



RESEARCH ARTICLE

Prevalence and Factors Associated with Teenage Pregnancy at Selected Governmental Health Centers of Addis Ketema Sub City, Addis Ababa, Ethiopia; September, 2023

Faisel Abdo, DMD, MPH¹, Tefera Tezera, PhD^{1*} and Zelalem Negash Mekuria, MD, MPH, MPH, MA²

¹Department of Public Health, Rift Valley University, Ethiopia

²Department of Public Health, Addis Ababa Medical & Business College, Ethiopia

*Corresponding author: Tefera Tezera, PhD, Department of Public Health, Rift Valley University, Ethiopia, Tel: +251932097460; +251967283492



Abstract

Background: In Ethiopia, a large proportion of girls start having children at a young age. The primary cause of maternal and child morbidity and mortality, as well as the cycle of poverty and illness, is teen pregnancy.

Objective: To assess prevalence and factors associated with teenage pregnancy among HCG Positives at selected Governmental Health Centers of Addis Ketema sub city, Addis Ababa; Ethiopia; by August, 2023.

Method and materials: A health facility based cross-sectional study that employed quantitative research methods. Total of 287 in public health facility teenage girls aged 13-19 years were selected using multi-stage sampling technique. Interviewer administered questionnaire was used to collect data from participants. Analysis of data was performed using EPI info version 7.2.5.0 and exported to SPSS version 20 for descriptive and logistic regression analysis.

Results: The proportion of teenage pregnancy among respondents in Addis Ketema sub-city governmental health centers was 81(28.2%) with a 95% CI. The proportion of teenage pregnancy among respondents in Addis ketema sub-city governmental health centers was 81(28.2%) with a 95% CI. Those teenagers whose first intercourse is below 17 years are 8.8 times more exposed to pregnancy than and those 18 years and above (p-value = 0.02, AOR = 8.8, 7.06-52.7). Those teenagers not used family planning are 3.02 times more likely to get pregnant than those used (p-value = 0.04, AOR = 3.02 (2.33-4.250).

Conclusions: Magnitude of teenage pregnancy not used family planning, age of first sexual intercourse under 17 age were more exposed to pregnancy to have significant association with teenage pregnancy. The results indicate

that encouraging the use of contraception, avoiding young marriage, and highlighting the negative effects of adolescent pregnancy are essential.

Keywords

Teenage girls, pregnancy, Addis Ababa

Abbreviations

AARHB: Addis Ababa Regional Health Bureau; AOR: Adjusted Odds Ratio; AYH: Adolescent and Youth Health; CI: Confidence Interval; EDHS: Ethiopia Demographic and Health Survey; HC: Health Center; OR: Odds Ratio; WHO: World Health Organization

Introduction

Background

Teenage pregnancy is defined by the United Nations Children Fund (UNICEF) as a pregnancy in a girl between the ages of 13 and 19 [1]. Above 90% of births occur in low- and middle-income countries [2]. According to data, 529,000 women worldwide may pass away each year as a result of complications associated with pregnancy and childbirth [3]. Over the world, teen victims of early marriage suffer from STIs, female genital mutilation, starvation, anemia, infertility, sexual and gender-based abuse, unintended pregnancies, and illegal abortions [4]. Also, A major health concern in teenage pregnancies is nutritional anemia during pregnancy [5].



Citation: Abdo F, Tezera T, Mekuria ZN (2024) Prevalence and Factors Associated with Teenage Pregnancy at Selected Governmental Health Centers of Addis Ketema Sub City, Addis Ababa, Ethiopia; September, 2023. Int J Womens Health Wellness 10:161. doi.org/10.23937/2474-1353/1510161

Accepted: April 19, 2024; **Published:** April 21, 2024

Copyright: © 2024 Abdo F, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Due its consequences teenage pregnancies are viewed as a death sentence in several nations. WHO's advise for lowering early marriage are supported by 21 studies, project reports, and expert panel recommendations. High prevalence of teenage pregnancies in low-income [6-8].

The WHO views teenage pregnancies as high-risk pregnancies because they are linked to unfavorable outcomes for both mother and foetus [9]. Adolescent pregnancy is highly correlated with early sexual activity [10]. Teenagers experience is 1/4th of all the incidence of negative pregnancy and childbirth outcomes [11]. Teenage pregnancy can lead to depression, poor school performance, a lack of attachment to the labour force, low earnings [12]. Furthermore, Girls at this age are not mentally or physically prepared to take on the obligations of parenting [13]. Adolescents account for roughly one-sixth and one-fourth of the populations in the world and Sub-Saharan Africa (SSA), respectively [14]. Premarital intercourse pregnancy and early marriage are two factors that may contribute to high teen pregnancy rates [15].

Pregnancy negatively impacted educational levels than their rivals in terms of career [16]. Rates of teenage pregnancy and usage of modern contraceptives are among the lowest in Tanzania, Nigeria, and Ethiopia [17]. Adolescent pregnancy is linked to significant socioeconomic difficulties [18]. Teenagers are more likely than adults to have unsafe abortions, which causes more women to die [19]. Both in developed nations and low- and middle-income countries, excessive risk behavior and substance use frequently coexist also Most married are before 18 years and didn't attend school [20,21].

