

Sexual and Reproductive Health Knowledge and Associated Factors among Day School Going Girls in Homa Bay County, Kenya

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ABSTRACT

Adolescents sexual and reproductive health decision making is greatly influenced by their knowledge. This study, therefore, aimed to determine sexual and reproductive health knowledge among secondary school-going girls in Homabay County, Kenya. The methodology adopted was a cross-sectional analytical study design that used quantitative approaches to determine factors associated with sexual and reproductive health knowledge among day school-going girls. A sample size of 491 participants were proportionately distributed in the selected 28 school. Data was entered, cleaned, and analysed in the SPSS software version 17. Descriptive statistical analysis determined the level of sexual and reproductive health knowledge while logistic regression was used to determine factors associated with sexual and reproductive health knowledge. The study reported 39.4%, 40.4% and 82.9% of participants to be having good overall knowledge of risky sexual behaviour, pregnancy related issues and HIV/AIDS transmission and prevention. From the participants 207(42.1%),203(41.3%),230 (46.7%),188(38.2%),173(35.2%) correctly identified risky sexual behaviour as sexual intercourse without a condom, starting sexual activities before age 14, multiple sexual partners, more frequent sexual activities and having sex under influence of alcohols respectively. On pregnancy, 303(61.6%),416(84.6 %),315(64.0%) of the participants correctly answered that girls are most fertile at the middle of the menstrual cycle, the safest method of preventing pregnancy among teenage girls is abstinence and adolescent girls are at risk of maternal complication respectively. Participant with catholic religion background were less likely to have good sexual and reproductive health knowledge (OR 0.18, CI 0.318-0.84, P 0.0080). This study concludes that most girls have good knowledge on HIV but poor knowledge of risky sexual behavior and pregnancy-related issues and also identify role of religion in improving sexual and reproductive health knowledge. The study, therefore, recommends upscaling of school-based sexual and reproductive health education.

Key words: Sexual; Reproductive health; Knowledge; School

1. Introduction

1.1 Background of the study

Adolescents population is critical target in the global public health goals. The World Health Organization (WHO) defines this group to be between ages 10-19 where ages 10-14 and 15 - 19 are referred to as early and late adolescence periods. Approximately, 18% of the global population is adolescents totaling to 1.2 billion people with 70% living in developing

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countries (Ayalew M, Mengistie B, & Semahegn A., 2014) with Sub-Saharan Africa accounting for 16% of the global aggregate (PRB, 2015). In Kenya, adolescent girls constitute 23.2% of the total female population (UN/DESA, 2017). Education on sexual and reproductive is generally low in Sub-Saharan Africa where more than 25% of all the adolescent are reported to be sexually active (Kyilleh, Tabong, & Konlaan, 2018)

Adolescent sexual and reproductive health knowledge is one of the individual factors that model sexual behavior (Spielman, Dumper, Jenkins, & Lovett, 2017). Adolescent sexual and reproductive health information and sexuality education in one of a key area of intervention according to the Kenya National Adolescent Sexual Reproductive Health Policy Implementation Framework and other global policy documents (Ministry of Health Kenya, 2015). The main objective of this strategy is to reduce Sexually Transmitted Infections, including Human Papilloma Virus and Human Immune Deficiency Virus, and unwanted pregnancy among adolescents.

Sexually active adolescents are at high risk of STIs and HIV infections and teenage pregnancy hence a major current public health problem. About 21 million girls aged 15 to 19 years in developing regions become pregnant every year, and approximately 12 million of them gave birth (Darroch, Woog, Bankole, & Ashford, 2016) with estimated 2.5 million births from girls aged under 16 years (Neal et al., 2012) Adolescent fertility has remained higher in sub-Saharan Africa, at 101 births per 1,000 adolescent women as compared to the global rate of 44 births per 1000 in 2019 (Guterres, 2019). Adolescents are at high risk of sexual and reproductive health related pandemics due increased exposure as result of technological and socioeconomic changes that directly or indirectly influence behaviours that underlie these infections (Whitaker et al., 2016).

