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Social and Behavioural Determinants for Occurrence of Repeat Pregnancy among Adolescents in Suna East-Migori County, Kenya

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Abstract

Introduction: A repeat pregnancy at adolescent age often comes with much stress and complications. It feeds into a cycle of psychological trauma and socio-economic deprivation that compromises the life of the young mother and her child. Majority of girls might be having one child, but many more might be pregnant or having more than one child at adolescent age. **Methodology:** This was a cross-sectional analytic mixed-method study with semi-structured questionnaires administered to 381 adolescents drawn from 10 health facilities. Two FGD and 5 key informant interviews were also conducted within the study area. Quantitative data was analysed using t-test for continuous variables and Chi-square test for categorical data. Qualitative data was themed to describe the population's attitudes, patterns and opinions related to the study objectives. **Results:** Ethnicity significantly influenced occurrence of repeat pregnancy with adolescent girls from Luo ethnic group being 50% less likely to have repeat pregnancy. Adolescents who used condoms only sometimes were twice likely to report repeat pregnancy (OR: 1.7; 95% CI: 1.1 - 2.7; p = 0.01), while those whose mothers had a child while under 18 years had 50% chance of having a repeat pregnancy. Similarly, those who had more than two sexual partners had higher odds of repeat pregnancy (OR: 2.5; 95% CI: 1.1 - 5.6; p = 0.02). **Conclusion:** The study sought to investigate the association between social environment and behaviour of adolescent girls to occurrence of repeat pregnancy. It was based on Bandura's (1986) social cognitive theory (SCT) that explains how human behaviour is a reciprocal interaction between the person, behaviour and the social environment. The study noted that as much as adolescent pregnancy is generally considered a social, economic and behavioural phenomenon, there was little influence by individuals around an adolescent, adolescent past-experience, future expectation, social surrounding and reinforcements in life of a teenager. However, a few factors such as ethnicity,

level of support and condom use significantly influenced occurrence of repeat pregnancy among adolescents.

Keywords

Adolescent, Pregnancy, Fertility, Contraception, Gender-Based-Violence

1. Introduction

Adolescent repeat pregnancy is defined as any pregnancy that occurs following a previous pregnancy, childbirth, abortion or a miscarriage. Contrary to the common belief, not all adolescent pregnancies are first births. Adolescents who have begun early childbearing are at a higher risk of experiencing another pregnancy [1].

In Kenya, 15% of women aged 15 - 19 have ever been pregnant. Out of these 12% have had a live birth, 1% had a pregnancy loss, and 3% are currently pregnant. The demographic surveys indicate that the percentage of women aged 15 - 19 who have ever been pregnant increases with age, from 3% at age 15 to 31% among age 19 [2].

According to a government fact sheet, half of women in Migori had their first sex at 16 years. An equal proportion aged 25 - 49 years got married by the age of 17 [3]. This suggests a possible higher rate of repeat pregnancies. The county was among the top 7 counties with the highest prevalence of adolescent pregnancy at 24%.

Despite the far-reaching effects of adolescent pregnancy and the worse implications of repeat pregnancies, there are gaps in understanding the factors related to occurrence of a second or higher-order pregnancy during adolescence [4].

1.1. Significance of the Study

According to Maravilla *et al*. (2017) [5], there is lack of literature on repeat pregnancy in Kenya. The United States, Europe, Australia and Asia have provided most of the primary data on repeat pregnancies. In Africa, some of the studies have been conducted in South Africa with a few in Uganda. For instance, in South Africa, the study investigated the prevalence of adolescent repeat pregnancy in an urban setting, while a second study investigated repeat pregnancy-associated factors in Uganda [6].

Migori County launched a very progressive Adolescent and Youth Multi-sectoral Action plan that offered approaches in tackling adolescent issues. Expectedly, adolescent pregnancy forms a key priority area in the roadmap, but the document gives much emphasis on "yet-to-be mothers" leaving out the adolescents who are already mothers. Specifically, the Action Plan lacks data on repeat adolescent pregnancies and no approach has been suggested to cater for the needs of this cohort of adolescents [7].

This study envisioned to broaden the scope of focus beyond primary prevention

of adolescent pregnancy and give deeper understanding of the prevalence and factors associated with repeat pregnancies among adolescents. Further, the study intended to give more data to help design interventions for adolescents with more than one pregnancy, not only in Migori but also in other counties with the similar context and problem.

1.2. Aim of the Study

The main objective of this study was to investigate social and behavioural determinants for occurrence of repeat pregnancy among adolescents in Suna East of Migori County.

1.3. Research Hypotheses

1) H_o: There is no association between the behavior of adolescents following the first pregnancy and the occurrence of repeat pregnancy.

2) H_o: There is no relationship between social environment factors and the occurrence of repeat pregnancy among adolescents.

