

Full Length Research Paper

Prevalence, determinants, and consequences of teenage pregnancy on teenage girls in selected health areas of the Limbe Health District in Cameroon

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Teenage pregnancy is a significant public health concern in many low- and middle-income countries, including Cameroon. It leads to adverse health outcomes for both the mother and child, as well as social, economic, and educational challenges. Little is known about teenage pregnancy in the Limbe Health District. This study aimed to address this gap by determining the prevalence of teenage pregnancy, identifying the determinants, and assessing the knowledge of teenagers on teenage pregnancy. This was a community-based cross-sectional study carried out in selected health areas of the Limbe Health District from February to May 2023 among 394 teenagers. A multistage sampling technique was used to enroll participants. A Structured questionnaire was used to collect data. The data was analyzed using the Statistical Package for Social Sciences Version 26. The mean age of the participants was 15.5±2.6. Of the 394 teenagers, 167 (42.4%) were within the age group 17-19 years and 358 (90.9%) were single. Less than half, 190 (48.2%) had attended secondary school and 317 (80.5%) were Christian. The prevalence of teenage pregnancy was 56.1% (95%CI: 51.2%-61.0%). The proportion of teenagers with good knowledge of teenage pregnancy was 59.1% (95%CI: 54.3%-64.0%). Factors found associated with teenage pregnancy were: age group (AOR=2.5 [95%CI:1.3-4.9], p=0.007), marital status (AOR=6.3 [95%CI:2.3-17.4], p<0.001), keeping late nights/night clubbing (AOR=2.4[95%CI:1.3-4.2], p=0.003), Sexually abused in the past (AOR=2.1[95%CI:1.2-37], p=0.008), and being free to leave and come home at any time (AOR=3.6 [95%CI:1.9-6.7], p<0.001). Regarding the consequences of teenage pregnancy, 158(40.1%) reported being rejected by their parents as a result of the pregnancy, and 198(50.3%) dropped out of school as a result of teenage pregnancy. Also, 134(31.0%) were reported with health issues as a result of teenage pregnancy. Teenage pregnancy prevalence was high in this study. Healthcare workers and parents of teens girls need to employ a collaborative approach to remedy the situation in the locality.

Key words: Consequences, determinants, knowledge, Limbe Health District, teenage pregnancy.

INTRODUCTION

According to the World Health Organization, teenage or adolescent pregnancy is a pregnancy occurring in girls

aged 10 to 19 (Akinola et al., 2001). Teenage pregnancies constitute a serious public health and social problem

worldwide (Akinola et al., 2001). World estimates in 2008 report about 16 million births to adolescent mothers, most of them occurring in low and middle-income countries (Ekwo and Moawad, 2000; Ziade, 2001; Lao and Ho, 1997). Among the social consequences of adolescent pregnancies are school drop-out, juvenile violence, depression, suicide and sometimes homicide (Phoobane, 2022).

Adolescent pregnancy is a global phenomenon with clearly known causes and serious health, social, and economic consequences (Odimegwu and Mkwanzani, 2016). Globally, the adolescent birth rate (ABR) has decreased, but rates of change have been uneven across regions. There are also enormous variations in levels between and within countries. Adolescent pregnancy tends to be higher among those with less education or of low economic status (Sedgh et al., 2015). Further, there is slower progress in reducing adolescent first births amongst these and other vulnerable groups, leading to increasing inequity. Child marriage and child sexual abuse place girls at increased risk of pregnancy, often unintended (Neal et al., 2020).

In many places, barriers to obtaining and using contraceptives predispose adolescents to avoid unintended pregnancies (Klima, 1998). There is growing attention being paid to improving access to quality maternal care for pregnant and parenting adolescents. WHO works with partners to advocate for attention to adolescent pregnancy (Phoobane, 2022), to build an evidence base for action, to develop policy and program support tools, to build capacity and to support countries to address adolescent pregnancy effectively.

As of 2019, adolescents aged 15 to 19 years in low- and middle-income countries (LMICs) had an estimated 21 million pregnancies each year, of which approximately 50% were unintended and which resulted in an estimated 12 million births (Sully et al., 2019; Darroch et al., 2016). Data on childbirths among girls aged 10 to 14 are not widely available; limited available data from Angola, Bangladesh, Mozambique and Nigeria point to birth rates in this age group exceeding 10 births per 1000 girls as of 2020 (Dawson et al., 2021). Based on 2019 data, 55% of unintended pregnancies among adolescent girls aged 15 to 19 years end in abortions, which are often unsafe in LMICs (Sully et al., 2019).

Adolescent mothers (aged 10 to 19 years) face higher risks of eclampsia, congenital malformities, difficult or prolong delivery, puerperal endometritis and systemic infections than women aged 20 to 24 years, and babies of adolescent mothers face higher risks of low birth weight, preterm birth and severe neonatal condition. Preventing pregnancy among adolescents and pregnancy-related mortality and morbidity are

foundational to achieving positive health outcomes across the life course and imperative for achieving the Sustainable Development Goals (SDGs) related to maternal and newborn health (Tunçalp et al., 2017).