A study in West Ethiopia reported good knowledge of risky sexual behaviour, and condom utilization to be 93%,59.5% among the participants respectively (Anteneh Kassa & Atalay Nibret, 2015). A study conducted in the adolescent urban population in South Africa reported 61% of the participant with inadequate sexual and reproductive health knowledge (Yakubu & Salisu, 2018). In Nigeria and Ethiopia good knowledge of risky sexual behaviour among the study participants was reported to be 67.7% (Esere et al., 2015) and 76.8% (Ena & Fekecha Hurissa, 2016) respectively. Knowledge of HIV among adolescent girls generally varies across and within regions. Studies in Africa have reported smaller proportion of participant with good knowledge of HIV; two studies in Nigeria 49% (Pharr et al., 2017) and 34.3% (Ajide & Balogun, 2018) and Camerron 50% (Donatus, Sama, Tsoka-Gwegweni, & Cumber, 2018) as compared to India where a study participant overall good knowledge of sexual and reproductive health issues was reported to be 78.9% (Jain, Jain, Patil, & Bang, 2016).

1.2 Objective of the study

- To determine level of sexual and reproductive health knowledge among school-going girls.
- To determine sociodemographic factors associated with sexual and reproductive health knowledge.

1.3 Hypothesis of the study

- Large proportion of school going girls have poor knowledge of sexual and reproductive health.

- Sociodemographic factors are not associated with sexual and reproductive health knowledge.

2. Methods

Research Design: This was a cross-sectional analytical study design that used quantitative approaches to determine factors associated with knowledge of sexual and reproductive health among day school adolescent girls in 28 sampled day schools.

Study Area: The study was conducted in 28 schools at Ndhiwa and Rachuonyo North Sub-Counties in Homabay County, Kenya. Homa Bay County lies between latitude 0° 15' South and 0° 52' South, and between longitudes 34° East and 35° East.

Sampling procedure:

Multistage random sampling was used in the study. Cluster random sampling was to select 28 out of the 94 schools in the two sub-counties. Simple random sampling was used to sample 492 participants from the sampled schools.

Study Variables: The dependent variable for the study was sexual and reproductive knowledge while the independent variable was sociodemographic characteristics of participants and their guidance.

Statistical Analysis: Data management was done using SPSS software version 17. Descriptive statistical analysis was used to determine level sexual and reproductive health knowledge and logistic regression analysis was used to determine associated factors at a 95% confidence interval with $P < 0.05$ considered significant.

Knowledge of risky sexual behaviour was measured with 5 items which were dichotomized as (0 = incorrect, 1 = correct). "A total score ranging from 0-2 for poor knowledge and 3-5 for good knowledge". Knowledge of pregnancy was measured with 4 items which were dichotomized as (0 = incorrect, 1 = correct). "A total score total ranging from 0-2 for poor knowledge and 3-4 for good knowledge". Knowledge of HIV/AIDS and STI were measured using 5 items which were dichotomized as (0 = incorrect, 1 = correct). "A total score ranging from 0-2 for poor knowledge and 3-5 for good knowledge". The overall sexual and reproductive health knowledge was a composite variable of knowledge of Risky sexual behaviour, HIV, and pregnancy. "A total score ranging from 0-1 and 2-3 was categorized as poor and good knowledge respectively". This tool achieved acceptable reliability **Cronbach's alpha** result of 0.856, 0.611 and 0.712 for knowledge on risky sexual behaviour, pregnancy, and HIV respectively.

3. Results

Sociodemographic characteristics of Respondents

Table 1 shows the sociodemographic characteristics of respondents. This study achieved an overall response rate of 492 (100 %). More than half of the respondents 276 (56.1%) were from Ndhiwa Sub-County. The average age of respondents was 16 years with the majority age between 15-19, 453 (92.3%). More than half of the girls lived with both male and female guardians 173 (55.6%). Less than half of guardians both female and male had a secondary level of education 176 (35.9%) and (160) 32.9% respectively. The main occupation for the primary guardian was farming 251 (51%). Most respondents attend African religious churches 179 (36.5%) and had scored a mean grade C in the previous exams before the survey 308

(62.9%). The average age of menarche was 15 years with majority reporting to have started menarche between ages 10-14 355 (74.3%).

