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Edited By  
Anthony MW | Karen Afandi

## **EDITORIAL NOTE**

I am delighted to present Volume 6, Issue 3 (2019) of the African Research Journal of Education and Social Sciences (ARJESS). Over the years, the journal has steadily grown in scope, visibility, and impact, and 2019 marks yet another significant milestone. This volume is a testament to the continued trust and support from our contributors, reviewers, and the wider academic community.

The quality of submissions received for this issue reflects the journal's rising reputation as a platform for rigorous, peer-reviewed scholarship in the fields of education and social sciences. The commitment of our editorial and review team remains invaluable, as their expertise and tireless efforts ensure the integrity and academic excellence of every published article.

This issue brings together timely and relevant studies such as an examination of the effects of instituted management strategies on enrolment in public tuition free day secondary schools in Nairobi County, an exploration of the views of dental students on community based education and service through a case study of Makerere College of Health Sciences in Uganda, an analysis of the influence of physical environment on crime in informal settlements of Kibra, and a discussion on the challenges facing single mothers in bringing up and formation of adolescents. Together, these papers address pressing concerns that cut across education, health, social welfare, and urban development, offering valuable insights for researchers, practitioners, and policymakers across Africa.

Our ongoing collaborations with universities, research institutions, and professional societies continue to enhance the credibility and global reach of ARJESS. The journal's inclusion in indexing databases further reflects its growing visibility among academicians, researchers, and students worldwide.

As we release this issue, I extend sincere gratitude to all authors for their valuable contributions, to our reviewers for their rigorous evaluations, and to the editorial team for their dedication. I look forward to future volumes that will continue to bridge knowledge, stimulate debate, and contribute to sustainable solutions in education and social sciences across Africa.

Anthony, MW  
Editor-in-Chief  
African Research Journal of Education and Social Sciences

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## **Effects of Instituted Management Strategies on Enrolment in Public Tuition Free Day Secondary Schools in Nairobi County**

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### **Abstract:**

*To improve on student enrolment at secondary school level in Kenya, the principals are expected to implement strategies that ensure class sizes of 45 students. The purpose for this study was to establish the effects of instituted management strategies on enrolment in public tuition free day secondary schools in Nairobi County. The study adopted a mixed research method which incorporated descriptive survey and phenomenological research designs. The target population comprised of government school principals, class teachers, and form four students. Stratified, simple random sampling technique was used to sample 10 schools and 10 class teachers while purposive sampling used to select 10 principals and 84 students. Data were collected through document analysis guides, questionnaires and discussion guide. The quantitative data were analyzed using descriptive statistics (mean and percentages) while qualitative data coded into themes. The findings showed the schools had an enrolment mean of 94% and 82% at entry and exit points respectively. The school management strategies appeared effective though further improvement was needed. The recommendations included removal of all barriers to secondary education, change of form one placement criteria from random to direct placement in the day schools, and construction of more school facilities.*

**Keywords:** *School Management Strategies, Enrolment, Public Tuition Free Day Secondary Schools, Free Secondary Education in Kenya, Student Enrolment in Secondary School*

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## **INTRODUCTION**

With global realization of Universal Primary Education (UPE), the focus in many nations worldwide has shifted to improving access at secondary school level (World Economic Forum, 2014). However, despite the need for secondary education, the trend in school enrolment across the world varies from country to country. According to World Bank (2014) secondary schools in developed countries have good enrolment of over 90% in most of the countries unlike developing countries like Africa where the levels are below 40% in most countries.

The varying statistics are attributed to different factors ranging from governments' commitment to free and compulsory secondary education in developed countries (UNESCO, 2012) to lack of secondary school places, students drop outs and repetition in developing countries such as Kenya (Republic of Kenya, 2007, 2009, 2013; World Bank, 2007). To improve on secondary school enrolment, the government of Kenya, in the recent past, has subsidized the cost of secondary education through public day schooling established through the Constituency Development Fund (CDF) kitty (Republic of Kenya, 2004). In addition, students in these schools have benefited from tuition free day secondary education programme rolled out in the year 2008 (Republic of Kenya, 2013). The aim of this move was to make secondary education accessible and affordable.

In Nairobi County, the Public Tuition Free Day Secondary Schools (PTFDSS) were established in already existing public primary school in low income or slum areas. According to Nairobi City County (NCC) (2014) report, though the creation of PTFDSS was a noble idea, it created tension and problems of resource allocation with the already existing primary schools. The NCC report further indicates that these schools were also experiencing problem of insecurity. According to United Nations (UN)-HABITAT (2015), high levels of poverty were prevalent in Nairobi County slums. These challenges seemed to have negatively impacted on enrolment a finding that confirms those of Mudege, Zulu and Izugbara (2008). Mudege et al. found that insecurity impact negatively on schooling among urban slum children in Nairobi.

Education in Kenya is a partnership involving all the stakeholders (Republic of Kenya, 2005). Therefore, at the national level, the government was striving to improve enrolment through day schooling and tuition subsidies, while at the local level, school principals had a role of ensuring government's strategies were implemented. For example, the school principals are responsible for ensuring that student enrolment in their schools' met the required threshold of 45 students per class in order to attract government funding (Republic of Kenya, 2012). To address factors causing under enrolment, several strategies have been suggested for implementation in schools. However, the application and effectiveness of those strategies in schools remains unclear. For example, to improve on enrolment Ngware, Onsomu, Muthaka and Manda (2006) recommended the expansion of secondary schools' infrastructure, improving efficiency and effectiveness of bursary schemes, school and community partnership and local resource mobilization.

The high cost of secondary education in Kenya has been a great impediment to student enrolment especially among the low-income families. To reduce the cost burdens, Kabaki in 2010 made some recommendations on effectiveness of strategies relating to tuition free secondary education funds. This includes disbursement and regularly reviewing and rationalizing fees and levies through District Education Boards (DEBs) in secondary schools. On their part, Glennerster, Kremer, Mbiti and Takavarasha (2011) suggests merit scholarship programme for students from poor backgrounds, conditional cash transfer to encourage educational enrolment among the poor and grants to finance remedial education.

Some of the recommended strategies by Glennerster et al. (2011) are in line with those of Ohba (2009) who recommended that government policies aimed at expanding access to secondary education for the poor should identify and target socially disadvantaged children requiring financial support to access secondary education.

An investigation in Kenya by Mwangi (2012) established that despite the subsidies in education, the wastage in form of drop-outs and repetition was apparent. To address the wastage rate, the study recommended establishment of boarding schools, subsidizing cost of boarding schools, sensitizing community on importance of education and reinforcement of guidance and counselling in the schools. The establishment of boarding schools would have cost implications for the already burdened parents and hence may not be a solution. The recommendation of sensitizing community on importance of education was worth investigating in this study, especially its influence on enrolment.

Given the challenging issues of resource allocation, insecurity, and slum poverty facing the PTFDSS in Nairobi County (NCC, 2014), it remains unclear whether or not these schools are able to enroll the ministry of Education (MoE) recommended number of students. The MoE recommends class sizes of 45 students for effective utilization of educational resources (Republic of Kenya, 2013). In addition, the effectiveness of the strategies recommended for improving enrolment exemplified by Glennerster et al. (2011), Kabaki (2010), Mwangi (2012), Ngware et al. (2006), and Ohba (2009) remains unclear in these schools as the issue of implementation is not widely addressed in the reviewed studies. Therefore, this study aimed at investigating the effect of instituted school management strategies on enrolment in Public Tuition Free Day Secondary Schools in Nairobi County, Kenya.

## METHODOLOGY

The study adopted a mixed research method which incorporated descriptive survey and phenomenological designs respectively. The 24 PTFDSS had a targeted population of 74 teachers and 955 form four students. The teachers were comprised of 24 government school principals and 50 class teachers. The statistical formula for finite population

$$n = \frac{z^2 p \cdot q \cdot N}{e^2 (N-1) + z^2 p \cdot q}$$

provided by Kothari (2004) was used to compute the sample size (teachers) for the study. Where: n = the sample size desired; z= standard normal deviation at the required confident level (1.96); p= the proportion in the target population estimated to have the characteristics (0.99); q=1-p; e = the level of statistical significance (.05). The sample size of 10 schools, 10 school principals, and 10 class teachers was obtained. In addition, a group of 12 students from each school in seven schools where students were available for focus group discussion

was purposively selected. Eliot and Associates (2005), Frank (2012), and Overseas Development Institute (ODI) (2009) recommend a focus group of 10 to 12 students. The insights from these studies guided the selection of 84 students. The selection was based on mixed abilities (academic and extra-curricular), gender, and social economic backgrounds. The class teachers and school documents provided the needed information.

Stratified and simple random sampling techniques were used to sample the schools and class teachers. The school principals of the sampled schools were automatically included in the sample while the students were purposively selected. The quantitative data for descriptive survey were collected through document analysis guide and questionnaires. The analysis was by use of descriptive statistics (mean and percentages). The qualitative data were collected by use of discussion guide and analyzed through coding and generation of themes. Ethical considerations made throughout the entire process. This included obtaining all the authorization documents for conducting research and seeking of consent from all the respondents. In addition, confidentiality and anonymity was also observed during reporting for purposes of protecting the respondents and schools from any physical or psychological harm. To avoid plagiarism, ideas of other researchers and scholars were acknowledged throughout the entire study.

## RESULTS

### Demographic Information

The schools' demographic information indicated that seven schools were full day secondary schools while two had introduced a boarding section for girls in form one and two only, while boys had been phased out. The schools were established under CDF kitty between year 2004 and 2009. Seventy-seven per cent of the sampled principals had a Master's degree while 22.2% had a Bachelor's degree. All sampled principals had more than fifteen years of teaching experience. Administratively, 55.5% of the sampled principals had headed their current schools for three years while 33.3% had been head teachers for between four to six years. Majority (77.8%) of class teachers had a Bachelor's degree in education while 22.2% of them were Diploma holders. In addition, 66.7% of these class teachers had taught in their current schools for four years or more and had taken responsibility as class teachers from the year 2011. The other 33.3% had taken responsibility as class teacher from the year 2012. The sampled form four students were 84 comprising of 30 boys and 54 girls. Majority (88.1%) of them came from low socio-economic background while a minority (11.9%) came from middle socio-economic background. This minority consisted of students that did not live in slum areas and had parent (s)/ guardian(s) in formal employment.

### Enrolment Levels

Table 1 shows the actual enrolment data for 2011/2014 student cohort. To compute enrolment rate, the ratio of Actual Enrolment and Expected Enrolment expressed as a percentage was used.

Table 1  
*2011/2014 Student Cohort Enrolment in PTFDSS from Form 1 to 4*

School	Form 1	Form 2	Form 3	Form 4	Average Enrolment	Expected Enrolment	Enrolment Rate (%)
A	40	40	40	40	40	45	89
B	40	38	37	35	38	45	84
C	50	45	40	35	43	45	96
D	39	40	39	39	39	45	87
E	41	40	38	38	39	45	87
F	42	42	41	40	41	45	91
G	46	33	32	31	36	45	80
H	42	39	39	40	40	45	89
I	40	38	37	34	37	45	82
Actual Enrolment	380	355	343	332	353	405	87
Expected Enrolment	405	405	405	405	405	405	100
Enrolment %	94	88	85	82	87	100	87

*Note: Data on 2011/2014 Student cohort enrolment in PTFDSS in Nairobi County, compiled from Schools' documents (Admission registers, Class registers and Mark books)*

Table 1 shows that the total enrolment for 2011/2014 student cohort from the nine secondary schools in Form One was 380 students in the year 2011 while the expected enrolment was 405 students. This translated into an enrolment rate of 94%. However, from Two to Four, the student cohort enrolment decreased from 355 (88%) to 343 (85%) and further to 332 (82%) students respectively. This translated into an average enrolment rate of 87% as most schools failed to enroll 45 students per class. This was below the expected 100% enrolment rate.