Article 14 of the Maputo Protocol on the Rights of Women in Africa reaffirms women's rights to sexual and reproductive health; which include control of their fertility, choice of family planning methods, and access to safe abortion services on relatively liberal indications (Gertholtz et al., 2011)). Nevertheless, contraception and safe abortion continue to be highly contested issues in most countries around the world. Unsafe abortion, evidence of a high unmet need for family planning and contraception continues to take place at high rates, not the least among adolescents with 57% of all unsafe abortions in sub-Saharan Africa found in the age-group 15 to 24, which is higher than in other regions. The most vulnerable segment, the girls from 15 to 19 years - account for some 25% of all unsafe abortions in Africa (Grimes et al., 2006). This vulnerability points to the urgency of addressing the unmet need for contraception in this age group.

Adolescents face challenges with contraception and access to safe abortion. One-sixth of the women in the reproductive age group are adolescents aged 15 to 19 and about half of the pregnancies that occur among adolescents in this age group in developing regions are unintended (Darroch et al., 2016). In about 52 countries, it was revealed that sexually active never-married women have high levels of unmet need for contraception, with the highest level being among adolescents aged 15 to 19 (Munakampe et al., 2018). Youths, who are at risk of unsafe abortion, do not even have full access (Warenius et al., 2006) to reproductive health information and services because health providers usually shun them and are not treated well because they are not expected to be engaging in sexual activity at their age. Approximately 90% of abortion-related and 20% of pregnancy-related morbidity and mortality, along with 32% of maternal deaths, could be prevented by the use of effective contraception (Cleland et al., 2006).

Studies have revealed various barriers to contraceptive use among adolescents in low and middle-income countries, LMICs and such obstacles include lack of, or limited knowledge, lack of sexuality education and limited access to services; high risk of misperceptions; and harmful social norms surrounding premarital sexual activity and pregnancy (Campbell et al., 2006).

A study in Cameroon revealed that teenage pregnancy is a social and general public health problem in Cameroon as a whole (Donatus et al., 2018). This results in physical, psychological and socio-economic consequences on the teenage mother, family and the

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that have been and are being implemented, the prevalence of unplanned teenage pregnancy in Cameroon is still high (Donatus et al., 2018), suggesting that more efforts are required to achieve effective preventive measures.

Research objectives

General objective

To determine the prevalence, determinants and consequences of teenage pregnancy among teenage girls in the Limbe Health District.

Specific objectives

1. To determine the prevalence of teenage pregnancy among teenage girls in selected health areas in the Limbe Health District.
2. To assess the knowledge of teenage girls on teenage pregnancy in selected health areas in the Limbe Health District.
3. To identify factors associated with teenage pregnancy among teenage girls in selected health areas in the Limbe Health District.
4. To identify the consequences of teenage pregnancy on teenage girls in selected health areas in the Limbe Health District.

MATERIALS AND METHODS

Research designs

A community-based cross-sectional study was carried out in four selected health areas of the Limbe Health District. It was a cross-sectional study since prevalence was the main outcome and the participants were met only once.

Study area

The study was carried out in the Limbe Health District of the South West Region of Cameroon from November 2022 to September 2023.

Geographical situation

The Limbe Health District is one of the 18 health districts found in the South West Region. The district is situated in the tropical rain forest of the Congo Basin. It is bounded to the North by Buea Health District, to the East by Mbonge Health District, the South by Atlantic Ocean and the West by the Tiko Health District. The health district has a total surface area of approximately 645 km².

It consists of highlands which form part of the Cameroon range of active volcanic mountains. There are many rivers meandering between the valleys and gorges. These features are attractive ecotouristic sites but with the potential of disaster leading to emergency situations.

It has eight health areas comprising of 107 communities and total

population of 206,887 inhabitants for the year 2021. There are 38 functional health units in existence comprising of 13 public, 5 para-public, and 18 private and 2 confessionals. The eight health areas are: Batoke, Bojongo, Edenau, Bota, Mabeta, Moliwe, Seaport and Zone II.

The Limbe Health District has many local communities where few girls have access to education. It is the calmest and least affected district by the current Cameroon crisis in the Northwest and Southwest Region. It has experienced influx of population since 2017 when the crisis became so violent. In addition to having many local communities where not many girls have access to education, it is a host of many internally displaced persons including young girls because of its relative calmness in term of the crisis as compared to the other cities within the North West and Southwest Regions.

The Limbe Health District has many touristic sites like the beaches, SONARA, Botanic gardens, and the wildlife center. These features attract many tourists to the district who are sexually active and further risk teenage girls in this area of becoming pregnant. In addition, in local areas of the district like Idenau, sea port and mabeta health areas, fishing is one of the main activities of the inhabitants in these areas. The teenage parents tend to concentrate more in their fishing activities than the education of their girls. This has also made the teenage girls in these areas more vulnerable to teenage pregnancy as a result of low educational level which affects their knowledge on teenage pregnancy prevention.

Study population

The study population included teenage girls living in selected health areas of the Limbe Health District.

