ORIGINAL RESEARCH ARTICLE

Prevalence and determinants of adolescent pregnancy among women of reproductive age in South Africa

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Abstract

The present study used the 2016 South Africa Health and Demographic Survey data to examine the prevalence and socio-demographic determinants of adolescent pregnancy among South African women aged 15-49 years, using a logistic regression model. The results showed that adolescent pregnancy is still high in South Africa, with a third of South African women having experienced pregnancy in their adolescence. The results also found that age, race, education, employment, wealth, cohabitation, larger household size and contraceptive use generally predict the risk of adolescent pregnancy among South African women. Specifically, black African women, poorly educated women, women who are employed, those who are cohabiting, women from poorer and larger households and those using contraceptives are overrepresented among ever-pregnant adolescents. The study's findings suggest increased awareness to improve women's sex education and sexual behaviour in the country. *(Afr J Reprod Health 2022; 26[1]: 82-91).*

Keywords: Adolescent pregnancy, risky sexual behaviour, South Africa, women, youth

Résumé

La présente étude a utilisé les données de l'Enquête sur la santé et la démographie en Afrique du Sud de 2016 pour examiner la prévalence et les déterminants sociodémographiques de la grossesse chez les adolescentes chez les femmes sud-africaines âgées de 15 à 49 ans, à l'aide d'un modèle de régression logistique. Les résultats ont montré que la grossesse chez les adolescentes est encore élevée en Afrique du Sud, un tiers des femmes sud-africaines ayant connu une grossesse à l'adolescence. Les résultats ont également révélé que l'âge, la race, l'éducation, l'emploi, la richesse, la cohabitation, la taille plus grande du ménage et l'utilisation de contraceptifs prédisent généralement le risque de grossesse chez les adolescentes sud-africaines. Plus précisément, les femmes noires africaines, les femmes peu éduquées, les femmes qui travaillent, celles qui vivent en concubinage, les femmes des ménages les plus pauvres et les plus grandes et celles qui utilisent des contraceptifs sont surreprésentées parmi les adolescentes déjà enceintes. Les conclusions de l'étude suggèrent une sensibilisation accrue pour améliorer l'éducation sexuelle et le comportement sexuel des femmes dans le pays. *(Afr J Reprod Health 2022; 26[1]: 82-91).*

Mots-clés: Grossesses adolescentes, comportement sexuel à risque, Afrique du Sud, femmes, jeunes

Introduction

Governments around the world are striving to expand access to sexual and reproductive health-care so as to reduce maternal and child mortality, in order to attain their health Sustainable Development Goal (SDG 3) targets. Despite strong efforts on the part of policymakers to promote good sexual and reproductive outcomes, adolescent pregnancy – pregnancy among females younger than 20 years – is proving a serious and persistent public health concern for many. Globally, it is estimated that girls aged 15-19 years account for 11 percent of all childbirths worldwide[1]. The figure is likely to increase if we include all pregnancies, not just births.

Whilst this is a universal phenomenon, the adolescent pregnancy rate is disproportionately higher in developing regions, particularly sub-Saharan Africa[2,3]. The World Health Organization posits that about 21 million older adolescent girls (15-19 years) and 2 million young adolescent girls (under 15 years) become pregnant in developing regions annually[4]. Sub-Saharan Africa accounts for

the majority of these incidences, with 143 births per 1000 girls aged 15-19 years[5]. In South Africa alone, 16 percent of young girls aged 15-19 years are either pregnant with their first child and/or have given birth[6].

The issue of adolescent fertility becomes a serious concern when considered in relation to its associated health, economic and social consequences. The burden of poor health associated with early childbearing is disproportionately higher for females in this age group as they are typically not physically ready for pregnancy or childbirth[7]. Globally, adolescent pregnancy is one of the biggest contributors to maternal and child mortality, as pregnancy and childbirth-related complications constitute the leading cause of death among young girls aged 15-19 years[4,8]. Evidence also suggests that adolescent pregnancy is a risk factor for young women in attaining educational and economic prospects[9]. Moreover, pregnancies during the adolescent years have been seen as one of the essential drivers of poverty, particularly for women, because adolescent girls hardly plan for themselves, not to mention their children[7].

The prevalence of adolescent pregnancy calls for more information on whether certain groups of women are more susceptible to early pregnancies. Thus, there is a need to identify and assess the sociodemographic factors that predispose some girls to become pregnant in their adolescence. In this regard, selected sociodemographic variables such as age, race, level of education, employment status, wealth index, place of residence, relationship status and living arrangement will be explored based on their known associations with adolescent pregnancy.

Review of the empirical literature

Adolescent pregnancy, by virtue of the concept, is a function of age as it typically concerns females younger than 20 years of age. Even within the adolescent cohort, age correlates with incidents of pregnancy positively. Thus, pregnancies have been found to be more prevalent among older adolescents, the 17-19-year age group[3,10-12]. This effect is also observed in the South African context, where older adolescents (17-19 years) account for the majority of total adolescent pregnancy[13].

