

**A LOGISTIC REGRESSION MODEL TO IDENTIFY DETERMINANTS OF
CONTRACEPTIVE UTILIZATION AMONG YOUTHS IN KAYOLE AND MUKURU.**

BY

JULIET KERUBO OGUCHA

A project submitted to the University of Nairobi Institute of Tropical and
Infectious Diseases (UNITID)

In partial fulfillment for the Degree of Masters of Science in Medical Statistics
(M.s.c Med stat)

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF NAIROBI

INSTITUTE OF TROPICAL AND INFECTIOUS DISEASES (UNITID)

DECLARATION

I declare that this project is my original work and has not been submitted by any other party for the award of Degree in any other university.

NAME: JULIET K. OGUCHA

SIGN.....DATE.....

SUPERVISOR

This research project has been submitted with my approval as the university supervisor. Dr. Ann Wang'ombe.

SIGNED.....DATE.....

DEDICATION

I dedicate this project to my parent and sibling for their constant support and prayers. Most thanks to my mother for never tiring support me through this masters.

ACKNOWLEDGEMENT

I have to thank God almighty for making it possible for me to realize this dream.

I express my sincere gratitude to my supervisors, Mrs. Ann Wan'gombe for her extensive guidance, advice and patience throughout the entire study. I must appreciate the support I received from my lecturers.

I thank the university, UNITID especially Prof. Walter Mwanda and Prof. M'Imunya j. Machoki for making it possible for us to complete the course. Not forgetting UNITID administrative and support staff. My appreciation goes to my parents for their financial support and being their when I needed them.

Table of content

Acknowledgement	page iv
Abstract	page 1
Introduction	page 2
Objectives	Page 3
Literature review	Page 4-7
Methodology	Page 8-11
Data analysis and results	Page 12-20
Conclusion and recommendation	Page 21-22
Reference	Page 23-25

LIST OF TABLES

4.3 Descriptive characteristic	Page 13-17
4.4 Social characteristics and contraceptive use	Page 18
4.5 Multivariate analysis	Page 19

ABBREVIATIONS

SRH- Sexual and Reproductive Health

STIs – Sexually transmitted infections

HIV – Human Immunodeficiency Virus

AIDS –Acquired Immune Deficiency Syndrome

ABSTRACT

Despite the number of sexually active among youths being high, very few youths engage in safe sex. They had rather involve themselves in risky behavior. The overall image of literature is not encouraging, youths do not use contraceptive to prevent themselves from unplanned pregnancies, Sexually transmitted diseases (STI's) and Human immunodeficiency virus (HIV). There is need to increase the knowledge and practices of contraceptive use among youths for a better sex reproductive health. The major objective of the research objective was to determine the factors that influence youths to use contraceptives.

METHODOLOGY: A case control study done in Kayole and Mukuru. Analysis was done using binary logistic regression.

RESULTS: When it comes to gender, more females 45% likely to use contraceptives compared to men, youths who are from religions like Catholic 27% more likely, Protestants 24% more likely and other Christian denomination are 52% less likely to use contraceptives unlike their Muslim counterparts who are 72% more likely to use contraceptives. Level of education and use of alcohol does not have association with the use contraceptives. Youths who have Secondary are 23% more likely to use contraceptives, College/ University 29% more likely to use contraceptives, Technical/Vocational are 30% less likely to use contraceptives and others are 50% more likely to use contraceptives. All this were compare to primary school. Youths who take alcohol are 1% less likely to use contraceptives compared to those who don't take alcohol. As well as very few sexually active youths use contraceptives. Sexually active are 16% more likely to use contraceptives.

DISCUSSION: youths don't use contraceptive use, gender, education, religion, alcohol and sexual activity doesn't seem to have much impact on their decision. Therefore no association between gender, education, religion, alcohol & sexual activity with contraceptive use on cross tab. However, on a binary logistic regression gender had an association with contraceptive use.

CONCLUSION: Contraceptive practices among youths to prevent unplanned pregnancies, sexually transmitted diseases (STI's) and immunodeficiency virus is low despite a large number of youths engaging in sex.

IMPLICATION: There is need for more research to be done on ways to bridge the gap among sexually active youths and contraceptives.

CHAPTER 1

1 INTRODUCTION

1.1 Background

Understanding the drivers of sexual and reproductive health (SRH) outcomes is critical for improving individual health outcomes especially reduction in unintended pregnancies and sexually transmitted infections (STIs).

Young people comprise a considerable proportion of populations in sub-Saharan Africa. These young people face numerous sexual and reproductive health (SRH) challenges during their transition to adulthood. These challenges include, among others, limited access to SRH information and services. The long-term impacts of unmet SRH needs are telling - high incidence of HIV among young people and a substantially higher contribution of adolescent childbearing to total fertility rates than in other parts of the world. While ages at puberty and initiation of sexual activity have declined in many parts of sub-Saharan Africa, age at first marriage has increased over time, thus increasing the period that adolescents are susceptible to pre-marital pregnancies and poor SRH outcomes. In sub-Saharan Africa, adolescents who initiate sex are exposed to sexually transmitted infections (STIs) including HIV/AIDS and unintended pregnancies. For example, the proportion of young women who have a child by age 20 ranges from 47% to 75% in Kenya Risk of unintended pregnancies is heightened for adolescents because of low contraceptive use during early sexual experiences. Unintended pregnancies often end up in clandestine and unsafe abortions, which are associated with adverse health consequences, including maternal deaths. Overall, poor sexual and reproductive health outcomes among young women and girls have long-term adverse consequences on women's status including poor educational and employment opportunities.^[1, 8, 9, 10,11,12]

In south Africa, Among women who reported to be currently using contraception (89.1%), 9.3% were using the Pill, 5.2% the intra-uterine contraceptive device, 25.6% injectables, 57.6% male condoms, 5.9% female condoms, and 8.9% dual methods; other methods used were the rhythm method (7.0%), withdrawal (11.5%), and emergency contraception (5.5%).^[24]

In three Francophone West African countries, there was a relatively high level of knowledge of contraceptives among young women; use of contraceptives is relatively low among married women, but higher among sexually active unmarried women. In Burkina Faso, only 8 percent of married young women use modern contraception; in contrast, 56 percent of unmarried sexually active young women use modern contraception. Prevalence between both groups of young women in Mali was lower: 6 percent among married young women and 20 percent among unmarried young women. In Senegal, 6 percent of young married women use a family planning method, but the number of sexually active unmarried women was so low that the survey did not estimate a prevalence rate. In all three countries, the number of unmarried

sexually active young women was quite small, so although their contraceptive use may be higher, they represent a very small percentage of young women. [9,18].

1.2 Broad objective: To determine contraceptive use among the youths in Kayole and Mukuru aged 15 - 24 years and the various factors that influence them to use the contraceptives

1.2.1 The specific objectives of the study are:

To estimate the effect of sexual behaviour on contraceptive use among youths in Kayole and Mukuru.

To determine contraceptive use among the youths in Kayole and Mukuru.

