

Determinants of University Student's Academic Achievements and Gender Differences: The Case of Addis Ababa University Main Campus

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Abstracts

The study was conducted to assess university students' academic achievement and identify the factors that determines the differences in academic achievement between gender. Purposive sampling techniques was used to select study site, whereas we used accidental sampling to draw respondents. Questionnaires was distributed to 75 students while, qualitative data was obtained from 12 interviewees. Quantitative data was analyzed by ordinal logit and logistic regressions, whereas qualitative data was analyzed by describing of respondents' opinion. The result of ordinal logit model revealed that high school type, family income, and whether students live in dorm, mother education and university entrance score positively influences students' academic achievements. Regarding, the differences in academic performances, more than half (59.15%) of respondents stated that, there was difference in academic achievement between genders. Accordingly, nearly more than half (54.35%) of respondents and highest proportion of interviewee stated that boys were better than female students. The result of logistic regression shows that family income, mothers education, fathers occupation, mothers occupation and CGPA have a significant association with the gender difference in academic performance. Therefore, students for excellent academic performance requires in addition to other factors a good home and school environment. For excellent academic performances students require very good high school type and university entrance score. Furthermore, in order to reduce gender gap and disparity in education attainment, female students should be empowered though adequate training, guidance, tutor and consoling in and outside of the class.

Keywords: Gender and education; Difference between gender; Gender roles; university education; Ethiopia; Addis Ababa

1. Introduction

1.1. Background and Justifications

Education as a social institution performs several functions. The main functions of education are to transfer the cultural accumulation of society to new generations and new members of society, to teach the norms and values of society to new generations in the process of socialization, and to train the labour force needed by the economy. Socialization, which continues during the process of education, is briefly the effort to assimilate the individual into society or to make the individual member of society, where social roles are taught and the dos and don'ts are stated. In addition, the individual is required and expected to use these in his/her future life. In this respect, education can have an effect of reinforcing the traditional gender roles by consolidating the previously acquired cultural values and viewpoints (Ersoz, 2012).

The sociologists separate the gender in two parts namely biological gender and social gender. The biological gender points out to the biologic differences in male and female bodies. The social gender concept is defined in the literature as socially determined personality traits of both men and women as well as their roles and responsibilities. In the definition of social gender, not the biological differences but the values, expectations, judgments and roles relating how the society sees us, perceives us, what the society think of us and how they expect us to behave as a men and women. While the society expects the roles of "motherhood" and "spouse" from the girls the men are expected to fulfill the roles of "securing the household income", "employment" and "success" (Ersoz, 2012). Generally, gender corresponds to the socially formed duties and responsibilities of women and men, to femininity and masculinity in a concept that can vary in time and between and within cultures. Even in some university this traditional gender roles are viable, which indicates the role of education in improving gender role perception in minimal. For instance, in Turkey the finding of one study indicated that male student teachers still have a traditional perspective on gender roles and that university education does not seem to have a role in changing their existing value judgments in relation to gender (Kizilaslan & Diktas, 2011). However, there are a number of effort done to improve gender role perception in politics, economy, agriculture, education and elsewhere.

Western feminists in particular have been interested in shaping a progressive position on gender issues in education. Feminism are committed to the political, social, and economic equality of women, which draws on and has instigated a variety of movements, theories, philosophies and campaigns (Education, Audiovisual and Culture Executive Agency, 2010). Concepts of equality and equal opportunities, and how they can be interpreted,

have also developed historically and culturally. Equality as an educational aim is largely a twentieth-century phenomenon. Before then, education was seen as a means of preparing different groups for their station in life (as leaders, bureaucrats, workers and mothers). Nonetheless, in the twentieth century, four main interpretations of the concept of equal opportunities emerged: (1) Equal life chances; (2) Open competition for scarce opportunities; (3) Equal cultivation of different capacities and (4) Independence of educational attainment from social origins (Education, Audiovisual and Culture Executive Agency, 2010).

