



# The Implication of Teenage Pregnancies in Eswatini: A Trend and Spatial Analysis

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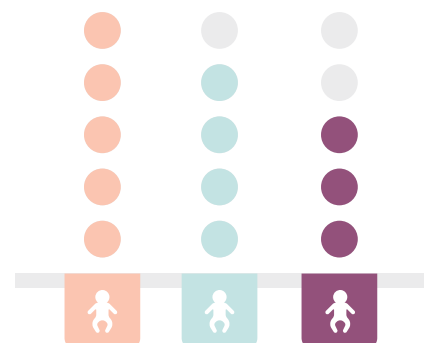
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## The Implication of Teenage Pregnancies in Eswatini: A Trend and Spatial Analysis

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### Abstract:

This study assesses the extent of teenage pregnancy in Eswatini with a focus on public schools in the constituencies and region. In addition, the study examines which regions are affected by teenage pregnancies and adopts a Generalised Ordered Logit Model to determine the likelihood of teenage pregnancies across the regions in Eswatini. The study locates the Hhohho and Manzini regions as high teenage pregnancy areas and further identifies mothers in Lubombo and Shiselweni as more vulnerable to repeat births. Not surprisingly, the study finds that teenage pregnancies occur in Eswatini's poverty-stricken areas - where there are low economic activities and the households are experiencing low incomes. These are places such as Madlangempisi, Ngwempisi, Sigwe, and Lomasha. Teenage pregnancies occur when learners are idle during school holidays. The government is advised to consider intensifying policies and programmes geared towards reducing or eradicating teenage pregnancies in Eswatini. Such policies should deliberately target rural areas and focus on creating employment opportunities to relieve households from low incomes.

**Keywords:** *Teenage pregnancies, dropouts, vulnerabilities, Eswatini*

### 1. INTRODUCTION

Teenage pregnancy remains a global problem but more pronounced in developing countries, especially in sub-Saharan Africa (SSA). While the global adolescent pregnancy rate dropped by 28% from 65 births per 1,000 women in 1990 to 47 births per 1,000 women in 2015 (United Nations Department of Economic and Social Affairs [UNDESA], 2015), still each year in the developing world alone, an estimated 21 million girls aged between 15 and 19 years fall pregnant (Darroch *et al.*, 2016). The highest proportion of these teenage pregnancies occur in Sub-Saharan Africa, where birth rates can be as high as 200 births per 1,000 girls contributing about a third to the world's teenage pregnancies (World Atlas, 2015). These statistics paint a grim picture of the African continent, that teenage pregnancy remains

a unique problem of the developing nations, particularly, the sub-Saharan region. A report by the United Nations Population Fund [UNFPA], (2013) states that teenagers aged between 15 and 19 years account for more than half of all births in the SSA region. At the same time, SSA and Southern Asia account for well over 50% of the global out-of-school primary and secondary education population with teenage pregnancies bearing a significant contributing factor to these pupils dropping out of school (Brhane *et al.*, 2018).

While teenage pregnancy is a problem in SSA, it is also an economic policy concern in the Kingdom of Eswatini (KoE). Eswatini's adolescent birth rate currently stands at 87 births per 1,000 adolescents (Dlamini *et al.*, 2017). The Annual Education Census (AEC) Report 2009 reveals that between 2009 and 2015 an estimated 52,814 pupils dropped out of school each year due to lack of school fees, disciplinary or expulsion, sicknesses, absconding, death, family issues, and teenage pregnancies. In the same period, 8,179 (18.1%) of the pupils dropped out of school due to teenage pregnancy, of which 77.9% of the p

upils were girls and 22.1% were boys (Ministry of Education and Training [MoET], 2009-2015). However, this is an underestimate as the Health Management Information System (HMIS) data reveals that 82,978 of school going girls were pregnant between 2001 and 2017. What it means is that teenage pregnancy explains at least a fifth of all cases of pupils dropping out of school in Eswatini on an annual basis. Left unattended, the teenage pregnancy issue has the potential to spiral out of control and become one of the key barriers to Sustainable Development Goal (SDG) 4, which advocates for inclusive and quality education by 2030. Consequently, without an educated stock of human capital, most of if not all the other SDGs will remain unattainable and illusive goals for the Kingdom of Eswatini.

Education is a key component of economic growth and sustainable development. It has direct influence on productivity, entrepreneurship, and innovation, as well as, equips a nation's youth with systematic skills to adapt with the fast-changing global economy (Latif *et al.*, 2015). If more girls and boys drop out of school due to pregnancies and related issues, the sustainability of the Eswatini's economy will be severed owing to a deterioration in the quality of the stock of human capital. Increasingly, teenage pregnancy will become an important factor for perpetuating missed opportunities, poverty, and deterioration of the standard of living in which Eswatini's children and future generations are being raised. On the other hand, the enrolment statistics reveal an easily forgotten side of teenage pregnancy, that it also affects teenage boys in a serious way. While it is irrefutable that teenage girls face the brunt of the teenage pregnancy ramifications, boys too, often drop out of school due to social pressures including motivations to find employment to look after the baby, among many other reasons. Any child's future lost to teenage pregnancy – be it a girl or boy child – is a cost to the entire economy and thus an impediment to the country's inclusive growth and sustainable development goals.

The United Nations Development Knowledge Platform (UNKP) also notes that an estimated 263 million children and youth in 2017 were out of school, of which 61 million were of primary school age. Given the gravity of the teenage pregnancy problem in the SSA sub-continent, governments and non-governmental organisations (NGOs) in this region have deployed a number of health and education programmes to curb teenage pregnancies in a bid to keep children in school. The health and education policies that inform these programmes tend to focus on preventing teenagers from engaging in sexual activity in addition to providing educational information and health options for safe sex (Williamson and Lawson,

2015). As a result, teenage pregnancies are well articulated as a health and education problem, but there is still limited knowledge on how they affect the economy and the development trajectory of a country as a whole. For instance, it is not clear how the third of the world's teenage pregnancies that occur in SSA contribute to economic losses and impediments on the continent's development goals, specifically attainment of educational, employment, and production and productivity goals. Alternatively, no study has tried to quantify the losses in the gross domestic product (GDP) and development goals attributable to teenage pregnancies. With the global population of adolescents, projections indicate that the number of teenage pregnancies will increase globally by 2030, with the greatest proportional increase in West and Central Africa and Eastern and Southern Africa (UNFPA, 2013).

Hence, the purpose of this study is to inform policy makers and provide foundation for economic policy conversations on teenage pregnancies in Eswatini. Assessing teenage pregnancy just as an education and health problem alone tends to mask the important national socioeconomic systems that either contribute to or perpetuate vulnerabilities of teenagers to premature pregnancies in their lives. Policy and programming should, indeed target the causal chain of socioeconomic conditions that make Eswatini's children susceptible to teenage pregnancy. The study argues that teenage pregnancy is not just an education and health sector problem alone, but an economic problem that affects the growth and development trajectory of Eswatini as a whole. Teenage pregnancy limits the prospects of the child from participating in productive economic activities to increase the standard of living for all Emaswati. School drop-outs face a difficult time finding jobs and often live on government assistance (Mkhwanazi and Odimegwu, 2015). This contributes to high unemployment, poverty, and dispossession among teenage mothers and their children while it also limits the utility the country derives from its human capital.