Sample size determination

The sample size was obtained using the formula for estimation of confidence interval for a proportion since our major outcome is prevalence of teenage pregnancy.

$$n = \frac{z^2 * P(1 - p)}{e^2}$$

Where, n = Number of participants (least sample size needed); Z = the standard normal value corresponding to a significance criterion of 0.05 (95), = 1.960; e = Amount of error we will tolerate = ±5%, P = Pre-study estimate of the prevalence of teenage pregnancy = 5.2% (Gabriel et al., 2020).

$$n = \frac{1.96^2 * 0.052(1 - 0.052)}{0.05^2} = 78$$

$$3.84 \times 0.493 = 0.1893$$

$$0.0025$$

n = 78 participants. The sample size was made up to 394 participants to increase the strength of the study.

Sampling technique

A multi-stage sampling technique was used:

Stage 1: A cluster sampling technique was used where all the eight health areas of the district were treated as clusters.

Stage 2: A simple random sampling technique was employed to select four out of the eight health areas in the Limbe Health District.

Table 1. Proportion of adolescent girls selected from each community.

S/N	Selected health areas	Total adolescent girls in each community	Proportion of adolescent girls selected from each community	Proportional sample size of each health area
1	Sea port	2956	0.37	146
2	Mabeta	1960	0.24	95
3	Bojongo	1590	0.20	79
4	Edenau	1526	0.19	74
	Total	8032	1.00	394

Here, all the eight health areas were written on pieces of papers and folded to look the same. Four of those papers were randomly picked without replacement. The selected health areas which were Mabeta, Seaport, Bojongo and Idenau were included in the study.

Stage 3: A probability proportionate to size sampling technique was then used to know the number of participants to select from each selected health area.

Stage 4: A systematic sampling technique was finally employed to selected teenagers from the selected communities to meet up with the 394 participants sample size. Here, houses with adolescent girls in the selected communities were numbered with the help of a community health worker. The interval size, k for each community was calculated by dividing the total number of participants (households with adolescent girls) by the proportionate sample size in each community. A household with an adolescent girl was chosen at random and subsequent households were chosen after the interval size, k to meet up the proportionate sample size of each community. The proportion of adolescent girls selected from the various communities was determined (Table 1).

Inclusion criteria and exclusion criteria

Teenage girls living in the Limbe Health District whose parents gave consent and those were severely ill during the time of data collection.

Data collection tools

A pre-tested structured questionnaire was used to collect data. This questionnaire was divided into four sections:

Section A: Socio-demographic variables which included age, level of education, religion, location, marital status.

Section B: Knowledge of teenage girls on prevention of teenage pregnancy. This part of the study included variables as in Table 3.

Section C: Factors associated to teenage pregnancy. This part included variables such as being an internally displaced person, alcohol consumer, cigarette smoker, keeping late night, have socially active friends among others.

Section D: Prevalence and consequences of teenage pregnancy on the teenage girls. This part included variables such as have you ever been pregnant? drop out of school because of teenage pregnancy? lose your job because of teenage pregnancy? had any health complication as a result of teenage pregnancy?

Pre-testing of questionnaires

A pre-test was carried out in the Buea Health District at the Tole Health Area. This was to test the validity of the questionnaire, its reliability and applicability during data collection. Also, pre-testing of

the questionnaire before data collection helped to remove inconsistencies and repetitions. Amendments were made in some questions where necessary after the pre-testing.

Data collection

The data collection was done by the principal investigator using structured questionnaires. Most of the questions were coded into binary responses to ease data analysis and were closed ended. The questionnaires were in English and were self-administered by the teenagers who could read and write. For those who could not read and write, the responses of the teenagers were administered in the questionnaires by the data collector. The participants from all health areas were adequately informed about the study with the help of an information sheet and detail verbal explanation where necessary. Participants were enrolled in the study only after approved assent from the adolescents and consent from their parents, indicating their willingness to allow their children participate in the study. They were informed that they reserve the right to withdraw from the study at any time. Confidentiality of the participants was guaranteed by not using names on the questionnaires and by explaining to the participants how the questionnaires were handled. Each questionnaire only had a file number, which was useful to the investigator alone during data analysis.

Data management

Questionnaires were properly checked for proper completion on collection from the participants and incomplete questionnaires were discarded. The questionnaires administered every day were safely stored in a cupboard accessible only by the principal investigator until data collection was complete. The data were keyed in using the kobo collect toolbox and an excel file generated from the kobo toolbox was then imported into SPSS version 26 for analysis. The questionnaires were kept in a locked cupboard in case needed for reference.

Data analysis

Data were analysed using the Statistical Package for the Social Sciences (SPSS) software version 26 and presented in the form of tables and charts.

Continuous variables such as age were described using summary statistics such as means and standard deviations. Categorical variables such as educational level and marital status were described using frequency tables and pie charts.

Study participants' knowledge level on prevention of teenage pregnancy was defined in relation to the mean score of all variables for the knowledge section. Scores above the mean were defined as

good knowledge and those below were defined as poor knowledge (Adane et al. 2022)

All questions in the knowledge section of the questionnaire were attributed composite scores. A correct answer for each question scored one and the wrong answer scored zero. The mean score of each composite variable was determined and used as a cut-off point for categorizing the composite variables as good knowledge or poor knowledge.

