IOSR Journal of Research & Method in Education (IOSR-JRME)
e-ISSN: 2320–7388,p-ISSN: 2320–737X Volume 7, Issue 5 Ver. III (Sep. – Oct. 2017), PP 26-32
www.iosrjournals.org

Medical Students' Sponsorship Influence to Preclinical and Clinical Performance

Ronald Omenge Obwoge[1*], Mosol J. Priscah[2], Fred Nyabuti Keraro [3] , Emarah Ashraf Mohamed[4], Simon Kangethe[5]

1. *Department of Community Health, Faculty of Health Sciences, Egerton University, Nakuru, Kenya*
2. *Department of Midwifery and Gender/Moi University, Kenya*
3. *Department of Curriculum, Instruction and Educational Management, Egerton University, Nakuru, Kenya*
4. *Department of Surgery and Anaesthesiology, Moi University, Eldoret, Kenya*
5. *Department of Medical Education, Moi University, Eldoret, Kenya*

Corresponding Author: *Ronald Omenge Obwoge[1]*

Abstract: *Admission into Kenyan public universities' medical schools is either by Kenya Universities and Colleges Central Placement Service (KUCCPS) or individual universities and their senates on self-sponsorship programmes (SSP) basis. The KUCCPS selected students have strong O-level grades in all subjects, with specific cluster science subjects and cumulative points. The SSP students need to have minimum university entry requirements and met cluster subjects for admission unto the medicine and surgery (MBCHB) programme. The study aimed to compare the performance of medical students based on sponsorship (KUCCPS and SSP). The study utilized ex post facto research design for Retrospective record review (3R) of 272 medical students of academic year 2007/08, 2008/09 and 2009/10 as cohort classes (accessible population) of Egerton University and Moi University. The Population was Public Universities' Medical students (MBChB) who had been examined at both preclinical and clinical course levels. A Data sheet document was used to capture study data. The performance analysis used the t-test and Pearson product-moment correlation on Statistical Package for Social Sciences (SPSS). The study results indicate that sponsorship factor does not influence students' performance at preclinical courses at MU (P=0.120) though does influence at EU (P=0.004), while at clinical courses it influences students' performance at both schools of MU (P=0.005) and EU (P=0.005) medical schools. Basing on the findings the Sponsorship factor does not predict performance in clinical courses at MU though it does influence preclinical courses performance at EU and clinical courses at both MU and EU medical schools. Sponsorship factor influence on student's academic performance in preclinical and clinical courses is not the same at MU and EU.*

Keywords: *medical student, admission characteristics, preclinical performance, clinical performance, academic performance*

Date of Submission: 08-09-2017 Date of acceptance: 20-09-2017

I. Introduction

The selection of candidates to the medical schools is regulated by established admission policies that spell out the criteria for admission.

Globally, different schools have adopted their befitting criteria of who should join a medical school. Some medical schools base student admission criteria on straight high school scores while others subject applicants to college admission tests. In addition some parents or guardians have allowed enrolled students who have meet minimum qualification after missing out the government selection. Ferguson et al (2002) in their study on Factors associated with success in medical school indicate that previous academic performance is a good, but not perfect predictor of achievement in medical training, while among others gender is associated with success in medical training. Carpio et al (1996), Foti et al (1991), McClellandet al (1992), Roth, et al (1996) and Alexander et al (1997) in their studies on performance indicators found that high school grades are predictive of performance at medical schools". Salvatori (2001) in his study on validity of admission tools used to select students to health professions education calls for more studies to provide more reliable and valid ways of assessing non-cognitive characteristics of applicants.

In Kenya, admission of medical students into Public Universities' Medical Schools is a hotly contested exercise due to the limited chances available and resource constrained facilities. There are clear guidelines Kenyan medical schools use to select future doctors across the country. The guidelines allow admission either

through Kenya Universities and Colleges Central Placement Service **(KUCCPS**) or individual university senates for self-sponsored programmes (SSP) basis that considers academic ability.

It has to be fair to society by selecting people with the potential to be good doctors; and be fair to applicants- that diverse group of people who for many reasons want to set out on a long road to the medical career". The admission procedures should aim to select students with the ability and will to successfully complete the program and fit in the medical profession and effectively perform as per the expectations of the profession.