The inability of these schools to enroll recommended number of students was further illustrated by class teachers' response to the range of enrolment across the forms from entry to completion as illustrated in Table 2.

Table 2

*Class Teachers Response Rate on 2011/2014 Student Cohort Enrolment Range*

Class Enrolment Range	Class teachers' Responses %
Above 50 – Over enrolment	11.1
45-50 – Good enrolment	27.8
40-44 – Average enrolment	61.1
30-39 – Under enrolment	-
Below 30 – poor enrolment	-
Total	100

The information gathered from class teachers showed that on average, 61% of the schools had an enrolment that ranged from 40 to 44 students per class, 28% had an enrolment of 45 students and above, and another 11 % were over enrolled. This was an indication that more than half of these schools were not fully enrolled with the recommended number of students per class.

### 1.1 Effects of Instituted Management Strategies on Enrolment

To determine the effect of school management strategies on enrolment, the researchers first established the extent of their application in improving student enrolment in PTFDSS. The participants' responses to the strategies in the questionnaire were probably an indication that the strategies were instituted because they were perceived to be effective. The extent of these strategies in improving enrolment was further determined by assessing evidence for positive influence on student enrolment. The data on application of strategies for improving student's enrolment in this subsection was gathered from school principals. Their responses are shown in Table 3.

Table 3

*School Principals' Response on Application of Strategies for Improving Enrolment*

Variable	Strategies	Principals %	
		Agree	Disagree
Enrolment	• Admitting and enrolling all students placed in the school by Ministry of Education.	33.3	66.7
	• Admitting all students requesting for vacancies in the school	55.6	44.4
	• Adhering to Ministry's guideline on school fees charged	55.6	44.4
	• Expanding school facilities to cater for growing population	100	00.0
	• Providing adequate and well equipped tuition facilities	100	00.0
	• Allowing re-entry of young mothers to school	66.7	33.3
	• Sensitizing parents on importance of education	100	00.0
	• Allowing parents to pay school fees in instalments	100	00.0
	• Initiating income-generating activities to lower cost of education	88.9	11.1
Mean	Principals' responses on Strategies for improving Enrolment	77.8	22.2

Table 3 shows that 66.7% compared to 33.3% of the principals indicated that they applied the strategy of admitting and enrolling all the students placed in the school by the MoE. However, although the strategy appeared widely applied, the report from the students and the documents indicated that the strategy was not effective. This was because in each school only one or two students acknowledged having been placed in the school by the MoE. Further analysis of the five available random lists of students placed in five PTFDSS by the MoE and the actual number that reported showed an admission of only 80 (12.8%) students out of the placed 627 students. This seems to indicate that majority of the students placed in these schools did not report.

On the other hand, 55.6% of the principals indicated that they applied the strategy of admitting all the students requesting for vacancies in their schools. This was affirmed by the findings from the schools' internal admission lists and KCPE result slips that showed 76.4% of students got admission through requests. Those seeking admission in form one and had the required KCPE entry mark were admitted. Those seeking admission in other forms (levels) and the with required KCPE mark were admitted directly in some schools while in others they went through an interview. The administration of interviews to students possibly implies that only the bright students were accepted and which confirms the response of 44.4% of the principals who indicated not all the students making requests were admitted.

With regards to the MoE's guidelines on school fees charged, responses from principals showed that 55.5% compared to 44.4% indicated to have adhered. Further assessment of the schools' documents (fees structures) showed that the fees charged were within the MoE guideline. However, there was negligible difference (1.8%) in enrolment between schools where principals adhered to fees guidelines and those who did not.

100% of the school principals agreed that they applied strategies that included expanding school facilities to cater for growing population and providing adequate and well equipped tuition facilities. The responses of school principals regarding these strategies were affirmed by the response of students and class teachers in some of the schools. For example, on the expansion of school facilities and provision of adequate and well equipped tuition facilities, the researcher gathered that apart from one secondary school that had one stream, five schools had two streams, two schools with three streams and one with four streams. The expansion in facilities seems to indicate a positive response to growing enrolment. However, there was still need for further expansion because in some school's students indicated their schools lacked a second science laboratory, a library, dining hall, and enough classes.

Allowing re-entry of young mothers to school was another strategy used in improving enrolment. 66.7% compared to 33.3% of the school principals indicated their use of this strategy. In the focus group a few students in some of the schools stated that they knew of their friends who had dropped out of school due to pregnancy and later joined another school. The drop out by students affects enrolment negatively. The researcher further gathered that some of the young mothers repeated a form especially those who were out for a longer period while those who had dropped for a short period re-joined the same class.

The strategy of sensitizing parents on importance of education had a 100% agree response from the principals. The response by school principals was affirmed by students who said their parents were sometimes called to school to discuss their discipline matters as well as academic performance. The class teachers also indicated that parents were sensitized during academic seminars on the importance of educating their sons and daughters and that in a way helped keep some of the students in school.

Payment of school fees in instalment as a strategy was widely applied as indicated by responses (100%) from the principals and evidence in documents such as fees commitment forms and notes from parents. Some schools allowed parents to pay fees in two or three instalments per time. However, in some school's students with outstanding fees were sent home at the end of every of month to collect the fees balances. Another alternative strategy widely applied by 88.9% of the school principals was initiating income-generating activities such as hiring school facilities to lower the cost of education. However, it was not possible to establish if the money collected subsidized the cost of education in those schools.

### **1.2 Students' Views on Enrolment Trend**

The report from students affirmed incidence of declining enrolment. They reported that when in form one, they were many but their number kept decreasing as they moved to upper classes. In addition, some students dropped out due to inability to pay school fees, some girls got pregnant and other students found school boring hence went into business.

### **1.3 Students' Experience from the Instituted Strategies**

When students were asked to explain how they got enrolled into their current schools, they responded as follows: In six schools, parents/guardians searched for form one places after their sons and daughters failed to be placed in any school. However, in one school most students obtained an admission letter. Majority (60%) of students joining other forms did both oral and written interviews before admission.

Responding to payment of school fees, students indicated that school fees was one of the greatest impediments to schooling. Although their principals allowed them to pay fees in installment, majority were not able to pay and eventually dropped out. Further, revelation shown that students paid more money that was not included in the fee structure. They indicated that such monies were for remedial classes, computer lessons, home science practical, and school trips. Some of the students indicated that they were not able to raise the amount making them to be sent away from school regularly.

A further investigation from the students on mode of school fees collection showed that four secondary schools had an organized school fees payment commitment schedule. In three other schools, parents were allowed to write a commitment note/letter explaining how they

would pay the school fees. The students appreciated fees payment in installment because it enabled them stay in school learning while their parents searched for money.

When asked to comment about their school's infrastructure, students in all the schools stated that there was need for improvement. For example, students in two schools said the most urgent thing was a dining all because in one school they ate in a tent while in the other students walked around the school compound eating after were served with food. Two other schools stated a need for school library since there was none while three stated a need for a second science laboratory to facilitating their learning.

## 2. Discussion

The finding on Table 1 shows most of the PTFDSS had an enrolment of less than 45 students in a class. This seems to imply that schools had spaces for enrolling more students to cater for the demand of secondary education in Nairobi County. Given that education had been subsidized at this level and these were day secondary schools one would expect an over-enrolment in most of these schools. However, this was not the case. The inability by these schools to attract enough students could be an indication that access to secondary education was still a challenge to many families. This finding concur the findings of Mwangi (2012), the World Bank (2007), and Republic of Kenya (2007, 2009, 2013).

The notable declining trend in enrolment from entry to exit point was probably an indication that some of the schools' management strategies were not very effective in maintaining students in school. For example, the strategy of enrolling students placed in the schools by MoE was not effective because there is an indication that most of the students placed in the PTFDSS did not report. This finding seems to confirm the finding by Makori, Onyura, Chebolwo, Yegon & Kandle (2015) that established majority of the students in Baringo County of Kenya did not report in the schools they were placed. Their parents were dissatisfied with the form one selection process perceived to place well performing students in poor local secondary schools. This seems to imply the strategy was not very effective in improving enrolment in this category of schools.

The alternative strategy for enrolling students who made requests appeared effective because of higher enrolment. However, the finding showed that students who had good or average marks and made request to join the schools were enrolled. However, those making request in the upper level classes had to sit for an entrance examination. The act of administering an entrance examination was possibly an indication that only the academically fit students got enrolled and the unfit students were left out. These finding contradicts suggestions by Ohba (2009) and Republic of Kenya (2013) of removal of all barriers to education in order to improve enrolment. Since the PTFDSS were not fully enrolled with students there is need to admit those seeking admission without subjecting them through an interview.

The finding of negligible difference between adhering to or not adhering to school fees guidelines and enrolment agrees with the finding of Masese (2005) that found no significant

correlation between fees charged and student enrolment. However, the finding that some students were not able to pay extra monies implies that the cost of education was still high. According to Republic of Kenya (2013) some of the government policies for enhancing financing of secondary education include providing infrastructure and establishment of a cost effective system of sustainable financing. The Government of Kenya in the recent past has tried to lower the cost of secondary education exemplified in the new school fees structure released in the year 2015 by the MoE (Biegon, 2015). The lowered cost of education may increase enrolment.

The finding on positive influence of expanding school facilities to cater for growing population and providing adequate and well equipped tuition facilities on enrolment concur the finding by World Bank (2017). According to this World Bank report, a girls' school in Afghanistan in the province of Balkh was seeing greater student enrolment due to better facilities. The study findings further concur with the recommendations made by Kaguma (2012) who supported expansion of existing school plant in order to improve student enrolment. Currently in Kenya the expansion of school infrastructure is the responsibility of the government and not the parent. Biegon (2015) reported that in the new secondary school fees guideline the Cabinet Secretary for Education noted the figures of Kshs. 9,000 and Kshs. 53, 000 for day and boarding schools respectively. These figures were arrived after the removal of the responsibility of developing infrastructure from parents and shifting it to the Constituency Development Fund and County Governments.

The finding that re-entry of young mothers improved enrolment affirms findings of Kiage, Simatwa & Ayodo (2014) who found that failure to implement re-admission of teenage mothers to school in Transmara Sub County of Kenya led to decline of girls' enrolment in boarding schools. This appears to imply that enrolment of young mothers in schools to some extent improves enrolment. Sensitizing parents on importance of education also appears to have positive effect on enrolment. The principals' responses as well as class teachers and student's reports confirmed this. This finding affirms Mwangi's (2012) recommendation for sensitization of parents on importance of education as a means of improving enrolment in schools.

Payment of school fees in instalments appears to positively affect enrolment. The responses of the students and principals confirmed the mode of payment which gave students an opportunity to stay in school and learning while their parents searched for school fees. However, the finding that some parents only paid fees after their sons or daughters were sent home concur that of Adongo (2017) which established from a Kenyan school that some parents wait for their kids to be sent home from school in order to pay their fee balances. An investigation by O'Hara (2016) found that most private schools in United Kingdom allow parents to negotiate a monthly direct debit payment or other forms of instalments systems in paying fees. This implies that fees payment in instalment influence schooling positively.

The finding that 88.9% of the school principals applied the strategy for initiating income generating activities to lower the cost of education possibly indicates it was effective in

improving enrolment. However, what was evident is that extra monies were raised from hiring of schools' facilities, fields and buses but its use was not clear. There is need to direct such monies collected to running of school activities in order to lower the cost. Ngware et al (2006) recommends for local resource mobilization in order to lower the cost of education. This consequently is likely to improve enrolment.

### 3. Conclusion

The PTFDSS sampled in this study seemed to indicate good enrolment although they did not meet the expected class enrolment of 45 students. Generally, these schools gave an indication of having played a major role in meeting the demand for secondary education and addressing the government's initiative of expanding secondary education to the poor in urban slum areas. To improve enrolment further, the study recommends removal of all the barriers that deny students an opportunity to enroll in secondary education. These barriers from the study finding include entrance examination, cut off admission mark, and extra levies.