Simple logistic regression analysis was used to determine association between teenage pregnancy and categorical variables like sex, education and profession. Predictors in the simple logistic regression bivariate analysis with $P < 0.2$ were taken to the multiple logistic regression analysis to finally identify factors associated.

Multiple logistic regression was used to identify the factors associated with teenage pregnancy from the bivariate analysis at 95% confidence level ($P < 0.05$).

Ethical consideration

Ethical clearance was obtained from the Faculty of Health Sciences Institutional Review Board of the University of Buea. This was after reviewing the protocol that was submitted to this board to ensure safe scientific procedures were used in collecting the data and ethics was respected.

Administrative authorizations were obtained from the Department of Public Health of BIAKA University Institute of Buea, South West Regional Delegation of Public Health and Limbe District Health Services before data collection.

Informed consent was gotten from the guardians of the teenage girls and assent was given by the teenage girls before participating in the study.

RESULTS

Socio-demographic and life style characteristics

Regarding socio-demographic and life style characteristics of teenagers (Table 2a), their mean age was 15.5 ± 2.6 . Of the 394 teenagers who took part in the study, about 167 (42.4%) were within the age group 17 to 19 years and 358 (90.9%) were single. One hundred and ninety (48.2%) had attended secondary school and 317 (80.5%) were Christian. Eighty-four (21.3%) were living with their parents and 311 (78.9%) were not internally displaced persons.

Life style characteristics

More than half of the participants 275 (69.8%) had never smoked and 372 (94.4%) average monthly income was below 25000FCFA. A majority of the participants 261 (66.2%) were alcohol consumer and 276 (70.1%) both parents were still alive. Two hundred (50.8%) reported not keeping late night or going for clubbing in the night and 251 (63.7%) reported having lived with their parents in the same room when of age 10+ years. From Table 2b, 313 (79.4%) reported not dating older people and above half 212 (53.8%) were watching pornographic videos.

Two hundred and fourteen 214 (54.3%) had been

sexually abused in the past and 226 (57.4%) reported they could leave and go back home anytime they wanted. Two hundred (50.8%) had a family history of teenage pregnancy and 259 (65.7%) reported they had never had multiple sex partners. Two hundred and thirty (58.4%) had been educated on the use of contraceptive to prevent pregnancy.

Prevalence of teenage pregnancy

In this study, the prevalence of teenage pregnancy in selected health areas of the Limbe Health District was 223 (56.1%).

Knowledge of teenagers on teenage pregnancy

Regarding knowledge of teenagers on teenage pregnancy (Table 3), 326 (82.7%) knew the correct definition of teenage pregnancy and 293 (74.4%) were aware that, a girl is capable of getting pregnant after first menstruation. Most of the participants 364 (92.4%) reported that, teenage pregnancy could be prevented and 322 (81.7%) knew that, abstinence was a method to prevent teenage pregnancy. Less than half of the teenagers 189 (48.0%) believed that abstinence is the best method to prevent teenage pregnancy and 356 (90.4%) knew that, teenage pregnancy could be harmful to both mother and child. Three hundred and forty-nine (88.6%) were aware that, pregnancy can still be prevented after having unprotected sexual intercourse and 343 (87.1%) disagreed that, abortion was the safest way to prevent teenage pregnancy. Three hundred and fifty-five 355 (90.1%) had correct knowledge that, emergency contraceptives are used to prevent pregnancy after unprotected sex and 208 (52.8%) reported that the use of pills after unprotected sex could not prevent teenage pregnancy. Two hundred and three (51.5%) reported withdrawal method during sexual intercourse as their preferred method to prevent teenage pregnancy and 301 (76.4%) reported premature delivery as a consequence of teenage pregnancy. Three hundred and twenty-seven (83.0%) believed that, babies from teenage mothers often suffer under weight and 348 (88.3%) reported that, teenagers are not physically prepared for pregnancy.

Factors associated with teenage pregnancy in the bivariate analysis

Regarding factors associated with teenage pregnancy, age group, marital status, keeping late night or going for clubbing in the night, watching pornography, dating older people were associated with teenage pregnancy at the level of the bivariate analysis using simple logistic regression analysis (Table 4). Having been sexually

Table 2a. Socio-demographic variables of teenagers in Limbe Health District.

Variable	Category	Frequency I(%)
Health area	Edenau	75 (19)
	Bojongo	78 (19.8)
	Mabeta	96 (24.4)
	Seaport	145 (36.8)
	Total	394 (100)
Age group (years)	11-13	104 (26.4)
	14-16	123 (31.2)
	17-19	167 (42.4)
	Total	394 (100)
Marital status	Married	36 (9.1)
	Single	358 (90.9)
	Total	394 (100)
Education	No formal	32 (8.1)
	Primary	172 (43.7)
	Secondary	190 (48.2)
	Total	394 (100)
Religion	Christian	317 (80.5)
	Muslim	71 (18.0)
	Others	6 (1.5)
	Total	394 (100)
Person living with	Alone	19 (4.8)
	Family member	81 (20.6)
	Friend	81 (20.6)
	Others	59 (15.0)
	Parents	84 (21.3)
	Siblings	70 (17.8)
	Total	394 (100)

abused, being able to leave/come home anytime, having had multiple sex partners, having received education on contraception and withdrawal method as preferred method to prevent teenage pregnancy were also significantly associated in the bivariate analysis.