2. Materials and Methods

2.1. Study Design

This was a cross-sectional mixed-method study conducted between August to October 2023 and aimed to identify the social and behavioural factors that determines the occurrence of a repeat pregnancy among adolescents. The quantitative approach helped to numerically determine the factors related to occurrence of repeat pregnancy while qualitative approach was used to describe the population's attitudes, patterns and opinions related to the study objectives.

2.2. Study Setting

The study was conducted in Suna East Sub-County of Migori County. Situated in the South Western part of Kenya, the subcounty is the most demographically, it is the most demographically cosmopolitan and holds the largest part of Migori Town, which is the County Headquarters. According to the Kenya National Bureau of Statistics National Census data of 2019, Suna East had a total population of 122,674 with 58,977 being Male and 63,694 Females. The population density is 353 per square kilometre and 43% of the population live below the poverty line. The age distribution was 0 - 14 years 49%, 15 - 64 years 48% and over 65 years 3%. The adolescent and Youth population (10 - 19 years) is 24%. The sub-county is burdened with increasing rates of unintended pregnancy among adolescents, rising cases of new HIV infection, early forced marriages, harmful cultural practices such as female genital mutilation (FGM) and school dropouts (NAYS, 2015) [8].

2.3. Study Subjects

The study targeted adolescent girls aged 10 - 19 years with single or repeat pregnancy attending health facilities in Suna East Sub-County. For quantitative interviews,

adolescent girls aged 10 - 19 years who had experienced single or repeat pregnancy, births, abortion or other forms of pregnancy loss were considered for interview. Only adolescents residing in Suna East and were ready to give consent were included in the study. Adolescents below 18 years were only included after the parents written consent.

The study excluded adolescents who had just undergone termination of pregnancy or were being prepared for such a procedure. This is because the questionnaire had sensitive questions that were related to current pregnancy practices and post-delivery support that would have appeared sensitive to such adolescents. The study also excluded adolescents who were eligible but presented with medical diagnosis or signs of mental alterations.

For stakeholders and parents participating in key informant interviews (KIIs) and focus group discussions, the study considered only parents or caregivers with an adolescent between 10 - 19 years who had eligible adolescents. The parents or caregivers had to be from Suna East and ready to give consent to participate in the study. The stakeholders participating in KII had to be working within Suna East and affiliated to an organization or agency recognized by the government. Further, they had to be actively engaged or supporting programs related to adolescents. They also had to be willing to consent to participate in the study.

2.4. Sampling Procedure

Based on the 2023 annual estimates for ante-natal attendance in Suna East, a total of 7300 adolescent girls were to attend the various facilities. This formed the target population for quantitative interviews. Using Fischer's (1998: p. 1) formula, this gives a sample size of 365. To cater for possible refusals and any drop outs, an additional 10% was added to bring the sample size to 402. Systematic selection of pregnant adolescents was conducted at a county referral hospital, one Sub-County Hospital, 10 health centres. For the three months of data collection, a total 2000 adolescents were expected to be attended to in the selected health facilities. Dividing this expected total with the final sample size of 402, every 5th adolescent who qualified to be in the study was selected. On average, from each of the seven health facilities sample, about 57 adolescents were interviewed. The process of systematic sampling was followed until the required number of participants was obtained in each health facility.

For focus group discussion (*FGD*) with adolescent girls, 2 mixed groups of adolescents with single or repeat pregnancy were selected to participate. Adolescents who had participated in any other face-to-face interview sessions were excluded from FGD. Each group had between 8 - 12 participants. The two groups were drawn from the referral and sub-county hospitals. For FGD with parents and caregivers, a minimum of 2 parents were purposively selected from each ward within Suna East Sub-County. The participants were strictly those who were parents to or living with pregnant adolescents or those with a history of pregnancy. An FGD questionnaire was administered and each session took less than 2 hours.

For key informant interviews (*KIIs*), the study targeted key individuals with specific roles in adolescent health and working within Suna East Sub-County. A total of 5 key leaders were interviewed. A questionnaire was administered to guide the sessions and each session took less than 1 hour.

2.5. Data Collection

An appropriate questionnaire was adapted from Health Policy Research Group in the University of Nigeria (Enugu Campus). The questionnaire was reviewed and customized to suit the context. The final questionnaire was then translated into Dholuo and Kiswahili. Additionally, the study adopted the multidimensional scale of perceived social support (MSPSS) by Leigh (2019), life satisfaction scale by Huebner (1994) and family functioning assessment tool by Butler (2015), to help explore on other mediating factors as predictors to the occurrence of a repeat pregnancy.

For FGD, open ended questions were applied to help give a broader understanding of the factors associated with occurrence of repeat pregnancy. The questions elicited participants feeling about adolescent pregnancy, personal experiences, decision making and how the community treats the issue of adolescent pregnancy. The questions for KII sought to get the views of key stakeholders with regard to adolescent repeat pregnancy. The open-ended questions explored stakeholder view on adolescent pregnancy, support for the adolescent girls who get pregnant or have children and policy environment for adolescent with single and repeat pregnancy.

