

A POLICY PATHWAY TO REDUCING TEENAGE PREGNANCY IN AFRICA

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Abstract

Background: Teenage pregnancy remains an important and complex issue around the world, with reports indicating that Africa has higher rates than other continents. Studies have indicated that social and economic determinants are associated with these higher rates. Therefore this study aims to identify the social and economic influencers of teenage pregnancy which would help develop a best-practice approach to reduce its incidence in Africa. **Methods:** Data sets from the World Bank Organisation between 2008 and 2010 specific to 51 Africa countries were obtained to conduct this study, based on availability. Independent t-test, Spearman's correlation and regression analysis were performed. The eight social and economic variables used in this study are: GDP per capita, GINI index, Female Literacy rate, Health expenditure, Unemployed female rate, Gender equality, Contraceptive prevalence and urban population rate. **Results:** Independent t-test revealed that in countries where teenage pregnancy rate is high, Literacy rate, contraceptive prevalence rate and Healthcare expenditure rate was low. Spearman correlation indicated that female literacy rate, Healthcare expenditure, GDP per capita and Contraceptive prevalence had a significant inverse relationship with teenage pregnancy rate. Logistic regression indicates that Female Literacy rate is the best predictor of teenage pregnancy in Africa. **Conclusion:** Result suggest that a practical approach to reduce teenage pregnancy rate in Africa is to implement strategies and policies aimed at improving female literacy rate, Health care expenditure and the GDP per capita of a country. Additionally, an increase in female literacy rate would concurrently increase Contraceptive prevalence rate.

Key words: Teenage pregnancy, social and economic determinants, Africa policy.

INTRODUCTION

Teenage pregnancy remains an important and complex issue around the world^{1,2}. This is majorly attributed to the numerous health consequences such as pregnancy related illness, high infant mortality rate, low birth weight babies, maternal mortality and exposure to sexually transmitted diseases³.

Asides the medical consequences, there are several economic and social consequences associated with high teenage pregnancy rate^{4,5}. This is because teenage pregnancy causes an upsurge in a nation's population which places a burden on other sectors of the economy, hence, impeding the economic and social progress of such nations⁶; furthermore, this can lead to extreme poverty especially in lower income countries⁷.

The rate of teenage pregnancy varies between developed and developing countries. According to World Health Organisation (WHO) report⁸, the global teenage pregnancy rate was projected to be 54 births per 1000 women for 2000-2005 periods. Furthermore, WHO report⁹

states that the average teenage birth rate amongst developed countries was 29 births per 1000 with European countries having the lowest rate; whereas, in developing countries teenage pregnancy rate was as high as 133 births per 1000 females.

The World Health Statistics review¹⁰ indicates that the average teenage pregnancy rate across Africa is about 118 per 1000 females and this figure is very high when compared to the rate in other continents. Some researchers have stated that the high teenage pregnancy rate in Africa can be attributed to Africa being amongst the poorest continents of the world with most countries underdeveloped¹¹.

Dev Raj et al.¹⁴ in a systematic review on factors associated with teenage pregnancy in South Asia identified that in developing countries, social and economic determinants associated with high teenage pregnancy rate are: socioeconomic condition; low educational attainment; as well as cultural and family structure.

This opinion is further supported by The World Bank synopsis¹⁵ on the determinants of

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increased fertility in low income countries. The Synopsis¹⁵ reported that poor access to sexual health services and urbanisation were also determinants of teenage pregnancy amongst developing countries.

Figure 1 illustrates the social and economic determinants that influences teenage pregnancy rate in Africa. The relationship between the social and economic factors with teenage pregnancy rate is such that each of the underlying social and economic factors could either increase or decrease teenage pregnancy rate and at the same time this factors influences one another.

Due to the numerous impacts of the high teenage pregnancy rate in Africa, there is a need to put in place a policy that addresses the issue of teenage pregnancies in Africa. Recent studies carried out in some African countries have identified factors such as low educational attainment in Kenya¹² and poor use of contraceptive in Morocco¹³ and therefore suggested policies around such factors.