Adolescent pregnancies in Sub-Saharan Africa are influenced mostly by health service related factors [22]. Global Strategy focuses teenagers as being essential to achieving Sustainable Development Goals [23]. Misunderstanding about sexual and reproductive health (SRH), particularly among adolescents, inhibits efforts to make healthcare services more accessible to people of low and middle income [24]. Low birth weight, pre-eclampsia or eclampsia, premature delivery, and maternal and perinatal mortality, are likely to occur in adolescent pregnancies [25].

UNFPA analysis estimates that 14 million teenagers between the ages of 15 and 19 give birth each year, with more than 90% in poor nations [26]. Unmarried teenage females are commonly the objects of social isolation [27]. Guidelines for preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries were released by the WHO to improve health professionals awareness [28].

Significant progress on sexual and reproductive health since the 1994 International Conference on Population and Development (ICPD), Agenda 2063,

and the Sustainable Development Goals (SDGs) were established [29].

Sub-Saharan Africa, had the highest rate of teen pregnancies in the world in 2013, accounting for more than half of all births [30]. Women between the ages of 15 and 19 account for one-fourth of the estimated 6 million unsafe abortions performed in Africa each year [31]. The factors in Africa are a lack of sexuality education, ineffective use of modern contraceptives, cultural obedience, females' socioeconomic dependence on males, and peer influence [32,33]. It needs a policy addressing teenage pregnancies in Africa due to effects of the high teenage pregnancy rate in Africa [34].

In Ethiopia with the highest rates occurring in the Afar and Somalia areas [35]. Studies show regions high prevalence Afar 23%, Somalia 19% and Oromiya 17% [36]. Each year, the majority of adolescent girls in Ethiopia's rural areas are pregnant outside of marriage [1].

Objectives

General objective

To assess prevalence and factors associated with teenage pregnancy at selected Governmental Health Centers of Addis Ketema sub city, Addis Ababa; Ethiopia; 2023.

Specific objectives

- To determine prevalence of teenage pregnancies in Addis ketema health centers.
- To find out which factors mostly associated with teenage pregnancies.

Methodology

Study area

The capital of Ethiopia is Addis Ababa. According to the 2007 census, it has a total population of 3,384,569, making it the largest city in the nation by population. The city has experienced a rapid annual population increase in recent years, and as of 2017, the population was getting closer to 4 million. Ethiopia's capital city has 527 square kilometers of land.

Almost 5,165 people are thought to live there in every available square kilometer. According to the population figures from the most recent census, there are more women than men living in Addis Ababa. The capital city has the highest adult literacy rate of any city in the nation, with over 93% for men and around 80% for women. With a population of 480,373 Addis Ketema Sub City is about 7.41 KM² (2.86 sq. miles) in size [25]. The sub-city includes 14 health centers, and the study will be held in three of them that were chosen by lottery.

Study period

The study was conducted In June 1-June 30/2023.

Study design

Institutional based cross-sectional study was conducted at public health centers in Addis, Ketema Sub city, Addis Ababa Ethiopia.

Source population

All adolescent women in Addis Ketema Sub City during the study period.

Study population

All pregnant teenagers who visited the selected public health facilities in Addis Ketema and Addis Abeba during the study period.

Study unit

Those teenage girls came to AYH clinic in selected public health Centers.

Eligibility criteria

Inclusion criteria: All pregnant teenagers whose age is between 13-19 years who visited the selected public health facilities in Addis Ketema and Addis Ababa during the study period.

Exclusion criteria:

- Severely ill
- Severe Mental Health disorder

Variables

Outcome variable: Teenage pregnancy served as the study's outcome variable.

Independent variable:

Socio demographic traits

- Age
- Marital status
- Occupation
- Educational Status

Factors affecting families

- Family Income

Obstetrics history related factors

- Number of pregnancies
- Number of abortions
- Age of first sexual intercourse
- Family planning usage
- Condition of pregnancy
- Reasons declined to use family planning if not used

Operational definition

Teenage pregnancy/Adolescent pregnancy: A

pregnancy who believe that they are pregnant and confirmed by a health care providers in a girl between the ages of 13 and 19 [1].

Early sexual intercourse: Is practicing of sexual intercourse before 18-years-old [37].

Peer pressure: Is when you do something because you want to feel accepted and valued by your friends. Peer influence can be positive or negative [38].

Unplanned pregnancies: A pregnancy that is either unwanted, such as the pregnancy occurred when no children or no more children were desired [39].

Sample size determination

The sample size was calculated using Leslie Fischer's formula for population > 10,000, the formula for sample size calculation that took the following assumptions into account: 13% of teenage pregnancy in Ethiopia based on 2016 EDHS, 5% level of significance (= 0.05), and 5% margin of error (= 0.05). The final sample size was adjusted to 287 by adding 10% non-response rate and accounting design effect.