To determine factors that contributes to contraceptive use using logistic regression analysis.

1.3 Research question: Do the youths in Kayole and Mukuru use contraceptive to protect themselves against unplanned pregnancies, Human immunodeficiency virus (HIV) and sexually transmitted infections (STI's)

1.4 Research hypotheses: Contraceptive use reduces the number of unplanned pregnancies increases knowledge of different methods therefore, improving the sex reproductive health

1.5 Statement of a problem: a study done on youths in Kayole and Mukuru to understand their sexual behaviour and contraceptive use to get information to help in reduction of unplanned pregnancies, sexually transmitted disease and human immunodeficiency virus.

1.6 Methodology: Case control study in Kayole and Mukuru. Analysis is done using a binary logistic regression to determine contraceptive use and few factors associated with contraceptive use.

1.7 Inclusion and exclusion criteria

Inclusion criteria: Youths aged between 15 and 25 years living in Kayole and Mukuru.
They should not be married.

Exclusion criteria: Youths, who cannot read, write and speak english or kiswahili
Key informant has to be youths between 15 and 25 year.

CHAPTER 2

1. LITERATURE REVIEW

There is need to understanding sexual and reproductive health of adolescents its utmost important. It carries with it implications for improving individual health outcomes especially in reduction of unintended pregnancies and STIs such as HIV/AIDS. ¹ did an analysis using data from poor urban youths in the slums Nairobi. They comprehensively look at the individual level factors that may influence contraceptive use and pregnancy outcomes among adolescents as they transition to adulthood, in a bid to understand the needs and challenges that they face. Results pointed to the fact that there is a diversity of experiences among adolescents with regards to knowledge, attitude and behavior. Age, education and marital status were often strongly associated with sex reproductive health (SRH) experiences of adolescents, pointing to fact that targeted programs are needed to reach them with range of SRH info and services at different stages – before they initiate sex, as sexually active unmarried youth, or as married individuals and couples. ^[1]

^[2,16] argued that the dominant conceptual framework for understanding reproductive behavior is highly individualistic. In one of the article a conceptual framework for the social analysis of reproductive health, they demonstrated that such a conceptualization is flawed, by emphasizing that behavior is shaped by social relations and institutions. They used ethnographic evidence to highlight the value of a social analysis of the local contexts of reproductive health. Setting out a framework for conducting such a social analysis, capable of generating data necessary to allow health programmes to assess the appropriate means of improving the responsiveness of service-delivery structures to the needs of the most vulnerable. They identified six key issues in the framework for the analysis of social vulnerability to poor reproductive health outcomes, namely: poverty and livelihood strategies, gender, health-seeking behavior, reproductive behavior, and access to services. ^[2,15,16]

‘A significant proportion of youth is infected by HIV and other sexually transmitted infections mainly through sexual intercourse, while the prevalence of unwanted pregnancies is rising’ ³. A study done in Kisumu town in western Kenya, looked at knowledge, attitude and practice and factors influencing sexual relationships and contraceptive practice among the youth showing that majority of the youth are sexually experienced (73.5%) with most of the first sexual experiences occurring within the 15–19 years age group. There is a high level of knowledge (99.2%) of contraceptive methods and a positive attitude towards contraception. However, the level of contraceptive use is relatively lower (57.5%) even for the sexually active. Factors influencing this practice are associated with the individual's background as well as health delivery systems and policy. The factors influencing contraceptive practice were demographic factor, which consisted of age and sex; social economic factors focus being in occupation, marital status, level of education and social activity; other factor-included culture where the study was done on culture then there was service factor that looked at range of service and adequacy of service facility then policy factor. The result showed that there is a wide disparity between contraceptive knowledge and practice, which needs to be bridged. There is the need to

review policies and practices regarding reproductive health, sexuality and family life education. [3,17,19]

According to ⁴, ‘several developing countries introduced family planning programs to reduce their population growth rates. The rapid spread of birth control programs in the developing countries was at times accompanied by measures which violated human rights. In response to the ethical violations and coercive policies on population control, toward the end of 1980s various international committees formulated a reproductive health approach to overcome the limited population control approach. Unlike other population control programs, the focus of reproductive health program is on “reproductive process,” whereas the most immediate focus of family planning programs is on fertility’. Although studies refer to reproductive health approach as an extension of fertility control approach, literature on reproductive health provides very few systematic approaches toward developing explanations of reproductive health. The current approaches on population control are influenced by the ideological shift towards a broad based approach which involves fertility or family size as one of the components of reproductive health. The present study uses intermediate variables framework suggested by Davis and Blake to organize reproductive health explanations. The proposed framework suggests that the state of reproductive health is indicated by intercourse, conception, and gestation variables and assumes that reproductive health is a latent dimensional outcome indicated by the measures of the intermediate variables. [4,20,21,22]

A study investigated youth and their contraceptive usage toward reproductive health in Ekiti State. The study revealed that there was a significant difference in education of youths and their contraceptive usage, and no significant difference in the location of youths and their contraceptive usage. It was therefore, concluded that youths should have access to all forms of contraceptive, which will lead to a healthy reproductive living, and this should not be seen as a way of making our youths promiscuous, but rather leads to a reduction in the rates of abortion and morbidity among the youths. [5,23,24]

‘Reports indicate that contraceptive use among adolescents in Kenya is low’ ⁶ used a case study in Nairobi to investigate perceptions that influence contraceptive use among adolescents 15-19 years old. The study utilizes information collected using structured interviews, focus group discussions (FGDs) and in-depth interviews (IDIs) in Nairobi. The results show that the main perceptions associated with contraceptive use are parental approval, opinion of adolescents, ability to get a method for self and discussion with sexual partner. Results of FGDs and IDIs show that teachers lack adequate skills while parents feel inadequate to teach sexuality issues. Despite the fact that the family and school are critical socialization institutions, teachers and parents focus on discouraging use of contraceptives with more adolescents using contraceptives getting sexuality information from other sources and this poses a significant challenge for policies and programs. [6]

Involvement in romantic and sexual relationships increases during adolescence and young adulthood as does the significance of these relationships. Relationship experiences during this period are influential for reproductive health outcomes and set the stage for future family

formation choices and behaviours. A study done utilizing retrospective sexual relationship histories of young adults available in the most recent wave (2001-2002) of the National Longitudinal study of Adolescent Health to obtain a better understanding of the factors associated with contraceptive method choice, with a focus on relationship context. Results indicate that for a given individual, contraceptive method choice varies across relationships as a function of relationship commitment and couple heterogamy, even accounting for individuals' own characteristics and prior relationship experiences. The results also confirm the importance of individuals' own characteristics and reveal that early perceptions of risk and severity of negative reproductive health outcomes and contraceptive self-efficacy have enduring effects on later contraceptive method choices. Furthermore, the patterns of associations between both relationship and individual characteristics and contraceptive use differ depending on the specific type of contraceptive method. ^[7,25]