Several studies have shown significant associations between a girls' socioeconomic position (e.g. education, employment and income) and adolescent pregnancy, including parental socio-economic status (i.e. parental occupation and educational level). Low socioeconomic status has been reported to be one of the most consistent risk factors for adolescent pregnancy. For example, a systematic review conducted in the United Kingdom on factors associated with adolescent pregnancy in 25 European Union Countries found a strong positive association between deprivation and adolescent pregnancy[14].

Firstly, in the human capital discourse, the level of education or literacy has been proven to be a key determinant of adolescent pregnancy, with poorly-educated girls and/or those already falling behind at school more likely to become pregnant than those who are progressing through school at the expected rate[12,14-16]. The educational level in this context can also be affected by early pregnancy as adolescent fertility contributes significantly to school drop-out rates. For instance, in studies done in South Africa, it was found that fertility or it desire is associated with disadvantages in education levels as adolescent mothers have significantly worse educational outcomes than women who delay their first birth until at least age 20[17-18]. Likewise, low levels of parental education can contribute to early pregnancy amongst young women as these parents are more likely to marry off their daughters at a younger age rather than invest in their educational attainment[19].

Secondly, research suggests a direct relationship between poverty and adolescent pregnancy, as young women belonging to lower income households are at higher risky sexual behaviour[20] and are more likely to fall pregnant earlier compared to their affluent counterparts[12,19,21-23]. This finding has been replicated in the South African context where poverty has been found to render young girls vulnerable to adolescent pregnancy[18,24-25].

Lastly, lack of employment or job opportunities is associated with adolescent pregnancy. For instance, it is documented that being employed significantly reduced the risk of adolescent pregnancy in the United States[26]. Similarly, a study of South African youths found employment to have a protective effect against pregnancy[23]. They observed that the lack of employment and job opportunities pushed young girls to engage in transactional sex, which increases their risk of pregnancy. This is because girls who engage in sex-in-exchange for financial or material assistance are more likely to accept risky sex terms

which often involve non-use of a condom[23]. Consequently, pregnant adolescents are more likely to be poor, unemployed and poorly-educated.

In the literature, the place of residence, the region of residence, as well as family structure (i.e. the composition of household or living arrangement), have all been found to influence adolescent pregnancy. Generally, studies looking at the influence of place of residence largely agree that incidences of adolescent pregnancy are higher in rural areas. For instance, a study conducted in South Africa reported that adolescent pregnancy was more prevalent in rural areas[27]. This is supported by similar studies conducted in Nigeria[28-29], Tanzania[30] and Malawi[22].

However, findings on the effect of family structure on adolescent sexual behaviour are mixed or inconclusive. Some authors have found that coming from a single parent environment; that is being raised by a single parent, either mother or father, contribute to high adolescent pregnancy rate[19]. In some cases, adolescent pregnancy has been found to be higher among girls from large families, perhaps owing to a lack of parental guidance or abject poverty in such settings[29,31].

Few studies have documented regional differences in the risk of pregnancy, especially among young people. For instance, the region of residence was found to be significantly associated with unintended pregnancies among women in Malawi, and it was reported to be higher among women in the Central and Southern regions compared to the Northern region[32]. Regional differences were also found to be associated with pregnancy among 18-24 years old in the United States[33]. Observed regional differences in adolescent pregnancy and childbirth have partly been attributed to ecological and cultural variation[34].

Studies on the association of religion and adolescent pregnancy have yielded conflicting findings. Some studies show that some religious beliefs contribute to incidences of adolescent pregnancy. For instance, in a study of predictors of adolescent pregnancy and its prevention in rural Nigeria, it was reported that Muslim young people were more likely to be pregnant compared to their Christian counterparts[20]. Similarly, a study of Tanzania found that Muslims are more likely to report adolescent pregnancy compared to Christians and other religions[30]. Findings from Kenya reveal adolescent pregnancy to be higher

among Catholic young people compared to other religions[31]. Contrary to these findings, it was found that religion per se (i.e. being a Catholic or non-Catholic) was not a significant predictor of pregnancy in a case study of Busia District in Kenya[12]. This is supported by an investigation of adolescent pregnancy in Nigeria that found no significant difference between religion[28].

Furthermore, adolescent pregnancy has also been found to be associated with early marriage, age at first sex and unmet contraceptives needs among adolescents. The trend in Africa suggests that the average age at first marriage is lower among adolescent women (15-19 years) compared to older women (35-39 years)[35-36]. It is an empirical fact that women who marry young are more likely to start reproducing at a younger age compared to those who delay marriage[37-38]. Although the timing of sexual debut varies widely in sub-Saharan Africa, it is broadly acknowledged that early sexual debut predisposes young people to unplanned pregnancies. Women who are exposed to early sexual activities are more likely to experience pregnancy in their adolescence compared to those who delay sexual activities[28,39].