Instituted schools' management strategies for improving enrolment had varying influence. There was need for improvement on strategies in order to bring class sizes to the MoE recommended number of 45 students per class. It is recommended that form one placement criteria in PTFDSS be changed from current random to direct placement of students into nearest secondary schools. The finding shows that most of the students placed in the PTFDSS by MoE did not report to those schools. There is also need for school principals to adhere to the MoE's fees guidelines in order to lower cost of education.

Most of the schools seemed to lack enough science laboratories, libraries and others dining halls. The inadequacy could have negative implication on enrolment. To enhance enrolment in PTFDSS, the MoE should ensure effective disbursement of monies for free secondary education for expansion of schools' infrastructure. This will assist in meeting the demand for education in the process of making secondary schooling completely tuition free from the year 2018.

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## **Effects of Noise Pollution on Students' Learning in Selected Urban Public Secondary Schools in Dar es Salaam City, Tanzania**

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### **Abstract:**

*The study investigated effects of noise pollution on students' learning in Dar es Salaam city focusing on state secondary schools. The study adopted a case study design. Purposive sampling procedure was used to select two schools for the study. Simple random procedure on the other hand was used to arrive at a sample of 52 respondents. Data were collected using semi-structured interviews, questionnaire and direct*

*observations. Results were presented in themes, figures, and photographs. The findings indicated that motor vehicles, construction and welding machines and other activities related to music sounds, promotions adverts and people's movements were affecting teachers and students in teaching in the selected schools. The findings reported that without proper procedures of mobile phone use, contributed in noise pollution at school. The study findings suggested ways to reduce noise pollution, including change of routes for motor vehicles, school and local authorities to use existing rules and laws effectively, and transform school buildings to accommodate sophisticated noise barriers as well as noisy machines to less noisy polluting ones.*

**Keywords:** sources of noise pollution, effects of noise pollution, secondary school environment, noise prevention, City noise, School noise, Tanzania

## **1. Introduction**

Pollution is the process whereby there is presence or introduction of substances which have harmful or poisonous effects, particularly through human activities that lead to undesirable effects to living things, human add pollutants to all parts of the biosphere including air, water and land. Sustainable use of the biosphere creates conducive environment for living. However, if human and non-human activities continue to disrupt the biosphere system, this action might cause diverse environmental and human problems if not controlled. This study contains the following sections: Introduction,

Different scholars of literature have debated about pollution and its effects in school teaching and learning environments (Evans & Maxwell, 1997; Higgins, Hall, Wall, Woolner & McCaughey, 2005). The most common type of pollution in schools located in the City of Dar es Salaam is noise pollution. Noise refers to an unwanted sound that is judged to be unpleasant, loud or disruptive to hearing. Noise also is any sound that interferes with: (a) Physical transmission of sound, (b) physiological comfort during communication (c) mental process of thinking about communication, and (c) symbolic meaning systems (Norris, 2016). Studies have shown that prolonged and regular exposure to excessive noise results to both physical and psychological health consequences which among others include hearing impairment, hypertension, ischemic heart disease, annoyance, and sleep disturbance (Norris, 2016).

According to WHO (2015), millions of young people are likely to suffer from hearing impairment due to these noise pollutants in cities, and that noise exceeding 115 decibels (dB) is unhealthy. The report further indicated that the standard sound limit should be maintained at 85dB during the day and 75dB during the night. The study showed that a huge number of people aged between 12-35 years were exposed to a range of noise pollutants and they were at risk of developing severe hearing disorders. The study revealed that some human activities resulting to noise pollution include: mobile sources such as cars, buses, planes, trucks, and trains: Stationery sources such as power plants,

oil refineries, industrial facilities, and factories. Area sources such as agricultural areas, cities, and wood burning fireplaces and Natural sources such as wind-blown dust (WHO, 2015). With time, a number of such human activities especially in the cities such Dar es Salaam have been affecting proper teaching and learning through increasing tension, causing mental disturbances and social anxiety among teachers and students in schools. The author argued:

In young children, noise-induced complications hinder the teacher-student communication and eventually affect the learning process. Constant noise exposure in classrooms can obstruct learning. On average, children who are exposed to noisy learning environments have lower assessment scores on standardized tests. The teacher's voice is another point of real interest when we think about speech perception, as the great task of knowledge transmission depends on it, and it must be clear, harmonious, intelligible and beyond all and any competitive noise, otherwise the students will not follow the teaching (WHO, 2015).

De Lucca & Dragone (2003) believe that the teacher belongs to a group that uses the voice professionally and that needs to have special care including the attainment of educational programmes focusing the prevention of vocal problems, as well as the use of several resources. However, in a noisy classroom, the teacher has to literally compete for audibility with the noise interruptions from outside, and this form of straining causes health risks to teachers as well.

This characterizes the Lombard Effect, that is, the tendency of the speaker to maintain a constant relation between his speech level and the competitive noise.

Research on the effects of noise pollution have a view that children in schools with high aircraft noise exposure for instance don't concentrate in class better as compared to those with limited forms of noise pollution (Evans & Maxwell, 1997). Their research discovered that children often have difficulty acquiring speech recognition skills when background noise is high, interfering with the quantity and quality of information that they receive. However, they noted that students in quiet school scored higher since their learning and teaching experiences by teachers is less interrupted.

Acknowledging the complexity of noise pollution, (Science for Environment Policy [SEP], 2017) highlighted that noise pollution can be controlled because there are different machines produce noises and they need unique technology regardless of the existing laws to control their pollutants. One of the common ways of overcoming the nuisance from machines is to absorb the vibration and converting it to heat energy using special barrier materials. The author indicated that the use of noise barriers for example absorbing devices, caped materials, angled materials and covering materials are effective in reducing sound waves and transmission of noise. Arguably, such noise and vibration producing technologies are more pronounced in large cities and towns where

industries come up and motor vehicles are more. Therefore, considering the effects of noise in human health, an investigation of the effects of noise pollution in teaching and learning is important in developing countries.

Higgins, Hall, Wall, Woolner & McCaughey, (2005) argued that studies in developing countries have to adopt a design-led model in understanding the complex nature of school environments and interactions. It constitutes different grids including learning, environment, communication, systems and services and products and services. Hence, student learning is more likely to be associated with changes in elements around it as Figure 1 shows.

Considering the elements of these model systems and process, environment, products and communication, the studied phenomenon in this study would be addressed in line with the following assumptions: First, it assumes that systems and processes involve different users who have different perceptions and needs, which often differ from the architect's perspective. At school level, teachers' attitudes and behavior are important in the use of school space for student learning. Secondly, it assumes that school built environment is strong and consistent in affecting the basic physical variables e.g. temperature, noise, air quality on learning. It assumes that in this aspect there are other physical attributes which affect student's perceptions and behavior however, it is difficult to draw definite and general conclusions. Thirdly, the quality of products and services including catering services, transport facility, buildings, and teaching resources are important to children and may be linked to learning. Extending schools into the community is considered desirable to enrich the health of school teaching and learning environment. Lastly, the model believes in communication to building school environment and the community (Higgins et al., 2005). Good communication within a school seems to be part of creating an environment that is conducive for successful teaching and learning. The present study considered the components in this framework to develop an understanding of the phenomena in question because it has embraced about important aspects of the studied phenomena.

In most cities including Dar es Salaam the people including students and teachers have experienced noise pollution and the need to control the problem is high because it affects in many ways (Mahanga, 2002). (Flavell, 1977) studied that learning is dependent on the ability to communicate with spoken language, which forms the basis of the ability to read and write. For example, the author indicated that 60% of classroom learning activities typically involve listening and participating in spoken communications with the teacher and students. It is expected from the studies that any form disruption of this communication directly affects the learning by students' Therefore, if that is the case, noise pollution poses serious physical and psychological effects to both teachers and students. The severity of these effects depend on a number of factors such as: the time one is exposed to noise, the magnitude of the noise, (WHO, 2015). Since different

studies conducted in developed countries revealed that the effects of noise pollution to humans are quite often irreversible (Evans & Maxwell, 2017) The researchers saw the need for a similar study to be conducted in a developing country, with special focus to Tanzania. Therefore, the study examined the effects of noise pollution on teaching and learning in selected urban public secondary schools in Dar es Salaam City, Tanzania.

## 2. Methodology

The study used a case study design to examine the effects of noise pollution on students' teaching and learning in government secondary schools in Ilala district of Dar es Salaam city. In addition, the study design was considered appropriate since it would accurately highlight the effects of noise pollution since. The population sample involved a total of 52 participants, and of these, 12 were teachers and 40 were students. This population sample was obtained randomly from 2 secondary schools. The two secondary schools were strategic for the study due to their geographical location within the city.

Data was collected using questionnaires, conducting physical observations and through conducting interviews. The questionnaires had closed-ended questions, because they are easily analyzed, and every answer can be given a number or value so that a statistical interpretation can be assessed. In such surveys, closed-ended questions take less time from the interviewer, the participant and the researcher, and so is a less expensive survey method. The response rate is higher with surveys that use closed-ended question than with those that use open-ended questions.

Direct observation method was used to observe and record information from the schools' environment and surrounding establishments. The researcher's observations would be captured and recorded so as to clearly create a co-relation with the topic of study. Semi-structured interviews were used to gather data from teachers in response to the study topic. The semi-structured interview was considered since respondents are offered the freedom to give their insights and views about the study topic in the most convenient ways, and the interview questions are prepared in advance such that the interviewer is able to internalize all that the interview entails (Cohen & Crabtree, 2006).

Data analysis was conducted through thematic analysis, where it emphasizes pinpointing, examining, and recording patterns or themes within data Guest, (MacQueen & Namey 2011). Themes are patterns across data sets that are important to the description of a phenomenon and are associated to a specific research question. Data was transcribed, coded and categorized according to topics. The information was later fed to data analyzing computer soft-wares like Ms-excel, word and Nvivo facilitated findings organization in different forms including graphs, tables and quotes. Study results' accuracy was carefully analyzed by scrutinizing the results critically. Furthermore,

ethical aspects of this study were adhered to through the signing of consent forms by participants, ensuring confidentiality and anonymity of the research process and informants. In addition, researcher informed the participants about the research purpose and the rights to withdraw from the study at any time during the study period.

### 3. Results

#### 3.1 Demographic Characteristics

The research reports findings on participants’ characteristics, sources of noise pollution and their effects on communication at school environment as well as the strategies used to address the problem in urban secondary schools. The participants of the study included same number of males and females for both students and teachers. In this case, 20 males and 20 female students responded to the questionnaires from the selected secondary schools. The age ranges of these students were between 18 to 23 years old. On the other end, 3 female and 3 male teachers responded to the interviews and questionnaires. The teachers involved in this study had more than 3 years of teaching experience at their respective schools and students involved were in form three and four.

#### 3.2 Sources of Noise Pollution

From the results of this study, the findings show that there were different sources of noise pollution around the selected schools. Figure 1 shows students’ responses on sources of noise.