2.6. Data Management

Data collection: 8 research assistants participated in data collection. Data was collected in public health facilities. Community focal persons supported in mobilization of participants for FGD and KII. For Data Privacy, the research assistant signed confidentiality agreement and unique codes were assigned to every client to preserve their identity. All client data was entered into encrypted personal computers with passwords and data for all clients was published in aggregates without mentioning individual details.

Data analysis: Data was entered in statistical software, SPSS Version 16 and coded. The factors related to occurrence of a repeat pregnancy were determined using t-test for continuous variables while other categorical data were analysed using Chi-square test. All data were analysed based on 3 categories of socio-demographic characteristics, behavioural factors and social environment. All statistical tests were performed at 95% level of significance. Multivariate logistic regression was used to examine the predictors of repeat pregnancy.

2.7. Validity and Reliability of the Tool

Validity refers to the degree to which the data collected accurately depicts the study's variables while reliability is measured by checking whether the tool consistently

produces similar data or outcomes after multiple trials. The study tool was validated through quantitative and qualitative test analysis. For reliability, the questionnaire was tested using pilot study results conducted at the neighbouring County and Cronbach's alpha of more than 0.8 was determined.

2.8. Ethical Consideration

The study was submitted and approved by an Institutional Review Committee. Each study participant was given adequate information about the study before administering the questionnaire. All study respondents participated under voluntary informed consent while minors aged below 18 years, were only interviewed after their assent or parental/guardian consented to their participation. The rights to withdraw from the study at any stage and freedom to decline to answer all or part of the questions was guaranteed. Assurance of anonymity and safety was emphasized to clients before engaging in the study. All respondents were identified by a unique code and personal data could only be accessed by the researcher to ensure confidentiality of the respondents.

3. Results

3.1. Socio-Demographic Profile of Adolescent Respondents

Majority of the respondents (97.6) were aged between 15 - 19 years with a mean age of 18.2 and a SD of ± 1.0 and a range of 12.0 - 19.0. More than half (53.0% were married compared to 45.9 who were single. The proportion of those with primary (48.0%) and secondary (47.0%) education was comparable. The respondents were predominantly Christians (98.2%) and were rural residents (90.8%). Nearly three-quarters (73.2%) were of Luo ethnicity. Majority (76.9%) indicated that they were unemployed. Most of those who were working had been on the job for more than 12 months (47.7%) with majority (90.0%) making own decision on how to spend their income.

3.2. Relationship between Socio-Demographic Characteristics of Respondents and Repeat Pregnancy

Table 1. Relationship between socio-demographic characteristics of respondents and repeat pregnancy.

Independent Variable	Categories	n	Repeat Pregnancy		OR	95% CI	p-value
			Yes	No			
Age in years	<18	80	67.5	32.5	0.9	0.5 - 1.5	0.65
	≥18	301	70.1	29.9			
Marital status	Single	175	71.4	28.6	1.2	0.7 - 1.8	0.46
	Married/Others	206	68.0	32.0			
Level of education	None/Primary	191	73.3	26.7	1.4	0.9 - 2.2	0.11
	Secondary and above	190	65.8	34.2			

Continued

Residence	Rural	346	69.4	30.6	0.9	0.4 - 1.9	0.80
	Urban	35	71.4	28.6			
Ethnicity	Luo	279	66.3	33.7	0.5	0.3 - 0.9	0.02
	Other tribes	102	78.4	21.6			
Employment	Not working	293	70.3	29.7	1.2	0.7 - 1.9	0.56
	Working	88	67.1	32.9			
Who decides on how you spend your income	Self	80	67.5	32.5	0.9	0.5 - 1.5	0.65
	Others	301	70.1	29.9			

Table 1 shows results on the relationship between socio-demographic characteristics and repeat pregnancy. Out of 381 respondents, 69.3% had experienced repeat pregnancies. Among the socio-demographic characteristics that were considered, ethnicity was associated with occurrence of repeat pregnancies, where females from Luo tribe were 50% less likely to have reported repeat pregnancies compared to their counterparts from other tribes within the study area (OR: 0.5; 95% CI: 0.3 - 0.9; p = 0.02). Although not statistically significant, level of education was another important factor in the findings. Respondents with none or primary education level were up to 2.2 times more likely to have had repeat pregnancies than those with higher level education (p = 0.11).