The sample size was required to estimate a population proportion with a given level of precision and becomes as below:

Z = 1.96 reflects the confidence level

N = total population size

P = prevalence of teenage pregnancy in Ethiopia (13%)

d = degree of accuracy expressed as proportion (0.05)

Deff = 1.5

$$n = \frac{(Z \alpha/2)^2 pq}{d^2} * Deff$$

$$N \approx \frac{(1.96 \times 1.96) (0.13 \times 0.87)}{0.05 * 0.05} \times 1.5 = 261$$

By using the above formula the sample size become 261 and by adding the non-response rate of 10% the final sample size becomes 26 + 174 = 287

Sampling procedure

Stage 1: A Town which is Capital city of Ethiopia was selected using a one-time ballot.

Stage 2: A sub-city was selected using simple random sampling from existing eleven.

Stage 3: Public health facilities were systematically Selected within the selected sub-city.

Participants of the study were all who fulfill eligibility criteria and signed consent to participate in the study in the specified study period.

Data quality control

The information was be gathered by five B.S.C.

nurses under the guidance of a public health official. Throughout the two days of data collecting training, the Supervisor and data collectors learned how to conduct interviews and ascertain eligibility requirements.

The quality of the data was ensured by careful planning, questionnaire translation and pretesting, and effective data management. The data was periodically reviewed throughout the data collection process, and at the end of each day, the collected questionnaires were examined for consistency and accuracy.

Data analysis

The questionnaire-based information was entered into EPI info version 7.2.5.0 and examined using SPSS version 25. All variables related to the objectives of the study were having their frequencies and percentages calculated after the data have been cleaned. The link between the independent and dependent variables was examined using binary and multiple logistic regressions, and the odds ratio with a 95% confidence interval calculated. In binary regression, variables with p-values less than 0.25 was be subjected to multiple logistic regression. Substantially connected variables were ultimately defined as those in the multivariate analysis with a p-value of 0.05 or less.

Ethical consideration

Before the start of data collection, the Rift Valley University Lancha Campus Ethics Review Committee's ethical approval was given. Addis Ababa Public Health Research and Emergency Management Directorate granted ethical clearance. After receiving ethical approval, the administrative body of the Addis Ketema Sub-City Health Office was contacted to request permission to perform the study. To secure verbal agreement from all eligible participants in the study, an information sheet was created and distributed to

them. All participants were made aware of the study's objectives, and they all willingly agreed to participate. To maintain secrecy during the course of the study, participants' names were not requested; instead, a code number was utilized. Also, to preserve anonymity, written informed consent was collected from every study participant. Participants were asked for their consent prior to the interview. Participants' names were not sought or recorded Girls under the age of 18 were also asked for their assent prior to the interview to sign. Participants' names were not sought or recorded.

Result

Socio-demographic characteristics of respondents

Among 287 participants response rate was 100%. From total study participants majority 64.8% of respondent were 19 years of age group. The mean age of pregnant teenagers is 18.6 and the median age is 17. Most common occupation group seen was housewife 127(44.25%) and most of them are married 239(83.3%). Majority Teenagers pregnancy was Age 18 and above of first intercourse 51(62.96%). Majority of teenagers were with educational status college and above 111(38.7%). When we see occupation of teenagers most of them are house wives 127(44.25%). Those teenagers with family monthly income the least were <= 5000 etb 6(2.1%) and the highest 16334-27667 165(57.5%) (Table 1).

Sexual and reproductive health characteristics of participants

Those teenage girls majority felt Happy 65(80.3%) the latter were unhappy 9(11.1%). Pregnancy outcome those delivered were 22(79.4%) and aborted 59(20.6%) from all pregnancies planned ones were 65(22.6%) and unplanned is 14(4.9%) (Table 2).

Table 1: Descriptive analyses of socio-demographic characteristic of Teenager girls.

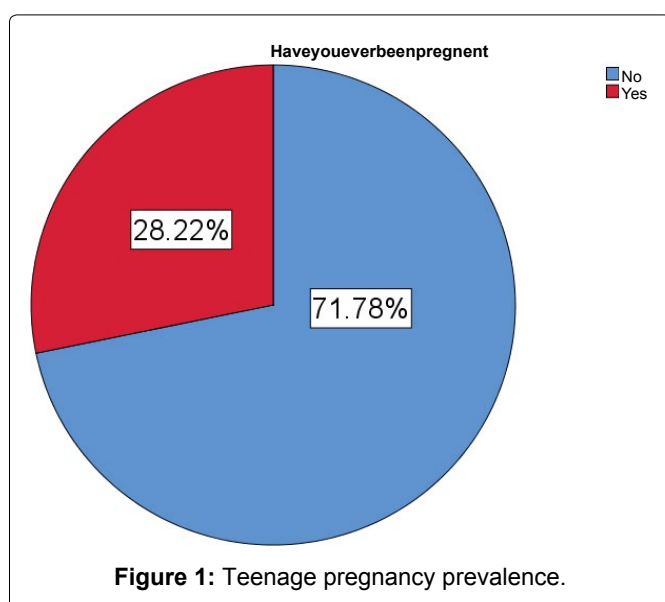
Characteristics		Frequency	Percentage
Age	17	12	4.1
	18	86	29.9
	19	189	64.8
Occupation	Daily Labour	4	1.4
	Government employee	3	1.04
	Housewife	127	44.25
	Merchant	30	10.45
	Other	1	0.34
	Other	54	18.81
	Student	68	23.69
Educational Status	College and Above	111	38.7
	Primary	31	10.8
	Secondary	145	50.5
Marital Status	Married	239	83.3
	Single	48	16.7

Table 2: Sexual and reproductive health characteristics of participants.