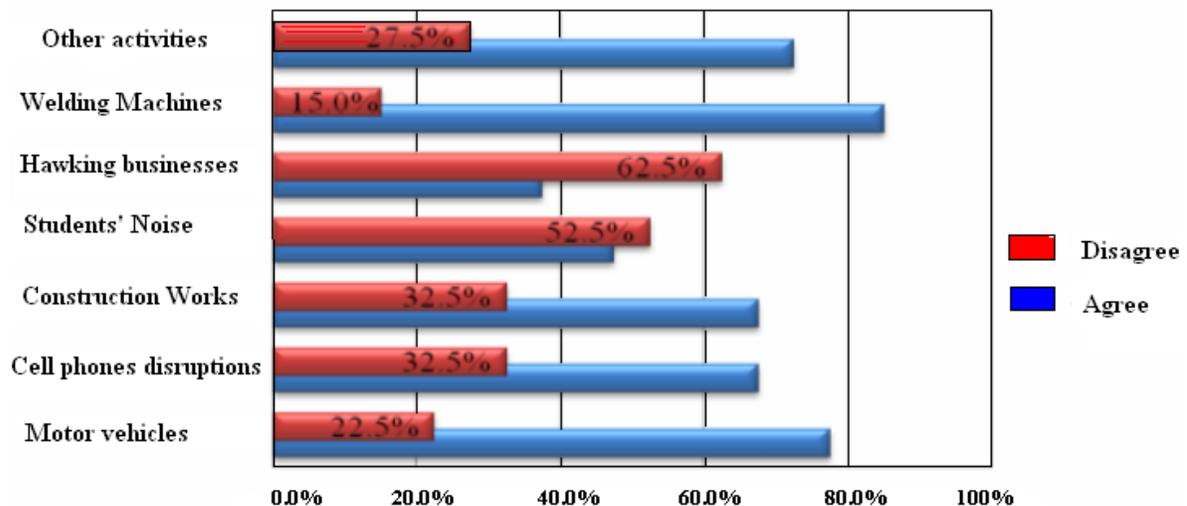


Figure 1 Students’ responses on sources of noise

The findings in Figure 1 showed that students were in agreement that the leading causes of noise in schools included welding machines (85%), motor vehicles (77.5%), and other

activities (72.5%) related to social functions (e.g. funeral, public bars, weeding and traditional activities). In addition, these were followed by similar number of students' responses who indicated that construction activities and use of mobile phones (75%) causes a significant noise in urban schools. A few of them agreed that students' talking in classrooms (47.5%) and petty trades/businesses (37.5%) caused noise in schools. In addition, there were disagreement among respondents regarding petty businesses (62.5%) and students' voices (52.5%) to be the sources of noise because such activities were considered to be the least cause of noise in schools. Thus, these findings indicated that the higher the percentage of agreement among students reflected the lower the percentage of disagreement of any aspect representing the source of noise and vice versa. Figure 2 shows findings on the teachers' levels of awareness with regards to noise pollution sources.

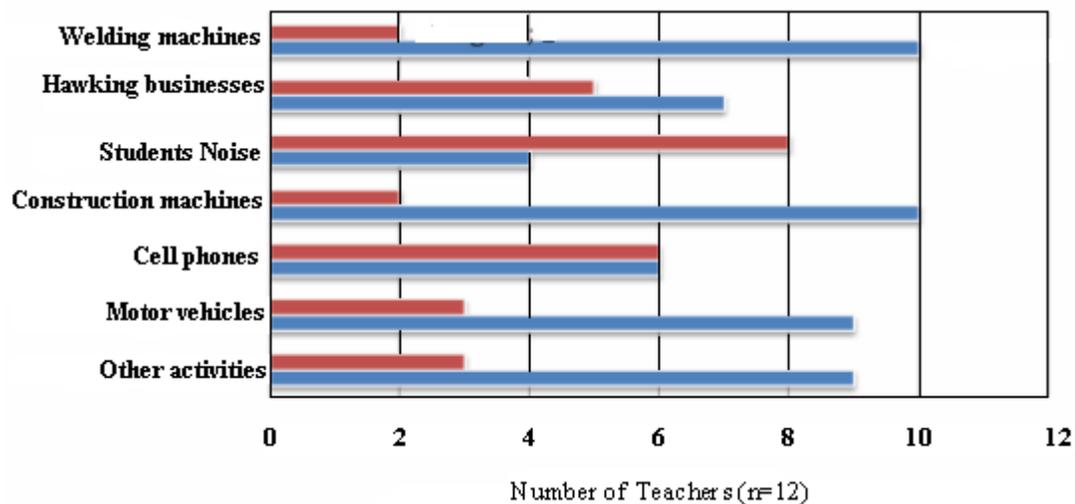


Figure 2 Teachers' responses on noise sources

The results show that the main sources of noise pollution were generated by welding and construction machines as noted by 10 teachers and followed by motor vehicles and other activities by 9 teachers. Hawking business (7) and use of cell phones in schools were considered to cause noise in schools. Insignificant amount of noise came from students' voices as indicated by 4 teachers. Eight teachers disagreed that students' voices were not the source of noise in schools. In this case, the results revealed that less than 3 teachers were in disagreement on the view that motor vehicles, constructions and welding machines as well as other activities were the major sources of noise in their schools.

Furthermore, observation results revealed that schools were built close to roads which were busy with many activities including road repairs due heavy traffic and people passing through the schools' environment (Plate 1). The photographs were taken from two different secondary schools. Plate 1 below shows that there were construction

activities of upgrading the murrum to tarmac road in one of the urban secondary schools selected for this study. The road construction was in progress just next to the school. In this school, a wall was built to separate the school building and the road to protect movement of people and sound from different sources. In addition, plate 2 reveals a school building that was very close to the road and not separated by a wall. It was observed that noise from the activities on the road was directly causing disruption in the adjacent classes, which in most cases were left open even during learning. This means that sounds generated by motor vehicles, cyclists, and people moving along the road in one way or another caused disruptions to the student's learning inside the classrooms.



*Plate 1* Activities around school environs



*Plate 2* Road adjacent the school

### 3.3 Effects of Noise Pollution

This study revealed the effects of noise in schools. The results indicate that both teachers and students unanimously agree that noise pollution from the different sources contributed significantly to poor learning in these schools. Teachers and students responded as discussed below with regards to the effects of noise pollution on communication at school. Noise pollution directly affects learning, attention of teachers and students during teaching and learning processes reduces efficiency in teaching. One teacher explained that:

It is sometimes irritating to me when I teach my students and noisy people are walking on the road adjacent to the classrooms while the cars keep hooting. Sometimes I stop teaching to allow the noise to settle, before continuing with teaching.

Another teacher also complained that:

The Government should strictly enforce rules that protect noise pollution at places of learning. The classrooms are no longer conducive for learning due to noise pollution from different sources. This has even encouraged naughty students to constantly misbehave during learning. The study findings revealed that there were several proposals

by different stakeholders to minimize the effects of noise pollution in schools. Some proposed that anyone whose business or work involves noise should be held personally liable and should have a permit allowing them to produce noise.

Appropriate locations with minimal disruptions should be designated for school construction in future. Industries should be located away from institutions especially of learning so that activities can run smoothly. In addition, teachers proposed the need to adhere to basic practices during learning hours, and this includes closing classroom windows. All occupants both within and outside the school should at all times adhere to the set rules and regulations regarding noise pollution. Creating awareness to members of the public and business owners around the school was also found necessary since it would effectively address the issue of unnecessary noise for instance hooting by public service vehicles and shouting by hawkers near the school premises. Mobile phone use should only be allowed at designated points and teachers should maintain their phones on silent mode while in class. This would minimize interruptions during learning hours hence improved concentration by students. It was also noted that most teachers operate their phones with total disregard of those working or concentrating on serious work around them". Therefore, there was need for all involved stakeholders to always adhere to the basic work ethics and ensure there is order and that all operations run smoothly and effectively.

#### **4. Discussion**

The study findings focused on the sources and effects of noise pollution and explored possible solutions that aim at reducing the effects of noise pollution in secondary schools located within urban cities or towns.

The study findings clearly outlined that more than 65% of students were in agreement that activities taking place around the school such as construction, engineering activities such as metal grinding and welding, traffic by motor vehicles and public service cars and all other activities around the school environment, use of cellular phones and construction activities were the major sources of noise pollution to these schools (Figure 1). Meanwhile, about 15 to 45 percent of students indicated that students' voices and petty businesses were the sources of noise in school environment. It was also noted from the study findings that Hawking activities far from the school compound, businesses followed by students' noises had little effects in teaching and learning compared to other sources of noise. Building on Higgins's et al. (2005) framework, results suggested that school environment were affected by noise because they were either located closer to the sources of noise pollution or there were poor school administrative roles to stop the situation. It was discovered from the study that noise pollution created school environment unfavorable for learning and it encouraged truancy and dropout to some students. Thus, teachers and students were annoyed and stressed with noise pollution.

The results concur with WHO, (2015) argument that human activities are the leading cause of noise pollution in schools' environment which affects teaching and learning and the subsequent academic performance of students.

Interestingly, results obtained from 12 teachers' experience on sources of noise pollution at school environment indicated that more than 50% agreed that the noise was associated with mobile sources like the motor vehicles, fire processes such as welding and metal grinding works, construction machines, hawking businesses and other activities. Some teachers considered the students' noise during break hours to contribute to a relatively small percentage to noise pollution. However, findings in figure 2 showed that teachers who appeared to disagree (6) and agree (6). Ideally, the study discovered that the majority of workers at school own mobile phones and use with them any time when they need to and this causes unnecessary disruptions during learning hours.

Hawking business around the secondary schools' environment was reported to be one of the major sources of noise pollution. Hawkers targeting students were selling their wares just outside the school compound, and were causing constant disruptions to during learning. This situation started growing out of hand when the school administration rather became reluctant to enforce rules and regulations on matters of controlling hawkers around the school.

There is no any serious rule or way that is set by the school to stop students from producing noise. Even those people who come to do their business around the school surroundings ... they just come and go as if this place is for businesses.

Results generated from 10 (83.3%) teachers showed that welding activities were the major causes of noise pollution in many urban schools due to development of industrial activities. It was urged from the study findings that the Government should observe appropriate locations for industries and schools to avoid problems such as pollution (SEP, 2017).

It was noted from the results (Figure 1 and 2) that a majority of teachers and students agreed that noise pollution has direct and significant effects on teaching and general learning at school. They agreed that noise from construction, motor vehicles, metal work businesses and other activities had greater effects on teaching and learning process. One of the teachers highlighted that disregard of basic work ethics like phone use in schools affected productivity of both workers and students' concentration on learning. For instance, a majority of teachers (83.3%) viewed that construction activities within the school compound hindered effective teaching and learning and the situation contributed to the poor performance of students in their schools. Thus, it was discovered from this study that the prevalence of noise pollution in schools affected the attention of teachers

and students in carry out their teaching and learning activities (Flavell, 1977; Norris, 2016).

On the proposals to address noise pollution in schools, it was suggested that the government through the respective authorities and other education stakeholders should ensure that noise regulations are fully implemented and are applied at all places. Other considerations can include proper control of traffic within the roads around the school so as to help students study in conducive environments and improve their academic performance. Moreover, the study further revealed that the government authorities should make a law or choose a specific area for industrial activities. The results also revealed the need to observe teaching ethics regularly to control discipline problems among students and teachers. It was found that there was a need to create awareness among students about noise pollution and its effects on learning.

The engineering aspect of the class rooms was to be done in such a manner that it would allow for maximum noise pollution in the classroom (SEP, 2017). Installation of air conditioning machines should be considered to allow proper air circulation when the windows are closed. (Higgins et al., 2005).

The study proposed the use of rules or enacting laws which prevent noise from motor vehicles, construction and welding machines as well as other activities including music, promotion adverts and people passing nearby the school during work time. For example, findings from teachers (83.3%) discovered that noise from these activities contributed high effects in teaching learning process compared to noise from hearing cell phone (50%) which had less effects due to laws established in the school by the Government. Thus, the study findings suggest that the existing laws are not enforced to prevent noise pollution. The suggestion perhaps required the schools' board, local government authorities and the community to contribute their effort in reducing the problem in schools (SEP, 2017).

