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ORIGINAL RESEARCH

Magnitude and Factors Associated with Teenage Pregnancy in Somaliland: Evidence from Somaliland Health and Demographic Survey, 2020

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Purpose: Teenage pregnancy is estimated to be common in Somaliland. It is linked with adverse perinatal outcomes. However, no study has been conducted in the country on this subject. Therefore, this study intended to assess the magnitude and factors associated with teenage pregnancy in Somaliland.

Patients and Methods: Data from the 2020 Somaliland Health and Demographic Survey (SLHDS); were used in the current analysis. A total sample of 3,786 women in reproductive age groups were involved as participants. The survey used a two-level cluster sampling design, which included initial selection of enumeration areas followed by selection of households. To identify associated factors, binary logistic regression analysis was applied.

Results: The magnitude of teenage pregnancy was 47.2% (95%CI: 45.5–48.9%). Being a nomadic resident (AOR: 1.26; 95%CI: 1.12–1.71), being in the lowest wealth quintiles (AOR: 1.34; 95%CI: 1.01–1.77), being in the Sanaag region (AOR: 1.95;95%CI: 1.54–2.46) and having lower educational attainment (AOR: 2.29; 95%CI: 1.08-4.83) were significantly associated with teenage pregnancy.

Conclusion: Teenage pregnancy is highly prevalent in Somaliland and associated with a lower educational level, lower wealth quintiles and nomadic residence. Hence, governmental and non-governmental organizations should work on educating and financially empowering women by giving particular focus to nomadic people.

Keywords: teenage pregnancy, associated factors, Somaliland, Magnitude

Introduction

Teenage pregnancy is defined as pregnancy occurring in the age range of 10–19 years.[1] It is global phenomenon particularly in developing countries with serious health, social and economic consequence.[2] Globally, about 16 million teenagers give birth every year, of which 95% are in developing countries.[3] The adolescent birth rate (ABR) was significantly decreased from 64.5 births per 1,000 women in 2000 to 41.3 births per 1,000 women in 2023.[1] Although declines have observed in all regions, Sub-Saharan African regions continue to have the highest global burden.[4,5] Among them, East Africa has the greatest share with a prevalence of 54.6%.[2]

As different studies showed, there are many sociodemographic factors contributing to teenage pregnancy. Illiterate women are susceptible to teenage pregnancy. Women with better educational status are expected to have access to sexual education and to be economically empowered[6–9] which in turn increases women's autonomous decision for pregnancy. Sociocultural factors, particularly in rural communities, where parents prefer their daughters to get married at an early age and consider it as a blessing,[10,11] contributes to teenage pregnancy. The ways of parenting – inadequate communication on reproductive health issues with their parents[12–14] also affect it. Insufficient access to sexual and reproductive health services in developing countries including Somaliland is also indicated as a predictor of teenage pregnancy.[11]

Teenage pregnancy is associated with unfavourable pregnancy outcomes. It also impedes educational, social, and economic progress of women.[15] Adverse pregnancy outcomes including postpartum hemorrhage, obstructed labor,[16]

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maternal anemia, preterm delivery and pre-eclampsia[17] were found to be associated with it. Adverse neonatal outcomes including low Apgar score, admission to the intensive care unit (ICU) and low birth weight[18,19] were also associated with teenage pregnancy. It has an impact on school dropout[20] and is also associated with a significant decrement in the school performance of girls.[21] This hampers the economic empowerment of women and brings intergenerational poverty.[22]

Despite its negative consequence on every aspect of the life of women, teenage pregnancy was estimated to be high and lack attention in Somaliland. This could be the reason that most adolescent girls marry early. In Somaliland, there is a social norm that positively initiates child marriage, condemns premarital sex and gives higher status to married adolescents.[23] Even though few studies have been conducted to assess the magnitude and associated factors of teenage pregnancy in other African countries, so far there is no study conducted on the subject in Somaliland. Hence, the current study intended to assess the magnitude and factors associated with teenage pregnancy based on analysis of Somaliland Health and Demographic Survey (SLHDS) 2020 data; the first nationally representative survey.