Sub dermal contraceptive have low discontinuation rate but are under used among young women in Africa. The study aimed to isolate the role initial contraceptive method has on preventing unintended pregnancy. The study was done on 399 Kenyan women aged 18-24 years into prospective cohort study if they wanted short-acting hormonal method (injectables or oral contraceptive). The results showed twenty-four percent opted for an implant (n=97), and the remainder opted for a short-acting method (n=299). The 18-month discontinuation probability was 21 per 100 for implant users and 43 per 100 for the short-acting method group (p=.001). Twenty-two unintended pregnancies occurred: all were among the short-acting group vs. Implant group was 7.4(95% confidence interval; 1.6 – 34.5). The study Conclusion showed that many young Kenyan women found implant to be a reasonable alternative to short-acting methods. Having choice essential and starting on implants provides substantial and clear protection from unintended pregnancy relative to short-acting method. ^[8]

A study done in South Africa showed that: 'despite ongoing campaigns and interventional programmes promoting safe sex, contraceptive use remains a controversial area among South Africa Youth'. The study was done to investigate contraceptive use and associated factors among South African youths aged 18-24 years who reported to have had sexual intercourse. It was done on young South African (3123 subjects aged 18-24 years) in four provinces responded to a cross-sectional population based household survey. The results were as follows: 'among women who reported to be currently using contraceptives (89.1%) 9.3% were using the pill, 5.2% the intra-uterine contraceptive devices, 25.6% injectables, 57.6% male condoms, 5.9% female condoms and 8.9% dual methods, other methods used were the rhythm method (7.0%), withdrawal (11.5%) , and emergency contraception (5.5%). In multivariable analysis among women, ease of getting condoms and not having had early sex (below 15 years of age) were associated with contraceptive use. Among men, better knowledge about contraceptives, having talked with partners about condom use in the past 12 months, love life and multimedia programmes exposure were associated with contraceptive use in univariable analysis, while none were retained in the multivariable model' the conclusion of the study was that communication with the partners about condom use, education and being employed are significantly associated with contraceptive. However, use of contraceptive is still low, and this is

substantiated by the high rate of unwanted pregnancies reported. It is clear the more vigorous, effective and meticulous means of promoting contraceptive use need to be explored, enabling youth to take control of their reproductive health and make informed decisions. ^[24]

The Kenya governments in collaboration with other stakeholders involved in the provision of family planning services have put in place various strategies and policies to increase uptake of family planning services. These are aimed at increasing contraceptive prevalence rate (CPR), reduction in both total fertility rate (TFR) and unmet need for family planning services. Despite the various strategies and policies, total fertility rate still remains high at 4.6 percent, while CPR and unmet need for family planning are estimated at 46 percent and 24 percent, respectively. The purpose of the study was to examine the utilization level of family planning services and to analyze the determinants of demand for family planning services among women in City slums in Kenya. To realize this objective, a survey design was adopted. The target population constituted women in city slums in Kenya, who were identified through multistage random sampling. Primary data was collected from the women using a structured interview schedule. A fact sheet was used to summarize the data collected before it was cleaned, coded and edited for completeness and accuracy. The study revealed low usage of contraceptives compared to the national level. Use of the services varied in terms of demographic and socioeconomic factors of the woman and the woman's perception in terms of the facility/provider factors such quality, friendliness of staff and promotion. Various factors accounted for the low use of family planning services. These included partner's approval, quality of the services, friendliness of the staff administering the services and the woman's knowledge about family planning services. Other factors included the woman's income level, proximity to the provider and the religious background of the woman. To increase the use of family planning services among women in slums, activities of community-based distributors should be revived and enhanced, promotion of family planning education and activities at the household level should be accorded priority. Formation of lobby groups to enhance cultural change, awareness creation and counseling and integrating family planning services with HIV/AIDS are recommended. ²⁶

CHAPTER 3

METHODOLOGY

3.1 Binary logistic regression

Binary logistic regression is used to analyze binary outcome variables. It also make use of the relationship between independent variables and dependent (or outcome) variable that is discrete. This model can be used to examine the effect of a particular exposure on an outcome variable including:

- Comparing the level of an outcome variable in two exposure groups
- Comparing more than two exposure groups, through the use of indicator variables to estimate the effect of different levels of a categorical variable, comparing to a baseline.

Logistic regression model, models a transformation of the outcome variable rather than the outcome itself that is log odd of outcome is modeled.

The general form of the model;

$$\log \text{ odds of outcome} = \log \left(\frac{\pi}{1-\pi} \right) = \beta_0 + \beta_1 \times_1 + \beta_2 \times_2 + \dots + \beta_p \times_p$$

Binary logistic regression is a generalized linear model. A generalized linear model is where the linear model for the exposure variables is said to be related to the outcome via a link function. The link function for logistic regression is the logit (log odds) function. The quantity on the right hand side of the equation is the linear predictor of the log odds of the outcome, given the particular value of the p exposure variables x_1 to x_p . The β 's are regression coefficients associated with the p exposure variables.

The transformation of the probability, or risk, π of the outcome into the log odds is known as the logit function.

$\text{logit}(\pi) = \log \left(\frac{\pi}{1-\pi} \right)$ thus the name logistic. Odds can take any value between 0 and infinity.

The log odds are not constrained at all; they can take any value between negative and positive infinity.

Binary logistic model has a link function of logit, measure of exposure effect is odds ratio and the effect of the model is multiplicative.

The model is fitted using the maximum likelihood approach to obtain maximum-likelihood estimates. The logistic regression model can be transformed (that is, p) to the logit transformation²³.

Logistic regression uses the logit of the proportion as the outcome variable. The logit of a proportion p is the log odds: $logit(p) = \log_e \left(\frac{p}{1-p} \right)$

The logit can take any value from minus infinity, when $p = 0$, to plus infinity, when $p = 1$. We can fit regression models to the logit which are very similar to the ordinary multiple regression and analysis of variance models found for data from a normal distribution. We assume that relationship is linear on the logistic scale.

$$\log_e \left(\frac{p}{1-p} \right) = b_0 + b_1x_1 + b_2x_2 + \dots + b_mx_m$$

Where x_1, \dots, x_m are the predictor variables and p is the proportion to be predicted. The effects of the predictor variables are found as log odds ratios, unlike the ordinary linear regression equation that might predict proportions less than zero or greater than one, which would be meaningless.

The logistic regression equation predicts the log odds, a log odds ratio. The antilog of the coefficients is thus an odds ratio. Some programs will print these odds ratios directly. These are often called adjusted odds ratio.

For a continuous predictor variable, the coefficient is the change in log odds for an increase of one unit in the predictor variable. The antilog of the coefficients, the odds ratio is the factor by which the odds must be multiplied for a unit increase in the predictor. Two units increase in the predictor increases the odds by the square of the odds ratio.