3.3. Relationship between Living Arrangement, Family Characteristics and Repeat Pregnancy

Table 2 presents study findings on the relationship between living arrangement, family characteristics and repeat pregnancy. There was borderline significant relationship between adolescents whose mothers had the first child at less than 18 years and repeat pregnancy. Adolescents of such mothers were 50% less likely to have reported repeat pregnancy (OR: 0.5; 95% CI: 0.3 - 1.0; p = 0.06). While not statistically significant, adolescents who were currently staying with their mothers were less likely to have reported repeated pregnancy (p = 0.08). Again, even though not statistically significant, adolescents who reported that they all sleep in the same room with parents were up to seven times more likely to have experienced repeated pregnancy (p = 0.41).

Relatedly, qualitative interviews also explored the association between family environment and occurrence of repeat pregnancy. Poverty and inability by parents to provide adequately for the girls featured prominently among adolescents and parents as a factor that pushes girl into risky sexual behaviors. The Adolescent girls who were interviewed felt that parents were not mindful of their needs while parents feel under pressure to meet their own needs and that of their babies.

"*It is a big burden. Parents are paying school fee and at the same time trying to meet the needs of the girl and her baby. It becomes more difficult when she has more than one child at home. That is why we prefer she gets married so that the*

man can provide for their needs" said a parent participant (ID PR 004).

There were also issues of culture and negative perception from the society where parents disowned girls who became pregnant. Such girls were seen as outcasts subjecting them mental anguish. This is particularly worse for adolescent girls with two or more children who are commonly seen as a disgrace to the family.

"*In our culture, such girls can not be married as first wives. They are usually married a second or* 3rd *wife or get married to an old man. They are seen as a disgrace and this also makes our girls to lose focus and become miserable*" said a parent respondent (ID PR 002).

Table 2. Living arrangement and repeat pregnancy.

Independent Variable	Categories	n	Repeat Pregnancy		OR	95% CI	p-value
			Yes	No			
Family living room arrangement	Children live in a separate room	17	70.6	29.4	1.0	0.4 - 3.1	0.92
	Other arrangements	364	69.5	30.5			
Have siblings	Yes	356	68.8	31.2	0.6	0.2 - 1.5	0.24
	No	25	80.0	20.0			
Has other siblings under 20 with child	Yes	84	72.6	27.4	1.2	0.7 - 2.1	0.49
	No	297	68.7	31.3			
Approximate age of mother when she had first child	<18 years	42	57.1	42.9	0.5	0.3 - 1.0	**0.06**
	≥18 years	339	71.1	28.9			
Whom currently stays with	Stays with mother	43	58.1	41.9	0.6	0.3 - 1.1	0.08
	Others: both parents, alone, father, etc.	338	71.0	29.0			
Family sleeping arrangement	We all sleep in the same room with parents	16	81.2	18.8	1.9	0.5 - 7.0	0.41
	Other sleeping arrangements	365	69.0	31.0			
Main source of income	None	91	71.4	28.6	1.1	0.7 - 1.9	0.66
	Employed, Self-employed	290	69.0	31.0			

3.4. Relationship between Potential Partner, Family Support and Repeat Pregnancy

Table 3 displays results on the relationship between potential partner, family support and repeat pregnancy. Only one independent variable on potential partner and family support had a statistically significant association with adolescent repeat pregnancy. Respondents who rated support they get from partner as inadequate were twice as likely to report repeat pregnancy as opposed to their counterparts who thought the support was adequate (OR: 2.1; 95% CI: 1.0 - 4.3; p = 0.04). This was also noted by key informants who indicated that most parents had abdicated their roles and are no longer present in the lives of their girls. The study underscored that the pressing need for the adolescent girls to fend for themselves and their babies pushed them into transactional sex with men. Majority of the girls

said they got pregnant for a second or third time to help them keep the man responsible for the preceeding pregnancy, largely for financial support.

"W*hat else could I do*? *The child needed a lot of things and didn't have any way to support her. I had to remain close to my boyfriend so that he could continue to support us. That is how I got my second born*" said adolescent respondent (ID AR 005).

Table 3. Relationship between potential partner, family support and repeat pregnancy.

Independent Variable	Categories	n	Repeat Pregnancy		OR	95% CI	p-value
			Yes	No			
Source of income for current partner	None	65	67.7	32.3	0.9	0.5 - 1.6	0.72
	In school, employed, business	316	69.9	30.1			
Kind of support getting from current partner	None	42	69.1	30.9	1.0	0.5 - 1.9	0.94
	Money, goods	339	69.6	30.4			
Rating of support received from partner	Inadequate	54	81.5	18.5	2.1	1.0 - 4.3	**0.04**
	Adequate	327	67.6	32.4			
Has received any motivation or advice from anyone to get pregnant again	Yes	128	71.1	28.9	1.1	0.7 - 1.8	0.64
	No	253	68.8	31.2			
Who motivated you?	Partner	81	66.7	33.3	0.8	0.5 - 1.4	0.52
	Parents, Friends, Relatives	300	70.3	29.7			

3.5. Relationship between Sexual Violence and Abuse and Repeat Pregnancy

Table 4 shows results on the relationship between sexual violence and abuse and repeat pregnancy. Whereas none of the independent variables examined had any significant relationship with the outcome, adolescent reporting any form of violence or abuse as contributor to any of the pregnancies were up to five times higher odds of experiencing repeat pregnancy (OR: 1.9; 95% CI: 0.7 - 5.2; p = 0.2). Similar sentiments were shared during FGD where it was noted that violence within the family was also a major factor propagating occurrence of repeat pregnancies.