## **5. Conclusion**

This study concludes that noise is relatively social, cultural and physical phenomenon, it is considered as not a problem rather promotes learning communities through which cultural values, social norms and obligations are clarified and cherished. There are many factors leading to noise pollution in schools, but the major sources of noise include the use of construction machines, motor vehicles, welding machines and other human activities related to music, public bars, promotion adverts, and entertainment.

However, there is little attention from responsible authorities in enforcing the existing laws and regulations reduce noise pollution from within and outside the school environment. In this case, it appears that teachers, students and the public are

accustomed to the problem, such that a few or none of them finds a way to stop it or rise about it to the responsible authorities for further action. Authorities in schools seemed to apply some strategies to deal with noise sources inside their walls and they were not able to address noise sources outside school boundaries. Thus, more affirmative action should be considered in line with the recommendations of this study to address this problem.

Further research is needed to study the different trends and magnitude of noise pollution problem in the area. A study is needed to determine the effects and methods of mitigating this challenge of noise pollution. This is also important since it will advise urban planners and other relevant stakeholders on the most appropriate zones for school construction. There is need for similar studies to be conducted in other cities in the country as this challenges keep on growing and greatly affecting learning in schools. There is need to conduct similar studies to cover other institutions of learning such as primary schools, colleges and universities in urban settings. This will be a great way of addressing the challenges facing the education system in totality.

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### **Exploring the Views of Dental Students on Community Based Education and Service: A Case Study of Makerere College of Health Sciences in Uganda**

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#### **Abstract:**

*To mitigate the growing migration of health care personnel from rural areas, the faculty of medicine at Makerere University changed the curriculum in 2003 and introduced Community based Education and Service (COBES). The aim of this study was to explore how dental students perceived Community based Education and Service. Focus Group Discussions were performed at Makerere College of Health Sciences. The study employed a case study design. The participants were fourth year dental students who were involved in COBES as part of their undergraduate dental education. Focus Group Discussion method was used to collect data. The collected data were analyzed using qualitative data analysis with a focus on the manifest content of the verbal communication. Three main themes were identified, including: the students' experience of COBES, choice of career and the future. COBES seems to improve the participants' willingness to work in rural areas. Economy in the form of salary and good working conditions are expressed as important factors for students' future choice of career. The study provides a glimpse of the problem and calls for a need to improve the quality of dental education and service in the COBES program. In future, studies including tutors and supervisors in higher institutions of learning can be conducted to get further information about the COBES program.*

**Keywords:** Community-based Education and Service, Students perceptions of COBES, Attitude towards COBES, Dental student's views towards COBES

## 1. Introduction

In Uganda the Ministry of Health (MoH) is responsible for the financing of oral health services. Only 9% of the total GDP (Gross Domestic Product) is allocated towards health service and out of this less than 0.1% is earmarked for oral health care. In health units provided by the government there is free basic oral care but patients are often compelled to look for dental care elsewhere due to lack of dental professionals, equipment and material.<sup>1</sup>

During 2007 Uganda was said to be unique since they were training two orientations of oral health workers; dental surgeons and public health dental officers. In 2006 a total of 72 dental surgeons were distributed all over the country giving 1 dental surgeon per 158 000 people. Out of these 72 dental surgeons, 39% were based in the capital city, Kampala.<sup>1</sup>

To mitigate the growing migration of health care personnel from rural areas,<sup>2</sup> the faculty of medicine at Makerere University changed the curriculum in 2003. The traditional curriculum that was adopted in 1924, was replaced in favor of a problem-based learning [PBL] system and COBES,<sup>3</sup>. COBES is designed in order to introduce medical students early to communities with different health needs and inspire them to work in any community despite cultural and socioeconomic disparities.<sup>4</sup> They are sent to rural areas to assess, design and implement a community project.<sup>5</sup>

Community-based learning has been reported to give students a comprehensive introduction to working in practice and give them confidence to perform both clinical and non-clinical tasks.<sup>6-8</sup> COBES is designed to make the students aware of health problems in rural areas and to experience how life is as a rural health professional. This deliberate exposure is planned to inspire the students to consider working in a rural area of Uganda.<sup>8-10</sup> Coming from a rural background prior to a medical education has been shown to have a stronger, positive influence on the willingness of students to work in rural areas instead of urban.<sup>11-14</sup> The purpose of the study was to explore the perceptions of dental students towards COBES at MakCHS in Uganda.

## 2. Materials and Methods

### Design

A case study research design was employed to probe dental students' perceptions of COBES. We explored the participant's opinions on COBES by using FGD, as we believe that the dental students' perspectives on COBES are relevant to a successful implementation of the program. The study was approved by the Research Ethics Committee at Makerere College of Health Sciences in Uganda, IRB 2013-028.

## **Participants**

The participants were fourth year dental students who were involved in COBES as part of their undergraduate dental education at MakCHS. Students undergo a one-week orientation program at MakCHS that focuses on key aspects of community- based health education. Then they are sent to community-based sites, where they spend about 4–6 weeks at a time. Purposive sampling was used to obtain a diverse sample of participants to suit the aim of the study. The inclusion criteria were that the participant had undergone their education for a few years and participated in more than one part of COBES.

### **Data collection**

A questionnaire from an earlier study on the same topic to evaluate the opinions of students on the community-based program at MakCHS was used to develop the battery of questions<sup>4</sup>. Two FGDs of one and a half hours each were held in English in a secluded room at Mulago Campus in June 2013. The FGDs were moderated by one of the authors, while the other author took notes at both FGDs. Participants were encouraged to express their own perceptions about COBES through an interview guide containing a predetermined set of questions that served as a checklist during the FGD. Each topic was discussed till estimated saturation. Audio recordings were made during the interviews.

### **Data analysis**

The interviews were transcribed verbatim. The text was analyzed using qualitative content analysis with a focus on the manifest content of the verbal communication, but with openness to the latent content through interpretations for a greater understanding. Qualitative content analysis was carried out mainly according to the method of Graneheim and Lundman 2004.<sup>15</sup> Using the method as a guide, the text was divided into units of meaning consisting of sentences and paragraphs linked together by their context in chronological order. Themes and categories were formed out of the interview guide, with the aim of investigating perceptions among the students. Then we sorted the data in categories in this early stage of the analysis to structure the information and to do an early overview of what was actually said in the interviews based on the purpose, earlier research and relevant theories.

Downe-Wamboldt's recommendation was used in the various steps of our qualitative content analysis.<sup>16</sup> Downe-Wamboldt (1992) recommends working with the following steps in qualitative content analysis in whatever order seems appropriate and in a process comprising pretesting followed by revision of categories and codes: 1) Selecting the units of analysis, 2) Creating and defining the categories, 3) Pretesting the category definitions and rules, 4) Assessing reliability and validity, 5) Revising the coding rules if necessary, 6) Pretesting the revised category scheme, 7) Coding all the data, 8) Reassessing reliability and validity.

### **3. Results**

After thoroughly analyzing the materials, three major themes emerged: students' experience of COBES, choice of career and students' future (See Table 1).

**Table 1**

**Synopsis of themes and categories**

<u>Themes</u>	<u>Categories</u>
Student's experience of COBES	<ol style="list-style-type: none"> <li>1. Previous knowledge and expectations</li> <li>2. On-site experience</li> <li>3. Reflections about COBES</li> </ol>
Class, origin, economy and choice of career	<ol style="list-style-type: none"> <li>1. Socio-economy and education level</li> <li>2. Origin</li> <li>3. personal economy and support</li> </ol>
Student's future as professional	<ol style="list-style-type: none"> <li>1. Thought about the future</li> <li>2. Salary and motivation</li> </ol>

**Theme 1: Students' Experience of COBES**

**Category 1: Previous Knowledge and Expectations**

Students mentioned being excited going to COBES since they were anxious of what the job market would offer to them and even a significant number did not really know what to expect.

*They tell you to expect culture shock. They tell you about your way of interacting with the community, and how to fit in and adopt to their cultures. You have to try as much as possible to reason with the people so as to ensure you deliver the best services. This exposure is important since would allow us students to gain the best in terms of work experience.*

*"[...] I expected to find a state-of-the-art hospital with a lot of personnel but when I got there I was actually surprised since there were only two doctors [...]"*

## Category 2: On Site Experience

The students reported lack of appropriate hospital equipment, lack of medicine and poor hygiene standards at the clinics, and these poor working conditions greatly affected proper service delivery. The dental clinic sites were not properly facilitated and had no functional dental units. Most dental services were lacking and only tooth extraction services were being offered.

*“[...] if they sent you to dental clinics, I realized that in most of those government hospitals where we were stationed, the only thing that is functioning in these dental units is extraction. [...] so you are going to learn how to give local anesthesia and extract. That’s all [...]”*

*“The other thing is that services, that we are used to here are syringes in plenty,” “At that site we actually don’t have those services and it is quite difficult to adjust [...]”*

They also reported lack of personnel and especially lack of educated tutors.

*“I expected to find people who are more educated, someone who can explain to you something why they are doing it and the physiology and everything behind it. But they don’t know these things because they learnt from experience. It was kind of a disappointment.”*

The students’ experiences of the personnel at site were that they had very low motivation for their work and they thought it was because of their low salary and challenging working conditions.

*“[...] these people know we are coming because they are told earlier and we go there every year but some of them are never prepared [...] they are trying to give what they have, but in most cases most of them are not motivated”*

The personnel did not seem to know about the program or the students’ presence.

*“[...] usually it’s the head of the hospital and our site tutor who knows. But the rest of the hospital. the people are just seeing you [...] they don’t even introduce you!”*

*“Some of those people are said to be there, but they are not there. Probably they are there once in a week, but have to look for money elsewhere.”*

One of the site personnel tutoring the students complained that they were not being properly compensated for the tutoring services and that it was not part of their job description, therefore the person was not paid for it.

At the respective work centers, the students' had different experiences - some sites arranged accommodation and others did not. The students complained on inconveniences such as long distances to the work stations and high cost of food were a major challenge to the students considering the limited amount of allowances. The students however solved these challenges in different ways such as buying cheap fast-foods from local eateries, while others opted to prepare homemade meals. A significant number of students were privileged enough to get free meals and accommodation from the host community.

*“Accommodation was a challenge since there were very limited number of rooms and there was limited resources in terms of beddings.”*

*“The location I was posted to during my first year, accommodation was provided for and the host community were hospitable.”*

### **Category 3: Reflections about COBES**

Most Focused Group Discussion participants saw COBES as a good idea since it is an opportunity to meet different cultures and communities. They also stated that it exposes them to work environment in the rural setting where there are limited resources.

*“I think COBES is a very effective program. But I think we as students need to embrace and appreciate it more and I think the students probably need more allowances so as to boost their working morale and cater for basic necessities.”*

This program has also improved the social interaction among students from different backgrounds, where they share experiences gathered from different work backgrounds.

*“... making friends. You learn a lot of stuff, it's good. It's good for both personal and career progress...”*

A common trend drawn from the students' experiences was that COBES puts too much focus only on medical students. The host communities proposed that the programme be extended to cover other health concerns and not only dental services. They also proposed that a permanent center should instead be set at respective facilities as part of COBES commitment to reach out to a large number of residents even if it is for a subsidized cost. This would have served them more efficiently.

*“The whole program only focuses on dental care services”*

*“They should go an extra mile and start introducing other medical services in the program [...] it should be broad and not only dental services, or at least set up a permanent dental clinic.”*

In terms of clinical exposure before COBES, the students reported having visited hospitals but not dental clinics and therefore were a bit disappointed. Lack of proper induction process at the respective work stations contributed significantly to poor service delivery by the COBES students. Most people at these facilities were not aware of what services the students were offering.

## **Theme 2 Class, origin and economy**

### **Category 1: Socio-economy and Educational Level**

There was a common agreement among the students that socio-economic factors have a lot of influence on matters regarding choice of career in Uganda.