Methods

Study Area

The current study was conducted in Somaliland located in East Africa. The geographical location of Somaliland is bordered by Djibouti at the northwest, Ethiopia at the southwest, Somalia at the east and the Gulf of Aden to the north. The country has an area of 176,119.2 km^2 with mixed wet and dry climatic conditions. Somaliland has six geopolitical regions; Awdal, Marodijeh, Sahil, Togdheer, Sanaag, and Sool. It has an estimated population of 4.2 million people and the people are Somali ethnic groups and Muslims. Despite some achievements in economic growth after the claim of independence, Somaliland remained an economically slow progressing nation.[24] The absence of international recognition as an independent nation hampered investments and international aid in Somaliland. The majority of the people in rural and also urban areas depends on livestock products.[24]

Study Design and Study Period of Health Demographic Survey

Somaliland Health Demographic Survey (SLHDS) was a cross-sectional study and the survey conducted in 2019 and reported as 2020 Somaliland demographic health service (SLDHS).

Sample Size and Sampling of Health and Demographic Survey

The data of 3,786 women aged 15–49 were extracted from SLHDS data set and involved in the current study. Sampling considered six geographic regions for strata and the residence (urban, rural, and nomadic) was taken into account. For urban and rural areas, Geographic Information System (GIS) software was used to select the enumeration area (EA). A total of 2,806 (1,869 in urban and 937 in rural) dwelling structures formed the sampling frame. The selection of 35 enumeration areas (EA) was done by probability proportion to the size of dwelling structures. Then, households were listed in 35 EAs and 10 primary sampling units (PSU) were selected from 35 EAs using probability proportional sampling technique.[24]

To construct sampling frame for nomadic residents' temporary nomadic settlements (TNS) were used. The list of TNS were considered as a sampling frame with an estimated number of households in each TNS being the measure of size. A total of 1,448 TNS dwelling structure was identified and the selection of EAs was done in the same way for urban and rural residents. The final sampling unit (households) was selected by systematic sampling techniques.[24]

Variables

The outcome variable is dichotomized as those having and not having teenage pregnancy. A woman having experience of pregnancy aged ≤19 before or during the survey was considered as teenage pregnancy. Explanatory variables were sociodemographic variables including residence, region, educational level, age, wealth quantiles, own mobile phone, own bank account, and ever use the internet. Women's reproductive history including marital status, age at first marriage, pregnancy intention and contraceptive method use and intention was also included as independent variables. The wealth quantile of the participant is categorized into lowest, second, middle, fourth, and highest level.

Data

Data used for analysis in the current study were extracted from the Somaliland Health and Demographic survey (SLHDS). During the survey, data collection in urban and rural area's was conducted by trained interviewers using CSPro Android platform.[24] Data were collected from 30 households in each of the 10 enumeration areas in each region-stratum. In the same way data collection in nomadic areas carried out from 30 households which were selected from each enumeration area.[24] The list of households was checked a day earlier than the day of data collection in each TNS to obtain a current and complete list of households.

Data Quality Assurance

Before survey data collection, training for data collectors was given and a pretest was conducted. GPS tracking of field operation that aid georeferencing to allow geolocated data collection was applied and data collection was closely supervised.

Data Processing and Analysis

The data extraction from SLHDS and cleaning was done. Participants with no outcome variables in the datasets were removed before the analysis. The data was exported to and analysed using SPSS version 24 software. Descriptive statistics including mean, frequency and percentage were computed. To assess associated factors of teenage pregnancy, bivariable and multivariable binary logistic regression were used. Variables with a *P*-value <0.2 in the bivariable analysis were considered a candidate for multivariable analysis. Finally, variables with adjusted odds ratios (AOR) of *P*-value <0.05 were declared as having significant association.

Ethical Clearance

The study was based on SLHDS data which does not contain any identifying information. The formal letter was written to the responsible body to allow access to and ethical clearance for SLHDS data. The confidentiality of data was strictly kept. Ethical approval letter (Ref: MOHD/DG:2/630/2023) was written from ethics committee under Ministry of Health in Republic of Somaliland. Detailed information on the method and ethical issue was available in the published 2020 Somaliland Health Demographic Survey (SLHDS) Report.[24]

Results

Sociodemographics of the Study Participants

A total of 3,786 women's data was extracted from the 2020 DHS of Somaliland. The mean (SD) age of participants was 31.35 (SD ±7.61) with a range of 15 to 49 years. Among the participants,1,385 (36.6%) were nomadic, 1,282 (33.9%) were rural and 1,118 (29.5%) were urban residents. Regarding the region the majority 875 (23.1%) were from Sanaag followed by Sool, 782 (20.7%). All the participants are Muslim and 3,163 (83.6%) of women never attend school (Table 1).

