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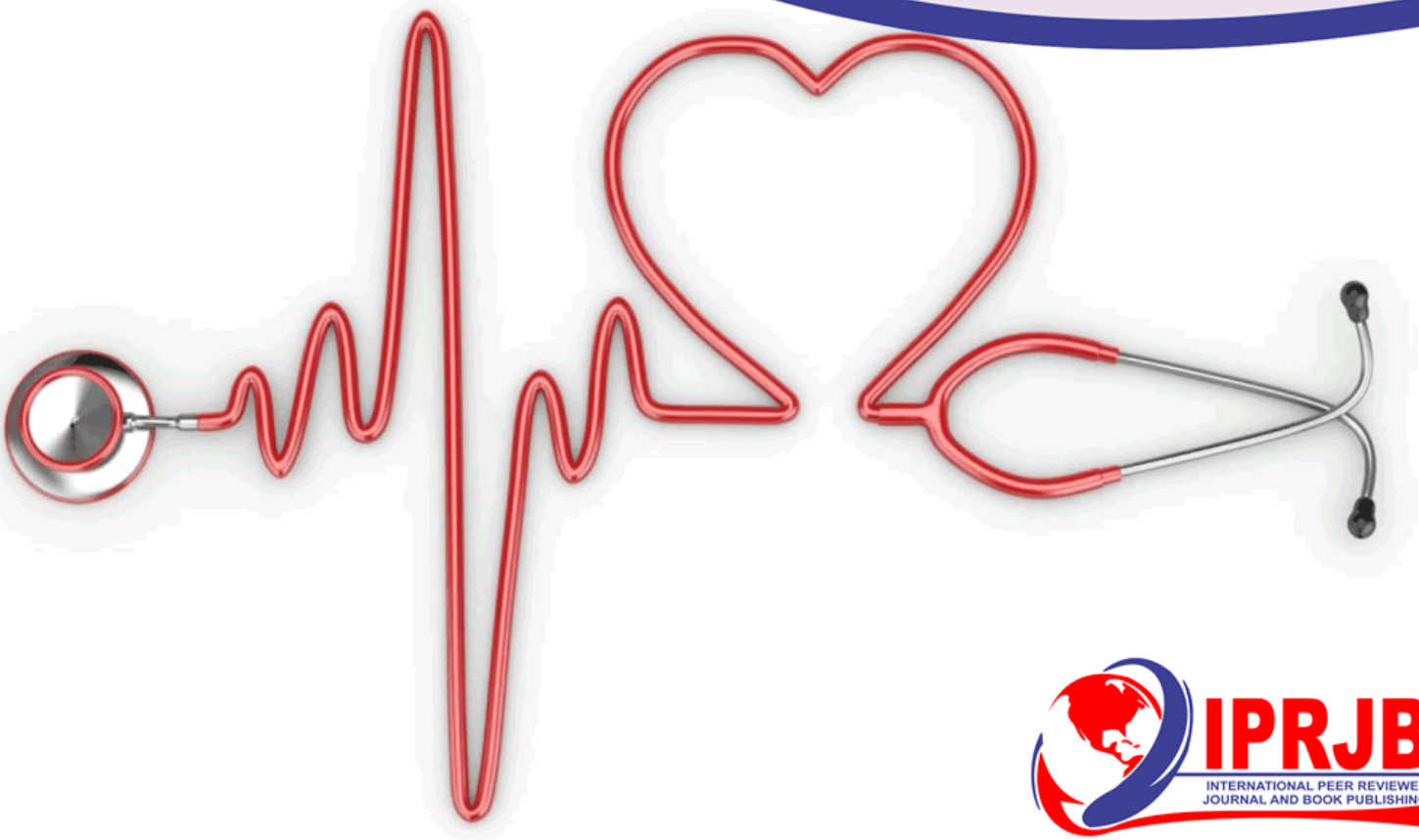

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A COMPARATIVE ANALYSIS OF DETERMINANTS OF UNMET NEED FOR CURRENT CONTRACEPTIVE PRACTICE AMONG WOMEN OF REPRODUCTIVE AGE LIVING IN FORMAL AND INFORMAL SETTLEMENTS OF ELDORET TOWN, KENYA

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Abstract

Purpose: Unmet need for modern contraception is one of the most vital indicators of birth control programs and policies. It is challenging to motivate women of childbearing age to adopt contemporary means of birth control especially in urban poor settings. To determine the factors associated with unmet need for limiting and spacing births among women of reproductive age living in formal and informal settlements of Eldoret town.

Methodology*:* A community based cross sectional and analytical study of mixed methods was conducted in Langas informal settlement and Old Uganda Road Estates of Eldoret town. 527respondents (15 to 49) were enrolled through multistage sampling. Independent variables included age, marital status and level of education among others. Dependent variable was unmet need. Descriptive statistics, bivariate and multiple logistic regressions were used in data analysis. Odds ratios with 95% confidence interval were calculated. P value of less than 0.05 was used to establish statistical significance.

Findings: Age, place of residence, partner's level of education, employment, religion, marital status, number of living children, husband disapproval, husbands decision on number of children, accessibility and never having been pregnant were significantly associated with unmet need for modern contraception. Unmet need for limiting births was high among residents of Old Uganda road compared with Langas. On the contrary, unmet need for spacing childbirths was higher in Langas than Old Uganda road estate.

Unique contribution to theory, practice and policy: Health education on benefits of contraceptive services, available methods, usage and side effects of the methods in both settlements. Couple counseling on FP discussion to enhance approval. Increase FP service providers in Langas.

Key words: Determinants, unmet need, modern Contraception, Formal/informal settlements

1.0 BACKGROUND INFORMATION

Worldwide, over 600,000 women die annually due to pregnancy related problems out of whom 200, 000 are attributed to failure to access contraceptive services (Ochako et al., 2016). Unsafe abortion accounts for 75000 with 99 percent of the deaths occurring in the developing countries (Priedman et al., 2015). Darroch et al (2013), further revealed that 79,000 maternal deaths and 1.1 million infant deaths in developing countries would be prevented if unmet need for contraception were met. This rapid increase in population can be a major obstacle to the realization of sustainable Development Goals (SDGs) 4, 5 and 7 which relate to quality education, gender equality and access to clean energy. To address this phenomenon, many countries including Kenya turned their attention on modern contraceptive interventions.

