Socio-Demographic Predictors of Academic Performance among Adolescents in Selected Private Secondary Schools in Athi-River Sub-County, Kenya.

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Abstract

One of the key social pillars of the Kenya Vision 2030 is education and training, which envisages education and training as a pathway of developing Kenya towards a middle-income economy. Sociodemographic variables have been highlighted as important factors in determining the academic performance of students worldwide. Therefore, the purpose of this study was to determine sociodemographic predictors of academic performance among adolescents (13-18 years) in secondary schools in Athi-River sub-County. Purposive, simple and systematic random sampling techniques were used to select four private secondary schools and 120 participants. Students' previous academic performance was availed by the class teachers. Multiple logistic regression analysis was employed. The sociodemographic predictors of academic performance were belonging to younger age category (13-15 years) ($p = 0.05$), being in form 2 ($p < 0.01$), having no siblings ($p < 0.01$), and maternal employment ($p < 0.01$). These results showed that these predictors influenced the academic performance of the adolescents under study. Based on findings of the study, it was suggested that all education stakeholders should take into account socio-demographic factors in developing programs to enhance students' academic performance.

Key words: demographic, predictors, academic performance, adolescents

Introduction and Background

Academic performance of students is a top priority among educators (Farooq, Chaudhry, Shafiq, & Berhanu, 2011). In fact, the success or failure of any academic institution is determined by the academic performance of the students (Narad & Abdullah, 2016). According to Singh, Malik, and Singh (2016), students' academic performance directly affects the socio-economic development of any given country. Equally, Farooq et al. (2011) argued that academic performance of students is a key foundation for acquisition of knowledge and development of skills.

Different authors have defined academic performance. According to Narad and Abdullah (2016), academic performance refers to acquired knowledge that is examined through marks by a teacher and/or a set of educational goals established by the teacher and the students that are to be attained over specific time lines. The set goals are assessed through examinations or continuous assessment results. In the same vein, Yusuf, Onifade, and Bello (2016) asserted that academic performance is an observable and measurable behavior of a student within a specified period. They added that academic performance comprises of scores attained in various assessments such as class test, class exercise, mock examination, mid-semester and end of semester exam. Additionally, Kyoshaba (2009) opined that academic performance is defined by students' performance in course work, tests, and examinations.

The attainment of educational goals among students at secondary level is dependent on the family and school environments. These are key factors towards effective learning (Oselumese, Omoike, & Ojemhenkele, 2016). Numerous empirical studies have been conducted in different countries to determine factors that contribute to academic performance among students at different academic levels. Previous research findings revealed a combination of numerous factors such as students, home, school and teacher factors (Narad & Abdullah, 2016) as well as personal, psychological, environmental, social and economic factors (Singh, Malik, & Singh, 2016). This shows that factors affecting students' academic performance are both inside and outside of the school (Farooq et al., 2011).

In India, a study conducted by MeenuDev (2016) among secondary school students revealed that girls performed far much better than boys did. Relatedly, Maric and Sakac (2014) opined that girls in secondary schools had higher performance than boys and Farooq et al. (2011) found the same result. On the other hand, Amuda, Ali, and Durkwa (2016) observed that boys performed better than girls in Economics. Similarly, Eshetu (2014) asserted that male students had higher academic performance than their female counterparts in English and Mathematics. In addition, Pestana, Duarte, and Coutinho (2016) sought to determine the relationship between students' academic performance and age. They found that students with ≤ 12 years had better performance overall and in all dimensions in comparison to students aged ≥15 years. Equally, a study conducted in Kenya by Momanyi, Too, and Simiyu (2015) revealed that students aged 12-15 achieved higher mean scores (48.06) than their counterparts aged 20-23 (39.95).

Faaz and Khan (2017) identified socio-economic status as a predicting factor in students' academic performance. A study conducted in Kenya by Ochenje (2015) revealed that parents' socio-economic status, in particular high income, had a significant impact on students' academic performance. Rather and Sharma (2015) also found a positive correlation between parents' socio-economic status and academic grades among secondary school students. Additionally, fathers' occupation was found to have a significant impact on students' academic performance (Suleman, Aslam, Hussain, Shakir, & Zaib-un-Nisa, 2012). According to Eamon (2005) academic performance of students is negatively associated with low parental socio-economic status. The author asserted that low socio-economic status hindered students from accessing basic sources and resources for learning.

