Prevalence, trends and district differentials in teenage pregnancies

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Abstract

Introduction

Teenage pregnancies with their negative obstetric and foetal outcomes are a maternal and child health concern of the country.

Objectives

To study the prevalence, trends and district differentials in teenage pregnancies in Sri Lanka

Methods

Three main sources of available national level data were used in this study. They were : vital event registration data from the Registrar General's (RG) Department, data collected routinely by the Family Health Bureau (FHB), Ministry of Health through the Reproductive Health Information Management System (RHMS) and data from the Demographic and Health Survey (DHS) 2006/07. Other than utilizing reported information of all three sources, primary data of DHS 2006/07 was accessed with permission and further analysis were performed.

Results

Routinely available data from the Registrar General's (RG) Department are based on the registrations of live births throughout the island, hence could be considered as a proxy for information on pregnancies. A consistent declining trend in pregnancies among women less than 19 years of age was observed from the year 2000 (8.1%) to 2006 (5.4%). Marked inter district variations were noted. The highest percentage of teenage pregnancy was among the Sri Lankan Tamils. The rural sector showed the highest percentages while the estate sector showed the lowest. High percentage of illegitimate births in the estate sector was noteworthy.

Data from the routine RHMS of the Family Health Bureau also showed a declining trend of teenage pregnant females registered by Public Health Midwives as a percentage of all registered pregnant mothers, during the period 2007 (7.7%) to 2010 (6.5%). The marked inter district variation was observed with the variations consistent to what was observed in the RG's data.

Further analysis of DHS data showed that the percentage of teenage pregnancies among ever married women aged between 15 – 49 years to be 6.3% (95% CI 5.4-7.2). Teenage pregnancy rates declined significantly with increasing levels of education ($p<0.0001$) and with increasing wealth quintiles ($p<0.0001$). These findings are consistent with data from several other studies in the region. Inter district variations were similar to other two sources.

Conclusions and recommendations

Analysis of national level information related to teenage pregnancies from three different sources of available data showed that there is a declining trend in the prevalence of teenage pregnancies. All three sources identified that there is a marked inter-district variation in the teenage pregnancy rates and the districts identified to have high rates of teenage pregnancy by the three different sources were mostly consistent. This indicates the need for district specific interventions.

Key words: teenage pregnancy, trends, district variations

Introduction

Teenage pregnancies are an important health concern, both in the developed and developing countries^{1,2}. The negative obstetric and foetal outcomes as well as social consequences associated

with teenage pregnancies are well documented globally and regionally^{3,4,5,6}. In any country, teenage pregnancies are a major health concern for the provision of care during pregnancy and childbirth and its prevention is relevant in achieving the

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millennium development goals of maternal and child survival.

A pregnancy occurring in a young woman who has not reached her 20th birthday is considered as a teenage pregnancy. This definition is applicable irrespective of the legal status of the marriage of the woman or legal age to consider an individual as an adult. In view of the range of related negative medical and social outcomes, it is pertinent to launch interventions to avoid teenage pregnancies.

Determination of the magnitude of the problem in the country and description of trends and district differentials will provide information on the need of public health interventions to address the issue of teenage pregnancy in a country. This will also form the background information for further research as well as a basis for planning interventions. The intention of this study was to describe the prevalence, trends and district differentials in teenage pregnancies in Sri Lanka using available data.

Methods

There were three main sources of available data on teenage pregnancies and marriages in Sri Lanka. They are:

- Vital event registration data from the Registrar General's Department
- Data collected routinely by the Family Health Bureau (FHB), Ministry of Health through the Reproductive Health Information Management System (RHIMIS).

- Demographic and Health Survey (DHS) 2006/07 data

Data from the above sources for the past 5 - 10 years (as available) were used to study the prevalence, trends and district differentials of teenage pregnancies.

Reported data from the Registrar General's Department, DHS 2006/07 and RHIMIS were used in this study for description of prevalence, trends and district differentials. Data from the DHS 2006/07 were obtained with permission from the Department of Census of Statistics and further statistical analysis was performed on this data. Prevalence estimates and 95% confidence intervals were calculated with the adjustments to sampling design. Prevalence rates were disaggregated by age, residential sector, district, province, women's education, and household wealth index. Statistical significance of difference was assessed by Chi-square test.