The question of gender in education began to intrigue research and policy attention since last four decades. The interest ever since was to reduce gender disparity in education by promoting equal erudition of females with males. Despite the advocacy and some promising scenario, gender disparity in education is still continuing in favor of males in many countries of the world, particularly in Africa (Mergo, n.d.). In Zimbabwe, for instance, the study found that female students believe that they were not on par with boys in terms of treatment. Their treatment in schools, at home and in society led to under-achievement (Mutekwe, Modiba, & Maphosa, 2012).

The issue of gender disparity in education in Ethiopia has started to attract government attention very recently in spite of its prevalence across several educational ladders. The higher up the educational ladder in the country the wider the gender disparity in favor of males become. Nevertheless, the forms and sources of gender disparity in the country's higher education have got inadequate research consideration. In Ethiopian educational setup, females have been largely excluded for long since the inception of modern education in Ethiopia (Mergo, n.d.). The situation of girls and women in Ethiopia reflects the unfair gender relationships prevalent in Ethiopian society. Girls and women are less represented in education at all levels, especially at secondary and tertiary levels (Mulugeta, n.d.).

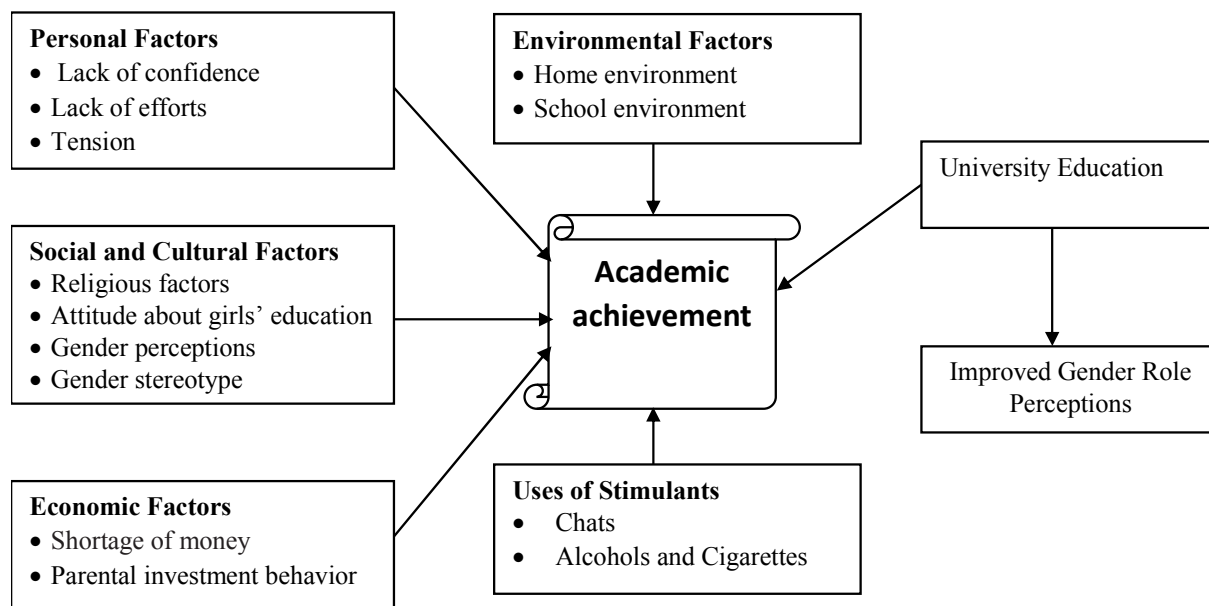
Gender stereotypes express those characteristics that are considered socially desirable for women and men to possess and also define culturally agreed-upon notions of gender appropriate behaviors and traits (Kizilaslan & Diktas, 2011). However, education is the process whereby desirable change is brought about in the behaviours of the individual, who is a "bio-psycho-social being", through his/her own experience and intentionally. In this process, an effort is made to change knowledge, skills, habits and attitudes in the desired direction. Although it is commonly held that education is one of the most valuable ways of achieving gender equality, education programs, textbooks and knowledge that is taught are not designed to achieve such equality. Nevertheless, universities have an important role in preventing gender discrimination and ensuring the internalization of the idea of equality within equal processes (Ersoz, 2012).