Reproductive History of the Participants

Nearly half 1787 (47.2%), of the participants were ≤19 years old at their first marriage. A few (672, 17.8%) women heard about family planning from health professionals. The majority (88.7%) of women did not intend to use contraceptive method and only 37 (0.8%) women ever used a contraceptive method (Table 2).

Magnitude of Teenage Pregnancy

The magnitude of teenage pregnancy in the current study was 47.2% (95%CI: 45.5−48.9) (Figure 1).

Associated Factors of Teenage Pregnancy

Bivariable and multivariable binary logistic regression was performed to examine possible predictor variables for teenage pregnancy. In bivariable logistic regression analysis, variables including region, residence, educational level, wealth quintiles, marital status, use of internet, learned family planning by radio and learned family planning by television had

Table 1 Sociodemographic Characteristics of the Study Population, Somaliland, 2020

Variables	Category	Frequency (n)	Percentage (%)
Age group (years)	15–24	738	19.5
	25–34	1627	43.0
	35 and above	1420	37.5
Residence	Nomadic	1385	36.6
	Rural	1282	33.9
	Urban	1118	29.5
Region	Sanaag	875	23.1
	Sool	782	20.7
	Togdheer	687	18.2
	Sahil	491	13.0
	Awdal	487	12.9
	Marodijeh	463	12.2
Educational attainment	No formal education	3163	83.6
	Primary education	477	12.6
	Secondary education	98	2.6
	Tertiary education	47	1.2
Marital status	Married	3414	90.2
	Divorced	221	5.8
	Widowed	150	4.0
Wealth quintile	Lowest	1330	35.2
	Second	625	16.5
	Middle	437	11.5
	Fourth	626	16.5
	Highest	767	20.3
Listen to radio	At least once a week	143	3.8
	Less than once a week	49	1.3
	Not at all	3593	94.9
Watching Television	At least once a week	392	10.4
	Less than once a week	89	2.4
	Not at all	3304	87.2
Owns Mobile Telephone	Yes	2827	74.7
	No	958	25.3

(*Continued*)

Table 1 (Continued).

Variables	Category	Frequency (n)	Percentage (%)
Has bank account	Yes	80	2.1
	No	3705	97.9
Ever used internet	Yes	258	6.8
	No	3527	93.2

Table 2 Reproductive History of the Study Participants, Somaliland, 2020

Variables	Category	Frequency (n)	Percentage (%)
Age at first marriage (in years)	< 20	1787	47.2
	20 to 24	1387	36.6
	25 to 30	522	13.8
	31 and above	89	2.4
Current pregnancy (556)	Wanted	471	84.7
	Unwanted	85	15.3
Ever used contraceptive method	Yes	37	0.8
	No	3718	98.2
Intention for contraceptive use (2771)	Intended	312	11.2
	Not intended	2459	88.7
Heard about FP on radio	Yes	473	12.5
	No	3309	87.5
Heard about FP on TV	Yes	510	13.5
	No	3272	86.4
Health professionals talked about FP	Yes	672	17.8
	No	3108	82.1
Humiliated by husband (n= 2670)	Yes	119	4.5
	No	2551	95.5

a *P*-value <0.20 and analyzed further by multivariable logistic regression. After adjustment in multivariable logistic regression analysis; region, residence, educational level and wealth quintiles had statistically significant association with teenage pregnancy. Women having primary education had 2.99 times higher odds of teenage pregnancy compared to those who attended tertiary education (AOR=2.29, 95%CI: 1.08–4.83). Women in the lowest wealth quintile group had significantly higher odds of teenage pregnancy compared to women in the highest wealth quintile group (AOR=1.34, 95%CI: 1.01–1.77) (Table 3).