Results

Data from Registrar General's Department

Routinely available data from the Registrar General's (RG) Department are based on the registrations of live births throughout the island, hence could be considered as a proxy for information on pregnancies. This data were available for the years 2000, 2001, 2002, 2003 and 2006.

Data on the number of live births to females who were less than 15 years and those in the age group 15-19 years were available by the district, sector, ethnic group and legitimacy of the birth for the years 2000, 2001, 2002, 2003 and 2006.

Table 1: Live births to females aged less than 19 years as a percentage of all births by sector

Year	Urban		Rural		Estate		Total	
	<15 years	15-19 years	<15 years	15-19 years	<15 years	15-19 years	<15 years	15-19 years
2000	0	7.5	0	10.2	0	5.1	0	8.1
2001	0	7.1	0	9.6	0	4.4	0	7.7
2002	0	6.4	0	8.8	0	4.5	0	7.2
2003	0	6.1	0	8.3	0	4.3	0	6.9
2006	0.03	4.9	0.04	6.4	0.06	4.6	0.03	5.4

Table 1 presents data on the live births to females aged 19 or lower as a percentage of total births for the years by residential sector. A consistent declining trend in the percentage live births to females aged less than 19 years was observed from the year 2000 (8.1%) to 2006 (5.4%). For the years 2000 to 2003, there were no births registered to females in the group aged less than 15 years and in 2006, 0.03% of all births had been to females aged less than 15 years. This percentage was 0.03% in the urban sector which was marginally lower than rural (0.04%) and estate (0.06%) sectors. Comparison of the percentages by sector shows that the rural sector has the highest percentages and the estate sector has the lowest. A declining trend is seen within each sector from 2000 to 2006.

As shown in Table 2, the highest percentage of live births to females 19 years and under were seen among the Sri Lankan Tamils and the lowest among the group 'other'. Other ethnic groups included Burghers, Malays, Sri Lanka Chetty and foreigners. This pattern was consistent for each of the years for which data on ethnic group was available. A declining trend in the percentages was evident among other races with the exception of Sri Lanka Moors who did not show a consistent trend.

Legitimacy of the birth was also recorded by the Registrar General's department during the registration of all live births. For each of the years, the highest percentage of illegitimate births was seen in the estate sector with the urban sector recording the lowest. It must be noted that during the year 2006, the percentage of illegitimate births has shown an upward trend (Table 3).

There were marked inter district differentials in the percentage of live births to females in this age group. Of the 25 districts in Sri Lanka, 10 districts had consistently high percentage of births to females aged less than 19 years compared to the national average, throughout the years that were studied. These districts were: Kalutara, Hambantota, Batticaloa, Ampara, Trincomalee, Puttalam, Anuradhapura, Polonnaruwa, Moneragala and Ratnapura. In six districts (Colombo, Gampaha, Nuwara Eliya, Matara, Jaffna and Kegalle) the percentages were consistently low. Other nine districts showed a varied pattern (Table 4). In general, within each district, there was a declining trend.

Table 2: Live births to females less than 19 years as a percentage of all births, by ethnicity

Year	Sinhalese	Sri Lankan Tamil	Moor	Indian Tamil	Other
2000	8.0	9.5	7.2	8.7	7.6
2001	7.5	9.2	6.8	8.9	5.4
2002	7.1	9.1	6.1	7.8	5.3
2003	6.8	8.4	7.4	5.7	5.1
2006	5.1	7.4	5.8	5.2	4.3

Table 3: Live births registered as 'illegitimate' to females less than 19 years as a percentage of all births by sector

Sector	2000	2001	2002	2003	2006
All sectors	2.9	3	1.6	1.9	2.5
Urban	2.2	1.1	1	1	2.3
Rural	4.3	2.4	1.9	2.5	2.7
Estate	8.4	5.9	6.7	4.3	13.3