Non-cognitive factors including financial support and their influence in performance in medical school attract attention and this deserves investigation. As emphasised in spoken words by President Lyndon B. Johnson in his "Great Society" speech of 1964 (Johnson, 1963-64), "Poverty must not be a bar to learning, and learning must be an escape from poverty." Coonrod's (n) in the investigation on the Effects of Financial Aid Amounts on Academic Performance found that financial aid either as grant, loan, and job, is what makes higher education affordable to the children of families who would otherwise be excluded by price. The study indicates that loan amounts and job aid amounts have no significant connection to academic performance. And not all loans are need based, and a student without financial need may still want to take out a loan in order to ease the financial burden on the family. It is further indicated that additional money will encourage and motivate a student to apply effort since the student realizes that it is essentially a gift rather than a natural right. Equal Justice Works (2013) study on Effects of Financial Aid on College Student Success Education Jan. 30, 2013, at 10:00 a.m. indicated that Scholarships alone may not be enough to help college students succeed. Avery's (2014) investigation on the Relationship between Financial Aid Type and Academic Success in a Public Two-Year College in Georgia, Georgia Southern University shows that they were not statistically significant in performance as the student financed and not financed groups performed similarly.

II. Research Methodology And Design

2.1 Study Design

The study adopted an *ex-post-facto research design*. Ex-post-facto research design simply means participants are not randomly assigned. It examines an independent variable present prior to the study that affects a dependent variable. The study examined the students' performance without any alteration. The students were taken into their grouping as they were prior to the study.

2.2 Study site

The study was conducted at two selected Kenyan public universities; Medical schools of Moi University (MU) and Egerton University (EU), Kenya. Both universities admit male and female students as either government sponsored (KUCCPS) or self-sponsored (SSP) students.

2.3 Study population and Sample

The target population for this study was all medical students admitted to Moi and Egerton Universities, Medical schools. The accessible population was 284 of three cohort classes comprising of 88 students (2007/08), 79 students (2008/09) and 117 students (2009/10) of whom 35% were female and 65% were male. The cohort classes were matched and combined among the two medical schools.

2.3.1 Inclusion Criteria

The study included all medical students of three cohort classes 2007/08, 2008/09 and 2009/10 academic years of Moi University and Egerton University. This comprised those who completed the course, repeated or dropped out in during the study period.

2.3.2 Exclusion Criteria

The study excluded any student who might have transferred-in from another university to the study university. Since, upon abstraction their academic records were found to be incomplete. Also any student admitted and never took the course was excluded. Also those with other bachelors before joining MBCHB program were not included as their prior knowledge could influence the constructive learning process.

2.4: Sample size

The study did census to include all 284 enrolled students of the three cohort classes of 2007/08, 2008/09 and 2009/10 academic years. Only 272 records were analysed having met the inclusion criteria, comprised 179 and 93 for Moi University and Egerton University respectively.

2.5: Data collection Method and Tool

The study used data abstraction method. This method used an electronic data abstraction form to capture data from admission and examinations office(s). This data abstraction form is a standard instrument used to systematically collect data from reports or sources. The source might be with several data that is not all needed. The data abstraction form captured only students' admission characteristics and performance at medical schools. The data abstraction form had three parts; bio-data, admission data and performance data sections under study.

The data abstraction form was tested at a third University that did not participate in this study. Thereafter the tool was adjusted accordingly to ensure its reliability and validity.

2.7: Handling confounding factors

The study recognized existence of confounding factors as a threat to the study. The two schools, these are difference in learning environment, teaching and learning approaches. The study employed restriction and matching as strategies for avoiding confounding factors. Restriction and matching were employed to eliminate confounding effects. They ensured that study sample were of only cohorts of same levels across the two schools. The cohorts of the same academic years were matched into three cohorts from each school. This made the confounding factors to be constant through the respondents. Also the data analysis used linear regression to eliminate confounding effect. The linear regression analysis is a statistical model that was used to examine the association between multiple covariates and a numeric outcome. This model was employed as a multiple linear regression to see through confounding and isolate the relationship of interest.