The study provides a trend analysis of teenage pregnancy in the Kingdom of Eswatini. The trend analysis assesses the level of teenage pregnancies focusing on the determinants in each region, constituency, and school context that makes Eswatini's youth especially vulnerable to teenage pregnancy. The study is important given that questions have arisen on the extent of teenage pregnancy in the four regions of Eswatini and especially concerning the age Eswatini's children become vulnerable to teenage pregnancy. The study is also interested to know how do teenage pregnancies compare between the regions, constituencies, and public schools in Eswatini and determine the group of teenagers that are more susceptible to repeat births and quantify the key socioeconomic determinants of teenage pregnancy in the most vulnerable regions, constituencies, and schools. The study contributes knowledge for targeting teenage pregnancy interventions as well as attaches a monetary value on some of the economic losses associated with teenage pregnancy.

## **2. CONCEPTUAL FRAMEWORK**

### **2.1. Teenage pregnancy as a socioeconomic problem**

Teenage pregnancy cannot be taken lightly: it is a life-changing experience that has serious ramifications on the teenage mother and the child, their family, and the rest of society. Being pregnant at a young age often means facing harsh social and economic penalties which lead to missed opportunities and making tough choices that have life-long consequences. Teenage

mothers are at higher risk of obstetric complications including, incontinence from obstetric fistulae, eclampsia, post-partum haemorrhage, and maternal mortality (World Health Organisation [WHO], 2014; Macleod and Tracey, 2010). In addition, teenage pregnancies result in a less educated, less prepared, and less competitive workforce. The social implications, on the other hand, affect the socio-economic development of a family and community because of early dropout from school, fewer job opportunities, or diminished job prospects, and increased burden to families (Kirby and Coyle, 1997; Sayem and Nury, 2011). It is such health and social vulnerabilities that 7% maternal deaths in Eswatini for mother aged between 15-19 years. Moreover, the empirical literature indicates that children born to teen mothers often do not perform well at school (Schuler Center for Analysis and Advocacy [SCAA], 2008). In his comparison between teenage mothers and adults (Rawlins *et al.*, 2013) finds that teenage mothers reported lower income than older mothers ranging from TT\$700 to 4,500 per month whilst for adults it exceeded TT\$4,000 per month. Literature on the issue is conclusive that teenage motherhood correlates with a plethora of socioeconomic challenges that limit the quality of life for the mother, the child, and society as a whole. For example, teenage pregnancy collates with low maternal education attainment, relative deprivation, unemployment, and

Some of the social and economic factors that explain teenage pregnancies are peer influence, unequal gender power relations, poverty, religion, early marriage, parental neglect, lack of comprehensive sexuality education, and non-use of contraceptives. Recent studies have identified social factors such as early marriage and religion as other factors associated with teenage pregnancy in SSA (Yakubu and Salisu, 2018). A study in the South East of Nigeria, in the rural communities of Abia State, showed that teenage pregnancy is significantly associated with age, occupation, no education, early marriage, religion, and practice of “Osu” caste system (see Uwaezuoke *et al.*, 2004). Jones *et al.*, (2014) on early marriage and education and the complex role of social norms in shaping Ethiopian adolescent girls’ lives finds that early marriage contributes to teenage pregnancy in Ethiopia. Similarly, in Eswatini a study by Zwane, (2000) reveals that peer pressure, social norms, and non-use of condoms are powerful determinants of behavioural change and early sexual debut among adolescents.

However, low incomes, especially at household level, also explain teenage pregnancy. In recent years’ household income has become a leading contributor to teenage pregnancy in Eswatini. An estimated 41.1% of Emaswati live below the poverty line with the highest proportion being in rural areas. This is due to the lack of employment opportunities in Eswatini and lack of economic activities in the rural areas. Teenagers from underprivileged households are prone to intergenerational relationships (old men who provide some form of financial support in order to entice them). These old men take advantage of their situations. Evidently, The National Campaign (2013) states that financial constraint is one predictor of teenage pregnancy and childbearing and this confirmed by Moore *et al.*, (2010) that low economic status is a strong indicator of early sexual activity, pregnancy, and childbearing. Panday *et al.*, (2009) also reports that young women who are poor are vulnerable to abusive, inter-generational relationships and multiple partners just to balance between their health and economic security. Evidence abounds that children in low-income households do less well than their peers on many outcomes, including health and education (Cooper and Stewart, 2013), and they do not receive the stimulation and learn the social skills required to prepare them from school. This if not addressed will continue to hinder attainment of Sustainable Development Goal (SDG) 4 of inclusive and equitable quality education and promote lifelong learning opportunities for all in Eswatini.

To address the consequences of teenage pregnancies, Governments and NGOs have adopted several strategies that target the youth. A number of health and education policies have been placed mainly focusing on education and prevention of sexually transmitted diseases, HIV, and prevention of unwanted pregnancies. For instance, in Kenya, programmes for training teachers in HIV and providing education subsidies for girls resulted in a slight decline in teenage pregnancy and school drop-outs (Duflo *et al.*, 2014). Even other African countries together with Eswatini adopted some approaches on promoting sexual health among young people by providing prevention information and services. For example, Eswatini adopted National Health Policy of 2007 (Ministry of Health and Social Welfare, (2007)), National Youth Policy (NYP) of 2009 which calls for improved access to HIV/AIDS treatment for youth, integration of Life Skills Education, the promotion of school-and community-based health clubs, and scale-up of SRH services targeting all youth, to reduce STI prevalence and unplanned pregnancies (Ministry of Sports Culture and Youth Affairs, 2009). However, these policies do not address the socioeconomic factors that the youth face making them vulnerable to teenage pregnancies. To address teenage pregnancy, policymakers in SSA (Eswatini included) need to further investigate the socioeconomic systems that lead to the vulnerabilities of teenage pregnancy among youth.

Therefore, the study examines the areas where teenage pregnancies are more prevalent and further investigate the vulnerabilities in the four regions of Eswatini, constituencies and public schools. This study examines the socioeconomic theory of economic activities and income in explaining the regional variations in levels of teenage pregnancy. This is important in understanding better the key determinants of teenage pregnancy. Therefore, the study aimed to compare the level of teenage pregnancy across the as well as identifying the different predictors of teenage pregnancies among these areas. Major questions that arose in this study are: Which teenage mothers are more susceptible to teenage pregnancy in Eswatini? and at what age do Eswatini's children are vulnerable to teenage pregnancy? Answering these questions will increase understanding of the causes of teenage pregnancies in Eswatini.

### **3. METHODS**

This section describes the methods used to answer the objectives and research questions of the study. Also in this sections are the data sources, the analytic framework, and econometric modelling.

#### **3.1. Data Sources and Description**

The study uses secondary data from the Eswatini Health Management Information Systems (HMIS). The data includes monthly inpatient deliveries over a sixteen-year period (2001-2017). The data targets mothers aged between 11-20 years from the 38 maternal health care facilities across the 4 regions of Eswatini: both Hhohho and Manzini each have 12 facilities; Lubombo has 8 while the Shiselweni region has 7 of these facilities. Key variables picked

from the data include the number of previous deliveries per teenage mother, the age of teenage mother, and region in which the birth occurs. However, the limitation of this data is that it does not give the teenage mother's actual residence/place of origin but rather the region and the facility where she delivered. To overcome the location problem, the study supplements the HIMS data with Education Management Information System (EMIS) data on school drop-outs (albeit only 2009-2015 for which data is available) to provide a link between school drop-outs due to teenage pregnancy with the location of school in terms of region and constituency. The key variables picked from EMIS data include name and location of school, total number of school drop-outs disaggregated by gender of child, and the reasons for dropping out of school. The EMIS data also provides the baseline for estimating government's monetary losses due to pupils dropping out of school as a result of teenage pregnancy.