In most instances, adolescent pregnancies can be avoided through the use of effective contraceptives[12,40-41]. However, studies have shown that limited or inadequate knowledge of, non-use or misuse of contraceptives contribute greatly to adolescent pregnancy in sub-Saharan Africa[21,40]. In South Africa, studies have found that girls who use condoms when having sexual intercourse were less likely to get pregnant in their adolescence[23,42].

The present study

Incidences of adolescent pregnancy are unusually high in sub-Saharan Africa. South Africa is not immured from this problem as evident from the growing body of literature on adolescent pregnancy. The adverse outcomes adolescent pregnancy poses for girls, families and the society at large are not unique to one region of the world[43]. However, regional variations in the adolescent pregnancy trend suggest that there may be unique contextual influences that drive the phenomenon in South Africa.

Empirical investigations into the factors driving the prevalence of adolescent pregnancy in South Africa, albeit on the rise, tend to be limited in scope. Some of these studies either use population-based data that are limited in coverage[23-24]. limit

their inquiry to only the youth population or a segment thereof[18,25,27,42] and/or limited in terms of location/area/province of interest[7,17,24-25,27].

In light of these limitations in the existing literature, the present study aims to contribute a broader perspective to the domestic literature in two ways. First, it aims to identify and assess the sociodemographic characteristics of women in the reproductive age group who ever had adolescent pregnancy. Secondly, the study employs a nationally representative sample for a better understanding of women's experiences and determinants of adolescent pregnancy.

Methods

Procedure

This study uses data from the 2016 South Africa Demographic and Health Survey (2016 SADHS) containing a nationally representative sample. The sampling frame used for the survey was obtained from the 2011 Census which contains the list of census enumeration areas (EAs) with population and household information. Primary Sampling Units (PSUs) were generated using EAs of convenient size, while smaller adjoining EAs were combined to form PSUs and larger EAs were divided to form PSUs. Two-stage sampling design with probability proportional to size was employed for the survey; at the first stage stratified sampling was used in selecting PSUs while households were selected using systematic sampling at the second stage. A total of 750 PSUs was selected from the 26 sampling strata at the first stage while 11,083 households were selected at the second stage out of which a nationally representative sample of 8,514 women age 15-49 were successfully interviewed.

Measures

Dependent variable: The outcome variable in this study is adolescent pregnancy which is measured by questions on "age at first birth" (in years) and "current pregnant status?" with responses ranging from: "0 = never had adolescent pregnancy" and "1 = ever had adolescent pregnancy". A woman has experienced adolescent pregnancy if her first pregnancy or birth occurred at an age younger than 20 years, or if she was less than 20 years and pregnant at the time of the survey.

Independent variables: The socio-demographic factors which were identified in prior studies as being associated with adolescent pregnancy were selected and used as independent variables in this study. These include: age, race, level of education, relationship status, employment status, wealth index, place of residence, and contraceptive use. All independent variables are categorised. For instance, age is measured in 5-year gaps as "1 = 15-19", "2 = 20-24", "3 = 25-29", "4 = 30-34", "5 = 35-39", "6 = 40-44" and "7 = 45-49".

Statistical analysis

The post-incidence of adolescent pregnancy is measured among women of reproductive age 15-49 years. Descriptive analysis is used to explain incidences of adolescent pregnancy among the women with the use of counts and percentages. Univariate logistic regression is employed to examine the unadjusted association between sociodemographic factors and the dependent variable. Lastly, multivariate logistic regression analysis is used to show the joint contribution of each level of the sociodemographic factors to adolescent pregnancy using the adjusted odd ratios. All analyses are done using SPSS version 25 and results are considered to be statistically significant if $p < 0.05$.

Results

Demographic characteristics

Table 1 shows the results for the distribution of the background characteristics of the sample. According to the table, slightly more than one third (33.9%) of the women in the sample have ever experienced pregnancy in their adolescent years. Women aged 25-29 years account for about a fifth (19.3%) of the total incidence rate, making it the age group with the highest prevalence of adolescent pregnancy. Nearly nine out of every ten women (89.3%) who have ever been pregnant in their adolescence identify as black African. More than half (52.3%) of the women who have experienced pregnancy in their adolescence are urban residents. More than three-quarters of the current or ever-pregnant adolescents (76.4%) have only secondary level education. More than half (51.1%) of them are never married, 17.3% are cohabiting, whilst 31.6% are ever-married.