*“I think it varies because most medicine students come from wealthy backgrounds and therefore can afford to enroll them in expensive medical schools.”*

### **Category 2: Origin**

Several of the participants were in agreement that despite coming from urban or rural setups, one’s exposure also has a hand in the way the medical student delivers their skills at work.

*“[...] people who come from rural areas they don’t really know that medical school has dental school. [...] but people who have grown up in town are exposed to such services and hence enroll in bigger numbers for this course.”*

### **Category 3: Personal Economy and Support**

Some students affirm that education is expensive and that students who cannot afford the fees find it tough to study these courses that are expensive, and are forced to seek funds to enable them enroll for these courses through fundraising from family and friends, and through application of loans.

*“You actually need support because without it, learning will literally be impossible and quite difficult.”*

## **Theme 3: Student’s Future as Professionals**

### **Category 1: Thoughts about the Future**

When asked about their future as dentist professionals all students agreed that the government pay to such professionals is low, while they are forced to work for long hours which goes uncompensated. Some students mentioned that they indeed deserved better remuneration since they had invested a lot of funds in their education and the government should consider that when reviewing their salaries.

*“[...] I prefer working where remuneration is better than in government. Most of us end up having debts which we accumulate from loans and from other sources that enabled us enroll in this medical courses, and that is why we consider the high salary after school so that we pay these debts and spare some money for our upkeep.”*

### Category 2: Salary and Motivation

Most of the students want to give back to the community and some even feel obliged to return. Most students are for the opinion that experience from a high number of patients is more important than the salary for a start since it exposes them to work experience which boosts their skills. The reflection of the students is summarized in Tables 2 and 3.

**Table 2**

**Attitude of dental students towards future career by residence and salary**

<u>Residence</u>	<u>High salary</u>	<u>Low salary</u>
Urban	Very positive	May be acceptable
Rural	Acceptable for a short period	Unacceptable

**Table 3**

**Dental practice and dental theory in reaching the desired Intended Learning Outcome**

<u>Dental Theory</u>	<u>High Dental Practice</u>	<u>Low Dental Practice</u>
<b>High</b>	ILO attained COBES favored	ILO not attained Major problem in COBES
<b>Low</b>	ILO not adequately attained Moderate problem in COBES	ILO not completely attained COBES failed

*“The main reason as to why you’re in school is to earn a better living later, to live and give back to the community, to give back to your family [...]”*

*“Personally I would love to work at a place where I earn more and it would really encourage me to give back to the community if need be.”*

*“I think for a start I can work in an urban setting, since there are more allowances offered, and later on save and invest back in my rural village.”*

#### **4. Discussion**

This study discusses the pros and cons related to COBES among dental students. The study has helped to bring out dental students' perspective of COBES and has explored a range of factors which have affected students' attitude and perceptions during their experience while working for the COBES program. The key findings show mixed attitude both (positive and negative) towards COBES. However, most students are positive about the program, but also wanted prior training concerning the program be made thorough for students to fully embrace it.

Information offered by the university was considered less detailed. Proper orientation should be done to students both at school and at the ground where the students will be based. This is important since it helps students be comfortable and learn to adopt to the different environments they will be exposed to. This will minimize the culture-shock impacts to some students.

Most students were excited to take part in COBES but over time, but the students morale kept on decreasing as they faced work challenges This might imply that there is a decreasing excitement and therefore the students felt more positive towards rural placement in the initial years. Leaving the city for placement in rural areas means constraints in clinical and educational resources, as well as living conditions.

The students had expected enthusiastic and well-informed tutors and site personnel, but seemed the tutors had not gained the necessary training skills and their understanding of the content also was put to question. Some were not aware of the student's presence at sites. Due to this, students felt unwelcome, unprepared and invisible.

One of the predominant findings that emerged from the study was that dental students felt marginalized and felt that dental education was not treated as an equal to medical education in COBES.<sup>17</sup>

However, COBES had a positive impact at a personal level since the students in several cases had their first hands-on experience which led to increased confidence. Other participants said they felt like they had accomplished something and that the program gave them a wider spectrum of thinking. Thus, unlike medical students who have positive attitudes, dental students have a mixed attitude towards COBES.<sup>17</sup>

The opinions of how accommodation and food were organized ranged from very good to terrible. At some sites the students felt very accepted and cared for, while at others arrangements were a struggle, a feeling of being treated unfairly. This may decrease motivation and may lead to a negative attitude towards COBES. Some participants mentioned lack of motivation for COBES since the program needs more finance and better facilities to improve the experience of the program.

There is a shared agreement amongst the participants that origin and socio-economic factors influence choice of career as a dentist in Uganda. Many students originate from urban areas and the majority of the participants' families are well-educated. In urban areas educational possibilities are known and readily available compared to rural areas. Further contributing factors here could be the economic situation of a student's family and the expectations from well-educated families and relatives to earn a high degree at the university. Some researchers reported that students with a rural origin are more likely to show willingness to practice in rural areas.<sup>18–19</sup> But participants stated that they have invested a lot in their education and therefore salary is quite important for them.

Working conditions were perceived as hard during their visits to COBES sites. The lack of equipment and medicine ultimately may lead to many problems including hygiene and many of the students seem to be unwilling to work in these conditions five days a week. They all want to give back to the community but consider it to be mainly about goodwill.

The concern that dental education is being omitted in favor of medical education was palpable. The students mentioned that the program in general is related to medicine and is not to a larger extent connected to their future profession. COBES needs to be connected to the students' future career and related to the practice that they can use in their future career. If the student finds that COBES is not related to dentistry but medicine, then it demotivates the person to enjoy the program. The participants requested more dental tutorial problems and desired a dental clinic, or at least a visit, at every COBES site.

## **5. Conclusions and Recommendation**

Unlike medical students<sup>17</sup>, dental students have mixed attitudes towards COBES. It seems how dental students perceive COBES is dependent on the content and delivery of dental education, the quality of the education given, the presence of resources to conduct the program, the practical knowledge gained, the opportunity to conduct dental services and the preparation for future working life. Thus, a number of issues regarding the implementation need to be addressed in order to reach the intended educational and service goals. Education providers need to have clear processes for identifying and responding to COBES concerns during the rural attachment. Even though the scope assessed is narrow, it still provides a glimpse of the problem and calls for a need to improve the quality of dental education and service in the COBES program. The university, therefore, will need to implement appropriate measures to both minimize and ameliorate such issues. Generalization of the findings for large areas requires more

elaborate surveys. In future, studies including tutors and supervisors can be conducted to get further information about the COBES program.

Owing to the limitation of time, the study was conducted only among the fourth year dental students who were involved in COBES as part of their undergraduate dental program. The study should have involved more participants from different departments and classes, tutors and supervisors. Further study could be undertaken to include more institutions of higher learning in Uganda.

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## **Influence of Physical Environment on Crime in Informal Settlements of Kibra in Nairobi County, Kenya**

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### **Abstract:**

*The impact of crime in the informal settlements in cities is enormous and extends beyond civilian casualties to the destruction of infrastructure and buildings. The fear of crime and violence continues to be pervasive in cities and is one of the top concerns in citizens' everyday lives. The main purpose of the study was to examine the influence of physical*

*environment on crime in informal settlements of Kibra in Nairobi County, Kenya. The study adopted a cross sectional survey research design. The study population comprised of 118,276 residents of Kibra constituency. The study used a sample of 225 subjects. Both stratified and simple random sampling techniques were used to choose the individuals that took part in the study. A structured questionnaire was used to collect data needed in the study. Content validity by research experts was used to validate the tool of data collection. The reliability of the questionnaire was determined using Cronbach's alpha whose score was 0.77. Data was coded in the computer and analyzed by the help of Statistical Package for Social Sciences (SPSS) version 21. Data was then presented into simple percentages and summarized using tables. The study concluded that planning solutions such as putting more eyes on the street, neighborhood cohesion through segregated planning approach and appropriate lighting can be effective tools to passive surveillance. The study recommends that planners should play a key role in improving the livelihood of people in informal settlements. Further, crime prevention through environmental planning should be implemented since it is not only an effective strategy to prevent crime but also cost effective and fits in the informal settlement. This study was found to be of importance in the on the field of urban studies particularly on crime in informal settlements.*

**Keywords:** Crime, criminal activities, informal settlements, physical environment, slum, surveillance

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## **Introduction**

Over the past two decades, urban population growth and the effects of globalization have enhanced the complexities and manifestation of crime and violence in cities (UN-

HABITAT, 2016). The fear of crime and violence continues to be pervasive in cities and is one of the top concerns in citizens' everyday lives. The UN-HABITAT report (2016) showed that 60 to 70 per cent of urban residents have been victims of crime in those developing or transitional countries where rapid urban population growth is at its highest. High concentrations of people and complex infrastructure leave cities vulnerable to potentially devastating attacks and disruptions to vital services.

A key point to note that has been highlighted in the UN-HABITAT report of 2016 is that efforts to take back the city's spaces are gaining in momentum in many cities worldwide. This is in an effort to transferring certain powers of enforcement to the community level to help ensure that local culture and reconciliation justice is taken into account. According to Jacobs (1961) natural surveillance (eyes on the street) is a good deterrent to criminal activity in informal settlement places. Additionally, urban safety policies need to include both gender and poverty dimensions with a particular focus on citizens at risk including

urban poor, youth, women and single female headed households, and the elderly. According to Kenya National Bureau of Statistics Census (2009) report, one out of every three Kenyan living in urban areas, more than 12.5 million Kenyans, lived in some 108 designated urban centers (informal settlements) with populations ranging between 20,000 and 3 million. These slums or informal settlements are under conditions of considerable insecurity and indignity characterized by inadequate housing with little access to clean water, sanitation, health care, schools and other essential public services (Amnesty International, 2010).

Informal settlements are the consequence of both explicit government policy and decades of official indifference (Mutisya & Yarime, 2011). In particular, informal settlements were excluded from city authority planning and budgeting processes until when the national authorities and international bodies outlined the dangers of slums to humanity. Complexities surrounding informal settlements in the city have made it difficult for the government to pass workable policies which if enacted and applied in the right way could help Kenya improve slums life. In Nairobi the lack of recognition of slums and informal settlements as residential areas denies residents a range of essential services provided by the government to other residents of the city (Mutisya & Yarime, 2011).

These settlements have for long been considered illegal by the local and national government. Due to this fact they suffer neglect in terms of service provision of social amenities. At the helm of all these drawbacks are social conflicts which result in crime. The county government together with local authority is not able to meet the security needs of the densely populated areas of Nairobi. Activities such as drinking or sniffing of illegal substances seem to be socially normal in the slum. In fact, it is unlikely for anyone to be disciplined for being under the influence of drugs as opposed to robbery. Majority of the victims of drug and substance abuse is the youth, and when they engage in taking illegal substances they become aggressive which in turn lead them to commit other crimes in order to get money to buy drugs. It remains rhetorical if there is an alternative to the security problem without necessarily digging into the pockets of the population who are already burdened. It is against this background that this study sought to examine the influence of physical environment on crime in informal settlements in context of Kibra in Nairobi, Kenya.

## **Methodology**

The study adopted a cross sectional survey research design that mainly enhances use of quantitative approach in data collection and analysis. A cross sectional survey design is useful in describing the characteristics of a large population, use of large samples, thus making the results statistically significant and generalizable. The design also allows use of questionnaire. This design was also appropriate since the researcher obtained information from those who have practical experience with the problem to be studied.

The study population comprised of 118,276 residents of Kibra constituency, those who were 18 years and above as provided in the independent electoral and boundaries

commission (IEBC) voter registration report of 2017. The study used a sample of 225 subjects which were obtained using finite sample size computation formula. Both stratified and simple random sampling techniques were used to choose the individuals that took part in the study. A structured questionnaire was used to collect data needed in the study. Content validity by research experts was used to validate the tool of data collection. Modification on the instruments was made basing on the experts' recommendations. The reliability of the questionnaire was determined using Cronbach's alpha whose score was 0.77. Both descriptive and inferential statistics were used to analyze data. Quantitative responses based on Likert scale were coded in the computer using Statistical Package for Social Sciences (SPSS) version 21. Processed data were summarized in a table and then presented using simple frequencies and percentages.