### 3.2. Data Analysis

To analyse the data, the study uses Microsoft Excel to generate descriptive frequency statistics such as means and percentages to compare the incidence of teenage pregnancy and school drop-out trends across the 4 regions, 55 constituencies, and public schools. To complement the descriptive statistics on the level and extent of teenage pregnancy in Eswatini, the study also uses Stata 14 to model the probabilities associated with certain types of pregnancies using a Generalised Ordered Logit Model (GOLM) or gologit.

Generally, logit regressions can be applied whenever the dependent variable is binary or a dummy variable that takes values 0 or 1 (Armstrong and Sloan, 1989; McCullagh, 1980). A logit model is a nonlinear regression model that forces the predicted values to be either 0 or 1. For example, a teenager can either be pregnant or not pregnant so that being pregnant can take the value 1 while not being pregnant takes 0. Logit models estimate the probability of the dependent variable to be 1 ( $Y=1$ ), or in the context of this study, the probability that a teenager falls pregnant happens given certain circumstances. The GOLM calculates the probabilities of a teenage mother having a pre-determined number of babies in a specific region at a specific age. Drawing from Das and Rahman (2011) who use the GOLM to determine the risk factors of child malnutrition in Bangladesh, this study also employs the model to identify mothers who are more vulnerable to teenage pregnancy and repeat births as well as determine the factors associated with the number of pregnancies that a teenage is likely to have within a pre-defined category on number of children. Das and Rahman (2011) used ordinal data which was categorised into three groups of child nutrition status; severely undernourished, moderately undernourished, and nourished. This study examines the teenage probabilities under three main categories of the number of previous deliveries of a teenage mother: 0-3 births; 4-6 births; and 7-9 births.

According to (William, 2006) for an ordinal outcome variable with  $M$  categories, the Generalized Ordered Logit model can be written as;

$$P(Y_i \leq j) = 1 - g(X\beta_j) = F(X\beta_j).$$

$$P(Y_i > j) = \frac{\exp(\alpha_j + X_i\beta_j)}{1 + [\exp(\alpha_j + X_i\beta_j)]}, \quad j = 1, 2, \dots, M - 1 \quad (1)$$

Where  $M$  is the number of categories of the ordinal dependent variable. In this study  $M$  denotes the number of previous pregnancies a teenager has had hence  $M = 3$  since there are 3 categories: category 1 being 0-3 previous births; category 2 being 4-6 previous births; and category 3 being 7-9 previous births. From the above equation, it can be determined that the probabilities that  $Y$  will take on each of the values  $1 \dots, M$  are equal to

$$P(Y_i = 1) = 1 - g(X_i\beta_1) \quad (2)$$

$$P(Y_i = j) = g(X_i\beta_{j-1}) - g(X_i\beta_j) \quad j = 2, \dots, M - 1 \quad (3)$$

$$P(Y_i = M) = g(X_i\beta_{M-1}) \quad (4)$$

When  $M = 2$ , the *gologit2* model is equivalent to the logistic regression model. When  $M > 2$ , the *gologit2* model becomes equivalent to a series of binary logistic regressions where categories of the dependent variable are combined; for example, if  $M = 4$ , then for  $J = 1$  category 1 is contrasted with categories 2, 3, and 4; for  $J = 2$  the contrast is between categories 1 and 2 versus 3 and 4; and so forth.

The *gologit2* is a user-written program that fits generalized ordered logit models for ordinal dependent variables. The study used the GOLM with the *gologit2* command simply because it relaxes the assumption of parallel-lines of the ordered logit model with the *ologit* command which violated the parallel lines assumptions. The formulas for the parallel-lines model and *gologit* model are the same, except that in the parallel-lines model the  $\beta$ 's (but not the  $\alpha$ 's) are the same for all values of  $j$ . A major strength of this model is that it can fit models that are less restrictive than the parallel-lines models fitted by the *ologit* (whose assumptions are often violated) but more parsimonious and easily interpretable.

According to William, (2006) a major strength of *gologit2* is that it can also fit three special cases of the generalised model which is the proportional odds/parallel-lines model, the partial proportional odds model, and the logistic regression model. Hence, *gologit2* can fit models that are less restrictive than the parallel lines model fitted by *ologit* (whose assumptions are often violated) but more parsimonious and interpretable than those fitted by non-ordinal method, such as multinomial logistic regression (William, 2006).

## 4. RESULTS

### 4.1 Teenage pregnancy: A Trend Analysis

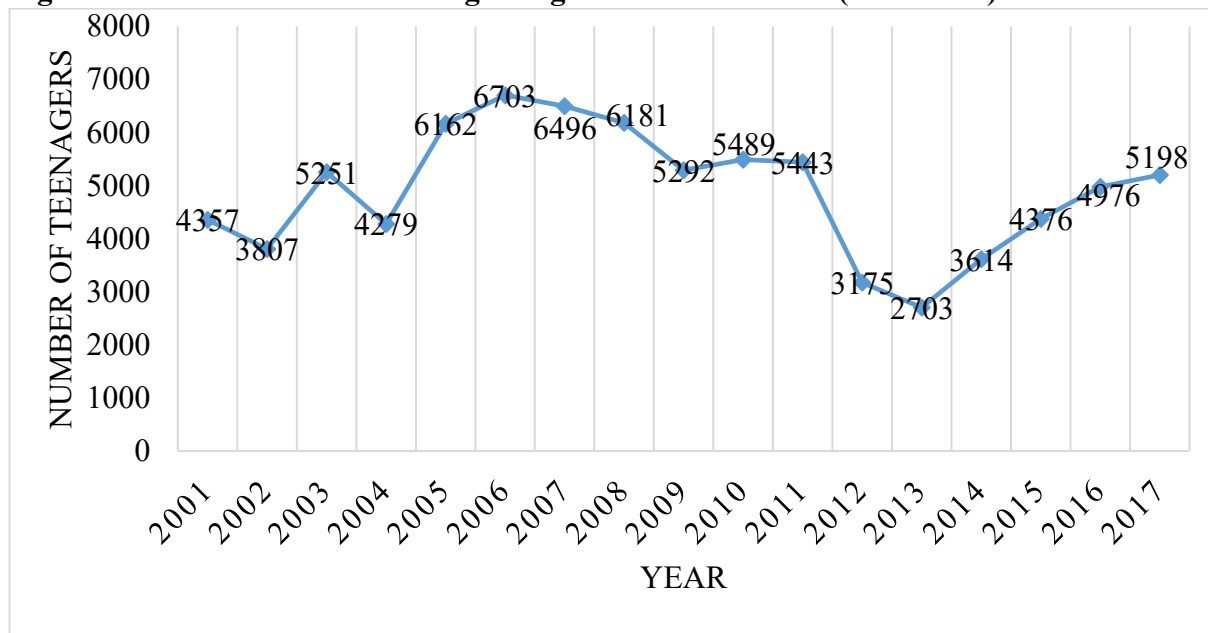
The study seeks to provide a trend analysis on the extent of teenage pregnancies in Eswatini, highlighting the most vulnerable teenagers in terms of regions, constituencies, specific schools, and repeat births. Figure 4.2.1 shows a trend of the total annual number of teenage pregnancies experienced in Eswatini between 2001 and 2017. Between 2001 and 2006 teenage pregnancies have been increasing in Eswatini and between these years the country experienced a fiscal deficit of about E654.4 million of which was 5.5% of the GDP. From 2007 to 2013 teenage pregnancies have been declining and in 2006/2007 Eswatini



experienced a drought which mostly affected the household economy and food security, with major impacts being a reduction in agricultural production and water availability for domestic purposes. Eswatini experienced another increase in teenage pregnancies between 2014 and 2017 wherein between these years the country experienced another severe drought which affected 189,000 learners and 8,157 teachers and support staff of which 23,633 learners and 1,654 teachers are in Mbabane area.