2.9: Data Management and analysis

The study captured data on admission characteristics and academic performance of the medical students. The admission characteristics were student's O-level grades (KCSE) (the five cluster subjects; English/Kiswahili, Mathematics, Chemistry, Physic, Biology and aggregate grade, sponsorship, Gender, and age. These subjects were weighted(A(1), A-(2), B+(3), B(4), B-(5), C+(6), C(7), C-(8)). The Academic performance scores were at preclinical and clinical Level examination performance. Analysis was done with individual course scores and mean scores at the completion of each level (preclinical and clinical examination performance).

All data captured were analysed using SPSS package. Data analysis was done utilizing t-test and General linear Model regression analysis.

III. Study Results and Discussions

3.1: Socio-demographic characteristics of the study Sample

The study samples' socio-demographic characteristics range from those that pre-existed prior to admission to those at medical schools. A review of academic and admission records was done. The 272 students had gone through examinations at preclinical and clinical levels. A crosstabulation was used to determine the percentage composition of the various socio-demographic characteristics in respect to Moi and Egerton Universities' medical school. Crosstabs are frequency tables of co-occurring codes in two (or more) (categorical) variables. It depicts the number of times each of the possible category combinations occurred in the sample data.

The results are presented in Table 1.

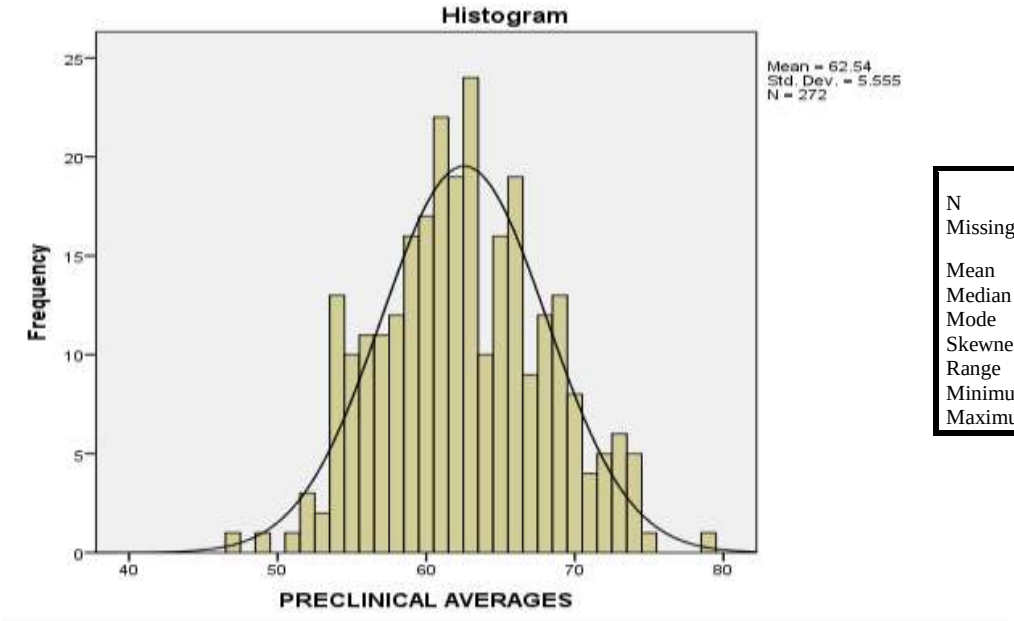
Table 1: *Socio-demographic characteristics of the study Sample (three cohorts of MBChB Students)*

		Medical School attended (N=272)		
		Moi %	Egerton %	Overall %
Gender	Male	65(116)	66(61)	65(117)
	Female	35(63)	34932)	35(95)
Sponsor	Government	32(58)	48(45)	38(103)
	Self-Sponsored	68(121)	52(48)	62(169)

The results in table 1 indicate that the study sample in the medical schools comprised 179(66%) Moi university and 93(34%) Egerton University, medical schools. Gender composition was overall 35 %(95) female and 65 %(117) male. Male students in Moi University were 65 %(116) while in Egerton University they were 66 %(61). Sponsorship of the MBCHB students was in two categories: 38 %(103) government sponsored and 62% (169) self (private) sponsored. Self-sponsored students in Moi University were 68 %(121) and in Egerton University were 52 %(48).