In Pakistan, a study conducted by Khan, Iqbal, and Sneem (2015) among 200 secondary school students indicated a significant correlation between students' academic performance and parents' level of education. The authors argued that parents who had attained elementary or secondary educational level were unable to offer adequate support in solving educational problems presented by their children. Similarly, a study by Ngure and Amollo (2017) among primary school pupils in Kenya revealed that primary school pupils whose parents had achieved a university degree had better academic grade performance than pupils whose parents had achieved secondary school educational level or below.

Youn, Leon, and Lee (2012) conducted a study to establish the relationship between maternal employment and children's reading and math achievement. The findings indicated that students whose mothers worked on a part - time basis were better in academic learning since they had higher child-parent interactions and frequency in school participation. Conversely, students whose mothers worked on a full - time basis showed lower learning growth, and lower frequency of school participation.

Results

Table 1: Key Socio-Demographic Characteristics

Variable		Frequency	Percentage
Age category	13-15	42	35.0
	16-18	78	65.0
Gender	Male	60	50.0
	Female	60	50.0
Class	Form 1	39	32.5
	Form 2	41	34.2
	Form 3	40	33.3
Number of siblings	No siblings	9	7.5
	1-2	28	23.3
	3 & above	83	69.2
Birth order	1	34	28.3
	2	43	35.8
	3 & above	43	35.8
Whether mother is working	Working	97	80.8
	Not working	21	17.5
	Mother deceased	2	1.7

Studies conducted in Kenya on predictors of students' academic performance have mostly focused on public primary and secondary schools. However, there is paucity of literature focusing on private secondary schools that would represent different socio-economic characteristics. Therefore, the aim of the current study was to establish the demographic predictors of academic performance among students in selected private secondary schools in Athi-River sub-County, Machakos County, Kenya.

Methodology

This study recruited 120 adolescents from four single gender (2 girls and 2 boys' schools) private secondary schools in Athi-River sub-County. The target population was students from form 1 to form 3 within 13 -18 years of age in private schools. Respondents aged 19 and above in the aforementioned classes were excluded from this study. Consequently, 30 respondents were selected from each school through systematic random sampling technique. Class teachers from the selected schools provided a random list of previous (term 1) academic results for each student. Academic performance was computed as grade category based on the total percentage. There were three categories namely above average performance (60% and above), average

performance (45-59%) and below average performance (0 – 44%). In addition, the respondents' sociodemographic characteristics were gathered from a researcher-made demographic questionnaire.

Multiple logistic regression analysis was done to determine sociodemographic predictors of academic performance. Demographic variables assessed were age, gender, maternal employment, number of siblings and birth order. As indicated in Table 1, the distribution of participants by age category showed that a majority of participants were aged 16-18 at 65% (n = 78) followed by 13-15 at 35% (n = 42). Concerning gender distribution, there were 50 % males (60) and 50% (60) females. This implies that the number of males and females in this study was equally distributed. Additionally, the distribution of participants by class showed that form two class contributed 34.2% (41) of the sample while form three students contributed 33.3% (40) and form one students were 32.5% (39).

In terms of number of siblings, participants who had three and more siblings were 69.2% (83) while those with 1 to 2 siblings were 23.3% (28), and those without a sibling were 7.5% (9). Concerning birth order, the study revealed that equal proportion of participants at 35.8% (43) were second-born and third-born and above whereas first-borns were 28.3% (34). The proportion of participants whose mothers were working was higher at 80.8% (97) compared with participants whose mothers were not working at 17.5% (21).

Table 2: Distribution on Academic Performance

Academic Performance	Frequency	Percentage
Below average	22	18.3
Average	45	37.5
Above average	53	44.2
Total	120	100.0

As seen in Table 2, the proportion of participants who scored above average in academic performance was higher at 44.2% (53) in comparison of average performance 37.5% (45) and below average 18.3% (22).