Through constant rural to urban relocation, urban centres become overcrowded by employment seekers in need of improved living standards leading to an upsurge in the number of people residing in informal settlements. These informal settlers are often forced to share congested public health services or look for FP services at unregulated low class private clinics that offer inexpensive care (Speizer et al., 2012). Despite pervasive poverty and poor living conditions, the population in informal settlements continues to increase at a high rate. The population of women of reproductive age (15 – 49) living in informal settlements in Nairobi increased from 26.6 percent in 2000 to 29.2 percent in 2012 (APHRC 2014). The current CPR is 58% of which the most widely used are the injectables at 26%, implants 10% and pills 8% (KNBS 2014). In concurrence, KDHS (2014), revealed that Kenya still experiences a high level of unmet need (18%) for contemporary contraception despite the various strategies that have been rolled out.

Studies have associated several factors to unmet need for current contraception. High level poverty, low levels of education and large household sizes in informal settlements negatively affects access to basic health services including contraceptive usage (APHRC 2014).Utilization of FP among women living in slums of Nairobi was lowest among currently married women aged 15 – 19 with a CPR of 40 percent for any method in 2014 (Beguy et al., 2017). Abeka (2012) in a study conducted in Kibera slums found that FP unmet need for spacing concentrated around relatively younger age sets and declines towards the oldest age groups. An ever married woman is 4 times more likely to have unmet need compared with one who has never been married (Nyauchi et al., 2014). This was attributed to frequent coital exposure as opposed to those who are not married.). In a related study, Tobe et al (2015) stated that housewives were found to be 5 times more expected to have had unmet need than those respondents who had other jobs. Another study piloted in Cameroon and Senegal by Browne (2012) showed that religion has a strong persuasion on women's FP choice. Speizer *et al* (2012), in a study conducted in India concurred with the above finding that residents of informal settlements were considerably less likely to adopt current methods of contraception compared with those in formal settlements. Disapproval of the spouse to contraception can be a barrier to contraceptive practice (Jones *et al.*, 2015).

Uasin Gishu County's CPR stands at 43% in comparison with the national prevalence of 58%. The population growth rate is 3.8 % against the national growth of 2.8 due to low contraceptive acceptance rate which stands at 34% against the national average of 46% (UGCID 2013). The uptake of FP methods from clinics is about 27%. Langas, the largest informal settlement in Eldoret is experiencing rapid population increase. With poverty level of 49 percent, there is an

increase in unwanted pregnancies and unsafe abortions from 23.6% in 2018 to 32% in 2019 (UG DHS 2, 2019). Other problems emanating from this rapid population growth include increased crime, high number of street children, and pressure on schooling and health facilities.

The population policy for National development through sessional paper no. 3 of 2012, proposed to escalate national practice of contemporary contraceptives to 58% by 2020 and 64% by 2025 (PPND 2012). The policy framework identifies reproductive and sexual health care as a human right and everybody has a right to use. The need for this study was prompted by the fact that existing evidence had not been scientifically evaluated across formal and informal locations in Eldoret and many studies on unmet need for contraception among women of reproductive age living in informal areas were concentrated in major cities like Nairobi (APHRC 2014). These studies ignored slum dwellers in smaller towns like Eldoret. Understanding reasons behind non-use of contemporary birth control methods would assist to create an adequate and dependable evidence base to support the formulation of policies that will alleviate the high level of unmet need.

2.0 MATERIALS AND METHODS

This was a descriptive and analytical cross sectional study of quantitative and qualitative methods of data collection. This comparative study was carried out in the largest informal settlement in Uasin Gishu County namely Langas and Old Uganda Road Estate (formal) within Eldoret town, Kenya. The study population comprised of women of reproductive age (15 to 49) living in the two settlements. Multistage and purposive sampling methods were used. Langas was purposively selected as it was the largest informal settlement in Eldoret. Old Uganda Road Estate is a formal residence occupied by middle group people and of higher social status than Langas. Two villages from each study site were selected through simple random selection (SRS) by balloting. Names of the six villages, 3 from each site were written separately on pieces of paper and balloted. Four Villages (2 from each site) were randomly picked and further sub divided into quarters. Finally, 2 quarters from each village (4 from each study site) were randomly selected. Sample size was calculated using the formula below (Cochran 1963: 75)

$$\underline{N = (z^2 \text{ x } p \text{ x } q) \quad \text{x } D}$$
$$d^2$$

Where: n = Sample size, z = linked to 95 % confidence interval of 1.96 (Z score), P = Expected prevalence rate (43% = 0.43) Uasin Gishu county, q = I – p = 0.57, d = Relative desired precision of 5 % equivalent to 0.05 and D = design effect = 1.5. 10% was added to carter for possible refusal to participate. This determination arrived at 622 respondents i.e. 311 from each study site. 10 Community Health Volunteers, 5 from each site were purposively selected from each study site for key informant interviews. Four focus group discussions 2 from each site comprising of 6 to 12 women were also enrolled by simple random sampling.