Characteristics	Responses	Frequency	Percentage
Feelings due to pregnancy	Anxiety	9	11.1%
	Happy	65	80.3%
	Nothing	7	8.6%
Pregnancy outcome	Delivered	22	79.4%
	Aborted	59	20.6%
Type of pregnancy	Planned	65	22.6%
	Unplanned	14	4.9

Table 3: Descriptive analysis Teenage girls pregnancy Individual and Parent factors.

Characteristics		Frequency	Percentage
Age of first sexual intercourse	<= 17	105	35.6%
	18 and above	182	64.4%
Family monthly income	<= 5000	6	2.1%
	5001-16333	66	23.0%
	16334-27667	165	57.5%
	27668+	50	17.4%
Teenage girls living status	Alone	24	8.4%
	Do not able to mention	3	1.0%
	With family other than parent	11	3.8%
	With my husband	235	81.9%
	With my parents	14	4.9%
Reasons for not using family planning	Family/husband influence	45	15.7%
	Not having adequate Knowledge	7	2.4%
	Peer influence	11	3.8%
	Service is not available	1	0.3%
	Other	1	0.3%

**Figure 1:** Teenage pregnancy prevalence.

Individual and parent factors

Large number of teenagers first sexual intercourse age were 18 years and below 182(64.4%). Most of teenagers family income is 16334-27667 etb 165(57.5%) and the least one <= 5000 etb. Those teenagers living with husband are majority accounting 235(81.9%)

secondly living alone 24(8.4%) and those family planning not used due to peer influence were 11(3.8%) due to Husband and family influence were 45(15.7%) (Table 3).

Teenage pregnancy prevalence

From the total respondents 81(28.2%) of teenage girls had pregnancy and 206(71.8%) of them had no pregnancy (Figure 1).

Factors associated with teenage pregnancy

From socio demographic characteristics age of first intercourse is 17 years and below are 8.8 times more exposed to pregnancy than and those 18 years and above (p-value 0.02, AOR = 8.8, 7.06-52.7). Those teenagers not used family planning are 3.02 times more likely to get pregnant than those not used (P-value 0.04, AOR = 3.02(0.002-4.250) these are statistically significantly variable (Table 4, Table 5 and Figure 2).

Discussion

There were 81 participants who get pregnant in this study 81(28.2%). One of the highest rates of adolescent pregnancies worldwide is seen in South Asia. At 35%, 21%, and 21%, respectively, Bangladesh, Nepal, and India have reported the greatest prevalence

Table 4: Bivariate and multivariate analysis of Socio-demographic factors showing Risk factors among Teenage girls in Addis ketema sub city, Addis Ababa, Ethiopia, August 2023 (n = 287).

Variables	Category	Pregnancy		COR; 95%CI	AOR; 95%CI	P-Value
		Yes	No			
Age of teenagers	<= 17	7(2.4%)	5(1.7%)	4.112(1.247-13.57)	0.054(0.001-3.3)	0.18
	18	26(9.1%)	60(20.9%)	1.273(1.01-2.24)	2.083(9-22.35)	0.75
	19	48(16.7%)	141(49.1%)	1	1	0.33
Educational status	College and above	32(39.5%)	79(38.3%)	1.226(1.9-2.14)	1.48(1.3-13)	0.62
	Secondary education	36(44.4%)	109(52.9%)	1	4.71(1.4-99.9)	0.44
	Primary education	13(16%)	18(8.74%)	2.187(1.3-4.9)	0.15(0.98-0.36)	0.73
Occupation	Daily Labourer	2(2.47%)	2(0.97%)	1.267(1.1-9.53)	1.187(1.01-2.9)	0.51
	Government employee	0	3(0.5%)	1	2.187(1.4-3.9)	0.77
	Housewife	38(46.9%)	89(43.2%)	0.541(0.29-0.99)	2.19(1.33-24.73)	0.28
	Merchant	5(6.2%)	5(6.2%)	0.253(0.087-0.74)	26.541(2.44-7.1)	0.61
	Other	5(6.2%)	25(12.1%)	0.155(0.059-0.411)	0.242(0.016-3.6)	0.57
	Student	(1.2%)	0	1	13.6(3.2-4.5)	0.11
Monthly income	<= 5000	1(1.2%)	5(2.4%)	3.4(2.6-5.97)	0.246(0.7-0.9)	0.21
	5001-16333	28(34.6%)	38(18.4%)	2.333(1.04-5.26)*	0.115(0.007-0.915)	0.71
	16334-27667	40(49.4%)	125(60.7%)	1.013(1.48-2.12)	0.606(0.045-0.18)	0.66
	27668+	12(14.08%)	38(18.4%)	1	1	0.81
Marital status	Single	66(81.5%)	173(84%)	0.06(0.001-0.77)	0.03(0.001-0.07)	0.53
	Married	15(18.5%)	33(16%)	1.191(1.6-2.3)	2.051(1.2-3.5)	0.22
Age of first sexual intercourse	<= 17	30(37%)	75(36.4%)	0.973(0.57-0.66)	8.8(7.06-52.71)	0.02
	18 and above	51(62.96%)	131(65.6%)	1	1	0.74

*P value less than 0.05; AOR: Adjusted Odds Ratio; COR: Crude Odds Ratio

Table 5: Bivariate and multivariate analysis showing sexual and reproductive health Risk factors among teenage girls in Addis Ketema sub city, Addis Ababa, Ethiopia, August 2023 (n = 287).