There is however still a need to investigate other factors associated with high teenage pregnancy rate in Africa. Therefore, this research paper aims to examine social and economic factors unique to African nations in an attempt to understand the high prevalence in Africa; thereby suggesting a policy pathway which can be used in informing policy makers on the determinants of teenage pregnancy in order to plan targeted interventions.

METHODS

Data and methods

This study used data from the World Bank Organisation conducted between 2008 and 2010

in Africa¹⁶. Data from 51 African countries were included in this study. Countries were selected for inclusion based on availability of comparable data sets on teenage pregnancy rate.

Ethical considerations

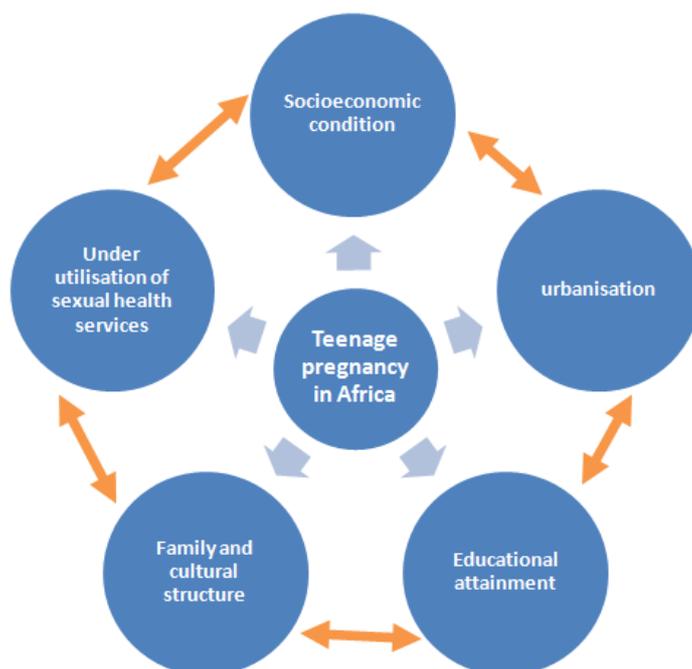
This study is based on an analysis of existing survey data and does not involve any form of contact with human or animal subjects. Data sets utilised in this study have been obtained from the World Bank Organisation freely within the public domain. In addition, these data sets do not contain any information that can breach confidentiality of the participants. Therefore, there are no ethical issues to be considered for this study as it poses no harm to the participants.

Variables

The main dependent variable is the teenage pregnancy rates in the countries which represent the number of births per 1000 women aged 15-19. The independent variables aim to determine the individual characteristics of the countries and generate correlations. These independent variables are:

- **GINI index:** it is a measure of a countries level of income inequality and expresses. This ranges from 0-100, with zero and 100 signifying perfect equality and inequality respectively. It is assumed based on Daw Namoro^{17, 18} study that the higher a country’s income, the higher the teenage pregnancy rate.
- **GDP per capita:** This indicates the general standard of living in a country which can be determined by the level of income of individuals

Figure 1: illustration of the social and economic determinants of teenage pregnancy in Africa



living in a country. This rate is usually expressed in US Dollars (\$). In line with previous study by The World Bank Synopsis¹⁵ it is expected that the higher the standard of living (the higher the level of income) the lower the teenage pregnancy rate.

- **Female Literacy rate:** This is the number of females' ages 15 to 24 years who can both read and write and understand short simple statements. Following recent research^{14,15, 19}. It is expected that the more adolescent females are educated, the less likely they would be involved in unsafe or underage sexual activity.

- **Urban population rate:** It refers to the number of people living in urban areas in a country. in line with previous studies^{9, 12, 13, 15} it is presumed that the more females living in urban areas the lower the teenage pregnancy rate, as they would engage in more profitable activities in urban regions.