In Ethiopia there are various social, cultural, religious and traditional factors that determines gender role perception in general. Student in universities have developed the perceptions on gender roles, equality and equity from the experiences they had at home. However, it is believed that, university education plays pivotal roles in improving the perception of boys and girls on gender roles. There are a number of studies undertaken so far in Ethiopia on gender disparity and factors affecting academic achievement of students. Many of them confirmed that, male students achieve better than female counterparts. There are numerous factors that determines academic achievement of student and differences between genders. Some of these factors are school and environmental problems (Bekele, 2013); vitiated family behavior, gender-specific problems of female students, sexual harassment and affirmative action (Mergo, n.d.); lack of sufficient instructional material such as books (Uwito, 2014); study habit, academic self-concept, and perceived level of poverty (Abay, Mebrahtu, Adamu, & Hagos, 2015). Previous studies particularly focused on female students' academic achievements and many of them focused on primary and secondary schools. However, the current study focused on university students' perceptions of gender role, the role of university education in improving gender role perception and factors contributing to the differences between genders in academic achievements. Therefore, this study is the first to combine gender role perception, role of modern education and academic achievements.

1.2. Conceptual Framework

It has already expressed in the introductory part of this paper that, as one climb high on ladder of education their perceptions of gender role improved. Education is the process that can change the way of thinking of individuals by changing their attitudes and improving one's knowledge. Even though there are high gender disparity in academic attainment of students, the performance of both genders can be determined by different environmental, personal, socio-cultural, economic and behavior of students in using different stimulants. Nevertheless, many studies in different parts of Africa and Ethiopia as well confirmed that, male students perform better than their female counterpart because of factors listed above. Apart from these factors, there are different demographic characteristics of students that affects their academic performances.

Figure 1: Conceptual Frame Work



Sources: Own Design

2. Research Methodology

2.1. Study Area and Population

Addis Ababa University (AAU), which was established in 1950 as the University College of Addis Ababa (UCAA), is the oldest and the largest public higher learning and research institution in Ethiopia which is located in capital city, Addis Ababa. Since its inception, the University has been the leading center in teaching-learning, research and community services. Being a Federal university, Addis Ababa University is bound by the policies and commitments of Government in the spheres of education and gender equity as they relate, for instance, to the MDGs and other such initiatives, be it national or international.

The university has many campuses to name few: Sidist Kilo Campus (Main Campus), College of Business and Economics (CBE) Campus¹, Amist Kilo Campus, Arat Kilo campus, Commerce School Campus, Lideta Campus, Akaki Campus. However, the researchers purposely selected Sidist Kilo Campus (Main Campus), the campus with huge number of colleges, institutes and school under it. The study employed both primary and secondary data pertinent to the purpose of the study. After preparing the questionnaire the questionnaire was distributed to a sample consisting of 75 and 12 interviewees were interviewed based on accidental sampling at sadist kilo campus.

2.2. Data Analysis and Presentation

From a large body of review, the two main methods were identified and used in this study: quantitative method and qualitative method; which is a mixed method type. The study relies on qualitative methods, because it is appropriate to find out the complexity of attitudes and perception in relation to gender roles. Academic achievement - gender based differential captures through detailed qualitative methods.

To identify the factors that affect current academic performance of the students ordered logistic regression was used. Questions related to Current academic performance of students (How do students rate their academic performance) are usually ordinal in nature. The answer to the question on how they rate with her/her academic performance can range from 1 to 5, with 1 being weak and 5 being excellent (with five categories: excellent, very good, good, medium and week) were used as our outcome variable. While Logistic regression model was used to identify factors determining the gender differences in academic performances.