Variables	Category	Pregnancy		COR; 95%CI	AOR; 95%CI	P-value
		Yes	No			
Status of Pregnancy	Delivered	22(27.2%)	0	0.001(0.01-0.001)	0.2(0.01-0.34)	0.32
	Aborted	59(72.8%)	0	0.1(0.001- 0.2)	0.413(0.01-0.631)	0.45
Family planning Usage	Yes	3(3.7%)	173(83.98%)	1	1	0.99
	No	78(96.3%)	33(16%)	136.303(40.57-457.9)*	3.02(2.33-4.250)	0.04
If not using family planning mention the reason	Family/husband influence	25(30.86%)	20(9.7%)	4.413(2.263-8.608)*	4.36(0.001-0.02)	0.33
	Not having adequate knowledge	1(1.2%)	6(2.9%)	0.588(0.069-0.81)	19.5(3.8-6.02)	0.54
	Other	1(1.2%)	0	1	35.91(4-8.3)	0.73
	Peer influence	4(4.9%)	7(3.4%)	2.017(0.567-7.175)	4.6(2-5.07)	0.42
	Service is not available	1(1.2%)	0	1	0.01(0.001-0.08)	0.51
If been pregnant mention the reason	Marriage	66(81.5%)	0	0.044(0.1-0.521)	1.12(1-3.02)	0.88
	Non-use of contraceptive	12(14.8%)	0	1	5.88(4.2-6.034)	0.24
	Peer pressure	3(3.7%)	0	1	0.034(0.001-0.03)	0.66

Condition of pregnancy	Planned	22(27.2%)	0	839(194-3610)*	1	0.55
	Unplanned	59(72.8%)	0	0.054(0.001-0.06)	6.9(7.06-9.7)	0.91
What do you felt with the pregnancy	Happy	9(11.1%)	0	1	0.213(0.01-0.003)	0.98
	Anxiety	63(77.8%)	2(0.97%)	3213.000(443.5-23276)	0.11(0.01-0.25)	0.71
	Nothing	7(8.6%)	0	1	1	0.82