Factors associated with teenage pregnancy in the multivariate analysis

At the level of multivariate analysis using multiple logistic regression, factors found associated with teenage pregnancy were age group, marital status, keeping late night, sexually abused, and free to leave/come home anytime (Table 5).

The odds of a teenager within the age group 17 to 19 years being pregnant was 2.5 (95%CI: 1.29 to 4.92,

$P=0.007$) times higher than the odds of a teenager within the age group 11 to 13 years being pregnant. Teenage pregnancy was found generally increasing with age. Married teenagers were about 6 (95%CI: 2.30 to 17.43, $p<0.001$) times more likely to be pregnant as compared those that were single.

Teenagers who reported keeping late night were 2 (95%CI:1.33 to 4.18, $p=0.003$) times more likely to be pregnant than those who reported not keeping late night. Teenagers who had been sexually abused in the past were about 2 ((95%CI: 1.22 to 3.65, $p=0.008$) times more likely to be pregnant as compared to those who had not been sexually abused in the past. Those who were free to leave/come home anytime were about 4 (95%CI: 1.92 to 6.67, $p<0.001$) times more likely to be pregnant than those who could not leave/come home anytime they wanted.

Table 2b. Life style variables of teenagers in Limbe Health District.

Variable	Category	Frequency /(%)
Smoking status	Current smoker	78 (19.8)
	Ex-smoker	41 (10.4)
	Never smoked	275 (69.8)
	Total	394 (100)
Monthly income (FCFA)	<25000	372 (94.4)
	25000-50000	20 (5.1)
	51000-100000	2 (0.5)
	Total	394 (100)
Alcohol consumer	No	133(33.8)
	Yes	261(66.2)
	Total	394 (100)
All parents still alive	No	118 (29.9)
	Yes	276(70.1)
	Total	394 (100)
Keep late night/clubbing	No	200 (50.8)
	Yes	194 (49.2)
	Total	394 (100)
Lived with parents in same room when 10+ years	No	143 (36.3)
	Yes	251 (63.7)
	Total	394 (100)
Date older people	No	313 (79.4)
	Yes	81 (20.6)
	Total	394 (100)
Watch pornography	No	212(53.8)
	Yes	182 (46.2)
	Total	394 (100)
Have been sexually abused in the past	No	214 (54.3)
	Yes	180 (45.7)
	Total	394 (100)
Free to leave and come home anytime	No	168 (42.6)
	Yes	226 (57.4)
	Total	394 (100)
Family history of teenage pregnancy	No	194 (49.2)
	Yes	200 (50.8)
	Total	394 (100)
Have you ever had multiple sex partners	No	259 (65.7)
	Yes	135(34.3)
	Total	394 (100)
Been educated on the use of contraceptives	No	230 (58.4)
	Yes	164 (41.6)
An IDP	No	311 (78.9)
	Yes	83 (21.1)
	Total	394 (100)

Table 3. Knowledge of teenagers on teenage pregnancy variables in Limbe Health District. (n=394).

Variable	Category	Frequency / (%)
Teenage pregnancy is pregnancy between 10 and 19 years	No	68 (17.3)
	Yes	326 (82.7)
A girl is capable of getting pregnant after first menstruation	No	101 (25.6)
	Yes	293 (74.4)
Teenage pregnancy can be prevented	No	30 (7.6)
	Yes	364 (92.4)
Teenage pregnancy prevention method	Abstinence	322 (81.7)
	Bathing immediately after sex	48 (12.2)
	Drinking enough water after sex	24 (6.1)
Most effective method to prevent teenage pregnancy	Abstinence	189 (48.0)
	Drinking enough water after sex	19 (4.8)
	Use of condom	141 (35.8)
	Use of modern contraceptives	45 (11.4)
Teenage pregnancy can be harmful to both mother and child	False	38 (9.6)
	True	356 (90.4)
Pregnancy can be prevented even after having unprotected sex	No	45 (11.4)
	Yes	349 (88.6)
Abortion is the safest way to prevent teenage pregnancy	No	343 (87.1)
	Yes	51 (12.9)
Use of emergency contraceptives	Prevent pregnancy after intercourse	355 (90.1)
	Prevent pregnancy before sexual intercourse	39 (9.9)
	Total	394 (100)
Use of pills after unprotected sex prevent teenage pregnancy	No	208 (52.8)
	Yes	186 (47.2)
Withdrawal method is preferred method to prevent pregnancy	No	191 (48.5)
	Yes	203 (51.5)
Which of the following is a consequence of teenage pregnancy	Pregnancy exceeding nine months	88 (22.3)
	Premature delivery	301 (76.4)
	Twin delivery	5 (1.3)
Babies from teenage mothers often suffer from under weight	No	67 (17.0)
	Yes	327 (83.0)
Teenagers are not physically prepared for pregnancy	No	46 (11.7)
	Yes	348 (88.3)
Have ever been pregnant	No	173 (43.9)
	Yes	221 (56.1)

The overall knowledge of teenagers on teenage pregnancy in Limbe Health District, the overall knowledge of teenagers on teenage pregnancy was 233 (59.1%), factors associated to teenage pregnancy in Limbe Health District.