The KDHS 2014 questionnaire format on contraception was adopted as the basis for tool development after thorough review. The input of some questions from other related studies were factored in. The tool was divided into four parts, I, II, III and IV. Part I collected data on socio demographic characteristics of the study participants. Part II was tailored to gather data on the reproductive history of the respondents while part III collected data on different aspects of

contraceptive practice among women. Finally, part IV filtered questions related to attitude on the use of contraception. The qualitative data collection tools comprised of the key informant interview schedule and Focus Group Discussion guide. To ensure quality control for the data, data collectors and research assistants were trained. Data collectors were five CHV's and two research assistants for each study area. Data was then collected with the aid of a pretested structured questionnaire through self or interviewer administered method. Data collectors were guided by CHV's from study area and village elders to identify households and boundaries.5 CHV's from each study area were sampled for key informant interviews. Two women Groups, one from each study area were enrolled for Focus Group Discussion. After giving necessary instructions and taking consent, an average of 15 minutes was allocated for answering questions. Ethical clearance was sought from the National Commission for Science, Technology and Innovation (NACOSTI), Institutional and Ethics Review Committee of Masinde Muliro University of Science and Technology and Uasin Gishu county administration. An informed consent was sought in writing from the respondents for the purposes of voluntary participation. Parental consent was sought for those below 18 years of age. Data was analyzed using descriptive statistics of mean, median, standard deviation and range to describe the socio-demographic characteristics of the study participants. Frequencies were used to describe the background variables. Bivariate analyses followed by multiple logistic regression models were then applied to assess the presence of an association between Independent variables and the Dependent variable (Unmet/ met need for modern contraception). Odds ratios with 95% confidence interval were calculated to test the significance of association between each independent and the dependent variable. P value less than 0.05 was considered statistically significant. Qualitative data was processed by analyzing themes from key informant interviews and Focused Group Discussion.

3.0 FINDINGS AND DISCUSSIONS

3.1 Socio-demographic characteristics of study participants

The table below shows the socio-demographic characteristics of respondents who participated in the study.

Table 1: Socio-demographic characteristics of respondents by sub-county of residence

Variable	Response	Langas		Old Uganda Road		P value
		n=264	%	n=263	%	
Age group in years	15 – 24	124	47.0	127	48.3	0.8
	25 – 34	103	39.0	104	39.5	
	≥35	37	14.0	32	12.2	
Marital status	Married	201	76.1	200	76.1	0.98
	Not married	63	23.9	63	24.0	
Level of education of female	None/Primary	189	71.6	153	58.2	0.001
	Secondary	75	28.4	110	41.8	
Level of education of partner	None/Primary	106	40.2	98	37.3	0.50
	Secondary/Tertiary	158	59.8	165	62.7	
Religion	Protestant	106	40.2	80	30.4	0.019
	Catholic/Muslim	158	59.8	183	69.6	
Occupation of respondent	Not employed	124	48.0	121	46.0	0.82
	Employed	140	53.0	142	54.0	
Occupation of partner	Not employed	32	12.1	40	15.2	0.30
	Employed	232	87.9	223	84.8	
No. of living children	<4 children	255	96.6	240	91.3	0.01
	≥4 children	9	3.4	23	8.7	
Ethnicity	Kalenjin	28	10.6	53	20.2	0.002
	Non-Kalenjins	236	89.4	210	79.8	

A total of 527 female respondents from Langas (50.1%; n=264) and Old Uganda Road Estate (49.9%; n=263) took part in the study. Most of the respondents from Langas (47%) and Old Uganda Road Estate (48.3%) were young and aged between 15 – 24 years. The age groups were not significantly different (p = 0.8). The mean age of the former was 26.4 ± 7.5 while the latter had an average age of 25.6 ± 7.0 with no statistically significant difference (t=1.1; df: 525; p = 0.26). With regard to marital status, slightly over three-quarters of respondents in Langas (76.1%) and Old Uganda Road Estate (76.1%) were married. Major statistically significant differences were reported in level of education, religion, number of living children and ethnicity. While majority of respondents from Langas (71.6%) had none or primary education compared to those from Old Uganda Road Estate (58.2%) with statistically significant difference in proportions (p = 0.001), the difference in level of education of their partners was not statistically significantly different (p=0.5). On the contrary, there were more Protestant female participants from Langas (40.2%) than from Old Uganda Road Estate (30.4%) with statistically significant difference in reported proportions (p = 0.019). Most of the respondents in Langas (96.6%) had less than 4 living children unlike their colleagues in Old Uganda Road Estate (91.3%) with the results being statistically different (p = 0.01). A statistically significantly higher (p 0.002) proportion of respondents in Langas (89.4%) were non-Kalenjins in comparison to those in the same category who were residents of Old Uganda Road Estate (79.8%).

3.2 Factors associated with unmet needs for limiting births

The study examined differences between respondents from Langas and those from Old Uganda Road Estate by examining the limiter groups' socio-demographic, past obstetric history, accessibility and attitude towards modern methods of contraception determinants.

3.2.1 Socio-demographic factors associated with unmet need for limiting births

The table below shows the socio-demographic factors associated with unmet need for limiting births.

Table 2: Socio-demographic factors associated with unmet need for limiting births

Confounders	Explanatory variable	Unmet need (%)	No unet need (%)	Total (n)	OR	95% CI	p value
<25 years age group	Langas	1.6	98.4	124	0.1	0.03 – 0.60	0.0023
	Uganda Road Estate	11.0	89.0	127			
≥25 years age group	Langas	0.7	99.3	140	0.1	0.01 – 0.48	0.0004
	Uganda Road Estate	10.3	89.7	136			
Married	Langas	0.5	99.5	201	0.04	0.005 – 0.303	<0.001
	Uganda Road Estate	11.0	89.0	200			
<25 years at the time of marriage/union	Langas	0.5	99.5	201	0.04	0.01 – 0.30	<0.001
	Uganda Road Estate	11.0	89.0	200			
None or primary education (Respondent)	Langas	1.1	98.9	189	0.1	0.02 – 0.52	0.0008
	Uganda Road Estate	8.5	91.5	153			
Secondary and above (Respondent)	Langas	1.3	98.7	75	0.1	0.01 – 0.67	0.004
	Uganda Road Estate	13.6	86.4	110			
None or primary education (Partner)	Langas	0.6	99.4	158	0.03	0.01 – 0.28	<0.001
	Uganda Road Estate	14.6	85.4	165			
Employed (Partner)	Langas	1.3	98.7	232	0.1	0.03 – 0.33	<0.001
	Uganda Road Estate	11.7	88.3	223			
Protestant	Langas	0.9	99.1	106	0.05	0.01 – 0.38	<0.001
	Uganda Road Estate	16.3	83.7	80			
Catholic/Musli	Langas	1.3	98.7	158	0.1	0.03 – 0.64	0.003
Less than 4 children	Langas	1.2	98.8	255	0.1	0.03 – 0.31	<0.001
	Uganda Road Estate	11.3	88.7	240			
Non-Kalenjins	Langas	1.3	98.7	236	0.1	0.03 – 0.37	<0.001
	Uganda	10.5	89.5	210			