3. Results and Discussions

3.1. Descriptive Statistics of Socioeconomic Characteristics of Participants

The socio-economic background of respondents is believed to have great influence in determining academic achievement and gender differences in universities. For this purpose, 75 students for questionnaire and 12 students for interview were selected. Different questions were raised in the form of both interview and questionnaire were.

¹ For this study CBE is included under Sidist kilo campus

Looking at the distribution of the respondents across age groups, 90.54% of the respondents are in 19-23 age group. 8.1% of respondents within 24-30 age group. Only one respondent is within ≥ 40 age group. Concerned their field of study those from social science, law, language and linguistic and business and economics college are 66.7%, 1.33%, 21.3% and 10.7% respectively. Moreover; most of respondents (73.3%) attended their high school at public schools. With regard to the respondents' year of study, majority of respondents are first and second year. The two groups together constitute about 66.6%.

Among total students surveyed, most of respondents' mothers are housewives (54.7%) while fathers are farmers (28%). Lowest proportions (1.33%) of respondents' fathers are teachers. Most respondent (98.67% of respondents) earn and 45.3% respondents' family income is within 0-2000 birr group per month. Among the total students surveyed, nearly half (48%) scored greater than 400 in university entrance examination. Lowest proportion (22.67) of respondents scored within 350-400 score group and some of them scored 29.3% university entrance score.

3.2. Academic Achievement of Students in Addis Ababa University

3.2.1. Factors Determining Academic Performance of University Students

To identify the factors that affects current academic performance of the students ordered logistic regression was used. In this model, current academic performance of students with five categories (excellent, very good, good, medium and week) was used as our outcome variable. We also have twelve variables that were used as the predictors: These are age, gender, high school type, university entrance score, family income, students' income, living in dorm, number of student living in dorm, father education, mother education, father occupation and mother occupation.

In this model (ordered logistic regression) the Log pseudolikelihood (-77.066413) with Wald $\chi^2(12)$ (571.79) and Prob > χ^2 (0.0000) tells us that our model as a whole is statistically significant, as compared to the empty model with no predictors. The pseudo-R-squared of 0.1932 indicates 19% of variability in academic performance of students is explained by predictors. According to Mitchell and Carson (1989) is quite acceptable, because that regressions on CV data usually yield R² values between 10% and 40%. Logistic regression does not have an equivalent to the R-squared that is found in OLS regression. There are a wide variety of pseudo R-squared statistics which can give contradictory conclusions. Because this statistic does not mean what R-squared means in OLS regression (the proportion of variance for the response variable explained by the predictors).

Even though, we have hypothesized that, all of the predictor would affect current academic performances of the students, only five variables turned out significant in this model. High school type, family income, and whether students live in dorm provided very strong evidence and were significant at 1%, while mother education provides strong evidence and was significant at 5% and university entrance score provided some evidence at 10% significance level.