"*My father used to drink alcohol a lot and would beat us together with our mother. We ran away and stayed together at Oruba slums in Migori. Life became difficult and I had to drop out of school in class seven. I then resorted to getting married to my boyfriend and now I have two children*" said adolescent respondent (ID AR 008).

Whereas most adolescent girls interviewed reported bad experiences during pregnancy and delivery, it did not stop them from getting pregnant again. From the interviews, psychological stress was the most experienced form of violence among adolescents. Surprisingly, this was not a deterrent factor in the occurrence of a repeat pregnancy. Even though:

"*My pregnancy was very stressful. My father was harsh and disowned me.*

Labour became complicated and I was done caesarean section and the wound took long to heal and sometimes it could ooze pus. After I healed, we started having sex again with my boyfriend. I was not on any family planning method and I soon got pregnant again after one year" said adolescent girl during focused group discussion (ID AR 006).

Table 4. Relationship between sexual violence and abuse and repeat pregnancy.

Independent Variable	Categories	n	Repeat Pregnancy		OR	95% CI	p-value
			Yes	No			
Have you experienced any form of violence from your parents or partner?	Yes	209	72.2	27.8	1.3	0.9 - 2.0	0.21
	No	172	66.3	33.7			
Form of violence experienced	Physical	84	66.7	33.3	0.8	0.5 - 1.4	0.51
	Sexual, Verbal, Emotional	297	70.4	29.6			
Did the form of violence contribute to any of the pregnancies	Yes	26	80.8	19.2	1.9	0.7 - 5.2	0.20
	No	355	68.7	31.3			

3.6. Relationship between Sexual Debut, Sexual Relationships and Repeat Pregnancy

Table 5 presents results on Relationship between sexual debut, sexual relationships and repeat pregnancy. There was significant association between number of sexual partners and the reason for having more than one sexual partner to the occurrence of repeat pregnancy. Adolescents who had more than two sexual partners had significantly higher odds of repeat pregnancy than those how had one or two (OR: 2.5; 95% CI: 1.1 - 5.6; p = 0.02). More importantly, adolescents who had more than one sexual partner for upkeep and support were almost three times more likely to have experienced repeat pregnancy than those whose reasons were for sexual pleasure, peer pressure, among others (OR: 2.8; 95% CI: 1.1 - 7.5; p = 0.03). Notably, respondents who attributed what prompted them to start having sex at that age to peer influence from friends and peers were up to two times more likely to have reported repeat pregnancy, results being non-significant (p = 0.26).

During qualitative interviews, both parents and the adolescents interviewed in the focus group discussions agreed that starting sex early is a factor that can make a girl to have more than one pregnancy while still young.

"*While in grade six, my elder sister used to bring her boyfriends at night to where we used to sleep. Our parents were sleeping in a separate house and we were two ladies sleeping together. Sometimes the boy could bring her gifts and spend the nights in our room. I got persuaded to also get a boyfriend and that is how I got pregnant the same year. I then got married a year later and now I have* 2 *children*" said an adolescent mother (ID AR 008).

Though non-statistically significant, there was an association between being still in active sexually relationship and repeat pregnancy where such adolescents

were almost up to three time as likely to have reported repeat pregnancy as those who were not in active relationship (p = 0.21). Perhaps this is related to the fact that a significant number of the adolescents interviewed were already married (54%).

Table 5. Relationship between sexual debut, sexual relationships and repeat pregnancy.

Independent Variable	Categories	n	Repeat Pregnancy		OR	95% CI	p-value
			Yes	No			
Age at which sexual intercourse was started	<15 years	224	68.7	31.3	0.9	0.6 - 1.4	0.68
	≥15 years	157	70.7	29.3			
What prompted you to start having sex at that age	Influence from friends and peers	233	71.7	28.3	1.3	0.8 - 2.0	0.26
	Sexaul abuse, personal needs, etc	148	66.2	33.8			
Still in active sexual relationship	Yes	328	70.7	29.3	1.5	0.8 - 2.7	0.21
	No	53	62.3	37.7			
Number of sexual partners	More than two	50	84.0	16.0	2.5	1.1 - 5.6	**0.02**
	One or two	331	67.4	32.6			
Reason for having more than one sexual partner	For upkeep and support	35	85.7	14.3	2.8	1.1 - 7.5	**0.03**
	Sexual pleasure, peer pressure	346	67.9	32.1			
Approximate age gap between you and your partner	< 5 years	147	64.6	35.4	0.7	0.4 - 1.1	0.10
	≥ 5 years	234	72.6	27.4			
Still in a relationship with the partner responsible for the pregnancy	Yes	210	70.0	30.0	1.0	0.7 - 1.6	0.83
	No	171	69.0	30.1			
Reasons for separation	Disagreements	90	67.8	32.2	0.9	0.5 - 1.5	0.67
	He is in school, he is married, abuses	291	70.1	29.9			