A statistically significant smaller proportion of respondents aged less than 25 years in Langas had unmet need as opposed to those from Old Uganda Road Estate (OR: 0.1; 95% CI: 0.03 – 0.60; p = 0.0023). Similarly, respondents who were 25 years and above from Langas were less

likely to experience unmet need than those from Old Uganda Road Estate (OR: 0.1; 95% CI: 0.01 – 0.48; p = 0.0004). Thus, regardless of age grouping, the likelihood of respondents from having unmet need for limiting births in Langas was lower than those from Old Uganda Road Estate. Significant differences were also noted among married women in terms of unmet need for limiting births. Those who were married and were residents of Langas were less likely to experience unmet need compared to their counter parts in Old Uganda Road (OR: 0.04; 95% CI: 0.005 – 0.303; p < 0.0001). Age was strongly associated with unmet need for the two groups. As shown in the results, those who were less than 25 years of age and residing in Langas were less likely to have had unmet need in comparison to those from Old Uganda Road Estate (OR: 0.04; 95% CI: 0.01 – 0.30; p < 0.0001).This was, however not the case for respondents aged 25 years and above where the difference was not significant (p = 0.27). Qualitative data revealed that women from either settlement cited old age as the reason for adopting a contraceptive method. Those 40 years and above felt they no longer want to get pregnant. A quote from one woman in Langas puts this into perspective: *"Iam 43years old now and really don't think I should give birth anymore because I already have enough children. I decided to use the injection to control childbearing"* (*Woman L8)*. In support of this finding, Tobe et al (2015), pointed out that women aged 40 years and above are more expected to practice contemporary methods of birth control in contrast to young ones between 15 to 19 years. In concurrence, Beguy et al (2017) in a study on FP among slum residents in Nairobi found that use of modern methods of contraception was lowest among presently married females of 15 – 19 years with a CPR of 40 percent.

Further analysis on level of education of respondent and their partner shows statistically significant results between residents in the two study areas. Unmet need for limiting births was less common among women with none or primary school from Langas than their colleagues from Old Uganda Road Estate (OR: 0.1; 95% CI: 0.02 – 0.52; p < 0.0008). This was equally true for respondents with secondary school education and above where Langas residents, again, were less likely to have had unmet need unlike their contemporaries from Old Uganda Road Estate (OR: 0.04; 95% CI: 0.01 – 0.67; p = 0.004). Partner education also had a statistically significant influence on respondents experiencing unmet need. In Langas, where partners had none or primary education, the likelihood of experiencing unmet need was lower compared to respondents from Old Uganda Road Estate (OR: 0.03; 95% CI: 0.01 – 0.28; p < 0.0001). This was not the case for those with partners who had attained a minimum of secondary education (p 0.43). Non use of contraceptives by respondents with secondary education could be attributed to disapproval of contraceptive use by their husbands. An Uneducated partner is believed to have little knowledge on the importance of contraception and therefore cannot make an informed decision like an educated one. A study by Oketch et al (2011) supports this outcome that a partner with low level of education has little understanding of fertility, maternal health and even side effects of contraceptives. On the contrary, respondents and partners from Old Uganda Road Estate had relatively higher educational credentials which helped them understand the importance of FP hence low chances of not spacing deliveries.

Although, unemployment of respondent was not significantly associated with unmet need for limiting births (p = 0.33), employment of partner played a significant role in determining whether respondents had unmet need or not. Respondents from Langas whose partners were employed were less likely to experience unmet need than those from Old Uganda Road Estate (OR: 0.01; 95% CI: 0.03 – 0.33; p < 0.0001). In the absence of a source of income, usage of

modern contraception would decline because economic empowerment enhances informed decision making in the use of FP methods. Religious affiliation too had significant association with respondents experiencing unmet need with a significantly smaller proportion of Protestant (OR: 0.05; 95% CI: 0.01 – 0.38; $p < 0.0001$) and Catholic/Muslim (OR: 0.1; 95% CI: 0.03 – 0.64; $p < 0.003$) respondents from Langas having had unmet need. Protestants allow usage of birth control methods. Most of the respondents from Old Uganda Road Estate were either Catholic or Muslim faithful. Catholic faith prohibits use of contemporary means of contraception preferring the use of natural methods like observation of menstrual cycles and safe days. Moreover, Roman Catholicism explains that the principle drive of a sexual relation within marriage is reproduction. The Catholic Church's position against use of contraceptives therefore influences people's attitude towards FP thereby increasing unmet need for restricting births (Bakibinga et al., 2016).

Those with less than 4 living children from Langas were also less likely to have had unmet need (OR: 0.1; 95% CI: 0.03 – 0.31; $p < 0.0001$) than colleagues from Old Uganda Road Estate. An interview with a CHV in Old Uganda Road Estate revealed that men were not supportive to their spouses in matters FP as they could comfortably support their families. A quote from the key informant puts this into perspective: *"Most men in this Estate are employed and believe they can comfortably support their families and as such don't support their spouses in FP matters" (CHV OUR 4)*. Women from informal settlements have limited financial ability to sustain big families hence the need to limit family size. As women give birth to more children, unmet need for limiting births increases because they strive to achieve their desired number of children. On the contrary, residents of Old Uganda Road Estate are of higher socio economic status and therefore capable of sustaining more children. Nyauchi et al (2014), explained that women who had more than 5 children were more likely to have unmet need for limiting births than those with less than 5 living children.