3.1.1: Preclinical performance Means

The study aimed at determining the scores distribution of students' performance in preclinical courses. A graphical presentation of the preclinical means scores (item no 22) were displayed on a histogram with normal curve distribution *(see Appendix II*). The results are presented in figure 5.



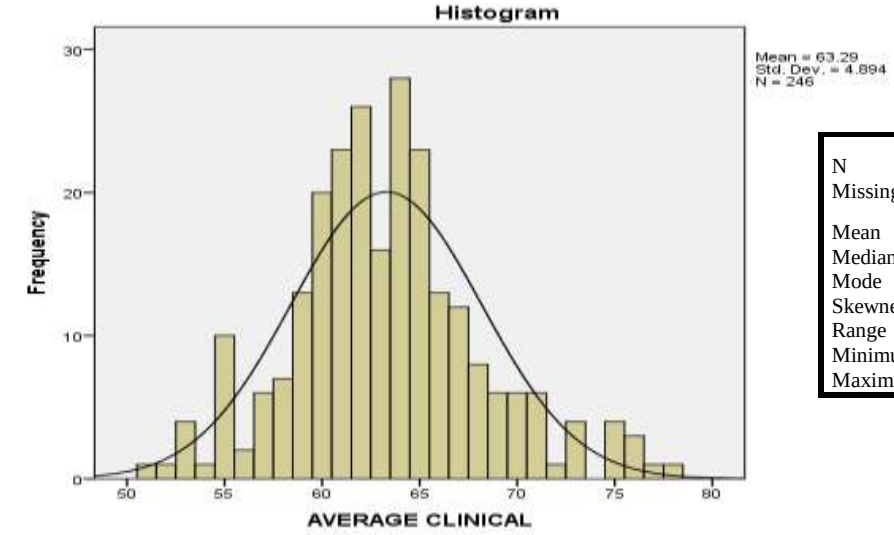
N	272
Missing	0
Mean	62.54
Median	62.00
Mode	63
Skewness	.118
Range	32
Minimum	47
Maximum	79

Figure 1: *Histogram with Normal distribution on preclinical performance means*

Result in figure 5 indicate that 272 students' preclinical courses performance had mean = 62.54, mode = 63, median =62 and SD = 5.555 were on a normal distribution curve. Those with scored less and above the mean score are equally spread.

3.1.2: Preclinical performance averages

The study aimed at determining the scores distribution of students' performance in clinical courses. A graphical presentation of the preclinical means scores (item no 33) were displayed on a histogram with normal curve distribution *(see Appendix II*). The results are presented in figure 6.



N	246
Missing	26
Mean	63.29
Median	63.00
Mode	64
Skewness	.375
Range	27
Minimum	51
Maximum	78

Figure 2: *Histogram with Normal distribution curve on Clinical performance means*

Result in figure 6 indicate that 246 students' clinical courses performance had mean =63.29, mode = 64, median =60 and SD =4.894 were on a normally distribution curve. Those who scored less and above the mean score are equally spread.

3.2: Comparison of performance of medical students in pre-clinical courses based on sponsorship (KUCCPS and SSP)

The second specific objective of the study sought to compare medical students' performance in pre-clinical and clinical courses based on sponsorship categories. The sponsorship category and preclinical performance and clinical performance were used data to test the relationship (see *appendix II on abstraction sheet*). The null hypothesis was tested using t-test, at significance of $p \geq .05$. The hypothesis stated that "*There is no statistically significant difference in performance between KUCCPS sponsored and SSP medical students'.* Further analysis to determine the distribution of their scores a Box plot was used. The Box plot displays the spread and difference in median, minimum score, maximum scores and score agreement of preclinical courses score as per the sponsorship categories. The results are presented in tables 2-3.

3.3: Comparison of Performance in Preclinical courses and students sponsorship

To determine the difference in means of performance in preclinical courses as per their sponsorship category a statistical t test was used. Independent Samples t-test was used to compare the means of government sponsored students and self-sponsored students to determine whether there is statistical evidence that their performance in preclinical courses means are significantly different. The results are presented in table 2.