Table 4: Live births to females less than 19 years as a percentage of all births by district

District	2000	2001	2002	2003	2006
Sri Lanka	8.2	7.7	7.3	6.9	5.4
Colombo	5.2	4.7	4.4	4.1	3.4
Gampaha	8.3	7.9	7.0	6.6	4.4
Kalutara	9.0	8.2	8.0	7.9	5.7
Kandy	5.7	5.0	4.9	4.7	3.7
Matale	7.8	7.1	7.6	7.1	5.1
Nuwaraeliya	6.6	6.2	6.0	5.8	4.7
Galle	8.3	7.9	7.4	7.4	5.3
Matara	6.1	5.8	6.2	5.5	4.8
Hambantota	9.4	8.4	7.6	7.4	6.7
Jaffna	5.9	6.2	5.5	5.4	4.2
Kilinochchi	8.3	7.3	6.6	8.3	5.8
Mannar	6.7	7.5	7.8	6.7	7.5
Vavuniya	7.7	7.2	6.5	7.6	6.0
Mullativu	9.6	7.9	7.2	8.5	7.4
Batticaloa	12.2	11.5	11.9	10.3	10.2
Ampara	8.9	9.0	7.9	7.6	7.1
Trincomalee	12.6	12.0	11.6	10.7	8.3
Kurunegala	8.8	8.2	6.9	6.5	5.0
Puttalam	14.5	13.4	13.0	13.2	9.0
Anuradhapura	11.3	11.0	9.7	8.6	6.7
Polonnaruwa	10.9	10.2	9.7	9.3	6.8
Badulla	7.7	8.2	7.7	7.3	5.7
Monaragala	9.8	10.2	10.1	9.7	8.4
Ratnapura	10.5	10.2	9.6	9.3	6.5
Kegalle	6.2	5.8	5.5	5.1	4.2

Data from the routine Reproductive Health Information Management System of the Family Health Bureau

Family Health Bureau of the Ministry of Health collects information on teenage pregnancies on a routine basis through RHMIS. However, due to the alterations in the definitions used in reporting registered mothers /newborns over the past years, there were limitations in using data prior to 2007 in the study of trends. Data for the year 2007, 2008 and 2009 were available as the number of teenage pregnant mothers registered by the PHM according

to MOH area and district. The percentage of teenage pregnant females registered by Public Health Midwives of all registered pregnant mothers during 2007, 2008, 2009 and 2010 shows a declining trend (2007 in 7.7% to 2010 in 6.5%) (Table 5). For the year 2007, the percentage of teenage pregnant females varied widely from a lowest value of 5.8% in Kegalle district to the highest value of 14.4% in Mullaitivu district. In comparison with the national average of 7.7%, 11 districts and the Colombo Municipal Council area reported higher values. These 11 districts and the Colombo Municipal Council area also showed consistently higher values

than the national average, for all four years for which data were available. These districts were: Kilinochchi, Vavuniya, Mullaitivu, Batticaloa, Ampara, Trincomalee, Puttalam, Anuradhapura, Polonnaruwa, Moneragala and Ratnapura.

Though data were limited to four years, the trends in the percentage of teenage pregnancies were studied.

The national level data showed a declining trend along with most of the districts showing a similar trend, with the exception of Vavuniya, Ampara, Trincomalee, Anuradhapura and Polonnaruwa. No data were available for the districts of Kilinochchi and Mullaitivu for the year 2009.

Table 5: Teenage females registered by Public Health Midwives as a percentage of all registered pregnant mothers by district by year