Overall, the study observed that the Lower odds of unmet needs for limiting births for Langas could be elucidated by the fact that public health institutions providing free FP services in the informal settlement are supplemented by more private hospitals, many nongovernmental and community based organizations making FP services more accessible. These organizations include Mariestopes (reproductive health) and Tunza (Condom distribution and advocacy) which conduct outreach and door to door campaigns in the informal settlement. These interventions could have contributed to the reduction in the proportion of women who desired to stop childbirth but were non-users of contraceptives among respondents from Langas informal settlement compared with Old Uganda Road Estate.

3.3 Factors associated with unmet need for spacing births

3.3.1 Bivariate analysis on socio-demographic determinants of unmet need for spacing births

The table below shows results of bivariate analysis with unmet need for spacing births as the outcome and informal and formal settlements as explanatory factors controlling for socio-demographic characteristics which were considered as possible confounders.

Table 3: Bivariate analysis on socio-demographic determinants of unmet needs for spacing births

Confounders	Explanatory Variable	Unmet need (%)	No unmet need (%)	Total (n)	OR	95% CI	P value
<25 years age group	Langas	18.6	81.4	124	2.2	1.0 – 4.6	0.04
	Uganda Road Estate	9.4	90.6	127			
<25 years at the time of marriage/union	Langas	10.5	89.5	219	1.9	1.0 – 3.9	0.06
	Uganda Road Estate	5.7	94.3	245			
Not married	Langas	38.1	61.9	63	3.7	1.5 – 8.8	0.002
	Uganda Road Estate	14.3	85.7	63			
Secondary and above (Respondent)	Langas	18.7	81.3	75	4.0	1.5 – 10.9	0.004
	Uganda Road Estate	5.4	94.6	110			
None or primary education (Partner)	Langas	21.7	78.3	106	3.6	1.5 – 8.8	0.003
	Uganda Road Estate	7.1	92.9	98			
Secondary and above (Partner)	Langas	0.6	99.4	158	0.1	0.01 – 1.01	0.04
	Uganda Road Estate	4.9	95.1	165			
Not employed (Respondent)	Langas	14.5	85.5	124	2.8	1.1 – 6.9	0.02
	Uganda Road Estate	5.8	94.2	121			
Employed (Partner)	Langas	10.3	89.7	232	1.9	0.9 – 3.8	0.08
	Uganda Road Estate	5.8	94.2	223			
Catholic/Muslim	Langas	11.4	88.6	158	2.0	0.9 – 4.4	0.07
	Uganda Road Estate	6.0	94.0	183			

The results of the odds ratio analysis indicate that age less than 25 years (OR: 2.2; 95% CI: 1.0 – 4.6; p = 0.04), being not married (OR: 3.7; 95% CI: 1.5 – 8.8; p = 0.002), respondent having attained secondary education and above (OR: 4.0; 95% CI: 1.5 – 10.9; p = 0.004), partner having had no or primary education (OR: 3.6; 95% CI: 1.5 – 8.8; p = 0.003) and respondent not being employed (OR: 2.8; 95% CI: 1.1 – 6.9; p = 0.02) are factors that are significantly associated with increased unmet need for spacing births among respondents from Langas. Having been less than 25 years at the time of marriage/union (OR: 1.9; 95% CI: 1.0 – 3.9; p = 0.06), partner being employed (OR: 1.9; 95% CI: 0.9 – 3.8; p = 0.08) and being a Catholic/Muslim (OR: 2.0; 95% CI: 0.9 – 4.4; p = 0.07) were marginally statistically significantly associated with increased unmet need for spacers from Langas. As mentioned above, respondents below 25 years of age

and those not married are unlikely to use contraceptives as they are in their childbearing age and most of them are newly married and expect to have children. Beguy et al (2017) in a study on FP among slum residents in Nairobi pointed out that use of modern methods of contraception was lowest among presently married females of 15 – 19 years with a CPR of 40 percent for any method.

Low level of education elevated unmet need for spacing births. Where a partner did not have any education or primary education, women from Langas were 3.6 fold increased need for spacing births. On the other hand, there was decreased unmet need for women from Langas where partner had attained at least secondary school (OR: 0.1; 95% CI: 0.01 – 1.01; p = 0.04). Respondents from Langas with a minimum of secondary education were four times more likely to have had unmet need for spacing births compared with those from Old Uganda Road Estate. Non use of contraceptives by respondents with secondary education could be attributed to disapproval of contraceptive use by their husbands as respondents from the informal settlement had a five-fold increase in having unmet need for spacing births. On the contrary, education exposes women to interactive opportunities with people from various cultural backgrounds from whom they learn new ideas such as using modern contraceptive methods for spacing births. Likewise, those from Langas who were not married were 3.7 times likely to have had unmet need as spacers unlike their counterparts from Old Uganda road estate. This disparity could have been caused by inadequate knowledge on contemporary FP methods, low levels of education and early exposure to sexual life within informal settlements leading to teenage pregnancies and increased abortion (UGCID 2013).

Lack of employment among Langas women also increased the odds for unmet need for spacing by 2.8 times while among those aged less than 25 years and residents of Langas had double increase in the odds of having unmet need for spacing. Unemployed women most of who stay in Langas informal settlements are not empowered economically and therefore cannot make independent decisions on FP method use like their counterparts from Old Uganda Road Estate. High user rates among employed women majority of who reside in formal settlements like Old Uganda road estate could be attributed to the many sources of information they are exposed to at their work place. In a related study, Tobe et al (2015), explained that housewives were 5 times more likely not to use contraception than those respondents who had other occupations (p = 0.02). Thematic analysis of qualitative data supported this outcome as a woman from Old Uganda Road said thus: *"Over seventy percent of women of reproductive age in this community are young adult women most of who are in formal employment and have to space their children".*

3.3.2 Past obstetric history factors that are associated with unmet needs for spacing births

The table below shows results on bivariate analysis on the association between unmet needs for spacing births and past obstetric history of respondents.