Table 1: Sociodemographic characteristics of sampled women

	Number of Women (n)	Adolescent Pregnancy (n)	Percent
Age			
15-19	1505	205	7.1
20-24	1408	536	18.6
25-29	1397	557	19.3
30-34	1295	429	14.9
35-39	1032	385	13.3
40-44	964	374	13.0
45-49	913	398	13.8
Race			
Black/African	7359	2575	89.3
White	214	21	0.7
Coloured	848	270	9.4
Indian/Asian	93	18	0.6
Level of Education			
No education	190	92	3.2
Primary	862	445	15.4
Secondary	6581	2203	76.4
Higher	881	144	5.0
Employment Status			
Unemployed	5409	1737	60.2
Employed	3105	1147	39.8
wealth Index			
Poorer	3628	1443	50.0
Middle	1956	709	24.6
Richer	2930	732	25.4
Place of Residence			
Rural	3709	1375	47.7
Urban	4805	1509	52.3
Relationship Status			
Never Married	5134	1473	51.1
Ever Married	2364	911	31.6
Cohabiting	1016	500	17.3
Age at First Sex			
≤ 14 years	523	320	11.1
≥ 15 years	6953	2564	88.9
Contraceptive Use			
No	4025	1671	57.9
Yes	4489	1213	42.1
Living Arrangement			
1-2	1391	467	16.2
3-4	4059	1302	45.1
6+	3064	1115	38.7
Total	**8514**	**2884**	**33.9**

Contraceptive usage is a little above average (57.9%) among women who have ever experienced adolescent pregnancy. Approximately two-fifths (39.8%) of these women are employed, whilst one quarter (25.4%) live in high-income households. Finally, the majority of these women had their first sexual encounter at the age of 15 years and above (88.9%), whilst 11.1% had their first sex early (at or less than 14 years). Moreover, a greater proportion (45.1%) live in 3-4 person households, 38.7% live in bigger households of 6 or more

Adolescent pregnancy among childbearing women people, and 16.2% live in smaller (1-2 person) households.

Univariate logistic and multivariate regression analyses

Table 2 presents the results for both the unadjusted and adjusted logistic regression analyses of the association between the selected socio-demographic factors and adolescent pregnancy. The unadjusted logistic regression results show that almost all the selected background variables are significantly associated with adolescent pregnancy, with the exception of living arrangements. The multivariate analysis reveals that the odds of adolescent pregnancy significantly increase with age. The risk of adolescent pregnancy is higher for black African women (OR = 1.68, CI = 0.98 – 2.89), while it is significantly lower for white women (OR = 0.48, CI = 0.24 – 0.96).

The odds of adolescent pregnancy are significantly lower for women with higher education (OR = 0.27, CI = 0.19 – 0.39). Employed women have higher odds (OR = 1.14, CI = 1.03 – 1.27) of being pregnant in their adolescence. The risk of adolescent pregnancy is significantly lower for women from richer households (OR = 0.63, CI = 0.55 – 0.73), and higher for women living in bigger (6+ person) households (OR = 1.36, CI = 1.18 – 1.58). Finally, the risk of adolescent pregnancy is significantly higher for ever married women, cohabiting women and those currently using contraceptives (OR = 1.38, OR = 1.85 and OR = 1.73, respectively).

Discussion

In South Africa, a country of relatively low fertility in the region, about 16 percent of young women aged 15-19 have given birth or are pregnant with their first child[44]. Given the adverse implications of adolescent pregnancy and motherhood, the study sought to identify the determinants of early childbearing among South African women of reproductive age (15-49 years) using a nationally representative sample. The study found a substantial prevalence of adolescent pregnancy among South African women. The results show that about one-third (33.9%) of South African women have ever been pregnant in their adolescence. More specifically, we found that one in every seven (13.6 %) young women aged 15-19 years has ever been pregnant in their adolescence. This finding closely

Table 2: Unadjusted and adjusted multivariate logistic regression of adolescent pregnancy among women of reproductive age