3.2 The multiple logistic regression equation

Logistic regression can be extended to multiple logistic regression having more than one independent variable. Some of the independent variables can be categorical and others continuous. Therefore with k risk variables x_1, x_2, \dots, x_k , then the model is:

$$\log \left(\frac{\pi}{1-\pi} \right) = \alpha + \beta_1x_1 + \dots + \beta_kx_k$$

If the independent variables are categorical, the data is tabulate by all levels of the co-variables. The mode then implies that in a particular cell of the table we will have the same probability say π_i and this probability may differ from cell to cell. Then π_i can be estimated by p_i which is the proportion of individual who have a particular exposure in that cell ¹³.

3.3 Model checking

An important question is whether the logistic model describes the data well. If the logistic model is obtained from grouped data then there is no problem comparing the observed from grouped data, the groups and those predicted by the model.

There are a number of ways that the model may fail to describe the data well and these include:

1. Lack of important covariate
2. Outlying observations

3.3.1 Lack of important covariates: This can be investigated by trying all available covariates, and the possible interactions between them. Provided the absent covariate is not a confounder, then inference about particular covariate of interest is usually not affected by its absence.

3.3.2 Outlying observation: It can be difficult to check when the outcome variable is binary. However, some statistical packages do provide standardized residuals. That is, residuals divided by their estimated standard errors. These values can be plotted against values of independent variables to examine pattern in the data. It is also important to look for influential observations, perhaps a subgroup of subjects that if deleted from the analysis would result in a substantial change of the values of regression coefficient estimates

3.4 Maximum likelihood

The method of estimation by maximum likelihood, the likelihood of the data is proportional to the probability of obtaining the data.

For data of known distribution form, and where the mean value is given in terms of a generalized linear model, the probability of the observed data can be written down using the appropriate probability distribution. For example, with logistic regression the probability for each group or individual can be calculated using the binomial product of these probabilities and the likelihood of the whole data is the product of these probabilities over all groups or individuals. This likelihood depends on the values of regression coefficients and the maximum likelihood estimates of these regression coefficients are those values that maximize the likelihood that is, the values for which the data are most likely to occur. The method also gives standard errors of the estimated regression coefficients and significant tests of specific hypothesis. By analogy with the analysis of variance for a continuous variable, the analysis of deviance is **used in generalized linear models.**¹⁴

3.4.1 Deviance is twice the difference between the log-likelihood of a perfectly fitting model and that of a current model and has an associated degree of freedom (DF) that is equal to the difference in the number of parameters between these two models.¹⁴

The signature of an effect on a single degree of freedom may be tested by the ratio of its estimate to its standard error (SE), assessed as a standardized normal deviate. This is known as the Wald test, and its square as the Wald χ^2 ¹⁴.

The procedure of fitting a model using the maximum likelihood method usually involves iteration that is repeating a sequence of calculations until a stable solution is reached. Fitted

weights are used and, since these depend on the parameter estimates they change from cycle to cycle of the iteration. The approximate solution using empirical weights could be the first cycle in this iterative procedure and the whole procedure is sometimes called iterative weighted least square ¹⁴.

CHAPTER 4

4.1 Introduction

Report the result of contraceptive use among youths in Kayole and Mukuru. Data is from shuga II evaluation study. The study is a case control study done in Kayole and Mukuru on youths aged between 15-24 years. A simple random sampling at a resource center in the area, the study is a cross sectional and the evaluation is on youth's sexual behavior; HIV knowledge, attitudes & testing; Smoking, alcohol & drug use and contraceptive use..

4.2 Statistical analysis plan

The analysis plan contains a description of the research question; Do the youths in Kayole and Mukuru use contraceptive to protect themselves against unplanned pregnancies.

The analysis plan involved data entry, validation, cleaning, coding and analysis. Exploratory data analysis was done and the data is normally distributed. Stata 12 will be used to analyze the data. The data is from a cross-sectional study in East Africa region to assess the youth knowledge and understanding on Hiv/Aids.

The dependent variable will be contraceptive use while the independent variables are gender level of education, religion, alcohol, sexual intercourse.

The analysis to be carried out is binary logistic regression. We carry out both one variable logistic regression and multiple logistic regressions. The missing data will be omitted.

4.2.1 Data variables

Contraceptive use: Takes a binary outcome with 1 as Yes to using contraceptive and 0 as No to not using contraceptive.

Gender: 1 for Male and 2 for Female.

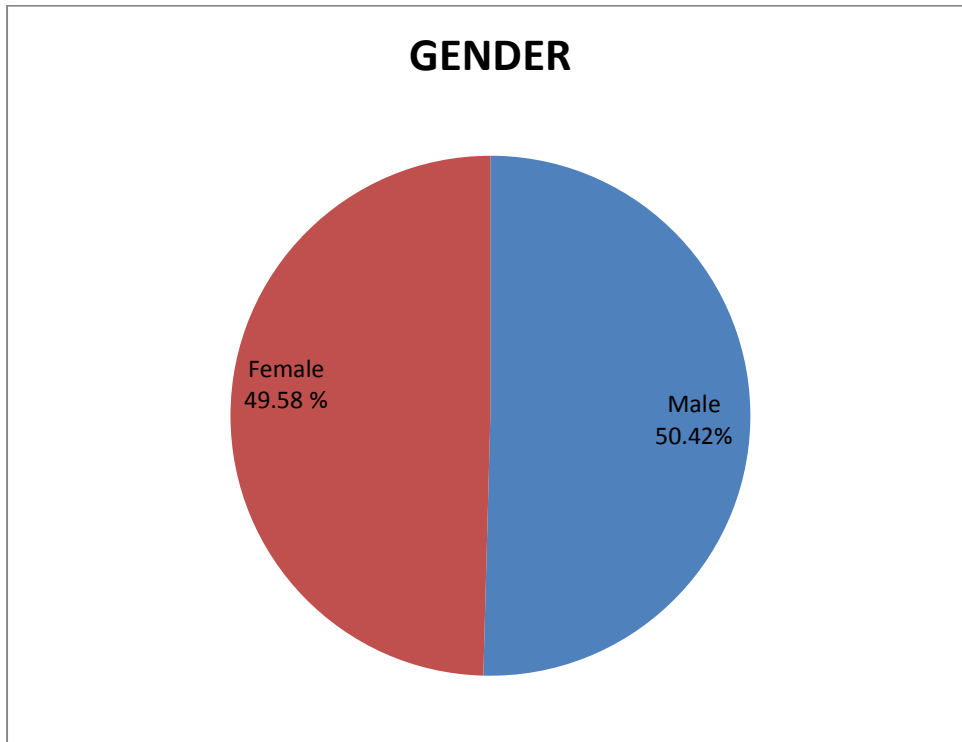
Religion: 1 None, 2 Catholic, 3 Protestant, 4 Muslim, 5 Hindu, 6 Jewish , 7 Christian.

Education: The different levels of education are 1 never attended school, 2 Secondary, 3 College/ University, 4 Technical/ Vocational.