*P value less than 0.05; AOR: Adjusted Odds Ratio; COR: Crude Odds Ratio

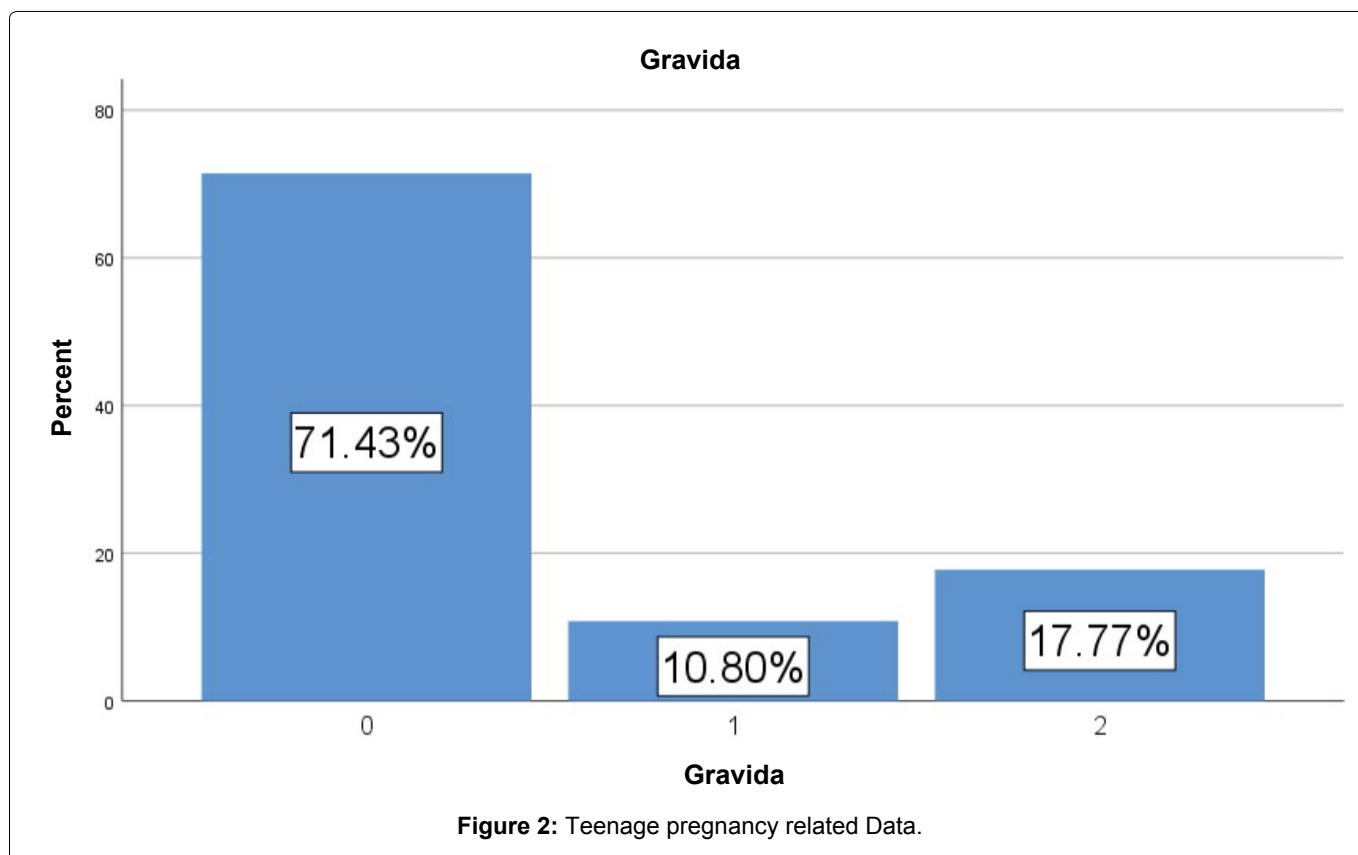


Figure 2: Teenage pregnancy related Data.

of adolescent pregnancy within the region it was Due to a lack of thorough sexuality education and low socioeconomic standing. The conventional social norms that favour early marriage and the limited autonomy of teenage girls reinforce this. This result is lower than Bangladesh but higher than Nepal and India [40].

There were a total of 24 nations from the sub-regions of East, West, Central, North, and Southern Africa. In Africa as a whole, the prevalence of adolescent pregnancies was 18.8% (95% CI: 16.7-20.9), while in sub-Saharan Africa, it was 19.3% (95% CI: 16.9-21.6). East Africa had the highest prevalence (21.5%), while Northern Africa had the lowest (9.2%). Adolescent pregnancy risk factors include, having ever been married (OR: 20.67), not attending school (OR: 2.49). This study is also shows majority of Teenage pregnancy were due to marriage (OR: 1.91) [41].

The result is somehow higher than the research done among high school students in Gondar (23.5%) and Nekemt (21.5%), two towns in Ethiopia. However, the results are in line with the results of research conducted among school-aged teenagers in Nigeria, and the Ethiopian Demographic and Health Survey (EDHS) report from 2011. 24.2% and 28.2%, respectively, were

the results of these studies. The gap may be caused by methodological differences: This study only included health facility visiting teenagers, whereas EDHS included adolescents from the community [42].

Married teenagers were more likely than single teenagers to become pregnant. This result is consistent with research from Ethiopia, Nigeria, Uganda, and Ethiopia. This might be because married teenagers started having relationships without having access to or knowledge of family planning options, which increases their risk of getting pregnant. Additionally, only 7.5% of adolescent girls use family planning, despite having a substantial unmet demand (22.5%). Early marriage is one of the most prevalent and detrimental traditional practices in Ethiopia, despite national and international laws that forbid it. According to the EDHS 2016, nearly half (47%) of women were married before reaching the age of 18 [43].

This study shows major factor teenage pregnancy family planning not using due to family and peer influence (AOR = 3.02(2.33-4.250). It is estimated that 14 million unplanned pregnancies take place annually in sub-Saharan Africa, with women between the ages of 15

and 24 accounting for about half of these pregnancies. According to recent data, 21% of adolescent girls in the western or central region of Africa and 18% of adolescent girls in the eastern or southern region had started having children [44].

According to study conducted on Magnitude and its associated factors of teenage pregnancy among antenatal care attendees in Bahir Dar city by 2022 age at first sexual intercourse and not using contraception prior to this pregnancy 5.22(3.243, 11.675)] were significantly associated with teenage pregnancy this is in line with this study in both cases of predictive variables [45].

Determinants of Teenage Pregnancy in Ethiopia by 2019: Contraceptive use, and reasons for not using Family planning were higher among the cases and were statistically significant [44]. According to study done in Uganda Low use of contraceptives was the most cause of teenage pregnancy by 56% [46].

Limitation of the Study

As strength, the study used data from a nationally representative large dataset, which results in adequate statistical power but it has limitations in that it doesn't include family or husband educational level and awareness on family planning.

Conclusion

This study showed that there is a high prevalence of teenage pregnancy not used family planning, age of first sexual intercourse 17 and below were more exposed to pregnancy to have a statistically significant association with teenage pregnancy. The results indicate that encouraging the use of contraception, avoiding young marriage, and highlighting the negative effects of adolescent pregnancy are essential.

Acknowledgment

My special thanks to Addis Ketema sub city and public health centers for their cooperation for data collection and all study participants who give us baseline information for research preparation.