Independent variables	Unadjusted Model		Adjusted Model	
	OR	CI	OR	CI
Age				
15-19	1.00		1.00	
20-24	3.90***	3.25 - 4.68	3.31***	2.71 - 4.04
25-29	4.20***	3.50 - 5.05	3.22***	2.61 - 3.96
30-34	3.14***	2.60 - 3.79	2.24***	1.80 – 2.78
35-39	3.77***	3.11 - 4.58	2.75***	2.19 – 3.45
40-44	4.02***	3.30 - 4.89	3.03***	2.40 - 3.81
45-49	4.90***	4.02 - 5.97	3.79***	2.99 – 4.81
Race				
Black/African	2.24**	1.34 - 3.76	1.68*	0.98 - 2.89
White	0.45*	0.23 - 0.90	0.48*	0.24 - 0.96
Coloured	1.95*	1.14 - 3.32	1.57	0.90 - 2.74
Indian/Asian	1.00		1.00	
Level of Education				
No education	1.00		1.00	
Primary	1.14	0.83 - 1.56	1.31	0.94 - 1.81
Secondary	0.54***	0.40 - 0.72	0.74*	0.54 - 1.00
Higher	0.21***	0.15 - 0.29	0.27***	0.19 - 0.39
Employment Status				
Unemployed	1.00		1.00	
Employed	1.24***	1.13 - 1.36	1.14**	1.03 - 1.27
wealth Index				
Poorer	1.00		1.00	
Middle	0.86**	0.77 - 0.97	0.88*	0.77 - 1.00
Richer	0.50***	0.45 - 0.56	0.63***	0.55 - 0.73
Place of Residence				
Rural	1.00		1.00	
Urban	0.78***	0.71 - 0.85	1.03	0.91 - 1.15
Relationship Status				
Never Married	1.00		1.00	
Ever Married	1.56***	1.41 - 1.73	1.38***	1.22 - 1.56
Cohabiting	2.41***	2.10 - 2.76	1.85***	1.59 - 2.15
Age at First Sex				
≤ 14 years	0.44***	0.39 - 0.50	0.86	0.73 - 1.01
≥ 15 years	1.00		1.00	
Contraceptive Use				
No	1.00		1.00	
Yes	1.92***	1.75 - 2.10	1.73***	1.57 - 1.91
Living Arrangement				
1-2	1.00		1.00	
3-4	0.93	0.82 - 1.06	1.05	0.91 - 1.21
6+	1.13	0.99 - 1.29	1.36***	1.18 - 1.58

corroborates the national approximate of 16 percent for that adolescent cohort.

Moreover, in line with the national trend[44], we found that the proportion of South African women who have ever experienced adolescent pregnancy significantly rises with age. Our finding of a positive association between age and adolescent pregnancy could be attributed to the fact that we considered all reproductive-aged women and not simply the adolescent cohort. There is a possibility that the age effect we observed suggests a decreasing trend in adolescent pregnancy. This is because the retrospective accounts of adolescent pregnancy by older women are relatively higher compared to currently pregnant adolescents.

The present study observed that black African women are overrepresented among South African women who have experienced pregnancy in their adolescent years. Conversely, white South African women were found to be significantly less

likely to be pregnant at a younger age. This significant racial variation among South African women could perhaps be explained by the presence of factors other than socioeconomic factors.

This study also found that the risk of adolescent pregnancy significantly reduces with increased household wealth index. This finding confirms the positive link between poverty and adolescent pregnancy generally[12,19-23], and in South Africa specifically[18,24-25]. In the South African context, however, wealth cannot be completely divorced from race as the two variables are intricately linked by historical design. Consequently, in South Africa, you will find that the rich are almost always white and the poor are disproportionately black African[45-46]. Therefore, the overrepresentation of black African women in the incidences of adolescent pregnancy is unsurprising since poverty is also a positive covariate of adolescent pregnancy.

This study also confirmed the protective effect of increased education against the risk of adolescent pregnancy among South African women. The finding corroborates those found in other contexts[12,14-16,47]. Similarly, the results showed that women who experienced adolescent pregnancy were three times less likely to have higher education. This could be attributed to the adverse impact of early pregnancy on the educational outcomes of young women[17-18]. That is, women who fall pregnant in their adolescence are more likely to discontinue schooling. This is because family formation is a competing activity with education, and vice versa.

Furthermore, this study found that cohabitation and larger household size significantly increased South African women's risk of adolescent pregnancy. Our finding of a positive association between cohabitation and adolescent pregnancy is predictable as living together invariably leads to sexual intimacy which could lead to unintended pregnancy. Given the increasing rate of cohabitation in the country[48-50], it is no wonder unplanned pregnancies, including adolescent pregnancy, still persists among South African women. When young women are involved in intimate relationships, especially where power is imbalanced, they are less likely to use condoms, which leaves them susceptible to unintended early pregnancy[13,51].

The empirical relationship between adolescent pregnancy and household size supports similar findings in Nigeria and Kenya, respectively[29,31]. The effect of household size on the risk of adolescent pregnancy can be explained by other socioeconomic factors. For instance, women living in larger households in South Africa are likely to be poor[52]. Therefore, abject poverty in such settings could be contributing to young women's risky sexual behaviour and in turn their vulnerability to adolescent pregnancy[23-24].

Surprisingly, the present study found both employment and contraceptive use to increase women's odds of being pregnant in their adolescent years. Firstly, we found that employment significantly increased South African women's risk of adolescent pregnancy by 11 percent. This result contradicts findings from the United States and earlier findings from South Africa[26,23]. However, it corroborates earlier work on adolescent pregnancy in sub-Saharan Africa, where they reported that employment increased the likelihood of pregnancy by 15 percent in Western and Southern Africa[53]. It could also mean that most women who were involved in adolescent pregnancy are currently involve in different types of employment in order to take care of the children from it.