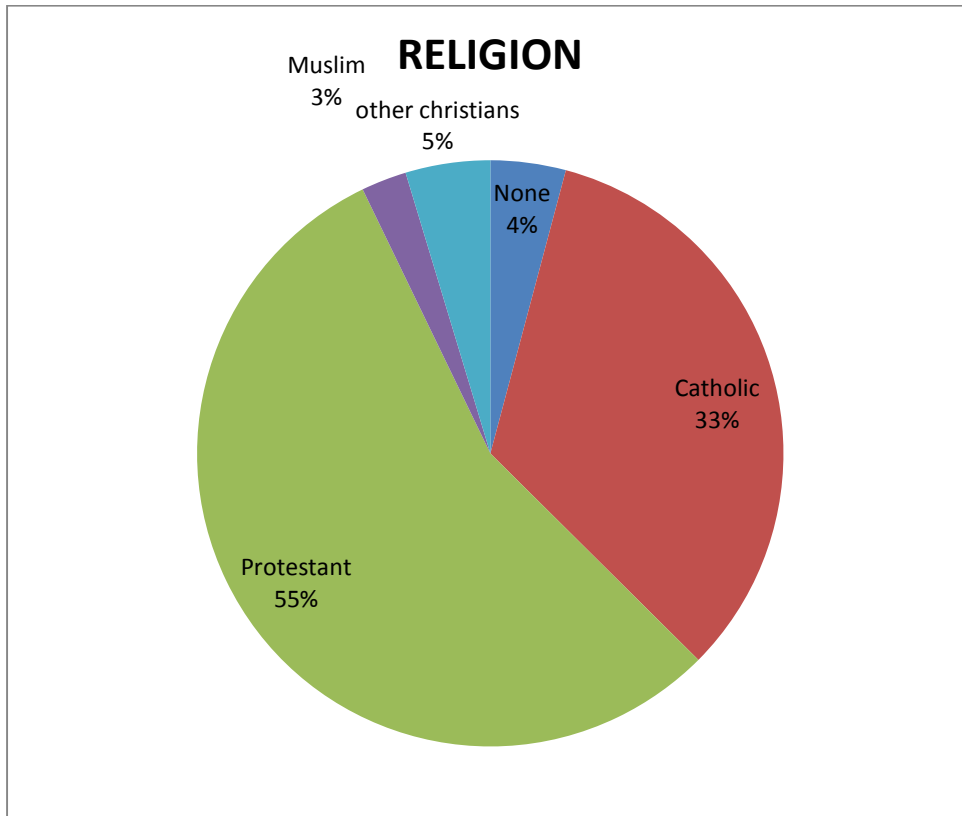
Alcohol: For alcohol, 1 will be No to alcohol use and 2 Yes to alcohol use.

Sex: The variable sex involves youths who have engaged in sexually intercourse or not. It take 1 for Yes to having had sexual intercourse in the past 6 months and 2 No to not have had sexual intercourse in the past 6 months.