Since the researcher was a person genuinely concerned about other peoples' quality of life, the study considered people's rights and ethical issues in research throughout the whole research process. For this reason, the researcher strictly observed ethical and legal issues in research like the principle of confidentiality, anonymity, and acknowledgement of other people's input through citations in the whole study.

## **Results**

### **Demographic Data**

The demographic characteristics of the respondents included gender, highest education level, age bracket and crime experience. Nearly two thirds (64%) of the respondents were male while the remaining 36% of them were female. This implies that the respondents were well represented by gender. The study also examined the highest education level of the respondents; majority (78%) had attained either KCPE or KCSE, while only 14% of the them were diploma holders and only 8% of them had a degree or postgraduate qualifications. This implies that all the study respondents were able to read and write, and they were knowledgeable to fill the data collection tool. Further, a vast majority (84%) of the respondents were 35 years and below while the remaining 16% of them were 36 years and above. This shows that majority of the population living in Kibra are youth. On crime experience, slightly over two thirds (68%) of them indicated that they had been victims of crime, but the other 32% of them had never been involved in a criminal activity. This implies that the security issue in Kibra informal settlement is demanding.

### **Influence of Physical Environment on Crime in Informal Settlements of Kibra**

The study sought to establish the influence of physical environment on crime in informal settlements of Kibra. A five (5) point Likert scale was used to rate the respondents' perception toward the respective physical environment indicators. The scale included: 1-Strongly agree, 2-Agree, 3-Undecided, 4-Disagree, 5-Strongly disagree. Table 1 shows the distribution of the study participants' responses on various items.

Table 1

*Indicators of physical environment in informal settlement*

Statement	5	4	3	2	1
The presence of bushy riparian boundary and the railway line are risky environments for criminal activities in Kibra;	8%	15%	4%	46%	27%
The narrow and deserted streets are risky sites for criminal activities all the time in Kibra;	7%	10%	2%	50%	31%
Lack of security lighting and dark corners in many parts of Kibra slums contribute to criminal activities;	_	4%	_	54%	42%
Unused land/open spaces are mostly the hotspots of criminals more especially at night in Kibra;	6%	14%	8%	46%	26%
Housing design/typology e.g. houses facing the streets in Kibra slums encourage criminal activities/robbery;	2%	14%	_	48%	36%
There is poor environmental design in Kibra e.g. location of dumpsites, public bridges etc. that turns to criminal sites;	13%	7%	22%	44%	14%
Lack of natural surveillance in Kibra e.g. physical features or activities, makes it difficult for some residents to identify their houses which may expose them to criminals;	8%	32%	6%	36%	18%
Lack of natural access control such as entrances, exits, fencing, and landscaping contributes to criminal activities in Kibra;	2%	16%	14%	41%	27%
Lack of territoriality such as fences, signage, landscaping, lighting, and pavement designs to separate one rental with the other contributes to crime/robbery;	2%	2%	4%	54%	38%
Lack of care and maintenance of rentals and its surroundings by land-Lords encourages robbery in Kibra;	9%	17%	12%	44%	18%
Mixed land uses in some parts of slum encourages criminal activities in Kibra	8%	2%	42%	34%	14%

*n* = 186

As shown in Table 1, majority (73%) of the study respondents indicated that the presence of bushy riparian boundary and the railway line are risky environments for criminal activities in Kibra, but 23% of them were in a contrary opinion. On whether the narrow and deserted streets are risky sites for criminal activities all the time in Kibra, an overwhelming majority (81%) of the study participants were in agreement. Nearly all (96%) of the respondents felt that lack of security lighting and dark corners in many parts of Kibra slums contribute to criminal activities.

On the other hand, majority (72%) of the respondents were affirmative that unused land/open spaces are mostly the hotspots of criminals more especially at night in Kibra. An overwhelming majority (84%) of the study participants pointed out that housing typology e.g. congested housing in Kibra slums encourage criminal activities/robbery. Further, more than half (58%) of the respondents were affirmative that there is poor environmental design in Kibra e.g. location of dumpsites, public bridges etc. that turns to

criminal sites but 20% of them were in a contrary opinion. Another 54% of the respondents were in opinion that lack of natural surveillance in Kibra e.g. physical features or activities, makes it difficult for some residents to identify their houses which may expose them to criminals.

Slightly over two thirds (68%) of the respondents supported that lack of natural access control such as entrances, exits, fencing, and landscaping contributes to criminal activities in Kibra. On whether lack of territoriality such as fences, signage, landscaping, lighting, and pavement designs to separate one rental with the other contributes to crime/robbery in Kibra, nearly all (92%) of the respondents were in consensus. Besides, nearly two thirds (62%) of the study respondents were convinced that lack of care and maintenance of rentals and its surroundings by land-lords encourages robbery in Kibra. Further, despite that nearly half (48%) of the study participants felt that mixed land uses in some parts of slum encourages criminal activities in Kibra, a considerable percentage (42%) of them were undecided.

## **Discussion**

The study found that majority (72%) of the respondents was affirmative that unused land/open spaces are mostly the hotspots of criminals more especially at night in Kibra. The study finding was in agreement with a study conducted by Newman (1996) on creating defensible space that revealed, residents had described the open space in the center of Clason Point, a public housing project in the Bronx of New York City that suffered from high crime rates, to be extremely dangerous for criminal activities. This implies that open spaces in the informal settlement areas could be harbors for criminals.

The study found that majority (84%) of the study participants pointed out that housing design/typology e.g. houses facing the streets in Kibra slums encourage criminal activities/robbery. The study finding was affirmative with a study carried out by Chang (2011) that explored the relationship between burglaries and factors regarding building design in a large metropolitan city in South Korea. The study found that 90 percent of all burglaries occurred in buildings that faced two or fewer streets. Chang further revealed that out of 714 burglaries investigated by the study, occurring in various building types, 75.2 percent of the burglaries had occurred in single homes and commercial buildings. Therefore, house design could influence criminal activities to take place.

Slightly over two thirds (68%) of the respondents supported that lack of natural access control such as entrances, exits, fencing, and landscaping contributes to criminal activities in Kibra. This is in congruence with previously conducted studies that

proposed the additional strategy of natural access control as a preventive measure of crime (Newman, 1972; Crowe, 2000). Further, Crowe suggested that natural access

control can be organized through the use of guards, mechanical by the use of locks, or natural through effective spatial definition. This implies that presence of natural access controls could reduce crime in informal settlements areas like Kibra.

On whether lack of territoriality such as fences, signage, landscaping, lighting, and pavement designs to separate one rental with the other contributes to crime/robbery in Kibra, nearly all (92%) of the respondents were in consensus. The study finding concurs with a study that was conducted by Feins, Epstein, and Widom (1997) that found, despite Castle Square, a private apartment complex located in Boston, Massachusetts, having experienced frequent burglaries, prostitution, drug activity, and violent crimes, fencing and gates installed around the complex restricted access in certain areas while permitting residents full access in others by the use of a keycard. Further, the installation of buzzers, intercoms, and surveillance systems allowed residents to control visitor access. In the same vein Brower, Dockett, and Taylor (1983) found that residents perceive that stronger markers/signage indicate a safer environment i.e. the more threatening the environment, the more markers required to make residents feel safe. Therefore, territoriality of the apartments or risky areas in the informal settlements can reduce crime.

Further, despite that nearly half (48%) of the study participants felt that mixed land uses in some parts of slum encourages criminal activities in Kibra, a considerable percentage (42%) of them were undecided. The study finding is in line with a study carried out by Rengert and Wasilchick, (1985) that revealed that changes in land uses, boundaries, and traffic patterns may result in higher or lower crime rates because they affect both potential offenders and users. Further, mixed land uses may alter exposure to potential offenders because they more or less integrate the locale into the offenders' orbits of activity. Thus, mixed land uses affects crime in informal settlements of Kibra in Nairobi County.

### **Test of Hypothesis**

The study sought to establish whether there is a statistically significant association between physical environment and crime in informal settlements of Kibra in Nairobi County, Kenya. The Pearson's Chi-square was computed to establish whether the two variables are statistically significant ( $P < .05$ ) and the results are presented as shown in Table 2. The following hypothesis was tested:

**$H_0$ :** There is no statistically significant association between physical environment and crime in informal settlements of Kibra;

**$H_A$ :** There is statistically significant association between physical environment and crime in informal settlements of Kibra;

Table 2

*Chi-Square test for the association between physical environment and crime in informal settlements of Kibra*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.652 <sup>a</sup>	12	.002
Likelihood Ratio	22.587	12	.001
Linear-by-Linear Association	.196	1	.658
N of Valid Cases	186		

a. 0 cells (.0%) have expected count less than 5.  
 The minimum expected count is 5.91.

As shown in Table 2, there is a statistically significant association between physical environment and crime in informal settlements of Kibra since the p-value is smaller than the level of significance (.05),  $\chi^2$  (12, N = 186) = 20.652, P = .002. Thus, the study has enough evidence to retain alternative hypothesis and to reject the null hypothesis. This implies that crime in informal settlements of Kibra in Nairobi County is significantly affected by physical environment.

### Conclusion

Crime has been identified as one of the key problems facing informal settlements. From the study it is clear that some places in the informal settlements are safe and that most types of common street crime tend to reoccur at certain locations that are venues known to citizens and to public officials. Thus, planning solutions such as putting more eyes on the street, neighborhood cohesion through segregated planning approach and appropriate lighting can be effective tools to passive surveillance. The study recommends that planners should play a key role in improving the livelihood of people in informal settlements. Further, crime prevention through environmental planning should be implemented since it is not only an effective strategy to prevent crime but also cost effective and fits in the informal settlement.

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## **Challenges facing single mothers in the upbringing and formation of their adolescents in Makadara Constituency, Nairobi County.**

Catherine Kisasa Muthonda

### **1.0. Introduction**

Adolescence is the stage where a child begins to develop from childhood to adulthood. This could be anywhere between 11 and 19 years of age, based on concerned individual's gender. According to Kanku (2010) an adolescent is a young man or woman who is between the ages of 13 to 18 years old. At this age bracket various forms of human development begin to manifest in the lives of children. They are highly energetic, very inquisitive and active. Usually, adolescents are full of desires to imitate whatever that is happening around them. Adolescent stage is very important in one's life as it shows how youngsters try to learn through imitation and participation thus obtaining skills in observation, creating interest and responsiveness to new activities (Morse and Wingo, 1971).

This article will examine the challenges faced by single mothers in bringing up and formation of adolescents with reference to Makadara Constituency, Nairobi County Kenya.

### **2.0 Challenges facing Single Mothers in bringing up and formation of adolescents**

#### **2.1 Adolescent rebellion**

Single motherhood has challenges that affect the holistic growth of the adolescent as is expressed by Mugnai (1998) who revealed that some adolescent exhibit rebellion in terms of dress code, smoking, engaging in alcoholism, negative attitude and behavior when they lack parental attention. This was found to be true in Makadara Constituency though it is also a reality that some adolescent exhibit rebellion even when parents are available and present in their lives.

One of the single mothers cited a case where the daughter ran away from school even when she had sold household items to help pay school fees. The mother gave parental attention which the daughter slighted to confirm that some adolescent misbehave even when guidance and basic needs are provided. Such is the case of adolescent in Makadara Constituency.