Likewise, contraceptive usage was found to increase South African women's risk of adolescent pregnancy significantly. This finding goes contrary to the notion that the use of contraceptives protects young women against early and unintended pregnancies[12,23,41-42]. This goes to show that the current patterns of adolescent pregnancy in the country is not due to unmet contraception needs. It could perhaps be attributed to the misuse or inconsistent use of contraceptives[21,40]. It could also mean that contraceptive use increased after the incidence of early pregnancy, making pregnancy a determinant of contraceptive use among young women[54].

Another interesting finding of this study is the fact that the effect of place of residence and age at first sexual debut on adolescent pregnancy was not statistically significant. In the literature generally[22,28-30], as well as in the South African context[27,44], higher incidences of adolescent pregnancy have been reported among rural dwellers. However, we found, albeit not significant, that many of the women who have experienced adolescent pregnancy were urban residents. Possible explanations could be that many young women, after becoming pregnant, migrate to urban areas in search of work. It could also be due to lack

of parental or adult supervision in the urban areas. Urbanisation introduces adolescents to varied lifestyles, including sexual activities that could lead to early pregnancy.

Lastly, we did not find a statistically significant relationship between early sexual debut and women's risk of adolescent pregnancy; in fact, early sexual debut seemed to reduce women's risk of adolescent pregnancy. This is unusual seeing as early sexual activities predispose young women to unplanned and early pregnancies[28,39].

Conclusion

Although a variety of policy interventions have been implemented in South Africa to shape adolescent sexual behaviour, incidences of adolescent pregnancy persist. This study sought to identify and examine factors that influence the adolescent pregnancy rate, using a nationally representative sample of South African women aged 15 to 49 years. Adolescent pregnancy was found to be fairly high in this sample of reproductive South African women. Multiple sociodemographic factors contributing to adolescent pregnancy have been identified as predisposing young women to adolescent pregnancy. The study revealed that South African women who are prone to adolescent pregnancy are more likely to be Black African, poorly educated, employed, from poorer and larger households/families, cohabiting and using some form of family planning method. In conclusion, adolescent pregnancy in South Africa appears to be a function of the lingering unequal access to the socioeconomic resources of the broader society.

Contribution of authors

EB: Conception and design of study, and manuscript preparation. OSE: design of the study and data analysis, interpretation and manuscript preparation. AYA: Conception and overall supervision of work on the manuscript. All authors read and approved the manuscript.

References

1. World Health Organization (WHO). *Adolescents: health risks and solutions*. 2018a. Retrieved from http://www.who.int/en/news-room/fact-sheets/detail/adolescents-health-risks-and-solutions [27 September 2019].
2. Ahmad N, Bano R, and Khan A. Socio-economic factors affecting teenage pregnancy in northern Indian population: A cross sectional study. *The Journal of Community Health Management.* 2016; 3(4): 54-157.
3. Envuladu EA, Agbo HA, Ohize VA, and Zoakah AI. Determinants and outcome of teenage pregnancy in a rural community in Jos, Plateau State, Nigeria. *Sub-Saharan African Journal of Medicine*, 2018; 1(1): 48-52.
4. World Health Organization (WHO). *Adolescent pregnancy*, 2018b. Retrieved from http://www.who.int/en/news-room/fact-sheets/detail/adolescent-pregnancy [27 September 2018].
5. Nguyen H, Shiu C, and Farber N. Prevalence and factors associated with teen pregnancy in Vietnam: Results from two national surveys. *Societies.* 2016; 6(2): 1-17.
6. Social Surveys. *Teenage pregnancy & school drop-out in South Africa: Facts, figures and possible interventions.* Access to education factsheet 3, 2010.
7. Thobejane TD. Factors contributing to teenage pregnancy in South Africa: The case of Matjitjileng Village. *Journal of Sociology and Social Anthropology.* 2015; 6(2): 273-277.
8. United Nations Population Fund (UNFPA). *Adolescent pregnancy*, 2017. Retrieved from https://www.unfpa.org/adolescent-pregnancy [27 September 2019].
9. United Nations Population Fund (UNFPA). *Motherhood in childhood: Facing the challenge of adolescent pregnancy: The state of world population*. 2013. New York: UNFPA, 163-169.
10. Amakali-Nauiseb T, and Jaswa SU. Results and findings in the socio-economic determinants of adolescent pregnancy in Katutura, Windhoek: Namibia. *International Journal of Health.* 2017; 5(2): 115-119.
11. Ayele BG/kidan, Gebregzabher TG, Hailu TT, and Assefa BA. Determinants of teenage pregnancy in Degua Tembien District, Tigray, Northern Ethiopia: A community-based case-control study. *PLoS ONE.* 2018; 13(7): e0200898.
12. Were M. Determinants of teenage pregnancies: The case of Busia District in Kenya. *Economics and Human Biology.* 2007; 5: 322-339.
13. Panday S, Makiwane M, Ranchod C, and Letsoalo T. *Teenage pregnancy in South Africa - with a specific focus on school-going learners.* Child, Youth, Family and Social Development, Human Sciences Research Council. Pretoria: Department of Basic Education, 2009. ISBN No.: 978-0-620-44701-0
14. Imamura M, Tucker J, Hannaford P, Da Silva MO, Astin M, Wyness L, Bloemenkamp KW, Jahn A, Karro H and Olsen J. Factors associated with teenage pregnancy in the European Union countries: A systematic review. *European Journal of Public Health*, 2007; 17(6): 630-636.
15. Marteleto L, Lam D, and Ranchhod V. Sexual behavior, pregnancy, and schooling among young people in urban South Africa. *Studies in Family Planning.* 2008; 39(4): 351-368.
16. Odejimi O, and Bellingham-Young D. A policy pathway to reducing teenage pregnancy in Africa. *Journal of*