District	2007	2008	2009	2010
Colombo	6.3	5.0	4.2	4.3
CMC*	10.8	8.0	7.1	6.9
Gampaha	6.0	4.6	4.2	4.4
Kalutara**	7.5	5.3	5.5	5.6
Kandy	5.9	5.4	5.4	5.2
Matale	7.2	6.2	3.0	6.7
N'Eliya	6.5	6.5	5.8	6.1
Galle	7.3	6.2	5.2	5.7
Matara	6.2	5.5	5.2	5.8
H'tota	6.4	6.5	6.2	6.6
Jaffna	6.8	5.6	4.4	4.5
Kilinochchi	11.7	8.9	N/A	11.3
Mannar	6.9	6.6	6.2	7.4
Vavuniya	8.7	7.9	10.8	8.6
Mullaitivu	14.4	13.6	N/A	9.3
Batticaloa	16.1	12.9	12.7	11.2
Ampara***	10.4	8.9	9.1	13.2
Trinco	10.3	12.2	12.9	12.1
Kurunegala	6.5	5.7	5.8	5.7
Puttalam	12.1	9.5	9.5	9.6
A'pura	8.6	8.0	8.2	8.5
P'naruwa	8.6	8.1	8.5	7.8
Badulla	7.4	7.5	7.3	7.8
Moneragala	8.4	8.1	7.3	7.4
Ratnapura	8.1	7.8	7.7	7.1
Kegalle	5.8	5.2	5.0	4.9
SRI LANKA	7.7	6.7	6.5	6.5

* Colombo Municipal Council area

** including NIHS area *** including Kalmunai

Data from the Demographic and Health Survey 2006/07

Sri Lanka Demographic and Health survey 2006/07 has been carried out in 20 districts in the country excluding those in the Northern Province. A total of 21,357 households were selected of which 20,317 had been occupied at the time of the survey. A total of 15,068 ever married women aged between 15 – 49 years had been identified among whom 14,962 were successfully interviewed (98% response rate)⁷.

The age specific fertility rate (ASFR) for the age group 15 – 19 years was 28 per 1000 married women,

with inter-sectoral comparisons showing that the estate sector had the highest value (37) with the lowest in the urban sector (24). Comparison of ASFR from the previous DHS surveys had showed that there is a gradual decline in the values from 1987 to 2000 (ASFR 15 – 19 years: 38 in 1987, 35 in 1993, 27 in 2000). ASFR of 28 as found in DHS 2006/07 is a marginal increase.

DHS 2006/07 provides an analysis of basic characteristics of women aged 15 – 49 years who have had a live birth or who are pregnant with their first child at the time of the survey. It shows that 4.3% of females of 15 to 19 years of age have had a live

birth with another 2.1% being pregnant with the first child. Among the teenage females the percentage who had started childbearing showed an increase with increasing age (<1% in the 15 and 16 year age group to nearly 18% in the 19 year aged). Sector differentials are seen with the estate sector having the highest percentage of teenage females who have had a live birth or were pregnant with the first child. Inter district comparisons showed high values in the districts of Ampara and Trincomalee and low values in Galle, Kandy, and Gampaha districts. Among teenagers with only a primary level education, a high percentage had begun childbearing. There was no consistent pattern in relation to the wealth quintiles.

Further analysis of DHS data

Data of women of aged 15 -19 years, available in DHS 2006/07 were analyzed. Teenage pregnancy

rate was defined as 'percentage of women aged 15-19 years in all households who have begun child bearing (ever given birth or currently pregnant). The overall teenage pregnancy rate was 6.3% (95% CI 5.4-7.2). Rates of teenage pregnancy showed a marked increase with increasing age from age 15 to 19 years (Table 6).

Table 7 shows the distribution of teenage pregnancies by resident sector, district and province. It is seen that the teenage pregnancy rates according to the residence setting varied from a value of 6.8% in urban sector (95% CI 4.8-9.6), 6.3% (95% CI 5.3-7.3) in rural sector to 7.2 % (95% CI 4.6-10.9) in the estate sector. The association between rate of teenage pregnancy and sector of residence did not show any statistically significant relationship ($p=0.79$).

Table 6: Teenage pregnancy rates according to age

Age of women (years)	teenage pregnancy %	95% CI
15	0.4	0.2 - 1.2
16	1.7	1.0 - 2.7
17	4.4	2.9 - 6.7
18	9.7	7.6 - 12.2
19	17.5	14.7 - 20.8
15- 19	6.3	5.4 – 7.2

Inter-district comparisons indicated a significant relationship between rate of teenage pregnancy and district of residence ($p=0.03$). Trincomalee had the highest percentage of 13.8%. Monaragala (11.4%) Puttalam (11.1%) and Batticaloa (10.6%) also had high rates while Kegalle (1.2%) had the lowest rate.