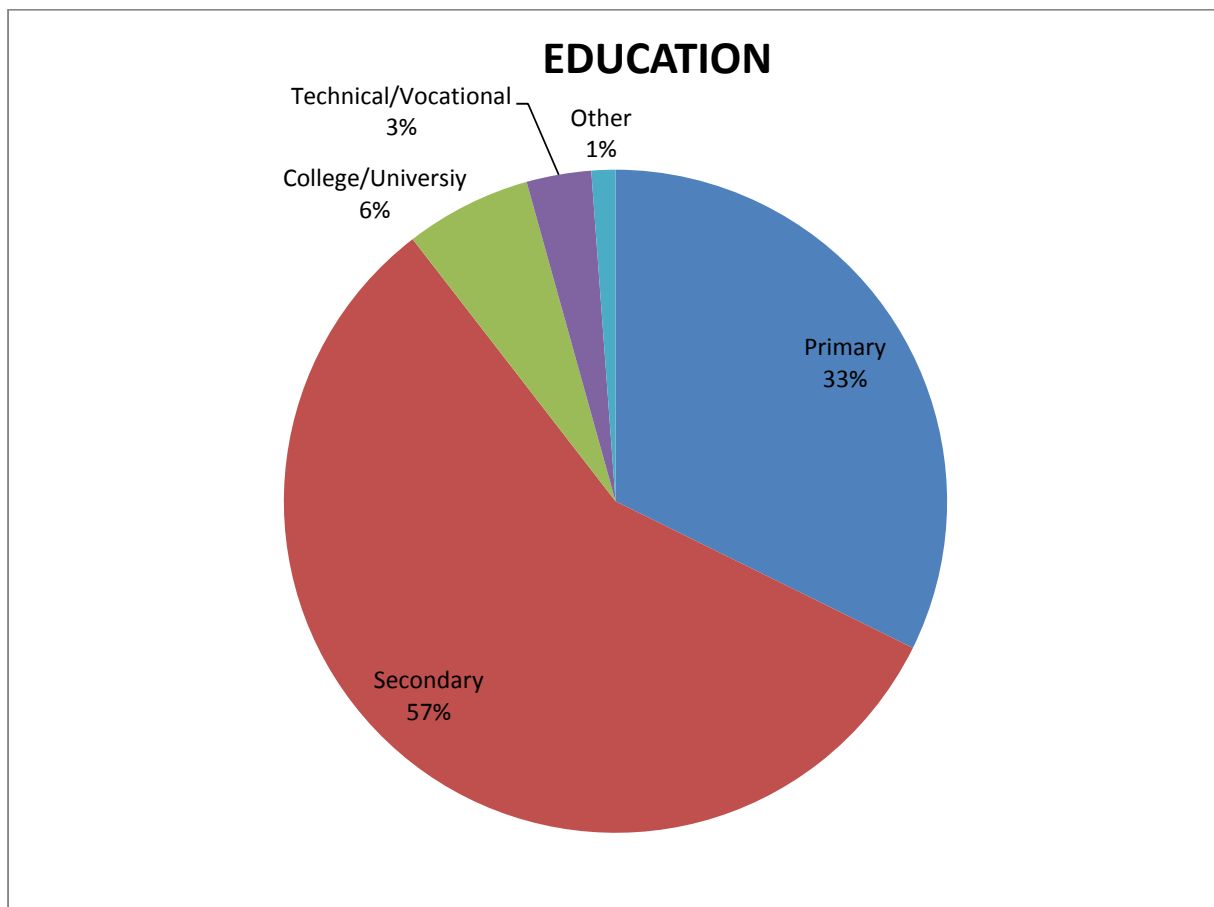
4.3 Descriptive statistics



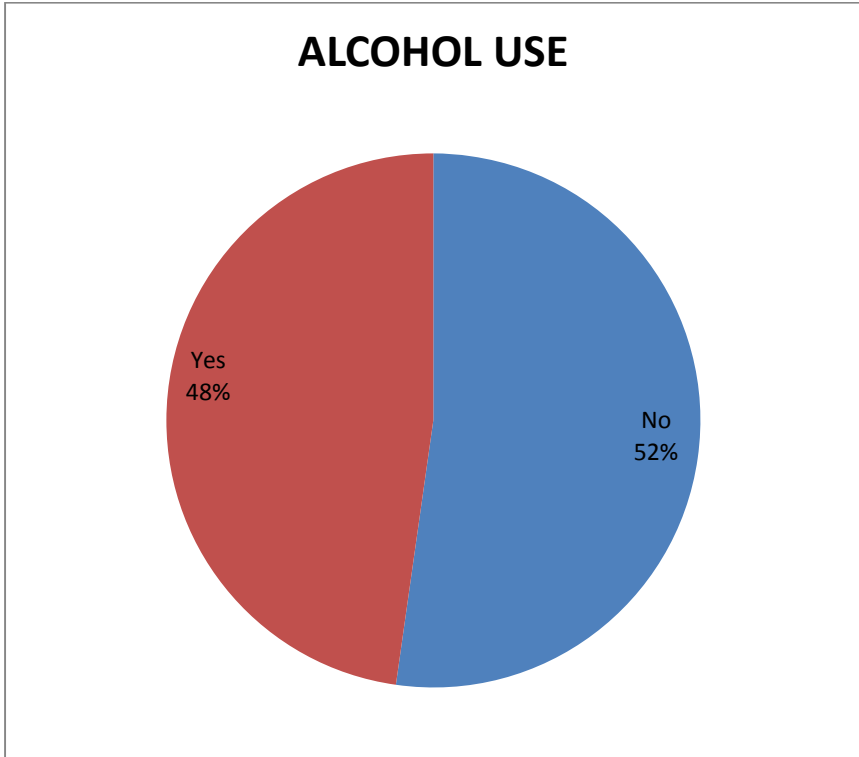
There were slightly more male youths than females in the study. Males were 303 (50%) and females were 298(49%)



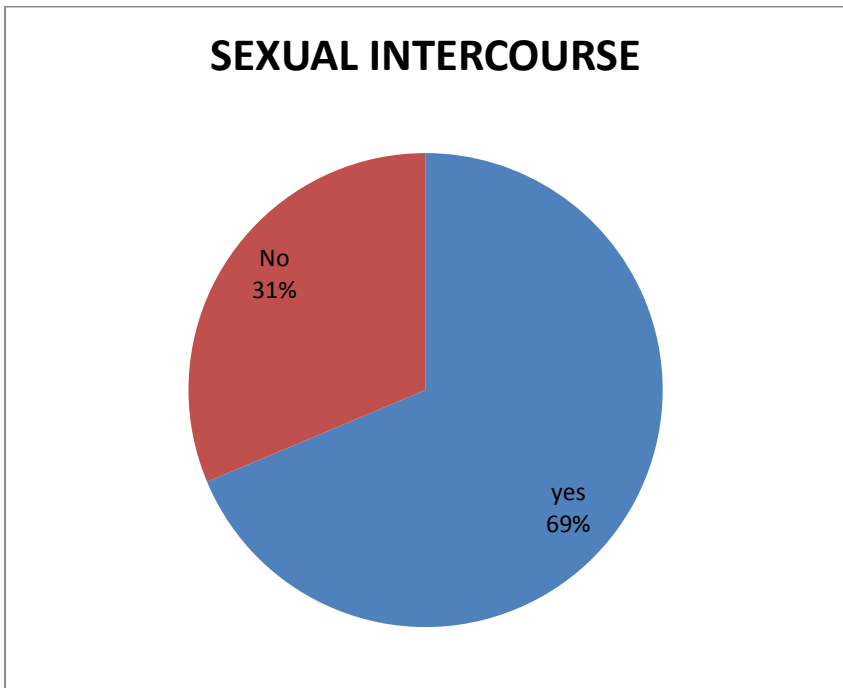
The youths belonged to different religions as follows: Protestants were the majority 333 youths (55.41%) followed by the Catholics 200 youths (33.28%), the rest of the denominations had youths less than 30. Namely, Other Christian denomination had 28 youths (4.66%), youths who belonged to No religion were 25 (4.16%) and the Muslim had the least youths 15(2.5%).



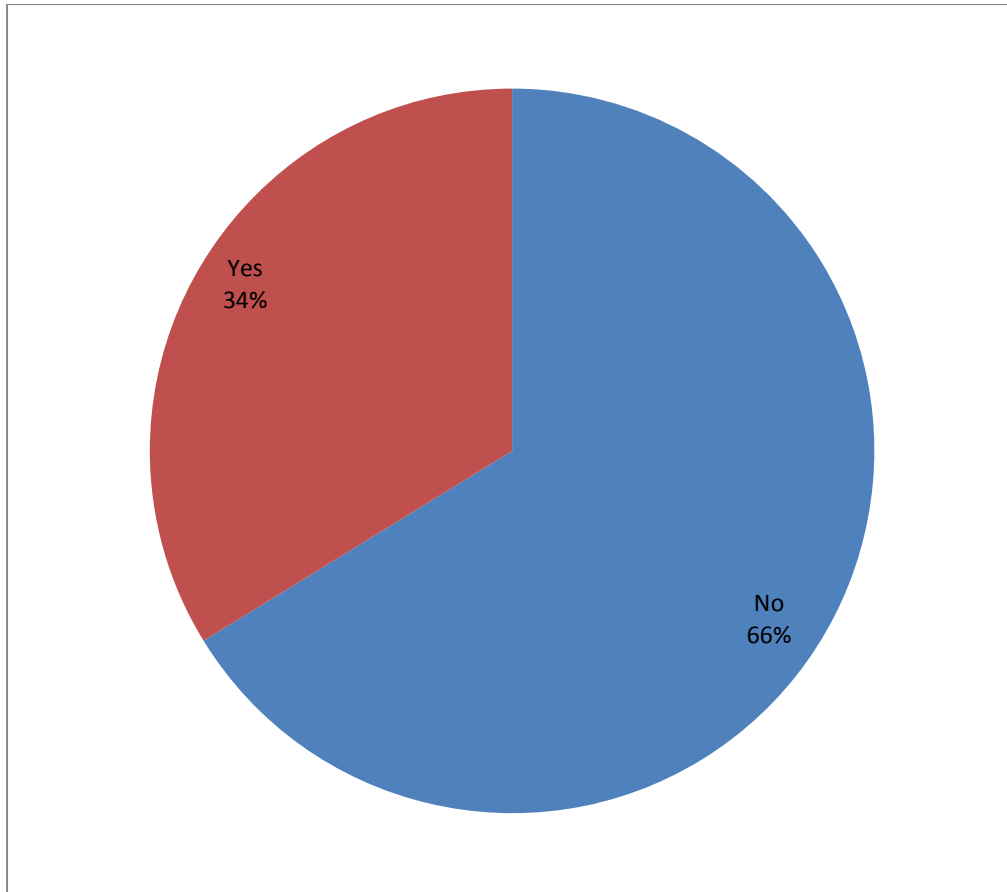
In the level of education, majority of the youths have secondary school. Primary education has 194 youths (32.28%), Secondary school 344(57.24%), College / University 37(6.16%), Technical/ Vocational 19 (3.16%), Others 7 (1.16%).



About half of the youths are not taking alcohol. There is about 314 (52%) who don't take alcohol and 287 (48%) who take alcohol.