Table 2: *Students'' Performance in Preclinical courses and sponsorship*

Preclinical Means Equal variances assumed	**Means**		**Levene's (**a)		**t-test for Equality of Means**						
	KUCCPS	SSP	**F**	**Sig.**	**t**	**df**	**Sig.**	**Mean Difference**	**Std. Error Dif**	**95% (**b)	
										Lower	**Upper**
MU(179)	61.36	62.68	.183	.670	-1.564	177	**.120**	-1.316	841	-2.975	.344
EU(93)	64.96	61.38	.700	.405	2.984	91	**.004**	3.581	1.200	1.197	5.964

a. Test for Equality of Variances b. Confidence Interval of the Difference

The results in table 2 indicate that p- value are .120(MU) and .004(EU). Thus the p-value is greater than 0.05 for MU scores, while less for EU scores. There null hypothesis MU scores is accepted. While the EU's null hypothesis is rejected. Therefore the result suggests that there is no statistically significant difference between performance in preclinical courses between government and self-sponsored medical students for MU scores. Any differences between MU scores' Means are likely due to chance and not due to the sponsorship differences. There was a statistically significant difference in performance in preclinical courses between government and self-sponsored medical students for EU scores.

3.4: Comparison of Performance in clinical courses and students' sponsorship

To determine the difference in means of performance in clinical courses as per their sponsorship category, a statistical t test was used. The Independent Samples t-test was used to compare the means of sponsorship categories in order to determine whether there was statistically significance in their performance in clinical courses. The results are presented in table

Table 3: S*tudents' Performance in Clinical courses based on sponsorship*

Clinical means Equal variances assumed	Means		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% (b)	
	KUCCPS	SSP								Lower	Upper
MU(179)	61.12	62.65	.220	.640	-2.871	154	**0.005**	-1.530	.530	-2.583	-.477
EU(93)	67.18	63.36	.005	.941	2.916	88	**0.005**	3.822	1.311	1.217	6.427

a. Test for Equality of Variances b. Confidence Interval of the Difference

The results in table 3 indicate that p-value are .005 (MU) and .005(EU). For MU and EU the p value is less than 0.05. Therefore, the MU and EU scores the null hypothesis are rejected. Therefore the study suggests that there is a statistically significant difference in performance in clinical courses of government and self-sponsored medical students at MU and EU scores. Any differences between their clinical courses performance Means are likely due to the sponsorship..

3.5: Discussion of the Results

The study's specific two sought to determine the relationship between medical students' sponsorship category (KUCCPS and SSP) and their performance in pre-clinical and clinical courses. On preclinical courses, results in table 2 indicate that p- value are .120(MU) and .004(EU). This suggests that there is no statistically significant difference between performance in preclinical courses between government and self-sponsored medical students in MU scores. Performance in preclinical course was not influenced by medical students' sponsorship in MU scores. While at EU, there is a statistically significant difference in performance in preclinical courses between government and self-sponsored medical students.

On clinical courses, the results in table 3 indicate p-value are 0.005(MU) and 0.005(EU). Thus the p-value is less than 0.05. This suggests that there is statistically significant difference in performance in clinical courses between government and self-sponsored medical students at MU and EU scores. Performance in clinical course was influenced by sponsorship of medical students at MU and EU medical schools. Therefore there is a statistically significant difference between performance in clinical courses between government and self-sponsored medical students at MU and EU medical schools. This is in support to Stater's (2009) investigation on the Impact of Financial Aid on College GPA at Three Flagship Public Institutions that suggested positive effects throughout college in increase academic achievement in need-based aid and merit-based aid students. However, this result contradicts Avery (2014) investigation on the Relationship between Financial Aid Type and Academic Success in a Public Two-Year College in Georgia Southern University, whose study found no statistically significant difference in performance as the student groups performed similarly. Similarly it is not in agreement with Timmons et al (2013) Survey on financial aid effect on academic performance that found financial aid and grade point average (GPA) had no correlation. This is in contrary to Coonrod's (nd) investigation on the Effects of Financial Aid Amounts on Academic Performance which established that loan amounts and job aid amounts have no significant connection to academic performance. However, the result suggest that government sponsored students had higher scores than self-sponsored students in clinical courses.