Human Growth and Development. 2014; 24(2): 135-141.

17. Ewemooje OS, Biney E, Amoateng AY, Afolabi RF and Palamuleni ME. Fertility timing preferences among women of reproductive age: The case of Malawi and South Africa. *Southern African Journal of Demography*. 2021; 21(1): 27 – 68.

18. Timaeus IM, and Moultrie TA. Teenage childbearing and educational attainment in South Africa. *Studies in Family Planning*. 2015; 46(2): 143-160.

19. Akella D, and Jordan M. Impact of Social and Cultural Factors on Teen Pregnancy. *Journal of Health Disparities Research and Practice*. 2011; 8(1): 41-62.

20. Ewemooje OS, Biney E and Amoateng AY. Gender Differences in Risky Sexual Behaviour Among South Africans: Evidence from Recent Demographic and Health Survey. *Gender & Behaviour.* 2020; 18(2): 15606 -15614.

21. Krugu JK, Mevissen F, Münkel M, and Ruiter R. Beyond love: A qualitative analysis of factors associated with teenage pregnancy among young women with pregnancy experience in Bolgatanga, Ghana. *Culture, Health & Sexuality*. 2017; 19(3): 293-307.

22. Longwe-Ngwira A, and Mushani N. *Correlational analysis between teenage pregnancy and maternal mortality in Malawi.* African Institute for Development Policy (AFIDEP), 2015.

23. Mchunu G, Peltzer K, Tutshana B, and Seutlwadi L. Adolescent pregnancy and associated factors in South African youth. *African Health Sciences*. 2012; 12(4): 426-434.

24. Lambani MN. Poverty the cause of teenage pregnancy in Thulamela Municipality. *Journal of Sociology and Social Anthropology*. 2015; 6(2): 171-176.

25. Van Zyl L, van der Merwe M, and Chigeza S. Adolescents' lived experiences of their pregnancy and parenting in a semi-rural community in the Western Cape. *Social Work/Maatskaplike Werk*. 2015; 51(1): 151-173.

26. Sipsma HL, Ickovics JR, Lewis JB, Ethier KA, and Kershaw TS. Adolescent pregnancy desire and pregnancy incidence. *Women's Health Issues*. 2011; 21(2): 110-116.

27. Jewkes R, Morrell R, and Christofides N. Empowering teenagers to prevent pregnancy: lessons from South Africa. *Culture, Health and Sexuality*. 2009; 11(7): 675-688.

28. Ajala AO. Factors associated with teenage pregnancy and fertility in Nigeria. *Journal of Economics and Sustainable Development*. 2014; 4(2): 62-70.

29. Izugbara C. Household characteristics and unintended pregnancy among ever-married women in Nigeria. *Social Medicine*. 2013; 8(1): 4-10.

30. Kimweri A. *Assessing the association between gender of the household head and teenage pregnancy in Tanzania.* 2012. Retrieved from http://www.intrec.info/Training%20material/Block%205/INTREC%20paper%20draft%20Angela%20Kimweri.pdf [27 September 2019].

31. Okigbo CC, and Speizer IS. Determinants of sexual activity and pregnancy among unmarried young women in urban Kenya: A cross-sectional study. *PLoS One*. 2015; 10(6): e0129286.

32. Palamuleni ME, and Adebowale AS. Prevalence and determinants of unintended pregnancies in Malawi. *African Population Studies*. 2014; 28(1): 551-563.

33. Kost K, Finer LB, and Singh S. Variation in state unintended pregnancy rates in the United States. *Perspectives on Sexual and Reproductive Health*. 2012; 44(1): 57-64.

34. Hanson JD, McMahon TR, Griese ER, and Kenyon DB. Understanding gender roles in teen pregnancy prevention among American Indian youth. *American Journal of Health Behavior*. 2014; 38(6): 807-815.