Table 4. Factors associated to teenage pregnancy in the bivariate analysis.

Variable	Category	N (%)	COR	Lower	Upper	p-value
Age group (years)	17-19	167(42.4)	5.88	3.43	10.10	<0.001
	14-16	123(31.2)	4.18	2.38	7.34	<0.001
	11-13		1			
Marital status	Married	36(9.1)	4.37	1.78	10.76	0.001
	Single	358(90.9)	1			
Keep late night/clubbing	Yes	194(49.2)	4.83	3.14	7.44	<0.001
	No		1			
Watch pornography	Yes	182(46.2)	2.22	1.48	3.34	<0.001
	No		1			
Date older people	Yes	81 (20.6)	2.16	1.28	3.65	0.004
	No		1			
Have experienced sexual abuse	Yes	180 (45.7%)	3.20	2.10	4.88	<0.001
	No		1			
Can leave/come home anytime	Yes	226(57.4)	6.28	4.04	9.77	<0.001
	No		1			
Have had multiple sex partners	Yes	135(34.3)	2.78	1.78	4.35	<0.001
	No		1			
Have been educated on contraceptives	Yes	164(41.6)	0.46	0.31	0.70	<0.001
	No		1			
Withdrawal method is preferred to prevent pregnancy	Yes	203(51.5)	1.88	1.25	2.81	0.002
	No		1			

Consequences of teenage pregnancy on the teenager in Limbe Health District

Regarding the consequences of teenage pregnancy on the teenager (Table 6), Of the 221 who had been pregnant, 158 (71.5%) reported facing parental rejection due to pregnancy and 198 (89.6%) reported dropping out from school as a result of the pregnancy. One hundred and seventy-seven (80.1%) were stigmatized and 134 (60.6%) reporting having health issues. Forty-eight (21.7%) reported losing their jobs because of pregnancy. Health issues reported by most of the teenager's included pre-eclampsia, malaria, severe abdominal pains, abortion/abortion bleeding.

DISCUSSION

Teenage pregnancy prevention is an important public health intervention in contributing to the attainment of the sustainable development goal, health and wellbeing for

all. It is a significant public health concern globally, with negative consequences for both the mother and child. Cameroon, like many other developing countries, has a high prevalence of teenage pregnancy. This study determined the prevalence of teenage pregnancy, assessed the knowledge of teenagers on teenage pregnancy and uptake of contraceptive services by adolescents. The study also identified factors associated with teenage pregnancy.

Prevalence of teenage pregnancy

The prevalence of teenage pregnancy reported in this study was 56.1%. This implied that, more than half of the teenagers recruited in this study had been pregnant at least once. The 56.1% reported in this study is higher than the national prevalence of 13.3% reported by Egbe et al. (2015) in the Buea Health District.

The prevalence at the Limbe Health District is a significant issue that requires attention from policymakers,

Table 5. Multiple logistic regression results of factors associated to teenage pregnancy.

Variable	Category	N (%)	COR	AOR (95%CI)	p-value
Age group (years)	17-19	167(42.4)	5.88(3.43-10.10)	2.52 (1.29-4.92)	0.007
	14-16	123(31.2)	4.18(2.38-7.34)	2.15(1.10-4.22)	0.026
	11-13		1	1	
Marital status	Married	36(9.1)	4.37(1.78-10.76)	6.33(2.3-17.43)	<0.001
	Single	358(90.9)	1	1	
Keep late night/clubbing	Yes	194(49.2)	4.83(3.14-7.44)	2.36(1.33-4.18)	0.003
	No		1	1	
Watch pornography	Yes	182(46.2)	2.22(1.48-3.34)	0.70(0.40-1.21)	0.197
	No		1	1	
Date older people	Yes	81 (20.6)	2.16(1.28-3.65)	0.89(0.47-1.69)	0.715
	No		1	1	
Sexually abused in the past	Yes	180 (45.7)	3.20(2.10-4.88)	2.11(1.22-3.65)	0.008
	No		1	1	
Free to leave/come home anytime	Yes	226(57.4)	6.28(4.04-9.77)	3.58(1.92-6.67)	<0.001
	No		1	1	
Have had multiple sex partners	Yes	135(34.3)	2.78(1.78-4.35)	0.65(0.34-1.26)	0.200
	No		1	1	
Have received education on contraceptive use	Yes	164(41.6)	0.46(0.31-0.70)	0.63(0.38-1.05)	0.079
	No		1	1	
Withdrawal method is preferred method to prevent pregnancy	Yes	203(51.5)	1.88(1.25-2.81)	1.29(0.79-2.12)	0.316
	No		1	1	

Table 6. Consequences of teenage pregnancy on teenagers in Limbe Health District.

Variable	Category	Frequency / (%)
Rejected by parents	No	63 (28.5)
	Yes	158 (71.5)
	Total	221 (100)
Drop out from school	No	23 (10.4)
	Yes	198 (89.6)
	Total	221 (100)
Were stigmatized	No	44 (19.9)
	Yes	177 (80.1)
	Total	221 (100)
Had any health issue	No	87 (39.4)
	Yes	134 (60.6)
	Total	221 (100)
Lose job	No	173 (78.3)
	Yes	48 (21.7)
	Total	221 (100)

healthcare providers, educators, parents or guardian and the community as a whole. This rate is alarmingly high and suggests that there are underlying factors that contribute to this problem.