Table 4: Bivariate analysis on past obstetric history factors that are associated with unmet needs for spacing births

Confounders	Explanatory Variable	Unmet need (%)	No unmet need (%)	Total (n)	OR	95% CI	P value
Has ever been pregnant	Langas	1.8	98.2	226	0.5	0.2 – 1.9	0.3
	Uganda Road Estate	3.2	96.8	217			
Has not ever been pregnant	Langas	52.6	47.4	38	5.3	2.0 – 14.3	0.0006
	Uganda Road Estate	17.4	82.6	46			
≥4 previous pregnancies	Langas	42.6	57.4	47	5.8	2.3 – 14.9	<0.0001
	Uganda Road Estate	11.3	88.7	71			
Did not want to get pregnant	Langas	18.7	81.3	128	3.1	1.4 – 6.9	0.003
	Uganda Road Estate	6.8	93.2	146			
When got pregnant, wanted later	Langas	12.6	87.4	191	3.3	1.4 – 7.5	0.003
	Uganda Road Estate	4.2	95.8	191			
Menses has not resumed	Langas	52.6	47.4	38	5.3	2.0 – 14.3	0.0006
	Uganda Road Estate	17.4	82.6	46			
No history of previous miscarriage, abortion or stillbirth	Langas	17.9	82.1	123	2.8	1.3 – 6.1	0.01
	Uganda Road Estate	7.3	92.7	137			

Six past obstetric history variables were significantly associated with unmet need among women who were residents of Langas. Women who had not ever been pregnant and coming from Langas were 5 fold more likely to have had unmet need for spacing (OR: 5.3; 95% CI: 2.0 – 14.3; p = 0.0006). Qualitative analysis supported this outcome as a key informant's report from Langas put this into perspective: *"Most women from Langas who conceived unintentionally decided to give birth since it was their first pregnancy which they regarded as a blessing.*" (CHV L4). Ideally, the immediate desire of a woman in marriage is to give birth to children. More so, women who are married off early like in informal settlements have limited opportunity to plan and space births and therefore unlikely to use contraceptives to postpone pregnancy. They need to prove their fertility as soon as they are married (Asiimwe et al., 2012).

Having had at least 4 previous pregnancies increased the chances of unmet need by 6 times (OR: 5.8; 95% CI: 2.3 – 14.9; p < 0.0001). Those who did not want to get pregnant (OR: 3.1; 95% CI: 1.4 – 6.9; p = 0.003) and those who when they got pregnant wanted to get it later (OR: 3.3; 95% CI: 1.4 – 7.5; p = 0.003) were three-fold more likely to have had unmet need for spacing. Similarly, women from Langas whose menses had not resumed (OR: 5.3; 95% CI: 2.0 – 14.3; p = 0.0006) and those with no history of previous miscarriage, abortion or stillbirth (OR: 2.8; 95% CI: 1.3 – 6.1; p = 0.01) were 5 and 3 times increased odds of having unmet need for spacing. Coming from a background of informal settlement, these women may have lacked adequate knowledge on socio- economic and health benefits of contraception.

3.3.3 Bivariate analysis: association between respondent's attitude towards modern methods of contraception and unmet need for spacing births

The table below presents bivariate analysis results on the association between respondent's attitude towards modern methods of contraception and unmet need for spacing births.

Table 5: Bivariate analysis: association between respondent's attitude towards modern methods of contraception and unmet need for spacers

Confounders	Explanatory Variable	Unmet need (%)	No unmet need (%)	Total (n)	OR	95% CI	P value
Refusal by partner	Langas	16.4	83.6	134	3.5	1.5 – 8.2	0.002
	Uganda Road Estate	5.3	94.7	151			
Discuss with partner	Langas	1.0	99.0	199	0.2	0.05 – 1.19	0.09
	Uganda Road Estate	4.0	96.0	175			
Does not discuss with partner	Langas	33.9	66.1	65	5.1	2.1 – 12.5	0.001
	Uganda Road	9.1	90.9	88			
Discuss with partner less often	Langas	14.1	85.9	163	2.3	1.1 – 4.8	0.02
	Uganda Road Estate	6.6	93.4	181			
Husband approves use of FP method	Langas	1.0	99.0	199	0.2	0.05 – 1.19	0.09
	Uganda Road	4.0	96.0	175			
Husband does not approve	Langas	33.9	66.1	65	5.1	2.1 – 12.5	0.0001
	Uganda Road Estate	9.1	90.9	88			
Husband decides the number of children she should have	Langas	14.5	85.5	124	2.8	1.1 – 6.9	0.02
	Uganda Road Estate	5.8	94.2	121			
Others decide the number of children she should have	Langas	4.3	95.7	140	0.8	0.3 – 2.2	0.6
	Uganda Road Estate	5.6	94.4	142			

Several factors were significantly associated with respondent's attitude towards modern FP methods and unmet need for Langas respondents. Refusal by partner as main reason hindering use of FP methods increased the odds by 3.5 (OR: 3.5; 95% CI: 1.5 – 8.2; p = 0.002). Respondents who did not discuss with partners were also 5 times more likely to have had unmet

need (OR: 5.1; 95% CI: 2.1 – 12.5; p = 0.0001) with the odds reaching a maximum of 12.5. Similarly, respondents from the same informal settlement who less often discuss with partner were 2.3 times more likely to have had unmet need (OR: 2.3; 95% CI: 1.1 – 4.8; p = 0.02). Equally important were cases where husband did not approve where such respondents had a five-fold increase in odds of having unmet need (OR: 5.1; 95% CI: 2.1 – 12.5; p = 0.0001). Likewise, respondents from Langas who stated that their husbands decide the number of children she should have were almost 3 times more likely to experience unmet need for spacing births compared with mothers from Old Uganda Road Estate (OR: 2.8; 95% CI: 1.1 – 6.9; p = 0.02).

Qualitative analysis from both settlements showed that majority of women did not receive approval from their husbands to practice FP. Additionally; majority of women from Langas reported that their husbands are not aware of their FP status. Several admitted that their husbands/ partners did not know what type of FP method they were using. "*If my husband gets to know that I am using a family planning method it could easily cost my marriage" (Woman L 11).*The decision making power is vested in men in most patriarchal societies and as such they may not approve use of FP services where it is not condoned. Approval is therefore achieved through discussion with partner. Adebowale et al (2014), explained that a significantly smaller proportion of those who use FP with husband's approval experience difficulty in spacing deliveries (P =0.05).

