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RESEARCH ARTICLE

CHARACTERISTICS AND OUTCOMES OF TEENAGE PREGNANCIES IN ESTATE SECTOR IN THE RATHNAPURA DISTRICT, SRI LANKA

***Dr. Gunarathna, N.K.C.**

Consultant in Public Health, Deputy Director, District General Hospital, Kalutara, Sri Lanka

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ABSTRACT

Background: early marriages and teenage pregnancies affect the quality of life of girls preventing them obtaining higher educational qualifications and having better occupational opportunities. **Objectives:** To study the characteristics of teenage pregnancies and their related outcomes of estate population in Rathnapura district, Sri Lanka. **Materials & Methods:** Community based descriptive study was conducted among 346 estate women in Rathnapura district in the Sabaragamuwa province in Sri Lanka who conceived within the year 2015 selected by cluster sampling technique. Data were collected by trained health volunteers using an interviewer administered questionnaire. Rate of teenage pregnancies was expressed in percentage with its 95% confidence interval. Characteristics of teenage mothers were assessed in percentages. Pregnancy outcomes between teen and non teen mothers were assessed using chi-square test with calculation of p values for statistical significance. **Results:** Rate of teenage pregnancies was 10.1% (95% CI=7.7, 12.52). Of them 22.9% were below 18 years. Total of 12 women (38.7%) were not legally married while only 11 non teen women were not legally married. Among these 31 teenage pregnant mothers, 3 were pregnant for the second time while only one had a living child. Previous pregnancies of other two mothers had gotten aborted spontaneously. Out of all teenage pregnancies, 20 (64.5%) were unplanned while only 3 out of 31 (9.6%) have used family planning in their lives. The main stated reason for not using a family planning method was that they did not know about family planning methods (65%) while 20% reasoned as non availability of modern family planning methods closer to them. Among pregnancy outcomes, statistical association could be observed for encountering problems in breastfeeding within first 48 hours of delivery (χ^2=6.652; p=0.009), for satisfactory weight gain within first month (χ^2=6.71; p=0.009) and mother starting modern family planning method at six weeks after delivery (χ^2=7.2603; p=0.007). Statistical association could not be observed between outcome of pregnancy (χ^2=2.61; p=0.10), birth weight (χ^2=3.672; p=0.055), starting breastfeeding within one hour of delivery (χ^2=0.0024; p=0.961) and newborn getting complications within 48 hours of delivery (χ^2=1.369; p=0.237). **Conclusions:** High rate of teenage pregnancies with poor outcomes in the estate population requires identification of risk factors to improve their health status as well as socioeconomic status.

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INTRODUCTION

Teenage pregnancy is defined as a pregnancy occurring before the 20th birthday of a particular female (UNICEF, 2011). Depending on the legal age at marriage existing in a country, it can occur within the legal framework or out of it. According to the law, the age at marriage is completed 18 years in Sri Lanka. However, it is being considered as 13 years according to the religious practice of moors, who contribute for around 8% of the total population of the country (World Health Organization, 2017). Usually, teenage pregnancies occurring within legal marriages are more secure since the paternal responsibilities are bound by law than others who do not bear the legal responsibility for the pregnancy and child rearing where the marriage is not legal (UNICEF, 2011). Globally, around 11% of all births occur among women between 15-19 years, of which around 95% occur in low- and middle-income countries (World Health Organization, 2011). According to the 2014 World Health Statistics, the average global birth rate among 15 to 19 year olds is 49 per 1000 girls. Country rates range from 1 to 299 births per 1000 girls, with the highest rates in sub-Saharan Africa (Sedgh, 2015). According to the estimates by 2016, among women in the developing world, 252 million women or one sixth of women in reproductive age consists of women between 15-19 years. Among them 28% gets married before the age of 18. Around 21 million pregnancies have taken place in this age group of which nearly

****Corresponding author:*** **Dr. Gunarathna, N.K.C.,**
Consultant in Public Health, Deputy Director, District General Hospital, Kalutara, Sri Lanka.

49% are unintended. Out of these unintended pregnancies, around 50% gets induced abortions and resulted births are only 12 million. On the extreme, around 17,000 teen mothers die of complications related to pregnancy and childbirth (Darroch, 2016). Considering developed countries, the percentage of teen births is around 5%, of which 89.2% occurred outside of legal marriage in USA in 2017. Although the numbers are coming down gradually, it is still higher than other developed countries like Canada and England. However, the rate of births among teen mothers in the USA is highest among Hispanics, but lowest among white (Trends in Teen Pregnancy and Childbearing, 2020). According to the census in 2011, the majority of Sri Lankans are Sinhalese (74%) followed by Tamils (15.2%) and moors (9.2%). The country consists of three types of communities; Rural (77.4%), urban (18.2%) and estate (4.4%). Estate community consists of labor workers in the tea and rubber plantation sector, mainly Tamil population. Sri Lanka is divided into nine provinces where each province has their own local provincial ministries. Each province consists of few districts. Sabaragamuwa is one province which has two districts, Rathnapura and Kegalle. Rathnapura is considered as a main district with 9.2% of estate population working in rubber and tea plantations. Estate community is considered as the least privileged category in the country. Compared to other groups, almost all health indicators are poor among the estate community (Census of Population and Housing, 2012). In Sri Lanka, the rate of teenage pregnancies is reducing. It has been assessed as 6.5% by the joint work by UNFPA & Family Health Bureau, in 2011. In that study, several important findings have been identified. The highest percentage of live births to females under 19 years was seen among the Sri Lankan Tamils living in rural and estate sectors. Considered the geographical distribution, The Eastern province had the highest teenage pregnancy rate of 10.2% while Central province had the lowest rate of 4.1%. Among districts, the Trincomalee district had the highest rate (13.8%) while the Kegalle district had the lowest rate (1.2%) (UNFPA Sri Lanka, 2014).