- **Contraceptive prevalence:** This is the proportion of women aged 15-49, who are practicing, or whose sexual partners are practicing, any form of contraception. in line with previous research^{9, 14, 19, 20, 21, 22, 23, 24} it is expected that the higher the numbers of women practicing any form of contraception, the lower the teenage pregnancy rate.

- **Health care expenditure:** It is the sum of public and private health expenditure, and It covers the provision of both preventive and curative, as well as family planning activities, nutrition activities, and emergency aid. it is expected that in line with studies by Dev Raj et al.¹⁴ 2010 and Isaranurug et al²⁵ the more a Government spends on health care the lower the teenage pregnancy rate.

- **Gender equality:** This measures the extent to which a country has installed institutions and programmes to enforce laws and policies that promote equal access for men and women to education, healthcare services, the economy, and protection under law. It ranges from 1-6 with 1 signifying low and 6 high. It is expected based on the study by Were¹² that the higher the gender equality of a country the lower the teenage pregnancy rate.

DATA ANALYSIS

Data Analysis in this study was carried out in various steps. First descriptive analysis was carried out to derive the median of all variables. Thereafter, all variables were recoded and categorised into 2 groups using the median, with values below the median classified as Group 1 and values above the median classified as Group 2 and an Independent t-test was carried out.

Next, Spearman's correlation analysis was used to derive if there is any association between the dependent variable and each of the independent variable. IBM SPSS Statistics 19 was the statistical package used in conducted the analysis for this study. Thereafter, logistic regression was carried out to identify the predictors of teenage pregnancy in Africa.

RESULTS

Using a median of teenage pregnancy to create two groups, independent t tests were conducted. Results can be seen in table 1 below which shows the mean for each variable above and below the median teen age conception rate along with the value of t and probability.

Table 1: t test of teenage pregnancy rate above and below the mediaIn African countries where teenage pregnancy rate is above the median, literacy, healthcare expenditure and contraceptive prevalence is significantly lower

VARIABLE	TEENAGE PREGNANCY		T TEST
	ABOVE MEDIAN	BELOW MEDIAN	
Literacy rate	66.6	87.4	t 4.146, df 34, p.000
Contraceptive prevalence	22.05	40.67	t 2.58, df 18, p.019
Health care expenditure	77.78	179.52	t 2.209, df 47, p.032

Spearman correlation was conducted to explore the relationship between variables, results for can be seen in Table 2 below. Significant correlations can be seen in bold. Level of significance is indicated by * where p < 0.05 or ** where p < 0.001.

Significant strong negative correlation emerged with literacy and contraceptive prevalence rate and a significant moderate negative correlation with GDP per capita and healthcare expenditure indicating that In African countries where literacy rate, contraceptive prevalence, GDP per capita and health care

expenditure are higher, teenage pregnancy rate is lower.

There was a significant strong positive correlation between GDP per capita with health care expenditure and contraceptive prevalence and a significant moderate positive correlation between GDP per capita and literacy rate, denoting that in African countries with high GDP per capita, literacy rate, contraceptive prevalence and health care expenditure will equally be high.

A significant moderate negative correlation was noted between literacy rate and urban

population rate, implying that in African countries where a greater proportion of the population are urban dwellers, literacy rate is lower. Also a strong positive relationship emerged between contraceptive prevalence and health care expenditure suggesting that in countries with high contraceptive prevalence, health care expenditure would also be high.

Furthermore, a significant strong relationship was observed between literacy rate with contraceptive prevalence rate and healthcare expenditure, illustrating that in African countries where literacy rate is high, contraceptive prevalence rate and healthcare expenditure is also high.

To explore key predictors of teenage pregnancy rate, a logistic regression model with teenage pregnancy rate as the predicted (dependent) variable and GDP per capita, Health Care Expenditure and Literacy was significant ($F_{4.64, p=.000}$) accounting for 32% ($r^2 = .317$) of variance in teenage pregnancy rate in Africa. Increasing literacy by 1 unit is predicted to reduce teenage pregnancy by 94 per 1000 ($b = -.935, p = 0.037$). An increase by 1 unit of expenditure on health care is predicted to reduce teenage pregnancy rate by 37 per 1000 ($b = -.369, p = 0.05$). Interestingly a unit increase in GDP is predicted to increase teenage pregnancy rate by 1.7 per 1000 ($b = 0.17, p = .042$).