Table 1 Sociodemographic Characteristics of Respondents

Variable	Category	Homabay County		Rachuonyo North		Ndhiwa	
		n	%	n	%	n	%
Age N=491	10-14	35	7.1	20	9.3	15	5.5
	15-19	456	92.9	196	90.7	160	94.6
Current Guardian N=491	Mother and Father	173	55.6	123	56.9	150	54.5
	Mother only	117	23.8	48	22.2	69	25.1
	Father only	11	2.2	4	1.9	7	2.5
	Relative	90	18.3	41	19.0	49	17.8
Level of Education (female guardian) N= 490	None	16	3.3	8	3.7	8	2.9
	Primary	230	46.9	93	43.1	137	52.9
	Secondary	176	35.9	84	38.9	92	36.5
	College	46	9.4	22	10.2	24	9.3
	University	22	4.5	9	4.2	13	4.7
Level of Education (Male guardian) N=490	None	21	4.3	7	3.2	14	5.2
	Primary	192	39.4	74	34.3	118	43.5
	Secondary	160	32.9	80	37	80	29.5
	College	78	16.0	39	18.1	39	14.4
	University	36	7.4	16	7.4	20	7.4
Occupation of the primary guardian	Formal	72	14.6	42	19.4	30	10.9
	Farming	251	51.0	87	40.3	164	59.9
	Business	167	33.9	87	40.3	80	29.2
Parity N= 492	First born	132	26.9	60	27.8	72	26.3
	Mid born	248	50.6	103	47.7	145	52.9
	Last born	110	22.4	53	24.5	57	20.8
Religious Background N=490	Catholic	168	34.3	67	31.0	101	36.9
	Protestant	124	25.3	50	23.1	74	27.0
	Africa	179	36.5	85	39.4	94	34.3
	Muslim	10	2.0	8	3.7	2	0.7
	None	9	1.8	6	3.8	3	1.1
Academic performance N=490	A	15	3.1	6	2.8	9	3.3
	B	94	19.2	32	14.8	62	22.6
	C	308	62.9	140	64.8	168	61.3
	D	66	13.5	34	15.7	32	11.7
	E	77	1.4	4	1.9	3	1.1
Age of Menarche N=478	10-14	355	74.3	160	75.5	195	73.3
	15-19	123	25.7	52	24.5	71	26.7

Knowledge of sexual risk behaviour

The study used five statements used to measure knowledge of participants on risky sexual behaviour as summarised in table 2. From the participants 207(42.1%), 203(41.3%), 230(46.7%), 188(38.2%), 173(35.2%) correctly identified risky sexual behaviour as sexual intercourse without a condom, starting sexual activities before age 14, multiple sexual

partners, more frequent sexual activities and having sex under influence of alcohols respectively.

Table 2 Knowledge of risky sexual behavior

Questions/statements	Category	Frequency(%)
Practicing sexual intercourse without condom	Incorrect	285(57.9)
	Correct	207(42.1)
Practicing sexual intercourse before age 14	Incorrect	289(58.7)
	Correct	203(41.3)
Having more than one sexual partner	Incorrect	262(53.3)
	Correct	230(46.7)
Practicing frequent sexual activities	Incorrect	304(61.8)
	Correct	188(38.2)
Having sex under the influence of drugs	Incorrect	319(64.8)
	Correct	173(35.2)
Overall knowledge of risky sexual behavior	Poor knowledge	298(60.6)
	Good knowledge	194(39.4)

Knowledge of pregnancy

Four statements were used to determine the knowledge of girls on pregnancy occurrence, prevention, and potential complication as shown in table 3. From the participants 303(61.6%),416(84.6 %),315(64.0%) correctly answered that “a girl has the greatest chance of becoming pregnant in the middle of her menstrual cycle”, “Abstinence is the safest method to prevent pregnancy” and “Adolescent pregnancy is a risk for maternal complication respectively”.