Regarding the province where the respondent was living, Eastern province had the highest teenage pregnancy rate of 10.2% and Central province the lowest rate of 4.1% among the eight provinces included in the study. Data for the Northern Province was not available. The differences in the rates of teenage pregnancy between provinces were significantly different ($p=0.001$).

Educational level was considered in three categories and the rate of teenage pregnancy was highest among the women who had not had school education or had only primary education (16.9%) and lowest among those who had education of A/L or above (2.3%) (Table 8). This analysis showed a statistically significant association between education levels of the women and rate of teenage pregnancies ($p<0.0001$).

There was a consistently declining trend in the teenage pregnancy rate with increasing wealth

quintiles as shown in Table 8, ranging from a teenage pregnancy rate of 10.6% among the women belonging to the lowest wealth quintile to 2.8% among those in the highest wealth quintile. This relationship between the wealth quintile and teenage pregnancy rates was statistically significant ($p<0.0001$).

Using the secondary data from DHS 2006/07, further analysis was contemplated to identify the association between the teenage pregnancies and other relevant variables especially those related to knowledge and practices on reproductive health. Data collected through DHS, from all married and unmarried women in the reproductive age group (15-49 years) were included in this analysis to estimate the teenage pregnancy rate and associated socio demographic characteristics. It was observed that information on contraceptive knowledge and practices has been collected only from married women and was not available for unmarried women, thus basing the findings on different denominators. Therefore, it was not possible to cross-tabulate teenage pregnancy rates against variables related to contraceptive knowledge and practices.

The three sources of data used in this study were not directly comparable as the definitions used and the

Table 7: Teenage pregnancy rates by resident sector, district and province

Residence	Rate of teenage pregnancy %	95% CI	p value
Sector			
Urban	6.8	4.8 - 9.6	p=0.7859
Rural	6.3	5.3 - 7.3	
Estate	7.2	4.6 - 10.9	
Province			
Western	5.6	4.2 - 7.3	p=0.0010
Central	4.1	3.2 - 5.3	
Southern	5.6	4.0 - 7.7	
Eastern	10.2	7.0 - 14.8	
North-Western	8.8	6.0 - 12.8	
North-Central	6.6	3.9 -11.2	
Uva	7.0	4.8 -10.0	
Sabaragamuwa	5.4	2.7 -10.3	
District			
Colombo	5.8	3.9-8.7	p=0.0260
Gampaha	4.4	2.3 - 8.4	
Kalutara	7.0	4.6 - 10.4	
Kandy	3.9	2.8 - 5.4	
Matale	2.8	1.1 - 7.3	
Nuwara Eliya	5.2	3.6 - 7.6	
Galle	4.3	2.6 - 7.0	
Matara	7.5	4.4 - 12.5	
Hambantota	4.8	2.5 - 8.7	
Batticaloa	10.6	7.0 - 15.8	
Ampara	7.1	3.3 - 14.8	
Trincomalee	13.8	8.0 - 22.8	
Kurunegala	7.0	3.7 - 13.0	
Puttalam	11.1	8.1 - 15.1	
Anuradhapura	6.5	3.3 - 12.6	
Polonnaruwa	6.7	2.9 - 14.9	
Badulla	4.3	2.5 - 7.2	
Monaragala	11.4	7.1 - 17.7	
Ratnapura	8.8	4.8 - 15.6	
Kegalle	1.2	0.2 - 6.1	

methodologies for their collection and basics analysis differ widely. However, it was considered appropriate to make a pictorial presentation of the rates of teenage pregnancy rates available from the

three different sources by district (Figure 1) This figure shows that there is some degree of consistency is shown in the teenage pregnancy rates from the three different sources.