Authors' Contributions

Dr. Faisal Abdo and Dr. Tefera Tezera from Rift valley University participated in data analysis, interpretation, manuscript drafting, wrote the paper, revised the manuscript participate on the data collection and data entry. Dr. Zelalem Negash designed the study edit the manuscript. All authors read and approved the final manuscript.

Disclosure

The authors declare that they have no conflicts of interest for this work.

References

1. Mezmur H, Assefa N, Alemayehu T (2021) Teenage

pregnancy and its associated factors in eastern Ethiopia: A community-based study. *Int J Womens Health* 13: 267-278.

2. Ayanaw Habitu Y, Yalew A, Azale Bisetegn T (2018) Prevalence and factors associated with teenage pregnancy, northeast Ethiopia, 2017: A cross-sectional study. *J Pregnancy* 2018: 1714527.

3. Nury ATM, Sayem AM (2011) Factors associated with teenage marital pregnancy among Bangladeshi women. *Reprod Health* 8: 16.

4. Kassa B, Belay H, Ayele A (2021) Teenage pregnancy and its associated factors among teenage females in Farta Woreda, Northwest, Ethiopia, 2020: A community-based cross-sectional study. *Population Medicine* 3: 1-8.

5. Ali A, Khaliq A, Lokeesan L, Meherali S, Lassi ZS (2022) Prevalence and predictors of teenage pregnancy in Pakistan: A trend analysis from Pakistan demographic and health survey datasets from 1990 to 2018. *Int Health* 14: 176-182.

6. Mamo K, Siyoum M, Birhanu A (2021) Teenage pregnancy and associated factors in Ethiopia: A systematic review and meta-analysis. *Int J Adolescence and Youth* 26: 501-512.

7. Organization WH (2012) Preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries.

8. Uwizeye D, Muhayiteto R, Kantarama E, Wiehler S, Murangwa Y (2020) Prevalence of teenage pregnancy and the associated contextual correlates in Rwanda. *Heliyon* 6: e05037.

9. Mezmur H, Assefa N, Alemayehu T (2021) An increased adverse fetal outcome has been observed among teen pregnant women in rural eastern Ethiopia: A comparative cross-sectional study. *Glob Pediatr Health* 8: 2333794X21999154.

10. Worku MG, Tessema ZT, Teshale AB, Tesema GA, Yeshaw Y (2021) Prevalence and associated factors of adolescent pregnancy (15-19 years) in East Africa: A multilevel analysis. *BMC Pregnancy and Childbirth* 21: 253.

11. Nguyen H, Shiu C, Farber N (2016) Prevalence and factors associated with teen pregnancy in Vietnam: Results from two national surveys. *Societies* 6: 17.

12. Tiruneh YS (2010) International Institute of Social Studies.

13. Gselamu L, Dagne Y, Gebreyohannes M, Kelebe A (2019) Psychosocial effects of teenage pregnancy: Systematic analysis. *Psychology and Behavioral Sciences* 8: 115.

14. Ayele BG, Gebregzabher TG, Hailu TT, Assefa BA (2018) Determinants of teenage pregnancy in Degua Tembien District, Tigray, Northern Ethiopia: A community-based case-control study. *PLoS One* 13: e0200898.

15. Natividad J (2013) Teenage pregnancy in the Philippines: Trends, correlates and data sources.

16. Mohr R, Carbajal J, Sharma BB (2019) The influence of educational attainment on teenage pregnancy in low-income countries: A systematic literature review. *J Social Work in the Global Community* 4: 19-31.

17. Atchison CJ, Mulhern E, Kapiga S, Nsanya MK, Crawford EE, et al. (2018) Evaluating the impact of an intervention to increase uptake of modern contraceptives among adolescent girls (15-19 years) in Nigeria, Ethiopia and Tanzania: The Adolescents 360 quasi-experimental study protocol. *BMJ Open* 8: e021834.