Majority of the youths in this region are sexually active. Consisting of 410 (69%) who have had sex in the past 6 months and 187 (31%) who hadn't had sex in the past 6 months.



Half of the youth reported not to use contraceptives considering majority are sexually active. There were 396(66.22%) of the youths who said No to using contraceptives and 202 (33.78%) said yes to using contraceptive.

4.4 Social characteristics and contraceptive use using chi-square

Characteristic	Attributes	Contraceptive use		Statistical significance
		Yes	No	
Gender	Male	45.05 % (91)	53.03 % (210)	$X^2 (1) = 3.4081$ $p > 0.05$
	Female			
Religion	None	3.47% (7)	4.55 % (18)	$X^2 (4) = 4.0147,$ $p > 0.05$
	Catholic	34.16% (69)	32.83% (130)	
	Protestants	56.93 % (115)	54.55% (216)	
	Muslim	2.97% (6)	2.27% (9)	
	Other Christians	2.48% (5)	5.81% (23)	
Education	Primary	30.2% (194)	33.59% (133)	$X^2 (4) = 2.6830$ $p > 0.05$
	Secondary	57.02% (341)	55.81% (221)	
	College/University	6.19% (37)	5.81% (23)	
	Technical /Vocational	3.18% (19)	3.79% (15)	
	Other	1.49% (3)	1.01% (4)	
Alcohol use	No	52.48% (106)	52.27% (207)	$X^2 (1) = 0.3275$ $p > 0.05$
	Yes	47.52% (96)	47.73% (189)	
Sexual Intercourse	No	67.47% (135)	69.47% (273)	$X^2 (2) = 0.3275$ $p > 0.05$
	Yes	30.53% (66)	30.55% (120)	

There is no association between contraceptive use and all variables, gender, religion, education, alcohol and sexual intercourse. One of the major objectives of the study was to find the association between the social characteristics towards the using of contraceptives. Then a binary logistic analysis of the variables was carried out.

4.5 Multiple regression analysis

Number of observations=594

Likelihood ratio statistic=11.35

P-value =0.4142

Contraceptive Use		Odds Ratio	p>z	[95% Conf.	Interval]
Gender	Male	1			
	Female	1.450348	0.047	1.005511	2.09198
Religion	None	1			
	Catholic	1.267926	0.623	0.4919789	3.267695
	Protestant	1.247064	0.643	0.4895936	3.176449
	Muslim	1.721991	0.439	0.4350897	6.815271
	Christian	0.4883252	0.297	0.1268609	1.879708
Education	Primary	1			
	Secondary	1.226107	0.297	0.8356329	1.799041
	College/university	1.291213	0.5	0.6142245	2.714367
	Technical/vocational	0.700011	0.55	0.2173362	2.254642
	Other	1.524301	0.597	0.3198033	7.265388
Alcohol	No	1			
	Yes	0.8903278	0.535	0.6167527	1.285254
Sexual Intercourse	No	1			
	Yes	1.167042	0.415	0.8046721	1.6926

Gender: Female youths are 45% with 95% confidence (1.005511 to 2.09198) more likely to use contraceptive compared to the males holding religion, education, alcohol and sex constant. Gender is a significant variable in being associated with contraceptive use.

Religion: youths who are Catholics are 27% with 95% confidence (0.4919789 to 3.267695) more likely to use contraceptive compared to those who do not belong to no religion. While 24% with 95% confidence (0.4895936 to 3.176449) of Protestants are more likely to use contraceptive as compared to those who belong to no religion. 72% with 95% confidence (0.4350897 to 6.815272) of Muslims are more likely to use contraceptive as compared to the youths who belong to no religion. Whereas youths who belong to other

Christian denomination are 51% with 95% confidence (0.1268609 to 1.879708) less likely to use contraceptive as compared to those who belong to no religion holding gender, education, alcohol and sex constant.

Education: youths who had a secondary school education are 23% with 95% confidence (0.8356329 to 1.799041) more likely to use contraceptives as compared to those who had primary school education. While the once who have had college / university education are 29% with 95% confidence (0.6142245 to 2.714367) more likely to use contraceptive as compared to those who had primary education. The youths who attended technical / vocational education are 30% with 95% confidence (0.2173362 to 2.254642) less likely to use contraceptive as compared to those who had primary school education. Lastly, the youths who had other education are 52% with 95% confidence (0.3198033 to 7.265388) more likely to use contraceptive as compared to the youths who had primary school education holding religion, gender, alcohol and sex constant.

Alcohol: Youths who take alcohol are 1% with 95% confidence (0.6167527 to 1.285254) less likely to use contraceptive as compared to those who don't take alcohol holding gender, religion, education and sex constant.

Sex: Sexually active youths are 17% with 95% confidence (0.8046721 to 1.6926) more likely to use contraceptive as compared to those who are not sexually active holding gender, religion, education and alcohol constant.

In multivariate analysis, Gender was the only significant variable where there 95% confidence interval does not include 1 and therefore there is an association between gender and contraceptive use whereas religion, education, alcohol and sex were not significant because there 95% confidence interval included 1 and therefore no association between religion, education, alcohol and sex with contraceptive use.

CHAPTER 5

5.1 DISCUSSION AND CONCLUSION

The finding of the current study indicates that the use of contraceptives is low at 34% among the youths in Kayole and Mukuru. The study showed that contraceptive use is more common among female youths at 45% more than the male youth. In south Africa, Among young women who reported to be currently using contraception (89.1%), 9.3% were using the Pill, 5.2% the intra-uterine contraceptive device, 25.6% injectables, 57.6% male condoms, 5.9% female condoms, and 8.9% dual methods; other methods used were the rhythm method (7.0%), withdrawal (11.5%), and emergency contraception (5.5%)²⁴.

Religion is has major influencing on decision in Africa, therefore the study wanted to find out if it does influence youths in decision making on contraceptive use. The study shows youths who are Catholics are 27% more likely to use contraceptive compared to those who do not belong to no religion. 24% of Protestants are more likely to use contraceptive as compared to those who don't have a religion. 72% of Muslims are more likely to use contraceptive as compared to the youths who do not belong to any religion. Whereas youths who belong to other Christian denomination are, 51% less likely to use contraceptive as compared to those who belong to no religion. Muslim youths on the other hand, are using contraceptives more irrespective of the belief of their religions that sexually intercourse and use of contraceptive is to be practices within a marriage. There is no association between contraceptive use and the different religions. Though religion was stated by ²⁶ 'Various factors accounted for the low use of family planning services. These included partner's approval, quality of the services, friendliness of the staff administering the services and the woman's knowledge about family planning services. Other factors included the woman's income level, proximity to the provider and the religious background of the woman'.

Education level and its influence on contraceptive use, youths who had a secondary school education are 23% more likely to use contraceptives as compared to those who had primary education. At the College or University education level they are 29% more likely to use contraceptive as compared to those who had primary education. Whereas the youths who attended technical / vocational education are 30% less likely to use contraceptive as compared to those who had primary school education. Lastly, the youths who had other education are 52% more likely to use contraceptive as compared to the youths who had primary school education. The level of education doesn't have much impact on contraceptive use as it seems relatively low in most of the levels of education. Most youths at any level of education don't use contraceptives.