Overall, there has been a significant increase in teenage pregnancy in Eswatini between 2001 and 2017. This finding confirms previous evidence which indicates that Eswatini observed a growing number of teenage pregnancies especially in the Lubombo region (Tsabedze *et al.*, 2016). Eswatini experienced 83,393 teenage pregnancies in the past seventeen years and these ranges from 2,700 to 6,700 pregnancies. On average 5,100 teenage pregnancies are experienced in Eswatini annually.

**Figure 4.1.1: Total Annual Teenage Pregnancies in Eswatini (2001-2017)**

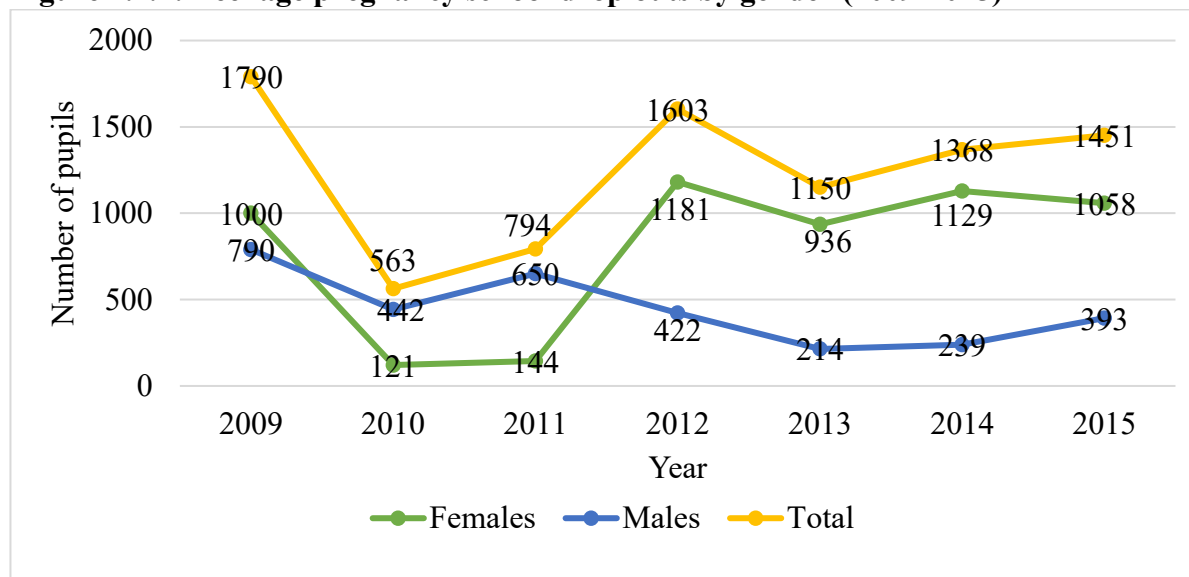


Source: Health Management Information Systems

#### 4.2 School drop-outs trend analysis

Teenage pregnancies have negative effects on educational outcomes of teenagers in Eswatini because they have to drop out of school. Figure 4.2.1.1 shows teenage pregnancy school drop-outs in Eswatini for both males and females from 2009 to 2015. Over the six-year period, 5,569 girls and 3,150 boys dropped out of school. This shows that girls are greatly affected due to the fact that the stigma mostly hit them, however, it is also important to bear in mind that this is not something that affects young girls but also boys get affected too. Overall Eswatini experienced 8,179 school drop-outs between 2009 and 2015 due to teenage pregnancies. However, due to limited data on school drop-outs, these results do not reflect the true figures as shown in Figure 4.2.1 above. This implies that Eswatini experienced over 82,000 school drop-outs in the past 16 years.

**Figure 4.2.1: Teenage pregnancy school drop outs by gender (2009-2015)**



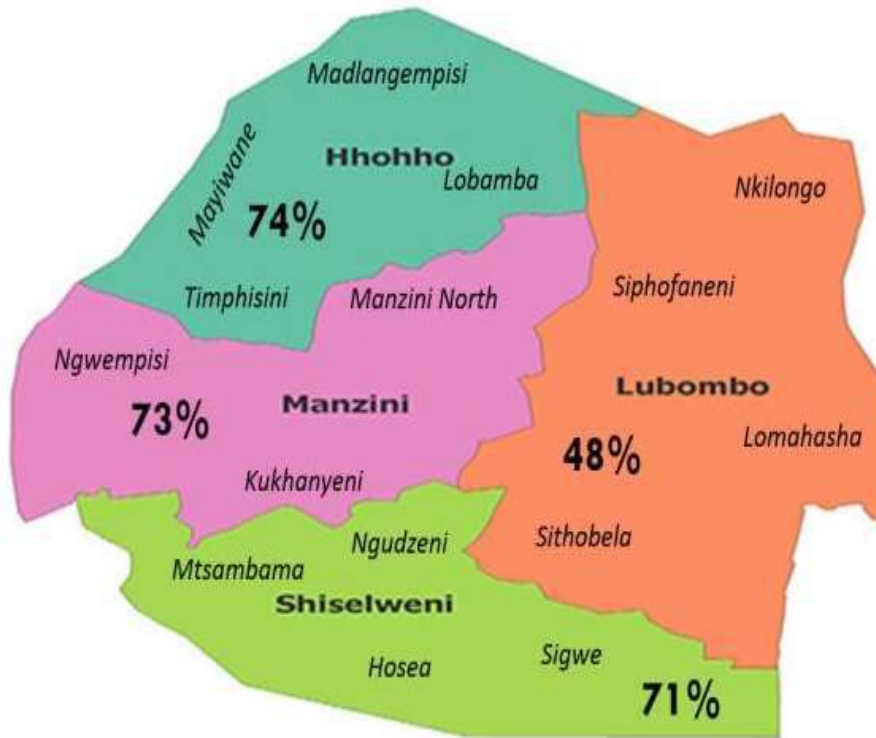
Source: Education Management Information Systems

Notes: The graph shows pregnancy school drop-outs for both females and males in both primary and high school

The study also points out that there are wide disparities in teenage pregnancy rate across the regions of Eswatini with Hhohho, Manzini and Shiselweni being the regions with the highest rate and Lubombo with the lowest respectively. The study finds of the total female adolescent's population, Hhohho, Manzini and Shiselweni experienced (74%), (73%) and (71%) teenage pregnancies respectively whilst the Lubombo experienced 48% pregnancies. The findings from this study confirms the findings by World Health Organisation (2004) which reveals that indeed there are disparities in teenage pregnancy across regions of Africa. See results in Figure 4.2.2.