3.7. Relationship between Adolescent Risky Behavior and Repeat Pregnancy

Table 6 shows results on the relationship between individual risky behaviours and repeat pregnancy. Adolescents who used condoms just "sometimes" with sexual partners were about twice as likely to report repeated pregnancy compared to their colleagues who used condom every time or never used at all (OR: 1.7; 95% CI: 1.1 - 2.7; p = 0.01). Non-use of condom can be attributed to pressure from male counterparts. The adolescent girls interviewed during focused group discussion said most men do not prefer using condom and they feel girls do not trust them when they refuse sex without a condom. They pile pressure on the girls and sometimes threaten to dump them. This makes the girls to give into sex without condom which eventually leads to pregnancy.

"*One time I insisted on him using a condom. He became violent and beat me up. He chased and locked me out of his house in the night. I had to beg him to let me in since it was late and I could not go back home. We then did sex without a*

condom and I feared asking him to use a condom any other time. I later became pregnant while in form two" said an adolescent respondent (ID AR 011).

Similarly, those who had been in multiple sexual relationship in life had higher odds of experiencing repeat pregnancy (OR: 1.7; 95% CI: 1.1 - 2.6; p = 0.02). Though not statistically significant, adolescents who had been to nightclubs or discos and those who had been involved in drug abuse were up to 2.2 (p = 0.13) and 2.9 (p = 0.35) odds of experiencing repeated pregnancy than their counterparts, respectively.

Table 6. Relationship between individual risky behavior and repeat pregnancy.

Independent Variable	Categories	n	Repeat Pregnancy		OR	95% CI	p-value
			Yes	No			
Frequency of condom use with sexual partner	Sometimes	242	74.0	26.0	1.7	1.1 - 2.7	**0.01**
	Every time, not at all	139	61.9	38.1			
Has courage to refuse sex or ask partner to use condom	Yes	208	71.6	28.4	1.2	0.8 - 1.9	0.33
	Somehow, No	173	67.1	32.9			
Has had sex with a stranger	Yes	79	69.6	30.4	1.0	0..6 - 1.7	1.00
	No	302	69.5	30.5			
Has been in multiple sexual relationships in life	Yes	215	74.4	25.6	1.7	1.1 - 2.6	**0.02**
	No	166	63.2	36.8			
Has been to nightclubs or discos	Yes	170	73.5	26.5	1.4	0.9 - 2.2	0.13
	No	211	66.4	33.6			
Has been involved in drug abuse	Yes	45	75.6	24.4	1.4	0.7 - 2.9	0.35
	No	336	68.7	31.3			
Has been taking alchohol	Yes	36	75.0	25.0	1.3	0.6 - 3.0	0.46
	No	345	69.0	31.0			

It is important to note that another important finding during focused group discussion was related to Personal choices, individual preferences and outcome of previous pregnancy. Adolescent girls who had done an abortion reported that there was pressure from their male partners to confirm whether they were still fertile after the procedure.

"*My boyfriend used to tell me that sometimes girls become barren after an abortion. He had put a lot of pressure and he also promised to support the child. That is why I didn't use any family planning method and I soon became pregnant.*" Said an adolescent participant (ID AR 001).

3.8. Determinants for Occurrence of Repeat Pregnancy

Table 7 shows multiple logistic regression analysis on determinants of repeat pregnancy. The results indicated that Ethinicity (aOR: 0.5; 95% CI: 0.3 - 0.9; p = 0.03), Frequency of condom use with sexual partner (aOR: 1.8; 95% CI: 1.0 - 3.0; p =

0.04) were significantly associated with occurrence of repeat pregnancy. The association between approximate age of mother when she had first child and repeat pregnancy among adolescents after controlling for confounder resulted in marginal statistical association with the outcome (p = 0.06). Lower-level education and irregular (sometimes) use of condoms with sexual partner increased the chances of adolescent experiencing repeat pregnancies while the younger the age of the mother when she had first child decreased the odds of adolescent females reporting repeat pregnancies.

Table 7. Multiple logistic regression analysis on determinants of repeat pregnancy.