Table 2: Correlation results with significant results in bold (Level of significance is indicated by *where $p < 0.05$ or **where $p < 0.001$)

	1	2	3	4	5	6	7	8
Teenage pregnancy								
GINI index	-.311							
GDP per capita	-.399**	.086						
Literacy rate	-.528**	.095	.483**					
Gender equality rate	-.152	.122	.150	.291				
Contraceptive prevalence rate	-.517*	-.086	.574*	.900**	.459			
Urban proportion	.139	-.174	-.080	-.395*	-.093	.006		
Health care expenditure	-.472**	.074	.907**	.649**	.153	.537*	-.141	

As literacy emerged the key predictor of teenage conception, we explored predictors of literacy rate. A further logistic regression model with literacy rate as the predicted (dependent) variable and GDP per capita, urban population, contraceptive prevalence and health care expenditure as the predictor (independent) variables accounted for 80% of variance in literacy rate ($r^2 = .799$). Within this model the significant predictor was contraceptive prevalence indicating that a unit increase in contraceptive prevalence predicts an increase in literacy rate of .97 ($b = .967$).

DISCUSSION

The purpose of this research is to suggest a policy pathway that can reduce teenage pregnancy rate in Africa. Findings from this study have shown that health care expenditure, female literacy rate and GDP per capita are predictors of teenage pregnancy with literacy rate being the key predictor. Thus, indicating that the determinants of teenage pregnancy in Africa are multifaceted.

The evidence that literacy rate is a major determinant of teenage pregnancy rate is in accordance with previous studies. A study carried out by Were¹² indicates that less than 50% of the teenage mothers who took part in the study had completed primary education, and nearly 62% dropped out when they became pregnant. The Health Development Agency²⁶ also expressed a

similar opinion stating that a considerable amount of teenage mothers are more likely to drop out of school while pregnant.

Furthermore, Lemos²⁷ study stated that literacy rate is a key predictor of an individual's socioeconomic status which is also one of the determinants of teenage pregnancy. The author further reveals that within poor socioeconomic groups with low educational attainment teenage pregnancy was twice that observed in similar poor socioeconomic communities with better educational attainment.

This explains why Were¹² and Sharma et al²⁸ stated that literacy rate is both a cause and a consequence of high teenage pregnancy rate in developing countries. This is because individuals with low literacy level have a higher chance of: living in poverty; being in low paid jobs; or unemployed as rightly pointed out by Hobcraft et al²⁹. Thus, teenage parents may end up becoming deprived families, and the vicious cycle continues³⁰.

This study also demonstrates that as healthcare expenditure and contraceptive prevalence increases, teenage pregnancy decreases. This is line with previous assumptions made. According to WHO report¹⁹ there was an 8% increase in the use of contraception globally between 1990 and 2007; however, the proportion of increment recorded in Africa appears to be the lowest.

An explanation given by WHO report²⁴ and Gogna et al²¹ for this decrease in the use of contraception and healthcare facilities is that in several developing countries public health

measures such as: sex and relationship education; sexual development; methods of preventing pregnancies; and sexually transmitted diseases are either inadequate or absolutely lacking.

Furthermore, this study demonstrates that in countries where GDP per capita is higher, female literacy rate, contraceptive prevalence and health care expenditure is also higher. This finding is in accordance with previous research^{19, 21, 24} which clearly indicate that in countries with high GDP per capita more females would be able to engage in skilled labour and have a good standard of living.

Besides, such countries with high GDP per capita would have more healthcare facilities which would be easily accessible and even preventative measures such as: use of contraceptives, advice and counselling; as well as sex and relationship education can be taught in such healthcare facilities; Thus, further reducing the teenage pregnancy rate in such countries.