Manzini and Hhohho regions are both densely populated compared to Lubombo and Shiselweni with Manzini being the central part of the country. The textile industry which employs a bigger share of the population is also located in the Manzini region. Moreover, the areas with more teenage pregnancies are the rural areas which are now becoming semi-urban due to development that is taking place. According to Gerenne *et al.*, (2000), there is direct relationship between labour participation and rate and teenage pregnancy especially in Africa. The study further reveals that a bulk of teenage pregnancies are from rural and poverty-stricken areas such as Madlangempisi, Timphisini, Lomahasha, Nkilongo, Mtsambama, and Sigwe as shown in Figure 4.2.2 below. These findings are in line with the findings by Poudel *et al.*, (2018) Which revealed that women who resided in rural areas were significantly associated with higher adolescent pregnancy compared to those who reside in urban areas. This may be attributed to low households' economic status in these areas as proved by Acharya *et al.*, (2014); Pradhan *et al.*, (2015) and Wang *et al.*, (2003) that adolescents who belonged to middle or poor household had higher odds of being pregnant compared to those who belonged to rich households.

**Figure 4.2.2: Overall regional teenage pregnancies 2001-2017**

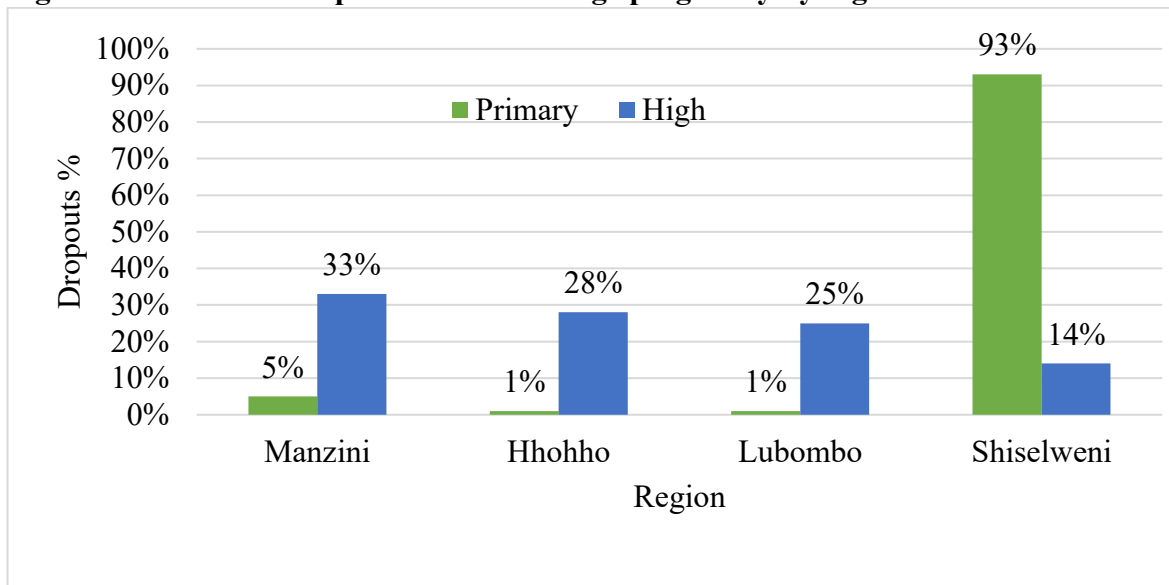


Source: Health Management Information Systems

The study also finds that most of the pregnancy school drop-outs are from the Manzini and the Hhohho regions (33% and 28% respectively). Both regions have the highest number of schools, with Hhohho having 161 primaries and 65 secondary schools and Manzini having 164 primaries and 61 secondary schools. Some of the schools include Somnjalose, Etimphisini, Inkhanyeti, and Hillside-Labotsibeni High school as shown in Table 4.2.1 below. A few of both primary and secondary school drop-outs in the Lubombo region, yet a majority (93%) of primary school drop-outs in the Shiselweni region. Some of the schools in these regions include Lomahasha, Siphofaneni, Engudzeni, and Ebenezer High school. In the Shiselweni region, out of the education achievement of primary school going children that is explained by circumstances, 28.58% is explained by wealth (Zulu, 2018). This means that wealth still contributes much and could explain why most pupil's fall pregnant and drop out of school because they are after money. It further implies that households have not yet been completely relieved from the burden of sending children to school in the Shiselweni region and this region is the poorest region of them all.

Moreover, the Lubombo and Shiselweni have few schools with 123 primaries and 55 secondary schools in the Lubombo and 146 primaries and 55 secondary schools in the Shiselweni region. The implication is that the Hhohho and the Manzini regions could have a higher chance of having more pregnancy drop-outs due to the higher number of schools and the fact that both regions are densely populated.

**Figure 4.2.3: School drop outs due to teenage pregnancy by region 2009-2015**



Source: Education Management Information Systems

**Table 4.2.1: Schools with the highest number of pregnancy drop-outs (2009-2015)**

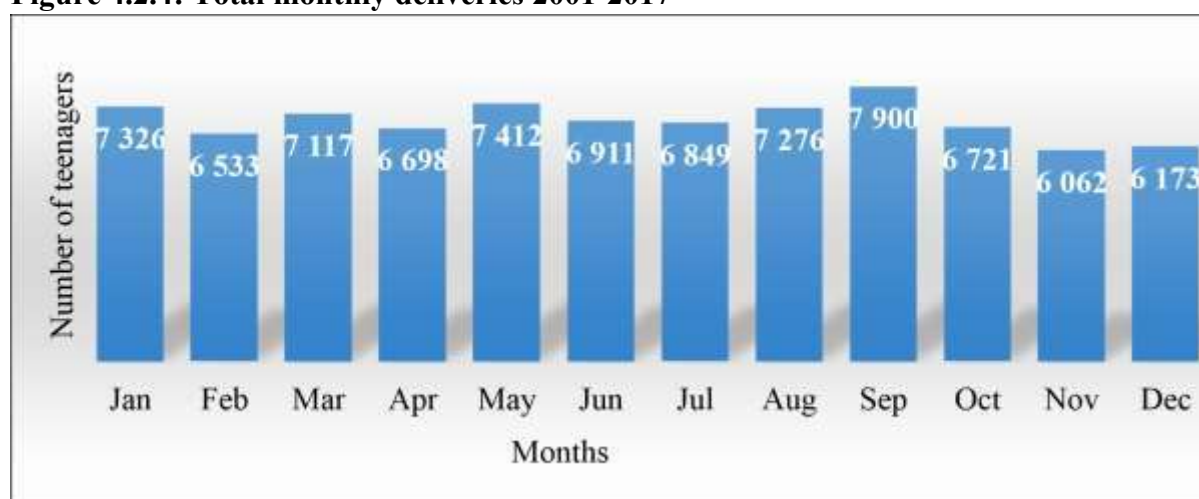
Region	School	Total drop-outs	Total Teenage pregnancies (2001-2017)
<b>Hhohho</b>	Somnjalose High	244	<b>26,002</b>
	Etimphisini High	57	
	Madlangempisi High	38	

	Dvokolwako High	28	
	Herefords High	27	
<b>Manzini</b>	Inkhanyeti school	108	
	Hillside-Labotsibeni High	57	
	Cana High	36	<b>27,040</b>
	Ensenga/Mhlahlo High	36	
	Joy Mission Primary	24	
<b>Lubombo</b>	Lomahasha High	31	
	Siphofaneni Primary	28	
	Big Bend High	25	<b>12,172</b>
	Lavundlamanti High	21	
	Hlutse High	20	
<b>Shiselweni</b>	Engudzeni High	44	
	Ebenazar High	42	
	Elulakeni High	41	<b>17,764</b>
	Hosea High	35	
	Ntjanini High	30	

Source: Education Management Information Systems 2009-2015

Most teenage pregnancy deliveries occur in September, May, January, August, and March and this is in descending order as shown in Figure 4.2.4 below.