Finally, the results suggest statistically significant difference between students' performance and sponsorship. Student sponsorship is of more benefit. Conrod's (n) investigation on the Effects of Financial Aid Amounts on Academic Performance found that financial aid either as grant, loan, and job, makes higher education affordable to the children of families who would have been excluded by price. Additional money will encourage and motivate a student to apply effort after realization that it is essentially a gift rather than a natural right. U.S News and world report by Equal Justice Works (2013) Study on Effects of Financial Aid on College Student Success indicate that Scholarships alone may not be enough to help college students succeed. The sponsorship in isolation cannot be a measure to students' academic performance.

IV. Summary, And Conclusion

4.1: Summary of the Findings

The following is a summary of the major findings; the differences in students' performances in preclinical and clinical courses are likely due to chance and not due to the sponsorship differences in MU. Though at EU the differences in students' performances in preclinical and clinical courses are likely due to the sponsorship differences.

4.2: Conclusions

On the basis of the findings, Sponsorship differences had influence to students' performance in preclinical and clinical courses though differently in Egerton University and Moi University.

References

1]. Alexander, J.E., & Brophy., G.H., (1997). A five-year study of graduates' performance on NCLEX-RN™. Journal of Nursing Education. *36*:443–445

2]. Avery, D.D. (2014). The Relationship between Financial Aid Type and Academic Success in a Public Two-Year College in Georgia, Georgia Southern University, Electronic Theses & Dissertations. Paper 1064

3]. Bryman, A & Cramer, D. (2001). Qualitative Data Analysis SPSS Release 10, A guide for social scientists, London ,Routledge

4]. Carpio, B., O'Mara, L. & Hezekiah, J., (1996). Predictors of success on the Canadian Nurses Association testing service (CNATS) examination. Canadian Journal of Nursing Research, **28**(4): P115–123.

5]. Coonrod L (n)The Effects of Financial Aid Amounts on Academic Performance, The Park Place Economist, Vol XVI pp 24-35 www.iwu.edu/economics/PPE16/PPE2008-3.pdf

6]. Ferguson. E, James, D, & Madeley, L., (2002). Factors associated with success in medical school: systematic review of the literature, British Medical Journal, **vol**. 324: 952-956

7]. Foti, I. & DeYoung, S. (1991). Predicting success on the National Council Licensure Examination –Registered Nurse: Another piece of the puzzle. Journal of Professional Nursing, **7**: 99–104.

8]. Fraenkel, J.R, Wallen , N.E & Hyun, H.H. (2012). How to design and Evaluate Research in Education,(8th ed.), San Franscico:The McGraw-Hill companies

9]. McClelland, E., Yang, J.C. & Glick, O.J. (1992). A state-wide study of academic variables affecting performance of baccalaureate nursing graduates on licensure examination. Journal of Professional Nursing **8**: 342–350.

10]. Leon, B.K., & Kolstad, R. (2010). Wrong schools or wrong students? The potential role of medical education in regional imbalances of the health workforce in the United Republic of Tanzania Human Resources for Health, 8:3
11]. Roth, K.S., Riley, W.T., Brandt, R.B. & Seibel, H.R. (1996). Prediction of students' USMLE Step 2 performances based on premedical credentials related to verbal skills. Academic medicine: Journal of the association of American Medical Colleges, 71(2):176-80.
12]. Salvatori. P (2001) Reliability and Validity of Admissions Tools Used to Select Students for the Health Professions Education, Advance in Health Science Education: Theory Practice, **6:** 159–175,
13]. Stater, M.,(2009)The Impact of Financial Aid on College GPA at Three Flagship Public Institutions *American Education Research Journal*, vol. 46 no. 3 782-815
14]. Timmons, N.B., & Casey, G. (2013). Survey shows financial aid does not affect academic performance The Bowdoin Orient, Vol. 142, No. 21

Ronald Omenge Obwoge. "Medical Students' Sponsorship Influence To preclinical and Clinical Performance." IOSR Journal of Research & Method in Education (IOSR-JRME) , vol. 7, no. 5, 2017, pp. 26–32.