However, the researchers also recognises that in countries with high GDP per capita, female literacy rate, contraceptive prevalence and health care expenditure could remain low due to issues such as female discrimination and oppression. This is why WHO³¹ has stated that in such countries, health promotion activities that utilises education, negotiating and training can be used in addressing this issues. Other interventions suggested are: imposing laws and setting up reproductive rights tribunals.

This research also revealed that in countries where literacy rate is high, urban population is reduced. This finding is in line with previous

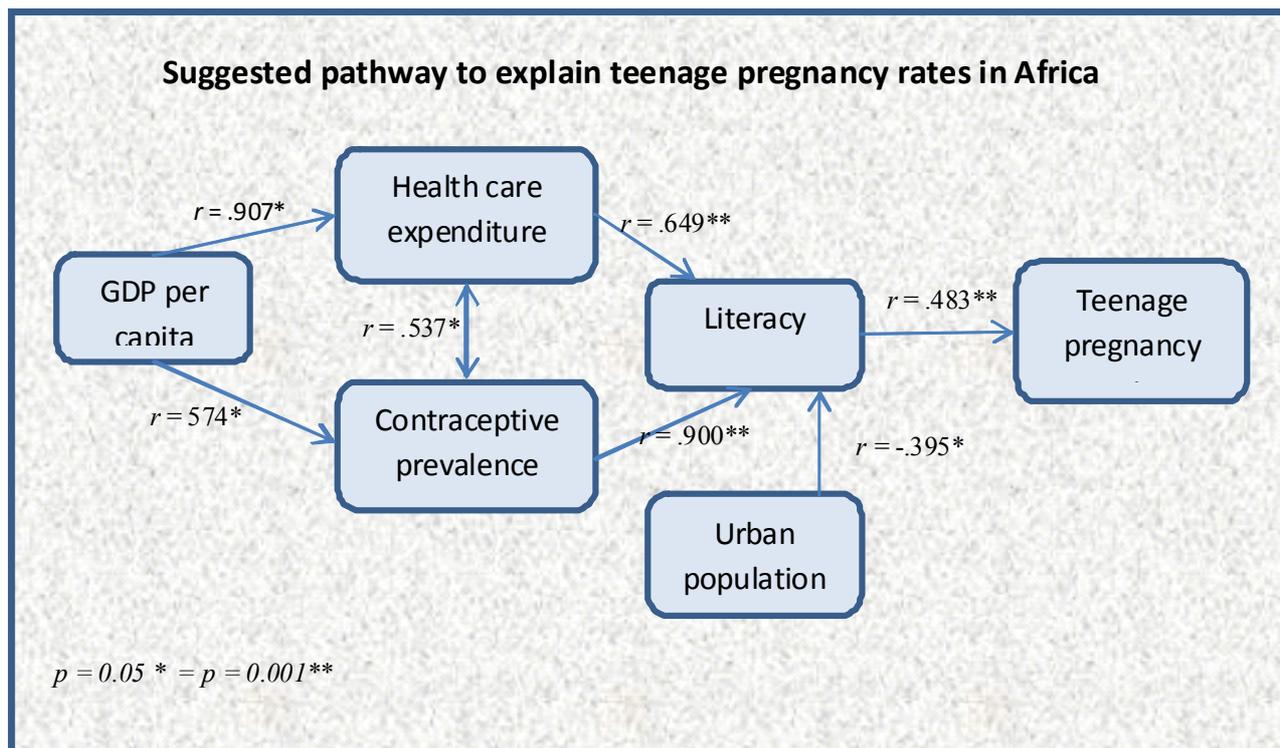
studies by Abdesslam¹³ and Were¹² which clearly states that many young females in Africa move from rural regions to urban regions in search for higher educational attainment, paid employment and better health care facilities. Hence, teenage pregnancy would be reduced in such countries.

Nevertheless, the researchers recognises that the assumption that an increase in urban population results in a reduction in teenage pregnancy rate is contrary to the study by Imamura et al²² which stated that teenage pregnancy is now higher in urban regions of developing countries. This could possibly be due to high deprivation faced by urban region migrants. This sometimes bring about such migrants abandoning their aspirations of higher education or better employment and subsequently engaging in unsafe sexual practices to survive the harsh conditions in the urban regions.