**Figure 4.2.4: Total monthly deliveries 2001-2017**



Source: Health Management Information Systems

Notes: The graph shows the total number of teenage pregnancy deliveries per month

This could mean that the adolescents conceive mostly between April, August, and December. These are the months where most of them are on school holidays, meaning that when one conceives in April she will deliver January. Moreover, there are a lot of activities that take

place around these months. Some of these activities include Easter holidays where most of the children attend church camps often with minimal parental supervision.

In August there is the Umhlanga Reed Dance ceremony and the Trade Fair in Manzini which offers music and concerts as well as all-night parties. During the school period, sexual activity is less likely to occur because of the structured and supervised environment that is provided, therefore these ceremonies and activities could provide young girls with an opportunity to engage in sexual activities hence they should be monitored very closely.

#### **4.3 Likelihood of a teen mother having more babies as determined by region and age: Results from the Generalised Ordered Logit Model (GOLM)**

Using the Generalised Ordered Logit Model to determine the likelihood of teenage pregnancy in the four regions and examine teenagers who are more susceptible to repeat births, the study finds the likelihood of teenage pregnancy in the four regions is more or less the same as shown in Table 4.3.2. The results there indicates that every region experiences teenage pregnancies with Shiselweni having more chances of 99.83% and Lubombo having slightly lower chances of 99.42%. Hhohho and Manzini regions have equal chances of teenage pregnancies of 99.76%.

Table 4.3.1: GOLM Results

<b>Categories</b>	<b>0-3 births</b>	<b>4-6 births</b>
Age	0.328***	0.231
Regions		
Manzini	0.00569	-0.731
Lubombo	0.898***	1.798***
Shiselweni	-0.310	0.165
_cons	-12.175***	-13.105***

Source: Author's computations from Stata

Note: \*Significant at 10%, \*\*Significant at 5%, \*\*\*Significant at 1%

In relation to repeat births, the study finds that a mother in the Lubombo region is more likely to have more babies than teenage mothers in the other regions as shown in Table 4.3.1. Other

than the sign and significance, it is difficult to tell the magnitude of these effects with these results hence marginal effects were computed to make the results more understandable and more meaningful and are shown in Table 4.4.2.

The results in Table 4.4.2 below show the marginal effects by region. These results indicate that mothers who are in the Shiselweni region are 99.8% likely to have 0-3 babies compared to 99.7% for Manzini and Hhohho, and 99.4% for Lubombo. Mothers who are in the Lubombo region are more likely to have 4-6 babies compared to the other regions (0.48%) more likely as opposed to 0.16% for Shiselweni and, 0.22% for Hhohho and Manzini regions. Moreover, the results also reveal that mothers who are in the Lubombo region are 0.09% more likely to have 7-9 babies compared to mothers who are in the other regions, with 0.01% for Hhohho and Manzini as well as 0.009% for Shiselweni.

Generally, these results confirm that the likelihood of a teenage mother having more children increases when she is located in the Lubombo and Shiselweni regions respectively. This further implies that mothers who are in the Lubombo and Shiselweni regions are more vulnerable to teenage pregnancy and repeat births than mothers in the Hhohho and Manzini region

Table 4.3.2: Marginal effects of births per region

<b>Category</b>	<b>Variable</b>	<b>Probability of having a specific number of births/babies</b>	<b>Std. Err</b>
<b>1-3 Births</b>	<b>Region</b>		
	Hhohho	0.9976	0.000299
	Manzini	0.9976	0.000294
	Lubombo	0.9942	0.000692
	Shiselweni	0.9983	0.000316
<b>4-6 Births</b>	Hhohho	0.0022	0.000289
	Manzini	0.0023	0.000289
	Lubombo	0.0049	0.000635
	Shiselweni	0.0016	0.000299

<b>7-9 Births</b>	Hhohho	0.00015	0.000076
	Manzini		
	Lubombo	0.00091	0.000275
	Shiselweni	0.00018	0.000103

Source: Author's own representation of data

Notes: The table shows the magnitude of repeat births among the regions

The study computed the likelihood of teenage pregnancy by age to determine the age at which Eswatini's children are vulnerable to teenage pregnancies and repeat births. Between the teenage ages of 11-20 years, teenage mothers are about 99% likely to have 1-3 babies. Adolescents between 17-20 years are more likely to have more babies (7-9 births) compared to when they are below the age of 17 years. Generally, even though teenage pregnancies occur as early as eleven years old, the results indicate that Eswatini's children become more vulnerable from the age of sixteen years as that is when they begin to reproduce. The older the mother become the more likely they are to have more babies and this shown in Table 4.3.3.

Table 4.3.3: Marginal effects of births by age

<b>Variable (Age)</b>	<b>1-3 Births</b>		<b>4-6 Births</b>		<b>7-9 Births</b>	
	<b>Probability</b>	<b>Std. Err</b>	<b>Probability</b>	<b>Std. Err</b>	<b>Probability</b>	<b>Std. Err</b>
11	0.99978	0.0000998	0.00018	0.0000938		
12	0.99969	0.000121	0.00025	0.000113		
13	0.00058	0.000145	0.00036	0.000135		
14	0.99941	0.000169	0.00050	0.000157		
15	0.99918	0.000189	0.00071	0.000176		
16	0.99887	0.000202	0.00099	0.000188	0.00013	0.000064
17	0.99843	0.000201	0.00140	0.000188	0.00017	0.000059
18	0.99782	0.000185	0.00197	0.000175	0.00021	0.000053
19	0.99698	0.000201	0.00276	0.000191	0.00027	0.0000602
20	0.99587	0.000373	0.00385	0.000356	0.00033	0.000099

