))$.

Table 11. Collinearity Statistics

Explanatory Variables	Collinearity Statistics	
	Tolerance	VIF
Family Average Monthly Income	.776	1.289
Family Size (In Number)	.843	1.186
Financial Support	.613	1.631
Advice of Parent	.653	1.532
Motivation of Parent	.471	2.122
Psychological Support	.796	1.256

The result from **Table 11** the column variance inflation factor (VIF) is obtained by $\frac{1}{Tolerance}$ and, the value of all (VIF) is less than 10 which showed that, explanatory variables are not linearly dependent with each other. Therefore, there is no multicolinearity problem in the model.

4. CONCLUSION AND RECOMMENDATIONS

This study examined parent involvement in terms of (financial support, advice, psychological support, and motivation) and related factors like family size, family monthly income and education level of head of household. As the research showed that, these ways of parental involvement were key factors to the educational achievement of students. In this study, parents had significant

participation when it came to involve and being willing to help with supporting their children. The highest effect for the student academic achievement was their willingness to support financially, and the education level of 1st degree & above headed household.

In this study family monthly income, financial support, parent advice, parent advice, psychological support, students having head of household certified with all category have a significant effect on the their academic achievement. In contrast the demographic variable Gender and residence place of the student and family size (in number) has no any significant effect on the student's academic achievement.

This study utilized 120 sample students (87 male and 33 female) were selected using simple random sampling from college of natural science. Following these, data collection instruments such as questionnaire and document analysis were developed & employed. To achieve the objectives of the study, analysis of variance (ANOVA) and multiple linear regressions (MLR) were employed using the variables of interest. After fitting the regression model, the underlined assumptions was checked and there is no gross violation of any assumption.

Based on the results obtained from the study, the researchers recommend the following:

- ✎ Parents should follow-up and support their children to be equally competitive and achieve better in their academic.

- ✎ In addition to parent support in terms of money and material, they should also provide advice, motivate and give psychological guidance.

- ✎ The concerned body should aware and motivate parents to involve for their children's' academic.

- ✎ As an institution, the university should encourage female students to become equally competitive and achieve their academic as male.

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