A possible explanation for the non-significant result of GINI index and Gender equality is the format in which the available data were presented; as both data sets were in index format. Although the results of GINI index result was not in accordance with the expected direction. Likewise, urban population showed a non-significant result but in the expected direction. A possible explanation is that the figures for urban population rate not specific for females but the entire population in a country.

These results from the study has enabled the researchers to develop a conceptual model shown in figure 2 below that shows a suggested policy pathway that can be used to reduce teenage pregnancy in Africa.

Figure 2: suggested pathway to explain teenage pregnancy in Africa



Within the framework we suggest that increases in GDP per capita will enable the government put in place policies and strategies that facilitate increase in health care expenditure and contraceptive prevalence. The bidirectional arrow between health care expenditure and contraceptive prevalence is indicative of the inter relatedness of these variables, with one affecting the other.

The position of literacy rate within the policy pathway is drawn from the regression results that indicate healthcare expenditure and contraceptive prevalence are key predictors of literacy rate. Hence, policy that influences these two variables would impact upon literacy rate. Besides, policies should also pay attention to increasing literacy rate amongst urban dwellers.

The findings of this research can be considered in the light of the following limitations: first, due to the non-availability of recent data sets of some other important social and economic determinants such as, age at marriage of females, female occupational status and female income, such social and economic determinants could not be measured. Second, the format of the available data could underestimate the influence of the determinants of teenage pregnancy had it been that all the data sets used the same indicators.

Despite these limitations, this research study has some significant strength. First of all, it is a large population-based study with national coverage of all countries in Africa and the findings from this study are representative of the continent. In addition, this study is unique in that it adds wealth of knowledge on the determinants of teenage pregnancy in Africa by exploring the impacts of several social and economic factors.

Besides, the data sets used were from the World Bank Organisation which have some important advantages when compared with other surveys, in that not only are they nationally representative but also contain data sets of some important variables that made it possible to carry out the necessary analysis.

Although, thorough research has been conducted to investigate the impact of several social and economic factors on teenage pregnancy; however, there are other related areas that could benefit this work in tackling teenage pregnancy in Africa. For instance, future research could focus on the barriers to implementing educational services as well as sex and reproductive education in secondary schools.

In addition, further research on some variables such as: urban population rate specific for females, age at marriage of females, female occupational status and female income can help in identifying other social and economic determinants essential in reducing the teenage pregnancy rate in Africa.

Furthermore, future research can also be conducted to compare the teenage pregnancy rate and other socioeconomic factors in countries where policies on compulsory education for teenage females and reproductive rights have been implemented to ascertain the effectiveness of such policies.

CONCLUSION

This study indicated that determinants of teenage pregnancy in Africa are multifaceted with social and economic determinants such as: GDP per capita, literacy rate, contraceptive prevalence rate and healthcare expenditure rate emerging as great influencers of teenage pregnancy in Africa.

However, in other to prioritise due to the limited available resources, particularly in Africa where a number of the countries are developing countries, a policy pathway based on the best predictor of teenage pregnancy in Africa has been suggested by the authors.

A policy pathway to reduce teenage pregnancy rate in Africa is one that puts in place policies and strategies to increase female literacy rate. This will increase both the use of contraception amongst female and the healthcare expenditure. The overall effect would be an increased GDP per capita of the nation.

Besides an increase in literacy rate would also reduce rural-urban migration as more educated females within the rural region would utilise the skills and knowledge gained while in education to develop their communities. Furthermore, policies that increase female literacy rate in Africa would help ensure that: schools are located in the right site; trained individuals are available; free and affordable education are given to citizenry; as well as ensuring individuals are literate enough to understand the sex and relationship education given.

Likewise, an increase in female literacy rate would help disabuse myths and misconception. Thus, allowing the ease of public health measures that increases access to healthcare facilities and the use of contraception.

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