35. Adebowale SA, Fagbamigbe FA, Okareh TO, and Lawal GO. Survival analysis of timing of first marriage among women of reproductive age in Nigeria: Regional differences. African *Journal of Reproductive Health/ La Revue Africaine de la Santé Reproductive*. 2012; 16(4): 95-107.

36. Garenne M. Age at marriage and modernisation in sub-Saharan Africa. *Southern African Journal of Demography*. 2004; 9(2): 59-79.

37. Agaba P, Atuhaire LK, and Rutaremwa G. Determinants of age at first marriage among women in western Uganda. *Paper presented at the European Population Conference, Vienna, Austria,* 2010.

38. Amoo EO. Trends and determinants of female age at first marriage in Sub-Saharan Africa (1990-2014): What has changed? *African Population Studies*. 2017; 31(1): 3565-3577.

39. Baumgartner JN, Geary CW, Tucker H, and Wedderburn M. The influence of early sexual debut and sexual violence on adolescent pregnancy: A matched case-control study in Jamaica. *International Perspective on Sexual and Reproductive Health*. 2009; 35(1): 21-28.

40. Hubacher D, Mavranezouli I, and McGinn E. Unintended pregnancy in sub-Saharan Africa: Magnitude of the problem and potential role of contraceptive implants to alleviate it. *Contraception*. 2008; 78(1): 73-78.

41. Secura GM, Madden T, McNicholas C, Mullersman J, Buckel CM, Zhao Q, and Peipert JF. (2014). Provision of No-Cost, Long-Acting Contraception and Teenage Pregnancy. *New England Journal of Medicine*, 2014; *371*: 1316-1323.

42. Jonas K, Crutzen R, van den Borne B, Sewpaul R, and Reddy P. Teenage pregnancy rates and associations with other health risk behaviours: a three-wave cross-sectional study among South African school-going adolescents. *Reproductive Health*. 2016; 13(50): 1-14.

43. Chung HW, Kim EW, and Lee J. Comprehensive understanding of risk and protective factors related to adolescent pregnancy in low- and middle-income countries: A systematic review. *Journal of Adolescence*. 2018; 69: 180-188.

44. National Department of Health (NDoH), Statistics South Africa (Stats SA), South African Medical Research Council (SAMRC), ICF. *South Africa Demographic and Health Survey 2016: Key Indicators*. Pretoria, South Africa, and Rockville, Maryland, USA: NDoH, Stats SA, SAMRC, and ICF, 2017.

45. Allanson P, Atkins J, and Hinks T. A multilateral decomposition of racial wage differentials in the

1994 South African labour market. *The Journal of Development Studies*. 2000; 37(1): 93-120.

46. Azam J, and Rospabe S. Trade unions vs statistical discrimination: Theory and application to post-apartheid South Africa. *Journal of Development Economics*. 2007; 84(1): 417-444.

47. Poudel S, Upadhaya N, Khatri RB, and Ghimire PR. Trends and factors associated with pregnancies among adolescent women in Nepal: Pooled analysis of Nepal Demographic and Health Surveys (2006, 2011 and 2016). *PLoS ONE.* 2018; 13(8): e0202107.

48. Biney E, Amoateng AY, and Ewemooje OS. Patterns of fertility in contemporary South Africa: Prevalence and associated factors. *Cogent Social Sciences.* 2021; 7(1): 1858575.

49. Ewemooje OS, Biney E and Amoateng AY. Determinants of fertility intentions among women of reproductive age in South Africa: Evidence from the 2016 Demographic and Health Survey. *Journal of Population Research*. 2020; 37: 265–289.

50. Posel D and Rudwick S. Attitudes to marriage, cohabitation and non-marital childbirth in South Africa. Paper presented at the *Micro-econometric Analysis of South African Data conference (MASA),* 2012. http://www.aceconferences.co.za/posel%20and%20 ruwick%20-%20full%20paper.pdf

51. Biney E, Ewemooje OS, and Amoateng AY. Predictors of sexual risk behaviour among unmarried persons aged 15-34 years in South Africa. *The Social Science Journal*. 2020; 1–16

52. Meyer DF, and Nishimwe-Niyimbanira R. The impact of household size on poverty: An analysis of various low-income townships in the Northern Free State region, South Africa. *African Population Studies*. 2016; 30(2): 2283-2295.

53. Odimegwu C and Mkwananzi S. Factors associated with teen pregnancy in sub-Saharan Africa: A multi-country cross-sectional study. *African Journal of Reproductive Health (Special Edition).* 2016; 20(3): 94-107.

54. MacPhail C, Pettifor AE, Pascoe S and Rees HV. Contraception use and pregnancy among 15-24-year-old South African women: A nationally representative cross-sectional survey. *BMC Medicine.* 2007; 5: 1-8.