Discussion

The current study assessed the magnitude and factors associated with teenage pregnancy using 2020 Somaliland Health demographic survey data. This 2020 SLHDS is the first national representative survey and the current study is also the

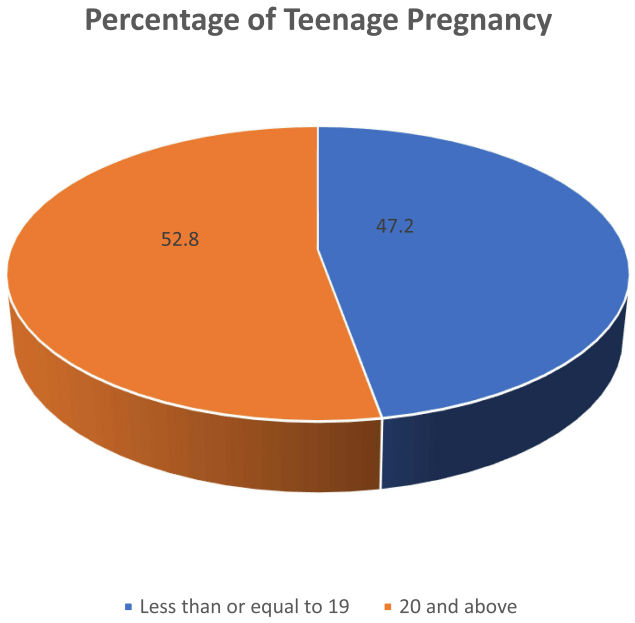

Figure 1 Magnitude of teenage pregnancy in Somaliland, 2020.

first on the subject in the area. The data showed a high prevalence of teenage aged pregnancy, 47.2% in Somaliland. After controlling for covariates; region, residence, educational level and wealth quintile of the participants were significantly associated with teenage pregnancy. Age at first marriage has a direct relationship with age at first pregnancy. So, it was removed from the regression analysis because SPSS software cannot run it.

Table 3 Bivariable and Multivariable Binary Logistic Regression Analysis on Associated Factors of Teenage Pregnancy in Somaliland, 2020

Variables	Categories	COR (95%CI)	*P*-value	AOR (95%CI)	*P*-value
Region	Marodijeh	1 (ref)		1 (ref)	
	Awadal	1.26 (0.97–1.64)	0.080	1.28 (0.98–1.67)	0.068
	Sahil	1.58 (1.23–2.05)	<0.001	1.61 (1.24–2.09)	<0.001*
	Togdheer	1.53 (1.21–1.95)	<0.001	1.46 (1.15–1.87)	0.002*
	Sool	2.03 (1.61–2.57)	<0.001	1.88 (1.48–2.38)	<0.001*
	Sanaag	2.00 (1.59–2.52)	<0.001	1.95 (1.54–2.46)	<0.001*
Residence	Urban	1 (ref)		1 (ref)	
	Rural	1.09 (0.93–1.28)	0.27	0.99 (0.82–1.19)	0.930
	Nomadic	1.39 (1.19–1.63)	<0.001	1.26 (1.12–1.71)	0.025*
Educational level	No formal education	2.94 (1.49–5.81)	0.002	1.88 (0.89–3.98)	0.98
	Primary school	3.02 (1.50–6.08)	0.002	2.29 (1.08–4.83)	0.029*
	Secondary school	3.27 (1.49–7.16)	0.003	2.85 (1.28–6.35)	0.010*
	Tertiary school	1 (ref)		1 (ref)	

(*Continued*)

Table 3 (Continued).

Variables	Categories	COR (95%CI)	*P*-value	AOR (95%CI)	*P*-value
Wealth quintiles	Lowest	1.49 (1.25–1.79)	<0.001	1.34 (1.01–1.77)	0.039*
	Second	1.43 (1.15–1.77)	0.001	1.25 (0.96–1.64)	0.094
	Middle	1.34 (1.06–1.70)	0.014	1.24 (0.96–1.62)	0.100
	Fourth	1.32 (1.06–1.63)	0.01	1.17 (0.93–1.47)	0.178
	Highest	1 (ref)		1 (ref)	
Marital status	Married	1 (ref)		1 (ref)	
	Divorced	1.26 (0.96–1.66)	0.088	1.38 (1.04–1.83)	0.024*
	Widowed	1.34 (0.97–1.87)	0.075	1.37 (0.98–1.92)	0.063
Use internet	Yes	1 (ref)		1 (ref)	
	No	1.28 (0.99–1.66)	0.056	1.06 (0.77–1.47)	0.710
Heard FP on radio	Yes	1 (ref)		1 (ref)	
	No	1.23 (1.01–1.49)	0.037	1.03 (0.83–1.27)	0.788
Heard FP on TV	Yes	1 (ref)		1 (ref)	
	No	1.40 (1.16–1.69)	<0.001	1.06 (0.833–1.35)	0.635