#### **2.2 Deviant and anti-social behaviors among adolescents**

Deviant and anti-social behaviors are defined as any behavior that goes against norms for social conduct. A study carried out by Buchanan, Maccoby and Dornbusch (1999) found that, adolescent from divorced, separated families or even those from single mothers by choice showed deviant and anti-social behavior witnessed in substance use and abuse, stealing, lying and fighting amongst them. This impact cannot be ignored for it affects the adolescent socially, psychologically, emotionally, economically and spiritually.

According to Sang-Hun (2009) single parent families are at a higher risk of poverty than couple families, and on average single mothers have poorer health than couple mothers. The poor health of the single mother deprives children of quality time with their mother, deprives them of the only source of financial support, and deprives them in the form of medical care for the sick mother from the meager moneys the mother has been getting. This depravity leads the children to engage in negative ways to help supplement the family income.

Some adolescent in Makadara Constituency have been forced into child-labour that subsequently exposes them to sexual abuse, cruelty and exploitation so as to cater for the single mother's family needs. This means that the adolescent from single mother household start taking adult roles early in their lives instead of enjoying their childhood. The hard work, denial of opportunity to being a child and harsh environment have led the children from single mothers have stunted growth, suffer psychologically, emotionally and engage in delinquent behaviours.

### **2.3 School dropout among single motherhood adolescents**

School dropout means leaving a school, university, college or group for pragmatic reasons, necessities, or disillusionment with the system from which the individual in question departs. Sang-Hun (2009) concurs with what is found to be true at Makadara Constituency, where children from single mother households are forced by circumstances to engage in small scale businesses after school or even absent themselves all together from school to step in for their mothers in the selling business in order to help meet the family needs. The children who engage in such businesses end up missing school, dropping out of school for lack of school fees, learning new ways of making money: crime, prostitution, nudity or simply taking up the mother's position of supporting the family.

The bias and discrimination of single mothers and their children in society and at school, leave the adolescent feeling rejected, uncared for, different, unaccepted, not important leading to traits like: Poor self-image, being shy, quiet in class, non-participating, lack of confidence, feeling isolated, inability to have and maintain healthy friendships, giving-up easily, being inconsistent, irritable, having bursts of anger, violent, lacks creativity and self-drive,

### **2.4 Negative social, behavioral and emotional outcomes among adolescents**

Social-emotional development comprises the child's experience, expression, and management of emotions and the ability to establish positive and rewarding relationships with others (Cohen, 2005). This directs that negative social, behavioral and emotional outcomes among adolescents will deter their experiences, expressions and their emotional management. According to Callister and Birks (2006) single parenting is strongly associated with an increased risk of a number of negative social, behavioral and emotional outcomes for children. Child abandonment in Kenya is on the increase and especially where a single mother is unable to feed the many children she has, she may end up abandoning a newborn baby, or asking a young girl to engage in prostitution to assist her in making money for the family or even to

hold brief to the mother in her business for a day or two as she goes to the rural home for two or three days or even a week. In the meantime, the adolescent misses school for the number of days the single mother is away. Under the same circumstances, children are forced into waged labor as house helps, farm help that may lead to sexual abuse in form of defilement, rape, incest assault or violation, exposure to pornography or even exhibitionism.

## **2.5 Moral and cultural decay among adolescents**

Moral decadence is declining in moral values such as respect for one another, obedience, honest, integrity among others in a civilization. Parents are believed to shape their children while at small good morals and beneficial cultural norms. A study conducted by Howse (1988) found that the traditional African family structure has undergone social economic changes that are increasingly becoming complex. Further, the society is confronted with many questions and paradoxes that are seeking answers. The result of these fast changing societal values, beliefs and practices as cited by Sasse (1997) is the high rate of separation, divorce, single parents, teenage pregnancy, abortion, unemployment, racism, violence, wars, displacement, corruption, diseases, sexual perversions like incest, homosexuality, lesbianism, group sex and partner exchange clubs among others. Nyaundi (2005) sees this fallout from values as having profound negative impact both for individuals and the society. This therefore affects the family fiber and the wellbeing of individuals in particular.

Single motherhood is an abomination as is seen by Wagner (2001) who says that “Traditionally, any occurrence that is outside the established social and natural norm is seen as evil and dangerous to the overall good of the society”. Single motherhood in Makadara Constituency and in Kenya is seen as evil by those who do not embrace it and especially those who use religious values to judge others. The same sentiment about the breaching of taboos is expressed by Perry and Taylor (2004) who say that anyone who goes against social and moral codes that are necessary for perpetuating of life is a social misfit, is immoral and exposes themselves and their lineages to danger. The single mother is therefore considered a misfit and in as much as there is change in values because of westernization, new religions, education and empowerment groups, and the African person in Makadara Constituency sees the single mother as an enigma though without expressing it publicly.

## **2.6 Psychosocial challenges among single mothers and their children**

Psychological challenges are difficulties or obstacles that arise as a result of the cognitive and mental abilities such as stress and depressions when things are unwell more so family issues. Research done in Britain by Gallagher and Baker (2004) sought to interrogate whether mothers and fathers matter. It was found that children who are brought up by both parents have better lives as compared to those brought up by single parents. Evidence from the Social Sciences on Family Structure and the best interests of the child found out the possibility of children of single mothers are more likely to become schizophrenic. Besides this study another extensive study of family structure in Sweden took account of the mental illness history of the parents, as well as the family’s socio-economic status. The results of this study revealed that even in

the most generous welfare state in the world, with very accepting attitudes toward unmarried parenthood, the children of single parents were at significantly higher risk of psychiatric disease, suicide attempts, and substance abuse (Moore, Jekielek and Emig, 2002).

A survey carried out and documented in the book *Family Matters* (1988) found that due to separation, divorce, death of a spouse or unwed mothers, there are nearly a million homes in Britain involving more than one and a quarter million children living in households headed by single mothers. These facts go to confirm that single mothers experience challenges because she carries out dual parental roles and responsibilities irrespective of all other factors weighing on her. The stress on the single mother and the subsequent effect of these parental stresses on the children cannot be ignored.

Additionally, combining work with child-care responsibilities account for much of the stress for both the mother and the child. This confirmation of the challenges of the single mother are what lead Virginia Satir to say that “family is like a factory where people are made” and for this to happen she saw marriage as necessary because according to her the human child cannot reach full development without nurturing care, love, and example of two parents (*Family Matter*, 1988). Satir’s findings are a contrast to what is found in Makadara Constituency where some single mothers provide love, care and financial support and security to their children. These findings are confirming a new breed of women who irrespective of their gender can manage life responsibilities without having to beg for autonomy.

A substantial body of literature shows that single mothers suffer disproportionately higher rates of major depressive disorder and substantially elevated levels of psychological distress, compared to married mothers as shown by studies done by: Brown and Harris (1978), Cairney et al. (2003), Davies, Avison and Alpine (1997), McLanahan (1985), Weissman, Leif and Bruce (1987), Lorenz et al. (1997), Simons et al (1997) who carried out studies seeking to better understand elevated disorders among single mothers and arrived at findings that all pointed to a stressful life circumstances that were more common to single mothers. Further, research findings revealed that ongoing financial stress represents one powerful source of stress for single mothers and has been shown to contribute to their elevated rates of distress and disorder relative to married Mothers (Brown & Moran, (1997). All these findings confirm that stress for single Mothers extend beyond financial problems to include a variety of stressors associated with the demands and pressures of parenting alone (Avison, 1995).

Most researchers on single parents; however, have considered only limited number of stressors. As has been argued elsewhere by Turner and Butler (2003), Turner and Lloyd (1995) and by Turner, Wheaton and Lloyd (1995). Research addressing the effects of stress exposure on mental health is typically underestimated when only one or a few stress domains are assessed. Indeed, a recent study taking a more comprehensive approach in assessing stress exposure was able to explain almost 40 percent of the differences in mental health status between single and married mothers ( Cairney et al. 2003). To date no study has incorporated a comprehensive assessment of stress-related risk factors among rural single mothers and no

research has directly examined variations in stress exposure between divorced and never-married mothers.

## **2.7 Poverty**

Poverty can be defined as a condition or state where a person or community lacks the required resources such as finances and basics to enjoy a minimum standard of life and well-being which is considered to be acceptable in a civilization. According to Sasse (1997) children in single parent families have less than one third the median per person income of those from two parent families. Further Sasse acknowledged that although some single parent families function well, many others do not. These findings recognize the challenge single mothers have economically as they raise their child/children. The same idea is resounded by a study conducted by Aringo (1999) that found that poverty is a fact among single parents. Aringo further expounded that “Single parents, especially women are worse hit by poverty, they earn one tenth of the world income, and they own an insignificant one hundredth of the world’s property which is not even valued and quantified. She further goes on to say that in Kenya, 46% of the population live below poverty line, having the majority being the single parents.

These facts are a confirmation that single mothers have a challenge because they have been rendered poor by the negative traditional and cultural bias, lack of education, lack of professional skills, lack of technical skills or even lack of collateral that hinders them from borrowing from financial institutions for start-up capital to allow for entrepreneurial engagements and projects.

Numerous other studies have established that children of single mothers have poorer life chances than the children of married parents. The researchers gave varied reasons as to why parental marital status is of importance to the moral formation and upbringing of the adolescent. According to Notziger and Kurtz (2005), two parent families greatly influence the economic stability of the family because they are able to use the human and financial resources to their advantage, and also the complimentary role in the moral upbringing of the children therein. In conclusion then, it is true that single mothers and especially single mothers in Makadara Constituency face challenges in the moral formation of their adolescent.

## **2.8 Lack of complimentary partner to supervise the adolescent**

The lack of a complimentary partner to help in guiding, correcting and forming the children when the mother is away or busy, leaves the adolescent unsupervised. This is resounded by one of the single mothers during a focused group discussion who said “This work is too much for one person; at times I wish I had somebody else to help me. I really wish for a caring companion who would assist in the roles and responsibilities of this home. A father would even help me in disciplining the children”. The single mothers desire to have a partner to help out demonstrates an acknowledgement of the need for a helper, a partner, thus confirming the need for a complimentary partner in the name of a father. The absence of the mother is filled

by soliciting the help of a house help, a neighbor or a relative who may not share the same values as the mother hence lowering or neglecting the very important role of raising the children holistically.

The house helps, in Makadara, as revealed by this research have had negative impact on the children leading to the children being influenced to negative behaviours like being abusive, using inappropriate language or engaging in misbehavior as modeled by the house help. This is supported by a single mother who during a focused group discussion said, “My children have learnt abusive language and have become violent since the coming of this house help. They use demeaning words and are no longer friendly to one another as they used to be”. This scenario has complicated the single mother woes, instead of reducing them. There are however, good house helps who fit in the shoes of the single mother. They fill the gap by teaching values, attitudes and even instilling discipline and positive values in the children and especially the adolescent in secondary school in Makadara Constituency.

### **3.0 Conclusion**

Single motherhood has a negative psycho-social effect on adolescents’ behaviors expressed through low self-esteem, withdrawal tendencies, arrogance, and substance abuse, truancy, delinquent behaviours among others. The main contribution to the single mothers’ adolescents’ negative behavior is the negative and undefined societal perception and position about single motherhood. This continues to raise concerns as the youth makes up the backbone of Kenya’s economy and therefore if they undergo poor formation at the upbringing stage (adolescent), big losses will be experienced in future.

Makadara Constituency is just one among many Constituencies in Kenya that are experiencing some shortcomings in bringing up the adolescents. Cultural and moral values should be maintained at all levels and places in order to completely develop a child basing on social, moral, psychological and spiritual foundations. This will reduce cases of substance and drug abuse, crimes, sexual immorality, school dropouts and other anti-social behaviors among adolescents and calls upon parents whether single or both of them to be responsible for good parenting guide as they bring up their children.

Ultimately, Single mothers should not be treated as an abomination as it is done in some cultures but instead they should be supported just like any other person. This will enable them acquire community support which will enable them care for their families and improve their contribution to the growth of the economy.

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