Independent Variable	Estimate	OR	95% CI	p-value
Level of education	0.5510	1.7	1.0 - 2.9	0.03
Ethnicity	−0.6369	0.5	0.3 - 0.9	0.03
Frequency of condom use with sexual partner	0.5679	1.8	1.0 - 3.0	0.04
Approximate age of mother when she had first child	−0.6834	0.5	0.2 - 1.1	0.07

4. Discussion

4.1. Association between Social Environment and Occurrence of Repeat Pregnancy among Adolescents

From the socio-demographic data, ethnicity was significantly associated with occurrence of repeat pregnancy. Adolescent girls from Luo tribe were 50% less likely to have repeat pregnancies compared to their counterparts from other tribes within Suna East. This finding can be attributed to cultural practices such as rites of passage activities like female genital cut (FGC). The Luo tribe does not particularly practice female genital cut (FGC) while other dominant tribes like Kuria and Somalis living in Suna East regard FGC as a rite of passage. As such, girls who have undergone the rite, are given an early sense of womanhood and are ready for marriage and childbearing. This exposes the girls to having more than one child when they are still young and contributing to the worrying statistics of repeat pregnancies among adolescents.

While conducting a study by on the influence of female genital cut (FGC) and school retention, Magangi (2013) [7] confirmed that female Genital Cut was a major contributor to early marriage among the Kuria and Somali tribes. Thus, girls who have undergone the cut are generally regarded as women and they get married off. Early marriage often leads to early pregnancies and this adds to the statistics of adolescent pregnancies. This was confirmed by another study conducted among the Maasai girls in Kajiado County, Kenya, which alluded to the influence of certain cultural practices such as FGM, and the freedom that the practice accords young girls. It indicated that such practices expose girls to early sex, which often culminates in teenage pregnancy [9]. FGM can be argued to socially legitimize early sex and accommodation/tolerance of teenage pregnancy within the community.

In addition, the traditional sleeping arrangements in communities such as the Kuria in Migori, which sets big boundaries between daughters and fathers, also expose girls to sexual exploitation by men who are culturally "allowed" to wander in and out of the sleeping quarters of girls. This practice takes a worse turn of sexual violence and exploitation because of the male dominance in some of these communities. It is deemed that girls do not have the right to "refuse sex" once a man has stepped into their sleeping area [7].

A similar study conducted in Aberdeen, Scotland noted that cultures that tolerate or encourage young parenthood contribute significantly to repeat adolescent pregnancy. In such cultures, a teenager who gives birth is never rebuked but is seen to be in line with past generational rite of passage [10]. In such tolerating societies, young mothers are taken care of by parents, hence encouraging the yet-to-be mothers and adolescent who are already mothers to get pregnant again. This might be the case among some communities in Migori where such girls are celebrated as having proven that they are fertile.

Although not statistically significant, respondents with none or primary education level were up to 2.2 times more likely to have repeat pregnancies compared to those with higher level education ($p = 0.11$). Uromi (2014) [11] revealed that girl's education is the most important factor in pregnancy prevention. It was argued that education empowers a girl to make important day-to-day decisions. In addition, education enables one to make decisions about family planning, postponement of marriage and when to make sexual relationships. An interview with key stakeholders in Migori also affirmed that if more girls would get to higher education, less teen pregnancies would be realized.

"*The problem is with parents who do not see the need to educate girls. They do not know that when girls get educated, they are empowered not to fall into the trap of repeat pregnancy. Even girls who dropped out of school due to pregnancies should be given a chance to complete their education*" said the county adolescent coordinator (ID KII 05).

On a similar note, Akella and Jordan (2015) noted that education is a protective factor, and revealed that childbearing is more likely among teenagers with lower education attainment compared to their age mates who have attained higher education [12]. The study affirms that higher level of education enables girls to have more focus and can reason well before engaging in sex.

This study also found significant relationship between level of support for the adolescents and the age of her mother when she first had her pregnancy, as being related to occurrence of a repeat pregnancy. Respondents who rated the support they get from their partner as inadequate were twice as likely to report repeated pregnancy as opposed to their counterparts who perceived the support was adequate (OR: 2.1; 95% CI: 1.0 - 4.3; $p = 0.04$). This study attributes this to the need to get additional support to supplement what they are getting from their partners. Because of this, most adolescent mothers will be pushed to engage in risky sexual behaviour for financial help. Expectedly, majority of the respondents (82.4%)

indicated that they received monetary support from the partners who also encouraged them to get pregnant again. About 63.3% got this motivation from their sexual partners while only 5.5% got such an advice from their parents.

There was borderline significant relationship between adolescents whose mothers had the first child at less than 18 years and repeat pregnancy. Adolescents of such mothers were more than 50% likely to have repeat pregnancy. Correspondingly, Wall-Wieler *et al*. (2017) [13] alluded those adolescent girls who had at least one older sister or mother who experienced a pregnancy before the age of 20, had a higher risk of becoming pregnant between the ages of 14 to 19 years. A study in South Africa on the Association between Household and Community Single Motherhood and Adolescent Pregnancy in South Africa, confirmed the likelihood of daughters of such mothers suffering the same fate and becoming pregnant early in life [14].