3.4 Determinants of unmet need for limiting births (Comparison)

3.4.1 Socio-demographic determinants of unmet need for limiting births

Multiple logistic regression was performed where place of residence and socio-demographic characteristics were used as explanatory variables and unmet need for limiting births as outcome or response variable. The table below shows results on multiple regression on sociodemographic determinants of unmet need for limiting births

Table 6: Multiple logistic regressions on socio-demographic determinants of unmet need for limiting births

Characteristic	Estimate	Adjusted OR	95% CI	P value
Langas vs Old Uganda Road Estate	-2.4	0.1	0.03 – 0.31	0.0001
< 25 years of age vs >=25	-0.05	0.9	0.43 – 2.13	0.9
< 25 years of marriage/union vs >=25	0.8	2.3	0.27– 19.15	0.5
Married vs not married	-1.1	0.3	0.11 – 1.13	0.08
None or primary education of respondent vs At least secondary education	-0.6	0.6	0.25 – 1.31	0.2
None or primary education of partner vs At least secondary education	-1.7	0.2	0.06 – 0.62	0.006
Not employed vs employed	-0.6	0.5	0.21 – 1.43	0.2
Partner not employed vs employed	-0.6	0.5	0.10 – 2.85	0.5
Protestant/Traditional vs Catholic/Muslim	0.7	2.0	0.88 – 4.65	0.1
< 4 living children vs >= 4	1.4	4.3	0.51 – 36.15	0.2
Kalenjin vs non-Kalenjin	-0.3	0.7	0.25 – 1.95	0.5

After adjusting for other factors in the multivariate model, only one of the two socio-economic factors remains significantly associated with unmet need for limiting. After adjusting for other factors, place of residence (AOR 0.1; 95% CI: 0.03 – 0.31; p = 0.0001) and educational level (AOR 0.2; 95% CI: 0.06 – 0.62; p = 0.006) of respondent continue to decrease odds of unmet need for limiting births. Regarding place of residence and level of education, FP method use was higher in urban centres compared to informal settlements because urban centres have infrastructural such as Hospitals, better education and knowledge about contraception unlike in informal settlements.

3.3.5 Determinants of unmet need for spacing birth

3.3.6 Socio-demographic determinants of unmet need for spacing births

Table 7 shows multiple logistic regression results on socio demographic determinants of unmet need for spacing births.

Table 7: Socio demographic determinants of unmet need for spacing births

Characteristic	Estimate	Adjusted OR	95% CI	P value
Langas vs Old Uganda Road Estate	0.7	2.0	0.88 – 4.70	0.1
< 25 years of age vs >=25	2.9	17.6	4.13 - 74.85	0.0001
< 25 years of marriage/union vs >=25	-1.2	0.3	0.04 – 2.25	0.2
Married vs not married	-3.5	0.03	0.01 – 0.12	<0.0001
None or primary education of respondent vs At least secondary education	0.3	1.4	0.58 – 3.16	0.5
None or primary education of partner vs At least secondary education	-0.2	0.8	0.28 – 2.58	0.8
Not employed vs employed	-0.2	0.8	0.33 – 1.99	0.6
Partner not employed vs employed	0.4	1.6	0.26 – 9.29	0.6
Protestant/Traditional vs Catholic/Muslim	-0.03	1.0	0.37 – 2.53	0.9
Kalenjin vs non-Kalenjin	-0.1	0.9	0.29 – 2.60	0.8

Multiple logistic regression was performed where place of residence and socio-demographic characteristics were used as explanatory variables and unmet need for spacing births as the outcome or response variable. Two factors that were significantly associated with unmet need for spacing births were being less than 25 years of age (AOR 17.6; 95% CI: 4.13 – 74.85; p = 0.0001) and being married (AOR 0.03; 95% CI: 0.01 – 0.12; p <0.0001). Whereas being young increased the odds of having unmet need for spacing, being married decreased the odds of having unmet need for spacing births.

3.3.7 Attitudinal determinants of unmet needs for spacing births

The table below shows the results of multiple logistic regression on attitudinal determinants of unmet needs for spacing births.

Table 8: multiple logistic regression on attitudinal determinants of unmet needs for spacing births

Characteristic	Estimate	Adjusted OR	95% CI	P value
Langas vs Old Uganda Road Estate	0.7	2.1	1.01 – 4.28	0.05
Refusal by partner as main reason hindering use of FP method vs Other reasons	0.2	1.3	0.53 – 3.04	0.6
Discuss with husband FP methods vs Does not discuss	-2.1	0.1	0.05 – 0.29	<0.0001
Discuss often vs Not often	-1.2	0.3	0.10 – 0.87	0.03
Traditional/Cultural beliefs are not against use of FP methods vs Not against	-0.5	0.6	0.22 – 1.72	0.4
Husband decides number of children you want to have vs Others decide	0.4	1.4	0.68 – 3.00	0.3

Residents of Langas had increased odds (AOR 2.1; 95% CI: 1.01 – 4.28; p = 0.05) in terms of the proportion of respondents who had unmet need on attitudinal domain. On the contrary, those who discuss with husband FP methods (AOR 0.1; 95% CI: 0.05 – 0.29; p < 0.0001) and those who often discuss FP methods (AOR 0.3; 95% CI: 0.10 – 0.87; p = 0.03) had decreased odds of having unmet need for spacing births after controlling for confounders.

The decision making power is vested in men in most patriarchal societies and as such they may not approve use of FP services where it is not condoned. Approval is therefore achieved through discussion with partner. Adebowale et al (2014), explained that a significantly smaller proportion of those who use FP with husband's approval experience difficulty in spacing deliveries (P =0.05).