One of the major causes of teenage pregnancy in the selected communities of the Limbe health district is poverty. Many young girls in these communities come from poor families and lack access to education and healthcare. They are also more likely to engage in risky sexual behaviour due to the lack of resources and opportunities. In addition, cultural and social norms often place a low value on girls' education and prioritize early marriage and childbearing. These factors contribute to the high prevalence of teenage pregnancy in the country (Kanku and Mash, 2010).

More still with Limbe being well known as a touristic town and town of relaxation by many causing a lot of young girls fall a victim or get engage in sexual activities for diverse reasons which may land them in to being teenage moms and school dropout.

The implications of teenage pregnancy in the Limbe Health District are significant. Teenage mothers are more likely to experience complications during pregnancy and childbirth, which can lead to maternal and infant mortality (Egbe et al., 2015; Ako et al., 2023). In addition, teenage mothers are more likely to drop out of school, which limits their future opportunities and perpetuates the cycle of poverty. Children born to teenage mothers are also more likely to experience poor health outcomes and face social and economic challenges (Egbe et al., 2015).

The prevalence reported in this study is higher than the 13.3% reported by Egbe et al. (2015) in Cameroon. It is also higher than the 18.8% pooled systematic review prevalence reported in Africa by Kassa et al. (2018). One of the most significant factors that can contribute to higher rates of teenage pregnancy is socioeconomic status. Research has consistently shown that young people from lower-income families are more likely to become pregnant at a younger age than those from higher-income families. This is likely due to a range of factors, including limited access to education and healthcare, as well as a lack of opportunities for employment and career advancement (Kassa et al., 2018). Also, access to healthcare and education is another important factor that can impact teenage pregnancy rates.

Young people who have access to comprehensive sex education and contraception are more likely to delay sexual activity and use protection when they do become sexually active. However, in many communities, access to these resources may be limited or non-existent, which can increase the risk of unintended pregnancy. The higher prevalence in this study as compared to the study by Egbe et al. (2015) and Ako et al. (2023) could be due to the fact that most of the participants in this study were recruited from rural settings whereas their studies were carried out in urban settings. The implication of this high prevalence is that, many teenagers in this area engage in

unprotected sexual activity.

Knowledge of teenagers on teenage pregnancy

The knowledge of teenagers on teenage pregnancy reported in this study was 59.1%. This means, about 6 in 10 teenagers had correct knowledge on teenage pregnancy. The reported knowledge of teenagers on teenage pregnancy in rural communities of the Limbe Health District is concerning, as it suggests a significant gap in education and awareness on important issues such as sexual health, contraception and sexually transmitted infections (STIs) (Campbell et al., 2006). A study has shown that, knowledge is associated with attitudes and practices (Campbell et al., 2006). This result is consistent with a report by UNESCO, which found that only 30% of schools in sub-Saharan Africa provide comprehensive sex education, including information on sexual health and gender equality (Birungi et al., 2015).

The lack of education can lead to misinformation and myths about sexual health, which can have serious consequences for teenagers' health and wellbeing. For instance, inadequate knowledge about STIs and their modes of transmission may increase the risk of contracting these infections. Additionally, cultural and social factors may also contribute to the low level of knowledge among teenagers, such as the taboo nature of discussions about sex and sexuality in many African societies.

To address this issue, it is essential to prioritize comprehensive sex education programs that provide accurate information about sexual health and contraception. These programs should be culturally sensitive and tailored to the needs of teenagers in different regions of Cameroon. Additionally, efforts should be made to encourage parents and teachers to have open and honest discussions about sex and sexuality with their children. Improving education and awareness about sexual health is crucial for the overall well-being of teenagers in Cameroon. By prioritizing comprehensive sex education programs and promoting open discussions about sex and sexuality, we can help ensure that teenagers have access to the information they need to make informed decisions about their health and future.

Factors associated to teenage pregnancy among adolescents in the Limbe Health District

Concerning factors associated to teenage pregnancy, five factors were reported significantly associated with teenage pregnancy in this study. These factors include age group, marital status, keeping late night, sexually abused in the past and free to leave/come home anytime. The results shown that, age was positively associated with teenage pregnancy. This means that, the older a

teenager was, the more likely she was to be pregnant.

There is evidence to suggest that teenage pregnancy rates increase with age due to a variety of factors, including social and economic factors, access to contraception, and cultural norms. One study found that older teenagers, particularly those aged 18 to 19, were more likely to become pregnant due to a lack of access to contraception and a greater likelihood of engaging in risky sexual behaviour (Odimegwu and Mkwanzani, 2016). Additionally, socioeconomic factors such as poverty and low educational attainment have been linked to higher rates of teenage pregnancy (Kassa et al., 2018).