This was also confirmed during qualitative interviews.

"*Two of my daughters have become pregnant while still in school. This is not good at all and their father thinks am the one encouraging them to get pregnant because I also got pregnant when I was young. That is not the case*." Said a female parent during parents' interview (ID PR 002).

4.2. Association between Behaviour of Adolescents and the Occurrence of Repeat Pregnancy

The study found significant relationship between having multiple sexual partners and lack of condom to the occurrence of repeat pregnancy. Adolescents with two or more sexual partners had higher odds for repeat pregnancy. Whereas only 20.7% confirmed to having ever had sex with someone they did not know so well, 56.4% agreed to have had multiple sexual partners at any given time. Interestingly, 54.6% of the respondents said they had the courage to refuse sex or ask a partner to use a condom, but most of them said they only did this when they felt they are unsafe and at risk of getting pregnant. Majority (59.3%) alluded that this is driven by financial need with only a small proportion doing it for sexual pleasure.

The present findings underscore how socio-economic vulnerability is associated with unplanned pregnancy and poor adolescent reproductive health outcomes. It is possible that adolescents in Suna East who have multiple sexual partners are less likely to practice safe sex, making it easy for them to have unintended pregnancy. This finding relates to themes from Uganda and other countries in the East African region where young women engage in transactional sex with older male partners in exchange for school fees, pocket money and basic necessities [6].

Regarding condom use, data in this study revealed that adolescents who had ever used male condom were 60% less likely to have repeat pregnancy compared to those who had ever used other methods. Remarkably, 63.5% of adolescents reported using condoms only sometimes and 32.6% not using it at all. George *et al*. (2019) [15] affirmed that condom use among the adolescents is the most effective behavioural methods for the prevention of HIV and unplanned pregnancies.

However, the prevalence of condom non-use among adolescents is low. For instance, in South Africa, it was estimated to be lower than 60% and the researcher alluding that though many young people are sexually active, condom use was inconsistent.

This study confirmed gaps in condom use during FGD with adolescent girls, where condom use is seen as boy's duty and girls are never bothered to carry or discus more about it during sexual activity.

"*The Female condoms that is meant for us is never available and most of us don't know how to use it. As a girl, I have no control on condom use. I cannot go to the shop and buy a condom. People will see me as immoral. We leave it to men but they also feel that we do not trust them when we insist that they have to use them*" said an adolescent mother, 17 years (ID AR 004).

5. Strengths and Limitations of the Study

Strengths: The study drew its strength from the mixed-method approach that was able to corroborate both quantitative and qualitative findings. Since separate cohorts participated in both phases, the research was able to authenticate and expound on quantitative issues that would have remained unclear. To ensure inclusion of divergent opinions on predictors of repeat pregnancy, adolescents from diverse areas within the sub-county were involved.

Limitations: The specific sample was obtained from only one sub-county. This might limit representativeness of the results. In addition, all responses were based on the adolescents' and other participants self-report, which could lead to memory bias. Similarly, even though the research assistants limited chances of any bias during focus group sessions, some comments from the adolescents and parents could have also been influenced by their peers' sessions.

6. Conclusion

The study sought to investigate the association between social environment and behaviour of adolescent girls to occurrence of repeat pregnancy. It was based on Bandura's (1986) social cognitive theory (SCT) that explains how human behaviour is a reciprocal interaction between the person, behaviour and the social environment. The study noted that as much as adolescent pregnancy is generally considered a social, economic and behavioural phenomenon, there was little influence by individuals around an adolescent, adolescent past-experience, future expectation, social surrounding and reinforcements in life of a teenager. However, a few factors such as ethnicity, level of support and condom use significantly influenced occurrence of repeat pregnancy among adolescents.

7. Recommendations

1) Government and adolescent stakeholders to establish multidisciplinary approaches that not only address risky-behaviour, but also address social and cultural tenets that influence young people's decision-making regarding their health

and pregnancy.

2) State and non-state actors to establish culturally appropriate measures to address rites of passage that give girls early sense of womanhood.

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Authors' Contributions

Samuel Oyugi was the main author of the manuscript. He conceptualized the research topic and pursued all the research processes. John Arudo was the main supervisor for the thesis, which is part of this publication. Milicent Ambetsa was the second supervisor for the thesis, which is part of this publication.

Data Availability Statement

Raw data were generated from 10 health facilities in Suna East (Migori County Referral Hospital, Ogwedhi, Anjego, Nyarongi, Ondong, Anjego, Saro, Midoti, God Jope and Suna Rabuor). Derived data supporting the findings of this study are available from the corresponding author on request.

Conflicts of Interest

This manuscript has not been submitted to, nor is under review at, another journal or other publishing venue. The authors have no affiliation with any organization with a direct or indirect financial interest in the subject matter discussed in the manuscript.

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