Source: Author's own representation of data



Notes: The table shows the magnitude of births by age

#### **4.4 Socio-economic determinants of teenage pregnancies in Eswatini**

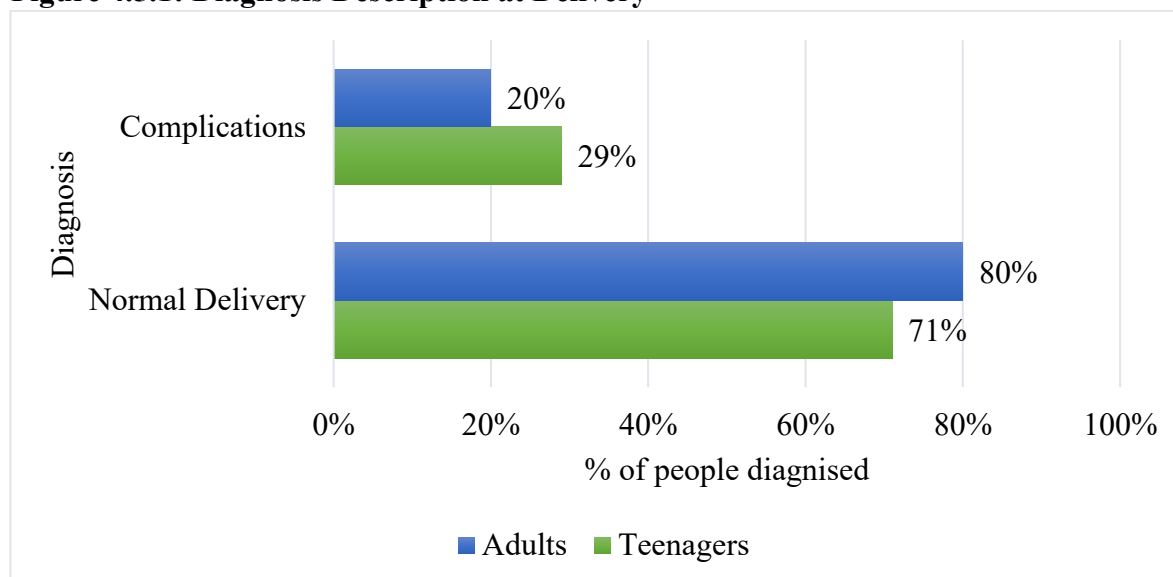
The study anticipated determining the socioeconomic determinants of teenage pregnancies in the most vulnerable regions, constituencies, and schools. Results revealed that teenage pregnancies were more acute in the Hhohho and Manzini regions. The Hhohho is the most economically advanced region in the country and is dominated by services, tourism, and forestry which all brings money. Manzini is the commercial hub of the country with many industrial complexes and shopping centres. Both regions are economically developed and there are booming economic activities. Such activities as they bring about development in the country. However, they come with different kinds of human beings, especially men with money who have a tendency of spending it to the young girls thus making them susceptible to issues of teenage pregnancies. This study further found that it is not only the individual or community status that poses a risk on teenage pregnancy but also but also the contextual environment in which one is in especially rural locations. The study also found that teenage pregnancies are more prevalent in the rural and poverty-stricken parts of the country, including in Madlangempisi, Timpheisini, Lobamba, Mayiwane, Siphofaneni, Nkilonko, Lomahasha, Sithobela, Ngudzeni, Hosea, Sigwe, Ngwempisi, and Kukhanyeni. A study on factors associated with teenage pregnancy in sub-Saharan Africa corresponds with this finding as it reveals that community-level poverty is strongly correlated with teenage pregnancy (Odimegwu and Mkwanzazi, 2016).

However, some of these areas are slowly but surely becoming urban areas due to the development processes that are taking place. For instance, Siphofaneni was the beneficiary of LUSIP phase 1 where the Lubovane dam was built for sugar cane small growers which attracted a lot of young men in search of jobs. Nkilonko is also experiencing the issue of teenage pregnancies and that is where LUSIP phase 2 is currently taking place together with road infrastructure which comes with a lot of men who then take advantage of the young girls. Teenage pregnancies are also experienced in Lomahasha where there is a significant amount of informal and formal trade between Lomahasha (Eswatini) and Namaacha (Mozambique) borders. Generally, there are few HIV and AIDS interventions that target informal cross border traders. This basically means that development contributes to teenage pregnancies. The schools that experienced the highest school drop-outs are those that are in the rural areas.

#### **4.5 Health effects: Health risks and complications of teen births**

The study finds that expectant teenage mothers are at an increased risk of experiencing complications during pregnancy than adult mothers. This has proven to possibly lead to health issues for both the mother and her child. The mothers are vulnerable to anaemia, low blood iron, and pregnancy-related high blood pressure. The babies are more likely to be underweight hence prone to sudden infant death syndrome, mental disorder, breathing problems, and developmental delay. Figure 4.5.1 shows that teenagers are approximately 10% more likely to have complications at their time of pregnancy than adults.

**Figure 4.5.1: Diagnosis Description at Delivery**



Source: Health Management Information Systems

The study also finds that teenage mothers also have a higher risk of giving birth to babies with low birth weight. Table 4.2.3.1 shows that babies born to mothers under the age of 17 years are at more risk of having low birth weight (low birth weight is 2.499 kg or less). This finding is not surprising as a previous study by Mombo-Ngoma *et al.*, (2016) found that mothers aged less than 16 years showed higher risk for delivery of a low birth weight infant. Of the total teenagers, 13% of teenage mothers of ages between 11-16 years gave birth to underweight babies compared to 9% of mothers aged between 22-25 years. This finding from the study is consistent with Dev-Raj *et al.*, (2010) who states that teenage mothers are often unhealthy and more likely to give birth to low birth weight or premature babies, thus further reducing life expectancy. The results further show that the older a mother gets, the lesser the risk of giving birth to underweight babies.

**Table 4.5.1: Eswatini Birth Weight Status by Mother's Age (2001-2017)**

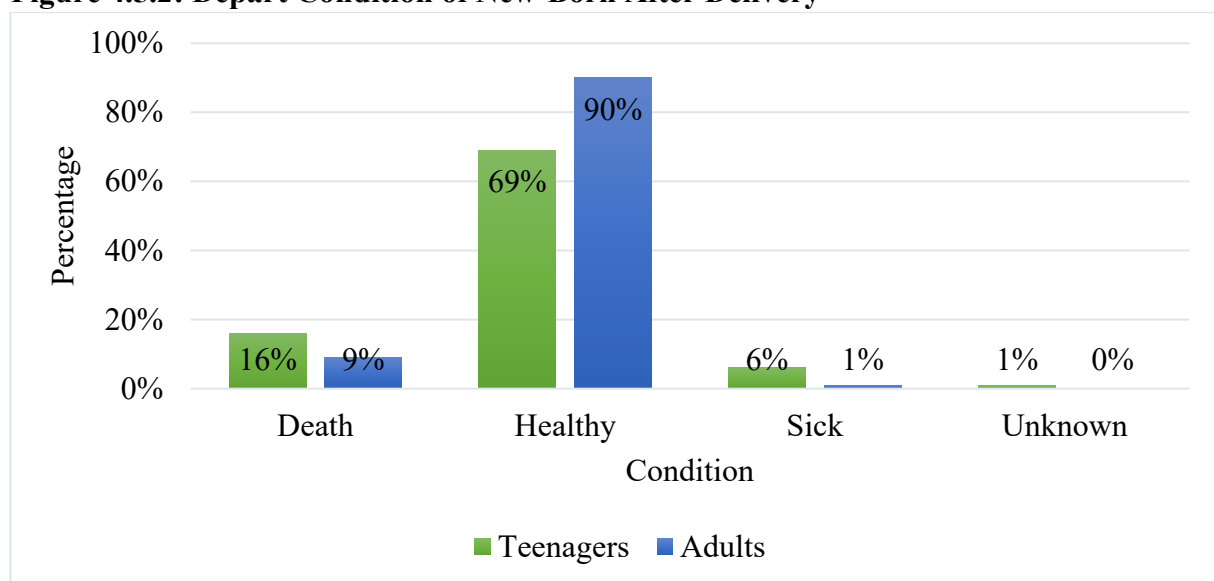
Age	Normal Birth Weight	Low Birth Weight	Above Normal Birth Weight
11-16 years	86% (7 463)	13% (1 112)	1% (89)
17-18 years	88% (27 349)	11% (3 266)	1% (340)
19-21 years	89% (56 524)	9% (6 022)	2% (992)
22-25 years	89% (68 307)	9% (68 307)	2% (1 981)
<b>All Births</b>	<b>89%</b> <b>(159 643)</b>	<b>9%</b> <b>(17 039)</b>	<b>2%</b> <b>(3 402)</b>

Source: Health Management Information Systems

Notes: The table compares birth weight for babies born to teenage mothers and those born to adults

Babies born with weight less than 2.5 kg (normal birth weight) are vulnerable to death during their early childhood thus increasing mortality rate (see Figure 4.5.2) in Eswatini. About 16% of the babies born to teenage mothers died compared to the 9% of babies born to adult mothers. That however, does not mean babies born to teenagers do not see the light of the day, teenage mothers do give birth to healthy babies as shown in the figure below even though some are not as healthy as those born to adults. Low birth weight can also increase the risk of infections and malnutrition which all become barriers to SDG 3 of ensuring healthy lives and promoting wellbeing for all, at all ages.