Table 1: The Result of Ordered Logistic Regression

VARIABLES	Logit coeff.	Odds ratio	P> z
Current academic performance			
Age	-0.104(0.161)	0.901(0.145)	0.518 (0.145)
Gender	0.867(0.690)	2.379(1.642)	0.209 (1.642)
High School type	-2.054*** (0.591)	0.128*** (0.0758)	0.001*** (0.0758)
Univ. entry score	-0.0120* (0.00711)	0.988* (0.00703)	0.091* (0.00703)
Family income	-5.43e-05*** (2.03e-05)	1.000*** (2.03e-05)	0.007*** (2.03e-05)
Students income	0.000507 (0.000525)	1.001 (0.000525)	0.334 (0.000525)
Live in dorm	-26.57*** (1.524)	0*** (0)	0.000*** (0)
No. of stud in dorm	-0.0251 (0.0451)	0.975 (0.0440)	0.579 (0.0440)
Father edu	-0.0789 (0.163)	0.924 (0.151)	0.629 (0.151)
Mather edu	-0.594** (0.287)	0.552** (0.159)	0.039** (0.159)
Father Occup	0.285 (0.233)	1.330 (0.310)	0.221 (0.310)
Mather Occup	-0.00533 (0.147)	0.995 (0.146)	0.971 (0.146)
Constant cut1	-13.38*** (4.357)	1.55e-06*** (6.74e-06)	1.55e-06*** (6.74e-06)
Constant cut2	-10.93*** (4.239)	1.79e-05*** (7.60e-05)	1.79e-05*** (7.60e-05)
Constant cut3	-8.341** (4.220)	0.000239** (0.00101)	0.000239** (0.00101)
Constant cut4	-5.713 (4.239)	0.00330 (0.0140)	0.00330 (0.0140)

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Number of obs = 71

Wald $\chi^2(12)$ = 571.79

Prob > χ^2 = 0.0000

Pseudo R² = 0.1932

Log pseudolikelihood = -77.066413

Source: Own Field Survey, 2017

As can be seen from the table 7 above, one unit increase in high school type, i.e., going from 0 to 1 the log of odds of current academic performance of the students is decreased by 0.12, given that all other variables in the model held constant. In addition, one-unit change in the university entrance score of students resulted in decrease of log of odd of academic performance by 0.988, keeping the other explanatory variables constant. Likewise, for one unit increase in family income, log of odd of current academic performance of the student is decreased by 1 keeping the variables in the model constant. Furthermore, for one unit of change in whether students lived in dorm or not, the log of odd ratio of academic performance of students remain the same or decreased by zero, when the other predictor held constant. Finally, as the education level of mother increased or change by one unit, the log of odd ration of academic performance of students decreased by 0.5, given that the other variables remain constant.

High school type: It was hypothesized that; the high school background of the students has an impact on their current academic performance and their CGPA. In Ethiopia, the largest proportion of the students learned in government high school, with only few of them learned in private school. The number of government schools outweighs the number of private schools in many Ethiopian regions. The school type significantly influences the current academic performances of the students at 1% significant level. In this regard previous study by Russo (2014) determined that, in New London high school inputs have significant impacts on the CPGA and academic performance of the students.

University entrance score: Those students with better high school backgrounds were expected to have better academic performance in the university. In this study, it was revealed that university entrance scores influence current academic performances of the students at 10% significant level. Similar to our study by Cilasun (2013) in Turkey revealed that university entrance scores significantly influence students' academic performances. In addition, in Jimma university, Ethiopia entrance exam score significantly influences academic performances of the students (Muhammedhussen, 2016).

Family income: We assumed that, as the family income increase the performances of the students in academic area increase. As it has been indicated the odd ration of academic performances decrease, even though, income of family is significant at 1%. Similar to our study by Daniyal, Nawaz, Aleem, & Hassan (2011) revealed that income factor significantly influences students' academic performances in Islamia University of Bahawalpur in Pakistan.

Whether students live in dorm: It was expected that those students who live in dormitory had better-off academic performance than those whose who do not live in dorm. This was because, those students who live in dorm can have adequate access to library 24 hrs. As indicated in the introductory parts only few students live outside of the dorm. This predictor significantly influences the academic performance of the students at 1% significance level.

Mother education: We have hypothesized that; mother education influences academic performances of the students. The finding of the study as portrayed on the table__above, indicated that mother education is significant at 5% in determining the academic performance of the students. Similar to our study by Daniyal, Nawaz, Aleem, & Hassan (2011) revealed that mother education significantly influences students' academic performances in Islamia university of Bahawalpur in Pakistan.