Table 3: Distribution of Demographic Characteristics and Academic Performance

Variables	Total	Academic performance			Chi-Square Test		
		Below Average	Average	Above Average	X^2	df	Sig
		Participant's Age					
13-15	42 (35.0)	5 (4.2)	12 (10.0)	25 (20.8)	6.281	1	.043*
16-18	78 (65.0)	17 (14.2)	33 (27.5)	28 (23.3)			
		Participants Gender					
Female	60 (50.0)	5 (4.2)	32 (26.7)	23 (19.2)	15.492	1	< .01*
Male	60 (50.0)	17 (14.2)	13 (10.8)	30 (25.0)			
		Participant's Class of Study					
Form 1	39 (32.5)	4 (3.3)	8 (6.7)	27 (22.5)	24.107	2	< .01*
Form 2	41 (34.2)	14 (11.7)	14 (11.7)	13 (10.8)			
Form 3	40 (33.3)	4 (3.3)	23 (19.2)	13 (10.8)			
		Number of Siblings					
No siblings 1-2	9 (7.5)	5 (4.2)	3 (2.5)	1 (0.8)	10.491	2	.033*
3 & more	28 (23.3)	3 (2.5)	12 (10.0)	13 (10.8)			
	83 (69.2)	14 (11.7)	30 (25.0)	39 (32.5)			
		Birth Order					
1	34 (28.3)	8 (6.7)	14 (11.7)	12 (10.0)	4.299	2	.367
2	43 (35.8)	5 (4.2)	14 (11.7)	24 (20.0)			
3 & more	43 (35.8)	9 (7.5)	17 (14.2)	17 (14.2)			

*p<0.05

Table 3 shows the distribution of key demographic variables and participants' academic performance. Chi-square results indicated a significant (p = 0.043) difference in distribution of academic performance across age. This implies that below average performance was mostly common among participants aged 16-18 years. In regard to gender, chi-square results showed a significant difference in distribution of academic performance. This seems to suggest that average performance was predominantly among female participants.

The study revealed a significant (p<0.01) difference in distribution of academic performance across participants' class of study. This seems to suggest that above average academic performance was predominant among participants in form 1. Moreover, results showed a significant (p = 0.033) difference in academic performance with reference to participants' number of siblings. Below average performance was predominant among participants without siblings.

To assess predictors of academic performance, multiple logistic regression analysis was used and results are given in Table 4. Above average performance was the reference group for academic performance. Age (in particular 13-15 years) was a significant predictor of academic performance (Linear β = 1.616; p = 0.05). This means that an increase in one unit of the age between 13-15 years of the participants would result in a 1.616 unit increase in the ordered log-odds of being in higher-grade category. Being in form 2 class was a negative significant predictor of academic performance (Linear β = -3.146; p <0.01). This implies that the ordered logit for participants in form 2 being in higher-grade category was -3.146 lower than other participants in the study.

Similarly, having no siblings was a negative significant factor influencing academic performance (Linear β = -5.583; p <0.01). This implies that the log-odds for participants without siblings being in higher grades category was -5.583 lower than other participants in the study. Moreover, results indicate that mothers working was a negative significant variable influencing academic performance (Linear β = -17.444; p <0.01). This implies that the likelihood of reporting higher academic grades was -17.444 lower among participants whose mothers were working.

Table 4: Multiple Logistic Regression (MLR) on Predictors of Academic Performance

							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[Grade. Category = 1, below average]	-6.393	6915.399	.000	1	.999	-13560.326	13547.541
	[Grade. Category = 2, average]	-3.162	6915.399	.000	1	1.00	-13557.095	13550.772
Location	[gend=0, male]	.573	.623	.845	1	.358	-.648	1.794
	[gend=1, female]	0[a]	.	.	0	.	.	.
	[Age. Category=1, 13-15 years]	1.616	.826	3.826	1	**.050**	-.003	3.235
	[Age. Category=2, 16-18 years]	0[a]	.	.	0	.	.	.
	[class=1, form 1]	-.419	1.014	.170	1	.680	-2.405	1.568
	[class=2, form 2]	-3.146	.903	12.148	1	**< .01**	-4.916	-1.377
	[class=3, form 3]	0[a]	.	.	0	.	.	.
	[Siblings. Category=1, No siblings]	-5.583	1.527	13.363	1	**< .01**	-8.576	-2.590
	[Siblings. Category=2, 1-2 siblings]	-.671	.792	.718	1	.397	-2.223	.881
	[Siblings Category=3, 3 & above]	0[a]	.	.	0	.	.	.
	[Mother working =1 [Yes]	-17.444	.817	456.020	1	**< .01**	-19.046	-15.843
	[Mother working=2 [No]	-17.739	.000	.	1	.	-17.739	-17.739
	[Mother working=3[not applicable]	0[a]	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Discussion