Youths who take alcohol are 1% less likely to use contraceptive as compared to those who don't take alcohol, this is a small percent therefore it shows that alcohol has no much association on the youths decision to use contraceptives or not. Whether youths take alcohol or not, they are not likely to use contraceptives

Sexually active youths are 17% more likely to use contraceptive as compared to those who are not sexually active. A small percent of sexually active youths are not using contraceptive.

The result can be compared to a study done in Kisumu ‘a significant proportion of youth are infected by HIV and other sexually transmitted infections mainly through sexual intercourse, while the prevalence of unwanted pregnancies is rising. A study done in Kisumu town in western Kenya, looked at knowledge, attitude and practice and factors influencing sexual relationships and contraceptive practice among the youth showing that majority of the youth are sexually experienced (73.5%) with most of the first sexual experiences occurring within the 15–19 years age group. There is a high level of knowledge (99.2%) of contraceptive methods and a positive attitude towards contraception. However, the level of contraceptive use is relatively lower (57.5%) even for the sexually active. Factors influencing this practice are associated with the individual's background as well as health delivery systems and policy. The factors influencing contraceptive practice were demographic factor which consisted of age and sex; social economic factors focus being in occupation, marital status, level of education and social activity; other factor included culture where the study was done on culture then there was service factor that looked at range of service and adequacy of service facility then policy factor. The result showed that there is a wide disparity between contraceptive knowledge and practice, which needs to be bridged. There is the need to review policies and practices regarding reproductive health, sexuality and family life education’.³

5.2 CONCLUSION AND RECOMMENDATION

CONCLUSION

The trends are particularly worrying because the youths are sexually active but they appear to have become more risk over the years. There are very few youths who are using contraceptives as a means of protecting themselves against unplanned pregnancies, sexually transmitted diseases (STI's) and human immunodeficiency virus (HIV) although there are campaigns on television and poster all over the areas to educate them on safe sex.

RECOMMENDATION

There is need for more information and campaigns on the benefits and effectiveness of using contraceptives among the youths.

5.3 LIMITATIONS OF THE STUDY

This study is an analysis of Kayole and Mukuru areas. The results are therefore not necessarily generalized to other parts of Kenya.

5.4 FURTHER WORK

There is need for research to be done on ways to bridge the barriers of the sexual behavior and contraceptive use among the youths therefore increase the number of sexually active youths using contraceptives. More so, reduce the influence of culture, region and tackle the attitude of youths towards contraceptive.

REFERENCES

1. Mumah N. Joyce et al., Contraceptive use among youth: a comprehensive account of associated individual ;level factors in two informal settlements in Kenya, 2010
2. Neil L.Price and Kirstan Hawkins,Conceptual framework for the social analysis of reproductive health 2007.
3. Missie L.Oindo ,contraception and sexuality among the youth in kisumi, Kenya: Africa health sciences Makerere medical school, 2002.
4. Sunil Thankam Sukumaran, Reproductive health in yemen : Atheoretical approach. 2002
5. Dr. E.O.Osakinle et al., Youths and Their choices of contraceptives towards an effective reproductive health: the case of Ekiti state,Nigeria.
6. Joyce W. Kinaro, Perception as a barrier to contraceptive use among adolescents; 2013 Population studies and research institute (PSRI), University of Nairobi, Kenya : European scientific journal vol 9.
7. Yasamin Kusunoki and Dawn M. Upchurch, Contraceptive and method choice among youth in the United States; population studies center research report, 2008
8. Hubacher D, et al., preventing unintended pregnancy among women in Kenya: prospective cohort study to offer contraceptive implants. Contraception.2012
9. Elizabeth T. Robinson, "Programs for Adolescents: Neighborhood Peer Educators in Mali," Network 20, no. 3 (2000), accessed online at www.fhi.org, on Feb. 11, 2009

10. Patton, G.C., et al., Global patterns of mortality in young people: a systematic analysis of population health data. *The Lancet*, 2009. 374(9693): p. 881-892.
11. Mensch, B.S., S. Singh, and J.B. Casterline, Trends in the timing of first marriage among men and women in the developing world, in *The Changing Transitions to Adulthood in Developing Countries*, C.B. Lloyd, et al., Editors. 2005, National Academies Press: Washington, DC. p. 118-171. *Mumah, Beguy, Wawire* Page 7
12. Daniel w. Wayne, *Biostatistics Basic concepts and methodology for the health sciences* 9th edition international student version, John Wiley and sons.inc.india , Editor.2010
13. Armitage. P, et al., *statistical methods in medical research* 4th edition .2002, Blackwell publishing
14. Michael .J. Campbell, et al., *Medical statistics a textbook for health sciences* 4th edition 2007, John Wiley & sons ltd.England.
15. Becker G. An economic analysis of fertility. In: Coale A, editor. *Demographic and economic change in developing countries*. Princeton: National Bureau of Economic Research; 1960. pp. 209–31.
16. Easterlin RA. An economic framework for fertility analysis. *Stud Fam Plann*. 1975;6:54–63. <http://www.ncbi.nlm.nih.gov/pubmed/1118873>
17. McNicoll G. Bulatao R, Casterline J, editors. Government and fertility in transitional and post-transitional societies. *Global fertility transition*. 2002;27:129–59. *Population Dev Rev*;(Suppl).
18. Robinson W. The economic theory of fertility over three decades. *Population Study*. 1997;51:63–74. <http://www.ncbi.nlm.nih.gov/pubmed/11618986>
19. Greenhalgh S. Toward a political economy of fertility: anthropological perspectives. *Population Dev Rev*. 1990;16:85–106.

20. World Health Organisation, author. The Health of Young People: A challenge and a promise. Geneva: WHO; 1993.

21. Ocholla-Ayayo ABC. A Change in Sexual Practices and the Risk of the Spread of HIV/AIDS in Kenya. 1992

22. Hayes CD, editor. Risking the Future - Adolescent Sexuality, Pregnancy, and Childbearing. Vol. 1. Washington, D.C: National Academy Press; 1987.

23 Kirkwood B.R, Sterne A.C.J, Essential Medical Statistics: 2nd edition p.g 189 to 213. First published 1988 second edition 2003 by Blackwell Science Ltd.

24. Leutlwadi L, Peltzer K and Mchunu G: Contraceptive use and associated factors among South African youth (18-24 years): A population-based survey.

www.ajol.info/index.php/sajog/article/viewFile/76924/67402

25. United Nations Programme on AIDS. Global Report on AIDS. 2010

http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2010/20101123_globalreport_en.pdf

26. Okech T.C, Dr. Wawire N.W and Mburu T.K: Contraceptive use among women of reproductive age in kenya's city slum.

<http://www.ku.ac.ke/schools/economics/images/stories/research/contraceptive-use-among-women-of-reproductive-age-in-kenya-city-slums.pdf>