Table 3 Knowledge of pregnancy

Questions/statements	Category	Frequency (%)
The greatest chance of pregnancy is at the middle of the menstrual cycle	Incorrect	189(38.4)
	Correct	303(61.6)
The safest method of preventing pregnancy is abstinence	Incorrect	76(15.4)
	Correct	416(84.6)
Adolescents are at risk of maternal complication	Incorrect	177(36.0)
	Correct	315(64.0)
Overall knowledge of pregnancy	Poor knowledge	293(59.6)
	Good knowledge	199(40.4)

Knowledge of HIV

Table 4 shows that knowledge about HIV/AIDS is generally high among the study participants. From the participants 406(60.4%),406(82.5 %),149(30.3%),408(82.9%),408(82.9%) correctly answered the statements; “It is possible to

cure AIDS”, “in a HIV positive person, HIV is always present in the blood, semen, and vaginal fluid”, “a person with HIV always looks emaciated or unhealthy in some way”, “people can take a simple test to find out whether they have HIV”, “a person can have HIV/AIDS and give it to other people even if the person does not look sick respectively”. Generally, the most of the participant had overall good knowledge of HIV/AIDS 408(82.9%).

Table 4 Knowledge of HIV/AIDS

Questions/statements	Category	Frequency(%)
It is possible to cure AIDS	Incorrect	195(39.6)
	Correct	406(60.4)
HIV is always present in the blood, semen, and vaginal fluid	Incorrect	86(17.5)
	Correct	406(82.5)
HIV positive person is always emaciated or unhealthy	Incorrect	343(69.7)
	Correct	149(30.3)
Confirming HIV status can be done with a simple test	Incorrect	84(17.1)
	Correct	408(82.9)
HIV positive person can spread it to others even if the person does not look sick.	Incorrect	84(17.1)
	Correct	408(82.9)
Overall knowledge of HIV	Poor knowledge	84(17.1)
	Good knowledge	408(82.9)

Factors associated with knowledge of risky sexual behaviour

Table 5 shows the sociodemographic factors associated with knowledge of risky sexual behaviour among the participants. Participants with catholic religious backgrounds were less likely to have good knowledge of risky sexual behaviour ($P= 0.008$). All other factors had no significant association with knowledge of risky sexual behaviour. Inconsistently a study reported no marked differences between the practicing and non-practicing catholic women with respect to knowledge of risky sexual behaviour (Costa & Ferreira, 2018). Another study conducted in Uganda also reported a contrary finding showing Protestant female students to be more likely to have had three or more lifetime partners (Agardh, Tumwine, & Östergren, 2011)

Table 5: Factors associated with knowledge of risky sexual behavior

Independent variables	Category	B	S.E.	P-value	OR	95% CI OR	
						Lower	Upper
Currently living with	Relative/Guardian						
	Father only	.078	.271	.772	1.081	.636	1.839
	Mother only	-.162	.683	.812	.850	.223	3.245
	Mother and father	.212	.240	.376	1.237	.773	1.978
Female guardian level of education	None						
	Primary	.448	.763	.557	1.565	.350	6.989
	Secondary	-.305	.607	.615	.737	.224	2.421
	College	-.901	.595	.130	.406	.127	1.303
	University	-.445	.620	.473	.641	.190	2.161
Male guardian level of education	None						
	Primary	.180	.674	.790	1.197	.320	4.484
	Secondary	.250	.535	.640	1.284	.450	3.664
	College	.781	.515	.130	2.184	.795	5.997
	University	.684	.516	.185	1.982	.720	5.452
Occupation of the primary guardian	Formal employ						
	Farming	.233	.320	.466	1.263	.674	2.366
	Business	.219	.323	.498	1.245	.661	2.346
Position of birth	Firstborn						
	Mid born	-.466	.285	.102	.627	.359	1.097
	Last born	-.279	.254	.272	.757	.460	1.245
Religious background	African						
	Catholic	-.658	.249	.008	.518	.318	.844
	Protestant	-.496	.254	.051	.609	.370	1.001

Table 6 shows the sociodemographic factors associated with knowledge of pregnancy-related issues among the participants. All factors had no significant association with knowledge of pregnancy-related issues. Consistently, a study in Nigeria also found no relationship between knowledge of pregnancy and sociodemographic factors (Govender, Naidoo, & Taylor, 2019). Inconsistently, a study among high school girls reported no significant difference in the knowledge of contraceptive of female adolescents of different age categories (MA & BA, 2018).