This study established that students of a younger age in particular 13-15 years were a significant predictor of academic performance. This result corroborates the findings of another study (Momanyi et al., 2015) where secondary school students aged 12-15 had higher academic mean scores in comparison with students aged 20-23. In the same vein, a study on sociodemographic determinants of academic performance by Pestana et al. (2016) indicated that students aged ≤ 12 years had better academic performance in all dimensions compared to students aged ≥15 years.

Results from this study showed that class of study was a predictor of academic performance with ordered logit of form 2 students reporting higher academic grade category being lower (-3.146) than other participants in the study. Form 2 students are in the age bracket of adolescence and specifically 16-17. In fact, this age bracket is the peak of adolescence and is characterized by social, emotional and physical changes that result in new and uncertain experiences to the adolescents. There is a sudden shift to peer focus, and massive involvement in peer-related extracurricular, sports, and social activities. Therefore, physical appearance and peer acceptance takes supremacy over academic work (Wigfield, Eccles, MacIver, Reuman, & Midgley, 1991). The sudden shift of attention accounted to decline in academic performance in form 2.

Concerning number of siblings, the log odds of participants without siblings reporting higher-grade category was -5.583 lower than other participants in the study. As postulated by the attachment theory, siblings' relationships such as warmth, support, trust and communication impact different dimensions in life's satisfaction for instance academic performance (Brown & Larson, 2009). According to Bandura (1997), closer relationship between older and younger siblings boosts a sense of self-efficacy among adolescents. Increased self-efficacy positively increases adolescents' academic interest and motivation, and the management of many academic stressors (Bassi, Steca, Fave, & Caprara, 2007). Therefore, students without siblings could be devoid of sibling support and warmth that could ultimately decrease their sense of self-efficacy. This could have a negative impact on their academic performance.

Finally, maternal employment status was a predictor of academic performance. Participants whose mothers' were working were less likely (-17.739) to report higher academic grade

category in comparison with participants whose mothers were not working. This is consistent with findings by Youn et al. (2012) which indicated that students whose mothers had full time employment had lower learning growth and reported lower rate in school participation. Mothers' absence from home is likely to reduce quantity and quality of involvement with children in varied dimensions such as supervision, cognitive enrichment and love, and time spent together (Hill, Waldfogel, Brooks-Gunn, & Han, 2005). Coleman (1997) opined that parental involvement in children's academic activities has significant emotional and intellectual outcomes in children. Child/family "connectedness" has the propensity towards higher academic performance.

Conclusion

Findings of this study show that four sociodemographic variables are predictors of academic performance. These variables include being of a younger age (13-15 years), being in form 2 class, having no siblings and mother being employed. In order to improve students' academic performance, parents ought to make deliberate efforts to increase involvement in their children's academic activities that include supervision of homework, attending school function and academic events. This will go a long way in affirming the importance of education to the students. Moreover, parents with only one child should create a conducive social learning environment for their children that will foster warmth, trust and support from their peers.

From the foregoing, it can therefore be suggested that stakeholders in the educational sector would need to shift focus from academic success based on teacher/student classroom interaction. Relevant programs addressing students' bio-psycho-social needs should be rolled out in all secondary school. This would go a long way in addressing pertinent issues that affect adolescents. In addition, there is need to strengthen and equip the department of guidance and counselling. Teachers who double as school counsellors might not be effective counsellors because of the dual relationship that might affect therapeutic relationship. Hence, the government should employ trained counselors to serve in schools. Moreover, schools need to train peer counsellors who will reach out to fellow peers within the school set-up. This study focused on current maternal employment status. It is recommended that future studies group children as a function of maternal current work with reference to part-time or full-time, onset of maternal

employment and duration of their employment. This could give in-depth findings related to maternal employment.

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