Table 8: Teenage pregnancy rates by education level and wealth quintiles

Characteristic	Rate of teenage pregnancy %	95% CI	p value
Women's education level			
No schooling/primary	16.9	10.3 - 26.5	p<0.0001
Secondary	7.9	6.8 - 9.1	
A/L above	2.3	1.7 - 3.3	
Wealth quintile			
Lowest	10.6	8.4 - 13.4	p<0.0001
Second	7.0	5.3 - 9.1	
Middle	6.4	4.8 - 8.6	
Fourth	5.0	3.5 - 7.1	
Highest	2.8	1.8 - 4.5

Discussion

This study used three sources of available data at national level. Triangulation of different sources of data enabled a comprehensive description of prevalence, trends and district differentials in teenage pregnancies.

The prevalence of teenage pregnancy in Sri Lanka during the past 10 years ranged from 4% to 8%, which is much lower than the recorded teenage pregnancy rates in other South Asian countries such as Bangladesh 35%, Nepal 21% and India 21%⁸. In general, data from all sources show a declining trend in the teenage pregnancy rates in a country. Interpretation of data from the RG's department has to be done cautiously as the pregnancies that do not end up in a live birth are not accounted for. There are reported studies that indicate that foetal losses by way of abortions and still births are a negative consequences of teenage pregnancies^{6,9}.

Based on the RG's data, a majority of teenage pregnant mothers were in the age group of 15 – 19 years in Sri Lanka, unlike some of the other Asian countries where a substantial percentage of teenage pregnancies occur among less than 15 year olds⁸. Furthermore, in the present study, rates of teenage pregnancy showed a marked increase with increasing age from age 15 to 19 years as found in DHS data.

Ethnic differentials have been reported in other studies in the Asian region¹⁰ even though it is noteworthy that there is a decline in the teenage pregnancy rates in all ethnic groups in Sri Lanka, with one group, Moors not showing a consistent pattern.

Accessibility to the data set from the DHS 2006/07 enabled identifying some of the characteristics of the teenage pregnancies which were not available from the other two sources. Due to key methodological differences, especially in the selection of the study population through a sampling procedure (unlike in the other two sources of data,) may have led to some of the dissimilarities seen in the district variations. Percentage of teenage pregnancies declined significantly with increasing levels of education and with increasing wealth quintiles. These findings are consistent with data from several other studies in the region^{4,5,10}.

RG's data revealed that high proportions of illegitimate births among the teenage pregnancies have been reported consistently from the estate sector. The percentage reported in 2006 which is 13.3%. This figure is higher than the corresponding percentage reported¹¹ in the estate sector in 2008, which was approximately 9%.

Comparing sectoral differences from RG's data and DHS data, RG data highest percentage of teenage pregnancies was seen in the rural sector with the estate sector recording the lowest. In contrast to this, DHS data analysis showed highest teenage pregnancy rate in estate and lowest was recorded from rural sector.

Registrar General's data indicated that of the 25 districts, 10 districts reported a consistently higher percentage of births to females aged less than 19 years compared to the national average, throughout the years that were studied. Comparing RHMS data with these RG data, it was noted that nine of these districts also showed high percentage of teenagers among the pregnant females. Though, non-availability of DHS data for the districts in Northern province did not allow direct comparison, the results of the districts which had been included in DHS confirmed this district variation of teenage pregnancy rate.

Conclusions and recommendations

Analysis of national level information related to teenage pregnancies from three different sources of available data showed that the prevalence rate ranged from during the past 10 years ranged from 4% to 8%, the rates varying with the type of data on which the estimate is made. In general, there is a declining trend in the prevalence seen from all sources.

Though not strictly comparable, all three sources of available data on teenage pregnancy has identified that there is a marked inter-district variation in the teenage pregnancy rates and the districts identified to have high rates of teenage pregnancy by the three different sources was mostly consistent. This indicates that 'intensity' of application of interventions to prevent teenage pregnancy should be district specific.

Further analysis of data from the DHS, 2006/07 showed higher prevalence among those with lower levels of education and those belonging to lower wealth quintiles.

Using this methodology of studying the available data sources in relation to a given outcome, provides useful information that could form the basis of further research and /or form the basis for identifying target groups for planned interventions.

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