Factors associated with knowledge of pregnancy

Table 6: Factors associated with knowledge of pregnancy

Independent variables	Category	B	S.E.	P-value	OR	95% CI OR	
						Lower	Upper
Currently living with	Relative/Guardian						
	Father only	-.190	.268	.480	.827	.489	1.399
	Mother only	-.803	.723	.267	.448	.109	1.848
	Mother and father	-.093	.238	.697	.912	.571	1.454
Female guardian level of education	None						
	Primary	-.155	.807	.848	.857	.176	4.166
	Secondary	.033	.608	.956	1.034	.314	3.407
	College	-.067	.588	.909	.935	.295	2.962
	University	.251	.616	.684	1.285	.384	4.296
Male guardian level of education	None						
	Primary	-.609	.693	.379	.544	.140	2.115
	Secondary	-.150	.509	.769	.861	.318	2.334
	College	.332	.487	.496	1.394	.536	3.622
	University	-.186	.490	.703	.830	.318	2.167
Occupation of the primary guardian	Formal employ						
	Farming	.531	.315	.092	1.701	.917	3.155
	Business	.241	.319	.449	1.273	.681	2.379
Position of birth	Firstborn						
	Mid born	-.026	.283	.927	.974	.559	1.698
	Last born	-.163	.256	.526	.850	.514	1.405
Religious background	African						
	Catholic	.268	.253	.289	1.307	.797	2.145
	Protestant	.023	.259	.930	1.023	.616	1.698

Table 7 shows the sociodemographic factors associated with knowledge of HIV related issues among the participants. All factors had no significant association with knowledge of HIV related issues. This result is inconsistent with a number of studies. An analysis of Demographic health survey of Uganda reported older girls to likely have good knowledge of HIV (Twinomugisha Fred, 2019). Moreover a study conducted in North East Brazil also reported younger adolescents to be having less knowledge of HIV than older adolescents (da Marinho, Souza, Ferreira, Fernandes, & Cabral-filho, 2012).

Factors associated with knowledge on HIV

Table 7: Factors associated with knowledge of HIV

Independent variables	Category	B	S.E.	P-value	OR	95% CI OR	
						Lower	Upper
Currently living with	Relative/Guardian						
	Father only	.485	.394	.218	1.625	.751	3.516
	Mother only	-.457	.746	.540	.633	.147	2.732
	Mother and father	-.227	.310	.465	.797	.434	1.464
Female guardian level of education	None						
	Primary	-.386	.892	.665	.680	.118	3.909
	Secondary	.222	.747	.766	1.249	.289	5.394
	College	.348	.725	.632	1.416	.342	5.866
	University	.206	.765	.788	1.229	.274	5.504
Male guardian level of education	None						
	Primary	-.772	.736	.294	.462	.109	1.954
	Secondary	.069	.626	.913	1.071	.314	3.657
	College	.071	.599	.905	1.074	.332	3.472
	University	.031	.610	.959	1.032	.312	3.413
Occupation of the primary guardian	Formal employ						
	Farming	-.027	.392	.944	.973	.452	2.096
	Business	.405	.406	.319	1.499	.676	3.325
Position of birth	Firstborn						
	Mid born	.055	.354	.876	1.057	.528	2.116
	Last born	.337	.327	.303	1.401	.737	2.661
Religious background	African						
	Catholic	-.630	.341	.065	.533	.273	1.039
	Protestant	-.254	.361	.481	.776	.383	1.573

4 Discussions

4.1 Knowledge of sexual and reproductive health

This study reported 207(42.1%),203(41.3%),230(46.7%), 188(38.2%),173(35.2%) of the participant to be correctly identifying risky sexual behavior as sexual intercourse without a condom, starting sexual activities before age 14, multiple sexual partners, more frequent sexual activities and having sex under influence of alcohols respectively. These results are similar to study in Nigeria where 42.7%,42.4 and 35.8% of the study participants positively identified multiple sexual partners, unprotected sex, and sexual activities as risky sexual behavior (Ena & Fekecha Hurissa, 2016).

However, the minority of the participant had overall good knowledge of risky sexual behavior 194(39.4%) while result from studies conducted in Nigeria and Ethiopia showed more participants with good knowledge of risky sexual behaviour 67.7% (Anteneh Kassa et al., 2017)and 76.86%(Ena & Fekecha Hurissa, 2016) respectively.