Likewise, students were asked to rate their current academic performance using five scale Likert scales as excellent, very good, good, medium and weak. A number of students somehow nearest to half (41.89%) were rated their current academic performance as good. Others have stated they have excellent (5.41%), very good (16.22%), medium (29.73%) and weak (6.76%) academic performances. For those students with medium and weak academic performance, we have tried to rank the reason for their poor attainment. Accordingly, study habits, psychological factors, economic factors, absenteeism from class, peer pressure, environmental and home environment are the factors behind their poor performances.

Furthermore, students were asked to state the satisfaction of their grade. Accordingly, 43.24% has satisfied with their current academic performance while more than half of them (56.76%) are not satisfied. Those who are not satisfied with their grade were asked to state the reason for dissatisfactions. Accordingly, lack of adequate efforts, poor high school backgrounds and tension and lack of proper guidance have first, second and third rank respectively. In addition, students were asked to state if there was the other reason for which they were not satisfied with their current academic performances. Some of them revealed that there is no fairness in grading system, lack of proper teachers, bad school environment, education policy is distorted and lack of good teaching method.

3.2.2. Difference between Gender in Academic Achievement

The students were asked to state whether there is difference between gender in academic performances. More than half (59.15%) of respondents stated that, there is difference in academic achievement between genders, while 40.85% of respondents stated there is no difference between gender. Accordingly, nearly more than half (54.35%) of respondents stated that boys are better than female students, whereas, only few (10.87%) of respondents stated that, girls are better in academic performances. Nonetheless, 34.78% of them do not know

who is better. The results of many of previous studies are in support of current results. For instance, the study in Addis Ababa Ethiopia, revealed that the difference between males and females gets wider as we go up the ladder of education in public and government schools (Andualem, 2009). Furthermore, in Ethiopian colleges of teachers' education, male students are significantly performing better than female students (Tasisa & Tafesse, 2013). For those students who stated male students are better we have asked why they think female students are not performing equal with males? According girls study habits, girl's confidences and carelessness are the main reasons for poor academic performance of girls in Addis Ababa university. Furthermore, some students stated that girls always follow a fashion than education, they not want to lose their energy on education and they are busy doing other stuffs like chilling out.

Furthermore, the result of qualitative data also supports this result. We have interviewed twelve students on gender differences in academic achievements. Five of them responded that there is no academic performance difference across gender. They said that both male and female have equal opportunity once they are admitted to the university. The reason they mentioned are that they have equal access to facilities; they can read any time they want; they are their own bosses now. There are even cases when girls demonstrate excellent performances. This is not the case before joining university. As of the respondents, it used to be true that girls were overburdened with house chores before joining the university.

On the contrary, seven interviewees underscored that there is indeed a difference in academic performance across gender. Female respondents attributed this difference to male domination in classes and the lower university entrance cut points for girls. The girls replied that the male domination in classes put them in state of fear as a result of which they shy in classes to participate in asking questions, replying to questions and presenting assignments. The male respondents added that their female counterparts do have a culturally imposed believe that they are not equal to boys and this is affecting their performance. On average, male students have a good performance.

Table 2: Logistic regression results on difference between gender

VARIABLES	Logit coeff	Odds ratio	P> z
diffinacadperbnGdr			
Age of the Respondent	-0.558(0.443)	0.572(0.254)	0.208
Gender of the Respondent	0.713(2.315)	2.040(4.722)	0.758
Highschool Type	2.825(2.378)	16.86(40.09)	0.235
University Entrance Score	0.0269(0.0216)	1.027(0.0222)	0.214
Degree Year	-0.662(0.904)	0.516(0.466)	0.464
Family Income	0.000198**(9.67e-05)	1.000**(9.68e-05)	0.040**
Student Income	-0.000974(0.00157)	0.999(0.00156)	0.534
Living in the Dormitory	0.0371(0.483)	1.038(0.501)	0.939
Fathers Education	-0.434(0.518)	0.648(0.336)	0.402
Mathers Education	2.859**(1.241)	17.45**(21.66)	0.021**
Fathers Occupation	-1.377*(0.793)	0.252*(0.200)	0.082*
Mathers Occupation	-1.245*(0.659)	0.288*(0.190)	0.059*
CGPA	-6.491**(2.570)	0.00152**(0.00390)	0.012**
Students Satisfaction of CGPA	0.573(1.415)	1.773(2.509)	0.686
Constant	18.14(14.77)	7.543e+07(1.114e+09)	0.219
Observations	46	46	