**Figure 4.5.2: Depart Condition of New-Born After Delivery**



Source: Health Management Information Systems

Notes: The above figure shows the health status of a baby after delivery

#### 4.6 Socioeconomic effects of teenage pregnancy

This section presents the socioeconomic impacts of teenage pregnancies in Eswatini. It illustrates the effects of teenage pregnancy on education, health, and the economic cost of teenage pregnancies in Eswatini.

##### 4.6.1 Economic effects: economic costs of teenage pregnancy

Teenage pregnancies have a negative effect on the economy. This is because they put a huge toll on government expenditure. On average the government pays E577 per pupil through the Free Primary Education, meaning for every pregnancy school dropout the government loses E577. Multiplying the total number of primary school drop-outs since 2010 to 2015 (1,497) with the (E577), it means that the government has lost a total of E863,769 due to teenage pregnancy drop-outs during the specified period, and this figure is excluding learning

material. Moreover, the country lost E65,243,626.13 on health expenditure due to these pregnancies. The country has lost E863,769 which could have been invested in other development projects. However, it is not only the government who make loses through pregnancy school drop-outs, but also the parents since they fund their children’s secondary education. On average, by multiplying the number of pregnancy school drop-outs (7,222) by the average amount of secondary school fees (E6,000), parents lost an estimated amount of E43,332,000 over the past seven years.

The government has also invested on health, and the current health budget stands at E1.9 billion. Therefore, every teenage pregnancy is a cost to the economy since they have to pay maternal fees of which are subsidised as seen in Table 4.6.1 below. For a normal delivery, on average expectant mothers pay E29 in a public hospital with subsidies on radiology, doctor’s fee, room service, medication, food, and check-ups for the baby. However, in a private hospital where there are no subsidies, on average a normal delivery cost E10,016. Assuming there were no subsidies, this would be the cost for a normal delivery in a public hospital. With the 82,978 teenage pregnancies between 2001-2017, it means the government of Eswatini lost an estimated amount of E511,467,572.72 on health expenditure. This money could have been invested in other development projects should there have been no teenage pregnancies. Eswatini needs to make sure that the programmes and policies that safe guard teenage pregnancies are strengthened and are as well effective.

Table 4.6.1: Private and public maternal costs

<b>Private Hospitals</b>	<b>Total costs</b>	<b>Government Hospitals</b>	<b>Total Costs</b>
Mbabane Clinic	E10,850	Mbabane Hospital	E40
Medisun Clinic	E9,000	Mankayane Hospital	E20
Women and Children	E10,200	Nhlangano Public Health	E20
		Hlathikhulu	E28
		Pigg’s Peak Hospital	E50
		Sithobela	E18

Average maternal costs person	E10,016	Average maternal costs person	E29
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Source: Maternal Hospitals

Notes: The table compares normal delivery costs incurred in a private and a public hospital

## 5. Conclusion

The analysis indicated that teenage pregnancy rate has been increasing in Eswatini and the rate varied between the regions with socioeconomically better off regions having higher pregnancy rate. The analysis further showed that teenage pregnancies were more prevalent in rural areas than in urban areas. Approximately 400 pupils per term left school and one pupil out of five left school because of pregnancy. Pupils dropout rate for girls was 77.9% and 22.1% for boys in Eswatini. Most of the drop-outs are from high school, however, most of the primary school drop-outs are in the Shiselweni region. Out of 52,814 pupils who dropped out due to several reasons, 8,179 dropped out due to teenage pregnancy. Teenage pregnancy and students' dropout threatens future economic growth and development of a country (Wagennar, 1987), and leads to lower wages, unemployment prospects, and the possibility of health issues (Arifi *et al.*, 2013).

Health issues are also rising in the country due to babies who are born underweight resulting from the complications and preterm delivery that the young mothers encounter during their pregnancy. The underweight new-borns are at a greater risk of dying or being in an unhealthy status which increasing mortality rates in the country. The study found that 16% of the babies born to teen mother's die compared to 9% that are born to adults. Low birthweight leads to long-term health problems which burden both the parent and the country financially as it increases hospitalisation costs since they need to stay in the hospital longer than babies born at a mature stage.

The generalised ordered logit analysis reveals that teenage pregnancies are occurring all over Eswatini and children are vulnerable as early as 11 years old. From the age of 16 years, they are susceptible to repeat births. Most importantly mothers who are in the Lubombo and Shiselweni regions are more vulnerable repeat births than mothers in the Hhohho and Manzini regions. Also, the Lubombo and Shiselweni regions are the poorest regions in the country and even with the presence of FPE, wealth still explains some of the circumstances in Shiselweni primary schools. This means households in the Shiselweni region still needs to be relieved from the burden of sending children to school.

With the European Union stopping the funding of Free Primary Education, more and more of the children will not get any form of education as they cannot afford the fees. FPE has been able to drive development by ensuring that primary pupils get the education and develop themselves. Some of the pupils will be idle and increase the chances of them engaging in risky behaviours such as substance abuse and sexual relations. Even with all of the improvements in birth control methods, availability and accessibility lag far behind in rural areas.

Overall, the study finds that because of the 82,978 teenage pregnancies, the country lost an estimated amount of E511,467,572.72 on health expenditure and more when including

education expenditure. Multiplying the number of primary school drop-outs (1,497) between 2010 and 2015 with average of E577 that the government spend on each learner, an estimated amount of E863,769 was lost by the government in the past six years through the Free Primary Education, and this could be more when including learning material. Health losses due to teenage pregnancy school drop-outs amounted to E65,243,626.13. All these costs have multiplier effects on the other sectors of the economy, meaning the country does not only lose on education and health but also on the other sectors.

## 6. Recommendations

Based on the results the study therefore recommends the following:

- ✓ Increase the intensity of programmes designed to prevent unprotected sexual behaviours in the rural areas.
- ✓ Strengthen the Comprehensive Sexuality Education in schools making sure that it is curriculum-based prior and after puberty stage to prevent early pregnancies.
- ✓ Strengthen Junior Achievements and Enactus to reduce the idleness of the pupils and also to develop their entrepreneurial skills hence increasing chances of employment among themselves.
- ✓ Provide employment opportunities especially for people in the rural areas.
- ✓ Government should reduce some of its expenditure so to fund Free Primary Education.
- ✓ Collaboration between the Ministry of Health and the Ministry of Education to offer insight contraception and counselling services as part of efforts to reduce unplanned pregnancies, and further offer antenatal care to support pregnant and parenting adolescents and reduce still births.
- ✓ The Umhlanga and the trade fair activities should not be held jointly; dates must be set differently to reduce the chances of the youth attending the night parties at the trade fair.

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## 7. **Appendix**