On knowledge of pregnancy related issues, 303(61.6%), 416(84.6 %), 315(64.0%) correctly answered that; girls are most fertile at the middle of the menstrual cycle, the safest method of preventing pregnancy among teenage girls is abstinence and adolescent girls are at risk of maternal complication. Similarly, results from a study in West Cameroon and Ethiopia showed most participants admitting that it is true most pregnancies occur in the middle of the menstrual cycle 59.7% (Donatus *et al.*, 2018) 62.1% (Mathewos & Mekuria, 2018) and one can become pregnant during the first sexual intercourse (93.2%) (Donatus *et al.*, 2018). In this study, the overall good knowledge of pregnancy among the participants was reported to be 40.4% while a higher proportion of participants 50% (Donatus *et al.*, 2018) and 43.9% (Govender *et al.*, 2019) were reported to have good knowledge of pregnancy in studies conducted in Cameroon and South Africa respectively.

On knowledge of HIV, 406(60.4%) ,406(82.5%), 149(30.3%), 408(82.9%), 408(82.9%) correctly answered the statements; It is possible to cure AIDS, HIV is always present in the blood, semen, and vaginal fluid, HIV positive person is always emaciated or unhealthy, Confirming HIV status can be done with a simple test, HIV positive person can spread it to others even if the person does not look sick respectively. Similarly, a study in South West Cameroon reported 98.8% and 96.6% of the participants responding correctly on the statement that HIV positive person can spread it to others even if the person does not look sick and it is possible to cure AIDS respectively (Nubed & Akoachere, 2016).

This study reported participants with good knowledge of HIV and STI to be 89.9% which is among the highest ever reported as inconsistent with studies in Nigeria 49% (Pharr *et al.*, 2017) and 34.3% (Ajide & Balogun, 2018). However, this result consistent with result from India 78.9% (Jain *et al.*, 2016) but much higher compared to another study that reported only 14% of the adolescent girls with good knowledge regarding HIV/AIDS (Rana *et al.*, 2015). This variation could be a result of differences in study population, environmental context, study design and cut off points for cauterization of knowledge as good or poor.

Participants with catholic religious backgrounds were less likely to have good knowledge of risky sexual behaviour while other factors had no significant association with knowledge of risky sexual behaviour. Inconsistently a study reported no marked differences between the practicing and non-practicing catholic women with respect to knowledge of risky sexual behaviour (Costa & Ferreira, 2018). Another study conducted in Uganda also reported a contrary finding showing Protestant female students to be more likely to have had three or more lifetime partners (Agardh *et al.*, 2011) All factors had no significant association with knowledge of pregnancy-related issues. Consistently, a study in Nigeria also found no relationship between knowledge of pregnancy and sociodemographic factors (Govender *et al.*, 2019). Inconsistently, a study among high school girls reported no significant difference in the knowledge of contraceptive of female adolescents of different age categories (MA & BA, 2018). All factors had no significant association with knowledge of HIV related issues. This result is inconsistent with a number of studies. An analysis of Demographic health survey of Uganda reported older girls to likely have good knowledge of HIV (Twinomugisha Fred, 2019). Moreover a study conducted in North East Brazil also reported younger adolescents to be having less knowledge of HIV than older adolescents (da Marinho *et al.*, 2012).

Limitation of the study

The was collected using self-administered questioner and the same time and therefore some individual factors could result in bias depending on the status of the participant at the time of data collection.

Recommendation for further studies: This study recommends a Cross-sectional study to assess school based sexual and reproductive health service.

Conclusion and implications for translation

- Most day school going girls have poor knowledge of risky sexual behavior and therefore are likely to be exposed to unwanted pregnancy and HIV/STI infections.
- Most day school going girls have inadequate knowledge of the menstruation cycle and therefore high potential risk of early pregnancy.
- Knowledge of HIV prevention and transmission is high among day school-going girls and the girls are likely to take preventive measures.
- These result provide baseline data that will be vital to monitor any school based intervention in Homabay County.

Conflicts of Interest

The author(s) declare(s) that there is no conflict of interest regarding the publication of this paper.

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Ethics Approval:

The study was approved by Kenyatta university ethical review committee

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