Cultural norms may also play a role in the higher rates of teenage pregnancy among older teenagers. In some communities, early marriage and childbearing are seen as desirable or even necessary for young women, leading to a greater likelihood of becoming pregnant at a young age (Dawson et al., 2021). To address the issue of teenage pregnancy, it is important to consider these underlying factors and develop comprehensive strategies that address both individual and societal factors. This may include increasing access to contraception and sexual health education, addressing poverty and inequality, and challenging harmful cultural norms that contribute to early marriage and childbearing.

Married teenagers were more likely to be pregnant as compared to their unmarried counterparts. This is obvious as one would expect given that married teenagers are more likely to involve in unprotected sexual activities with their husbands than unmarried teens (Dawson et al., 2021).

Sexually abused teens are more likely to be pregnant due to a variety of factors, including a lack of access to contraception and a higher likelihood of engaging in risky sexual behaviour. One study found that sexually abused adolescents were less likely to use contraception consistently and correctly, increasing their risk of unintended pregnancy (Gerntholtz et al., 2011). Additionally, sexual abuse can lead to a greater likelihood of engaging in sexual activity at a young age and with multiple partners, further increasing the risk of pregnancy (Grimes et al., 2006). Furthermore, the trauma and emotional distress associated with sexual abuse may lead to risky coping behaviours, such as substance abuse and unprotected sex, which can also increase the likelihood of pregnancy (Munakampe et al., 2018). To address the issue of teenage pregnancy among sexually abused teens, it is important to provide comprehensive support services that address both the physical and emotional needs of survivors. This may include access to contraception and sexual health education, counselling and therapy services, support for substance abuse and other risky behaviours.

Teens who reported keeping late night and going for clubbing were more likely to be pregnant than those who did not. Teenagers who stay out late at night and engage

in clubbing are at a higher risk of getting pregnant due to a variety of factors, including increased exposure to risky sexual behaviour, substance abuse, and a lack of access to contraception.

One study found that adolescents who engage in nightlife activities, such as clubbing, were more likely to report having multiple sexual partners and engaging in unprotected sex (Warenus et al., 2006). Additionally, substance abuse, such as alcohol and drugs, is often prevalent in nightlife settings and can impair judgment and increase the likelihood of engaging in risky sexual behaviour (Cleland et al., 2006). Furthermore, teens who keep late nights may have limited access to contraception and sexual health education, as these services may not be available during non-traditional hours. This can increase the likelihood of unintended pregnancy (Campbell et al., 2006).

Consequences of teenage pregnancy on the teenager

Consequences of teenage pregnancy documented in this study were parental rejection, school dropout, stigmatization and health complications. Pregnant teens in Cameroon may face parental rejection due to cultural and religious beliefs that view premarital sex and pregnancy as immoral and shameful. In some communities, pregnancy outside of marriage is seen as a violation of family honour and can lead to social ostracism. Furthermore, parents may fear the social and economic consequences of having a pregnant teen in the family, such as the cost of raising a child and the impact on the family's reputation. In some cases, pregnant teens may be forced to leave their homes and seek shelter elsewhere, such as with relatives or in shelters for unwed mothers.

To address the issue of parental rejection of pregnant teens in Cameroon, it is important to promote education and awareness about adolescent sexual and reproductive health, including the importance of supporting pregnant teens. This may involve working with community leaders and religious organizations to challenge cultural norms and promote acceptance of pregnant teens.

In Cameroon, many schools lately would dismiss students when they become pregnant. This might be the reason of the high school dropout reported in this study. Another reason for the high school dropout reported could be as a result of the high parental rejection documented in this study.

Conclusion

The prevalence of teenage pregnancy was high in this study. The knowledge of teens on teenage pregnancy was good. Factors found associated to teenage

pregnancy were age, marital status, keeping late night, sexually abused in the past and free to leave/come anytime. The main consequences of teenage pregnancy were parental rejection, school dropout and stigmatization. Education among these girls regarding contraceptive use in the Limbe Health District need to be improved to reduce the burden of teenage pregnancy in this district.

Recommendations

Given that the prevalence of teenage pregnancy in this study was high and the knowledge of teens on teenage pregnancy was just moderate, the following were recommended:

1. The traditional counsels, local authorities should collaborate with parents to protect their pregnant teens to ensure they do not go astray as a result of pregnancy.
2. Healthcare workers and community health workers of the district should intensify sensitization on the use of contraceptives among teenagers to boost contraceptive uptake that will lead to a decrease in the teenage pregnancy prevalence.
3. Teenagers should ensure they consistently use condoms during sexual intercourse to protect themselves from teenage pregnancy and mitigate the resulting negative consequences for both the mother and child.
4. Parents of teenage girls should always give counselling and sex education to their girls to increase their awareness on teenage pregnancy prevention.

Strengths of the study

The minimum sample size utilized above likely increased the accuracy of the results reported in this study. The probability sampling methods employed in this study provided participants with an equal opportunity to be selected, enhancing the study's generalizability.

Importance of the topic

Teenage pregnancy is a significant public health issue in Cameroon, and the study can provide valuable insights into the factors contributing to it.

Potential for impact

The findings of the study could inform policies and interventions aimed at reducing teenage pregnancy rates in Cameroon, which can have a positive impact on the health and well-being of young people and their communities.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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