18. Moshi FV, Tilisho O (2023) The magnitude of teenage

- pregnancy and its associated factors among teenagers in Dodoma Tanzania: A community-based analytical cross-sectional study. *Reprod Health* 20: 28.
19. Birhanu BE, Kebede DL, Kahsay AB, Belachew AB (2019) Predictors of teenage pregnancy in Ethiopia: A multilevel analysis. *BMC Public Health* 9: 601.
 20. Erulkar A (2013) Early marriage, marital relations and intimate partner violence in Ethiopia. *Int Perspect Sex Reproduct Health* 39: 6-13.
 21. Jonas K, Crutzen R, van den Borne B, Sewpaul R, Reddy P (2016) Teenage pregnancy rates and associations with other health risk behaviours: A three-wave cross-sectional study among South African school-going adolescents. *Reprod Health* 13: 50.
 22. Yakubu I, Salisu WJ (2018) Determinants of adolescent pregnancy in sub-Saharan Africa: A systematic review. *Reprod Health* 15: 15.
 23. Organization WH (2017) Global Accelerated Action for the Health of Adolescents (AA-HA!) Guidance to Support Country Implementation.
 24. Sserwanja Q, Sepenu AS, Mwamba D, Mukunya D (2022) Access to mass media and teenage pregnancy among adolescents in Zambia: A national cross-sectional survey. *BMJ Open* 12: e052684.
 25. Bain LE, Ahinkorah BO, Seidu AA, Budu E, Okyere J, et al. (2022) Beyond counting intended pregnancies among young women to understanding their associated factors in sub-Saharan Africa. *International Health* 14: 501-509.
 26. Assefa Beyene AM, Yeneneh Getachew, Abiy Hiruye, Damen Haile Mariam, Millard Derbew, (2015) Assessment of the magnitude of teenage pregnancy and its associated factors among teenage females visiting assosa general hospital. *Ethiop Med* 2: 25-37.
 27. Ahinkorah BO, Kang M, Perry L, Brooks F, Hayen A (2021) Prevalence of first adolescent pregnancy and its associated factors in sub-Saharan Africa: A multi-country analysis. *PLoS One* 16: e0246308.
 28. Chandra-Mouli V, Camacho AV, Michaud PA (2013) WHO guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. *J Adolesc Health* 52: 517-522.
 29. Akanbi MA, Ope BW, Adeloye DO, Amoo EO, Iruonagbe TC, et al. (2021) Influence of socio-economic factors on prevalence of teenage pregnancy in Nigeria. *Afr J Reprod Health* 25: 138-146.
 30. Asmamaw DB, Tafere TZ, Negash WD (2023) Prevalence of teenage pregnancy and its associated factors in high fertility sub-Saharan Africa countries: a multilevel analysis. *BMC Women's Health* 23: 23.
 31. Sama CB, Ngasa SN, Dzekem BS, Choukem SP (2017) Prevalence, predictors and adverse outcomes of adolescent pregnancy in sub-Saharan Africa: A protocol of a systematic review. *Systematic reviews* 6: 247.
 32. Abebe AM, Fitie GW, Jember DA, Reda MM, Wake GE (2020) Teenage pregnancy and its adverse obstetric and perinatal outcomes at Lemlem Karl Hospital, Tigray, Ethiopia, 2018. *Bio Med Res Int* 2020: 3124847.
 33. Odimegwu M, Clifford O (2015) Teen pregnancy in Sub-Saharan Africa: The application of social disorganisation theory.
 34. Odejimi O, Bellingham-Young D (2014) A policy pathway to reducing teenage pregnancy in Africa. *J Human Growth and Development* 24: 135-141.
 35. Tigabu S, Liyew AM, Geremew BM (2021) Modeling spatial determinates of teenage pregnancy in Ethiopia; geographically weighted regression. *BMC Women's Health* 21: 254.
 36. Bitew DA, Akalu Y, Belsti Y, Direess M, Gela YY, et al. (2023) Predictors of underage pregnancy among women aged 15-19 in highly prevalent regions of Ethiopia: a multilevel analysis based on EDHS, 2016. *Scientific Reports* 13: 857.
 37. Girmay A, Mariye T, Gerense H (2019) Early sexual debut and associated factors among secondary school students of central zone of Tigray, Northern Ethiopia, 2018. *Pan Afr Med J* 34: 1.
 38. Al KMCE (2023) An Assessment of Factors Secondary School Girls in Kenya: A Case Influencing Teenage Pregnancies among Study of Baringo Central Sub-County. *Int J Latest Research in Humanities and Social Science* 06: 263-272.
 39. Beyene GA (2019) Prevalence of unintended pregnancy and associated factors among pregnant mothers in Jimma town, southwest Ethiopia: A cross-sectional study. *Contracept Reprod Med* 4: 8.
 40. Poudel S, Razee H, Dobbins T, Akombi-Inyang B (2022) Adolescent pregnancy in South Asia: A systematic review of observational studies. *Int J Environ Res Public Health* 19: 15004.
 41. Kassa GM, Arowojolu AO, Odukogbe AA, Yalew AW (2018) Prevalence and determinants of adolescent pregnancy in Africa: A systematic review and Meta-analysis. *Reprod Health* 15: 195.
 42. Mathewos S, Mekuria A (2018) Teenage pregnancy and its associated factors among school adolescents of Arba Minch Town, Southern Ethiopia. *Ethiop J Health Sci* 28: 287-298.
 43. Kefale B, Yalew M, Damtie Y, Adane B (2020) A multilevel analysis of factors associated with teenage pregnancy in Ethiopia. *Int J Womens Health* 12: 785-793.
 44. Geda Y (2019) Determinants of teenage pregnancy in Ethiopia: A Case-control study, 2019. *Current Medical Issues* 17: 112.
 45. Beyene FY, Tesfu AA, Wudineh KG, Wassie TH (2022) Magnitude and its associated factors of teenage pregnancy among antenatal care attendees in Bahir Dar city administration health institutions, northwest, Ethiopia. *BMC Pregnancy Childbirth* 22: 799.
 46. Manzi F, Ogwang J, Akankwatsa A, Wokali OC, Obba F, et al. (2018) Factors associated with teenage pregnancy and its effects in Kibuku Town Council, Kibuku District, Eastern Uganda: A cross-sectional study. *Primary Health Care Open Access* 08: 02.