Note: *significant association.
Abbreviations: COR, crude odds ratio; AOR, adjusted odds ratio; CI, confidence interval; FP, family planning; TV, television; ref, reference group.

The reported magnitude of teenage pregnancy in the current study was consistent with other studies conducted in Congo (44.3%)[25] and Niger (40%).[5] The high magnitude of teenage pregnancy in Somaliland is also supported by the report of World Health Organization (WHO) that showed over 90% of teenage pregnancies occur in low- and middle-income countries (LMICs).[26] The possible explanation for it might be due to sociocultural and religious outlooks on the practice of child marriage in the country[27] and also might be due to very low uptake of contraceptive methods. The magnitude reported in this study is higher compared to a report of the other studies in Eastern Ethiopia(30.2%),[28] Farta Woreda, Northeast Ethiopia(25.4%),[29] Uganda(35.8%)[20] and Tanzania (29%).[11] This variation could be due to differences in the sociodemographic characteristics of the participants.

Women grouped in wealth quintiles had greater odds of teenage pregnancy compared to those in higher wealth quintiles. This indicates the impact of socioeconomic status of women on teenage pregnancy. This is supported by other studies that reported similar findings from Nigeria,[30] Ethiopia[31] and Gambia.[32] A systematic review conducted to assess risk factors of teenage pregnancy in Sub-Saharan countries of Africa showed that teenagers from low socioeconomic status were susceptible to early marriage and pregnancy because parents want to secure their daughters financial future.[33]

The study also showed that women with lower educational attainment had greater odds of teenage pregnancy compared to women who attended tertiary school. This report is in agreement with studies conducted in Ethiopia[7] and Nigeria.[34] A review done in Africa also showed low educational attainment is contributing factor to teenage pregnancy.[35] This could be explained by the fact that educated women have better knowledge and attitude on the potential health risk of teenage pregnancy than less educated women. Besides, as schooling increases, women's economic independence and chance of making an autonomous decision increases, which in turn helps them to postpone early marriage and teenage pregnancy.

Women in four regions of Somaliland including Sahil, Togdheer, Sool. and Sanaag tend to have higher odds of teenage pregnancy compared to Merodijeh region. This might be due to low coverage of education, poor health service, and different traditional perspectives in the regions. It is supported by another study conducted in Uganda that showed a variation of teenage pregnancy in different regions.[36] The current study also showed residence of participants had a statistically significant

association with teenage pregnancy. Nomadic residents had higher odds of teenage pregnancies compared to urban residents. This might be due to less education and inaccessibility of sexual and reproductive health services in the community following a nomadic way of life.[37] The beliefs and myths in the nomadic community such as desirability to have many children to make a large family might favor teenage pregnancy. It is believed that younger girls can give more children.[38]

Strength and Limitations of the Study

This study used the Somaliland Health and Demographic Survey data which is nationally representative and is the first study in Somaliland. However, the data was collected by self-reported survey which might have social desirability and recall bias. Due to incompleteness and inappropriateness of data, some important variables were removed.

Conclusion and Recommendations

The study revealed a high magnitude of teenage pregnancy in Somaliland. Low level of education, lower wealth quintiles, less developed regions, and being nomadic were positively associated with teenage pregnancy. Therefore, educating and financially empowering women, giving particular focus to nomadic people, can help to reduce the burden of teenage pregnancy. Moreover, there is still a need for further study to have deep insight into other driving factors.

Data Sharing Statement

The data sets used for analysis would be available on reasonable request from corresponding author.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors declare that they have no conflicts of interest.

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