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: Own Field Survey, 2017

The result of logistic regression shows that family income with significance level, mothers education, fathers occupation, mothers education and CGPA have a significant association with the student's difference in academic performance.

Specifically, the result of this study shows that amount of money received from family had a significant effect on academic performance of the students. This indicates that an economically advantaged parents or families are more able to afford the cost of education for their children at higher education institutions. This finding is consistent with the finding of Checchi (2008) which actually found that students from families of higher income levels perform better in academic performance compared to those who come from families of lower income. Thus, the achievement of students is positively correlated with income of parents or families.

The finding showed that the education level of father and mother are a key determinant of students' difference in academic performance. The result obtained in this study showed that the rate of academic performance among better educated families (mother and father) were higher than among less educated father and mother. Consequently, we can conclude that a better educated father and mother lead their families in a better way than less educated father and mothers because of higher literacy and greater likelihood of rejecting a fatalistic attitude towards life. This result is consistent with the study conducted by Adem Kedis (2005) on

factors affecting students' academic performance in Ethiopian Higher Education Institutions. The research finding of Adem point out that the father's level of education has a significant effect on academic performance. Besides, the result of this study is also similar with the research finding of Bereket Tesema, (2015) who conducted determinants of academic performance of Wolaita Sodo University.

For instance, a closer look at the odds ratio of the relation between education levels of students' families and academic achievements, students who were from better educated families were 17.45 times more likely to score more CGPA than those students from less educated families.

4. Conclusion

A cross sectional survey of 75 students was used to undertake this study. Qualitative data was drawn from 12 interviewed respondents. The result of ordinal logit model revealed that high school type, family income, and whether students live in dorm provided very strong evidence and were significant at 1%, while mother education provides strong evidence and was significant at 5% and university entrance score provided some evidence at 10% significance level. Thus, good education does not happen by chance. It is a product of effective teaching and learning coupled with the conscious effort of the teacher, the school, the students, parents and their various school and home environments. Therefore, a student for excellent academic performance requires in addition to other factors a good home and school environment. Students vary in their ability and attitude to learn, parents should therefore recognize this and they should also try to establish and maintain a good home environment where love, hardworking and excellence are encouraged in order to bring out the student's best academic performance.

More than half of students (56.76%) are not satisfied with their current academic performances due to lack of adequate efforts, poor high school backgrounds, tension and lack of proper guidance. Thus, some of them had weak and medium performance because of study habits, psychological factors and economic factors.

Regarding, the differences in academic performances, more than half (59.15%) of respondents stated that, there was difference in academic achievement between genders, while 40.85% of respondents stated there was no difference between gender. Accordingly, nearly more than half (54.35%) of respondents stated that boys were better than female students, whereas, only few (10.87%) of respondents stated that, girls were better in academic performances. In addition, the result of qualitative data revealed on average, male students have a good performance. Finally, the study concludes that in Addis Ababa university male students performs better than female students.

Logistic regression model was used to identify factors determining the differences in academic performances between gender. The result of logistic regression shows that family income with significance level, mothers education, fathers occupation, mothers education and CGPA have a significant association with the student's difference in academic performance.

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Authors contributions

All authors conducted the field research and analyzed the data. All authors designed the research, and interpreted the results. However, Galgalo Dika has prepared and revised the manuscript.

Competing interests

The authors declare that they have no competing interests.

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