4.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

4.1 Summary

The current study results showed significant association between age, respondents/ partner's level of education, employment status, religious affiliation, number of living children and unmet need for limiting births. These outcomes favoured residents of Langas as opposed to Old Uganda road estate. Similarly the following factors were identified as being associated with respondents who desired to postpone childbirth but were not using contraceptive methods: age, marital status, education, employment status, never having been pregnant, number of previous pregnancies and husband's disapproval in favour of Old Uganda road estate. The lower odds of unmet needs for limiting births in favour of Langas could be elucidated by the fact that public health institutions providing free FP services in the informal settlements are supplemented by more private hospitals, many nongovernmental and community based organizations making FP services more

accessible. These organizations which include Mariestopes (reproductive health) and Tunza (Condom distribution and advocacy) conduct outreach and door to door campaigns in the informal settlement.

Whereas 14.5% of the non-spacers from Langas informal settlement were unemployed, only 5.8% of their counterparts from old Uganda Road Estate were unemployed. A quote from one CHV puts this into perspective: "*Most men in this estate are employed and believe they can support their families and as such do not support their spouses in FP matters" (CHV OUR 4)*. The number of existing children influenced contraceptive method use for those who desired to stop childbirth altogether. Those with less than 4 living children from Langas were less likely to have had unmet need for limiting births as women from informal settlements have limited financial ability to sustain big families hence the need to limit family size. Old Uganda Road residents are of higher socio economic status and therefore capable of sustaining more children. Nyauchi et al (2014), explained that women who had more than 5 children were more likely to have unmet need for limiting births than those with less than 5 living children. Furthermore, most of the respondents from Langas informal settlement belonged to Protestant denominations (40.2%) compared with their colleagues from Old Uganda Road Estate (30.4%). Protestants allow usage of birth control methods. Most of the respondents from Old Uganda Road Estate ere either Catholic or Muslim faithful that prohibits use of FP methods.

Despite the fact that education exposes women to interactive opportunities with people from various cultural backgrounds from whom they learn new ideas such as using modern contraceptive methods for spacing births, unmet need for spacing children was still high in Langas due to disapproval by husbands. Early exposure to sexual life, marriage at tender age and immediate desire for children by those who have never conceived further raised the odds for unmet need for spacing within the informal settlements. Those who had achieved 4 pregnancies were unable to space childbirth while those who when they got pregnant wanted it later were 3 fold more likely to have had unmet need for spacing compared to their counterparts from Old Uganda Road Estate. Coming from a background of informal settlement, these women may have lacked adequate knowledge on socio- economic and health benefits of contraception. Disapproval of contraceptive use and failure to discuss FP method usage among couples increased the proportion of those who did not use FP despite their desire to postpone pregnancy in Langas. Similarly those whose husbands decided the number of children they should give birth to were more prone to unplanned pregnancy compared with women from Old Uganda road estate. This is due to the patriarchal nature of our society.

Comparatively, respondents whose partners attained none or primary education from Langas informal settlement who wished to stop childbirth were more likely to practice contemporary means of contraception to prevent unintended pregnancy as opposed to their colleagues from Old Uganda Road Estate. However, this was not the case for those whose spouses had achieved at least secondary education. Respondents whose husbands decided on the number of children they should have were more expected to practice birth control compared with their contemporaries from Old Uganda Road Estate. Respondents below the age of 25 years who desired to postpone childbirth but were non users of contraceptives were more common in Langas informal settlement compared with Old Uganda Road. However, when rated against single women, those who were married and wished to postpone pregnancy but were non users of contraception were

less common in Langas informal settlement compared with Old Uganda Road Estate. The likelihood of having unintended pregnancy among those who wanted to delay childbirth but were not using birth control methods was higher among respondents from Langas informal settlement compared with their colleagues from Old Uganda Road Estate. On the contrary, those who discussed FP methods and those who discussed FP methods often and wanted to delay pregnancy were more likely to adopt contraceptive methods as this increased approval.

4.2 Conclusions

Factors associated with unmet need for modern contraception for women who wished to stop childbearing altogether included age, marital status, level of education, employment status and number of living children. Others were, fear of side effects and religious affiliation among others in favour of Langas informal settlements. Determinants of unmet need for modern contraception for women who desired to postpone deliveries were age, not being married, level of education, employment status of respondent and partner, not ever having been pregnant, previous pregnancies, wishing to have conceived later, husband disapproval and failure to discuss FP with spouse/ partner in favour of Old Uganda road estate.

Comparatively, determinants for unmet need that decreased the odds for those who wished to stop delivering children altogether were place of residence, level of education of partner, not wanting to get pregnant and husband deciding on the number of children that the spouse should have. On the other hand, determinants for unmet need for spacing births which resulted in increased number of non-users among respondents were place of residence, wishing to have conceived later and getting FP supply from hospital. On the contrary, being married, having ever been pregnant, discussing with husband about FP and discussing FP methods often reduced the number of non-users.

4.3 Recommendations

For residents of Old Uganda road estate the study recommended Health education on the benefits of Family planning methods, usage and side effects of the various methods. In addition to couple counseling at all service delivery points, adequate supply of the available methods in the market to all health facilities should be ensured to avoid stock outs in this community. It is recommended that all FP service providers in liaison with community health volunteers in this community should be tasked to implement this recommendation. Non-governmental organizations and community based organizations should supplement government interventions. Local administrators and village elders should discuss with husbands the importance of involving their spouses in decision making on the number of children that they want to have.

For residents of Langas informal settlement, Health education campaigns and awareness talks through community outreach and youth friendly services on the benefits of contraception for birth spacing were recommended. This should target youth below 25 years. Similarly, health education on available methods in the market, usage and side effects of such methods should target those who when they conceived wanted it to have occurred later. All FP service providers, community Health Workers and non-governmental organizations should work in liaison to implement these recommendations. The number of FP service providers be enhanced at all service delivery points in Langas informal settlement to ease overcrowding hence improving access to contraceptive services. This should be considered by the County health management

team. Finally husbands/ partners should be counseled on the importance of involving their spouses in decision making regarding birth spacing and the number of children they want to have. To achieve this FP service providers in this settlement, CHV's, local administrators and village elders should discuss with husbands and urge them to engage their spouses in FP matters.

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