The rate of teenage pregnancy was highest among the women who didn't have school/primary education (16.9%) and lowest among those who had an education up to GCE Advanced Level or above (2.3%). It is also associated with poor economic status. Another important finding was that only 39% of pregnant teenagers had received services from the Public Health Midwife after marriage prior to the current pregnancy. Of those who received services, only 62% had received advice on planning a pregnancy[5]. It is important to notice that registration of teenage pregnancies by health care workers is reducing in the country continuously (UNFPA Sri Lanka, 2014). Occurrence of teenage pregnancy is a social and a health disadvantage nationally as well as globally (UNICEF, 2011). Outcome of teenage pregnancies differs significantly according to the socio economic development of countries. In more developed countries where initiation of sex in early life is common but induced abortion is legalized on broad grounds to regulate fertility with availability of safe abortion services, occurrence of teenage pregnancies are high but deliveries to teenage mothers are less due to induced abortions. In less developed countries with poor socio economic status, early marriages are common with more pregnancies because the family planning services are not addressing satisfactorily on teenagers. There, more deliveries occur with a lot of adverse outcomes due to poor health care services as well as associated complications of unsafe induced abortions (World Health Organization, 2011). Sri Lanka has achieved many health and social goals rapidly compared to other countries in the region. Main identified reasons for that are free health and educational services available for all the citizens in the country. However, the estate community has the lowest mean age at marriage for females (22.8 year) and the lowest rates of many health indicators. Thus it has become an urgent requirement to understand their health status with underlying reasons for the country to develop improvement plans to reach the expected targets in the National health system (Census of Population and Housing 2012).

Objectives of the study: To study the characteristics and outcomes of teenage pregnancies of the estate sector in the Rathnapura district, Sri Lanka

MATERIALS AND METHODS

Community based descriptive cross sectional study was conducted to assess the rate, characteristics and outcomes of teenage pregnancies in the estate sector in the Rathnapura district in Sri Lanka. The study was conducted in all estates in the Rathnapura district in the Sabaragamuwa province of Sri Lanka. It consists of 1,140,000 population in which 104,476 estate population exists among 58 estates, governed by the plantation trust (Population and Housing, 2016). Study population consisted of women who got pregnant within the period of 01st July 2015 to 31st December 2015 in estates in the Rathnapura district, who are usually residing in a particular premises during the period of survey. Sample size was calculated based on the findings of the incidence of teenage pregnancy in the survey conducted by UNFPA (13.8%)[8]. The calculated sample size for random sampling of 173 was subjected to correction for design effect of the cluster sampling technique (Lwanga, 1991; Bennet, 1991). The adjusted sample of 350 was selected from 70 clusters with 05 participants in each cluster. Primary sampling unit was the estate. Selection of clusters was based on probability proportion to size of each estate.

Data was collected by trained health volunteers using a pre tested Interviewer Administered structured Questionnaire (IAQ) and completed within a period of 10 weeks. The validity of the instrument was ensured by constructing after careful literature survey, reviewing by experts in the field of investigation, by agreement of the field level managers of maternal care. The questionnaire was introduced both in Sinhala & Tamil languages whenever relevant, with informed written consent of the participants or the guardians by trained data collectors ensuring uniform data collection at the place of residents achieving the highest possible response rate. Data collection was completed within a period of 10 weeks. Study was conducted under the ethical approval of the Ethical Review Committee of the National Institute of Health Sciences, Kalutara, Sri Lanka.

RESULTS

The response rate was 98.9% (346 participated). Of them, 31 were teenage mothers giving the rate of teenage pregnancies among the study group as 10.1% (95% CI=7.7- 12.52). Among them 22.9% (n=8) were below 18 years. Total of 12 women (38.7%) were not legally married while only 11 non teen women were not legally married.

Table 1. Characteristics of teenage mothers

Characteristic	Number	Percentage
Rate of teenage pregnancy	31	10.1%
Unmarried pregnancies among teenagers	12	38.7%
Pregnancies below 18 years	8	22.9%
Pregnant for the second time among teenagers	3	9.6%
Unplanned pregnancies among teenagers	20	64.5%
Second pregnancy among teenagers	3	9.6%
Use of family planning among teenagers	3	9.6%

Table 2. Statistical association of pregnancy outcomes between teenage and non teenage mothers

Variable	$\chi 2$	P value
Outcome of pregnancy whether live birth or abortion & still birth	2.61	0.10
Birth weight being less than 2.5kg	3.672	0.055
Starting breastfeeding within one hour of delivery	0.0024	0.961
Newborn gets complications within 48 hours of delivery	1.369	0.237
Encountering problems in breastfeeding within first 48 hours of delivery	6.652	0.009
Satisfactory weight gain within first month	6.71	0.009
Mother started modern family planning method at six weeks after delivery	7.2603	0.007

Among these 31 teenage pregnant mothers, 3 were pregnant for the second time while only one had a living child. Previous pregnancies of other two mothers had gotten aborted spontaneously. Out of all teenage pregnancies, 20 (64.5%) were unplanned while only 3 out of 31 have used family planning in their lives. The main stated reason for not using a family planning method was that they did not know about family planning methods (65%) while 20% reasoned as non availability of modern family planning methods closer to them. Considering outcomes and problems encountered during child caring, significant statistical association could be observed for encountering problems in breastfeeding within the first 48 hours of delivery by teenage mothers (χ^2=6.652; p=0.009). Simultaneously babies of teenage mothers were unable to have satisfactory weight gain within the first month of life (χ^2=6.71; p=0.009). Further, teenage mothers differed from non teen mothers with statistical significance by not starting a modern family planning method at the end of postpartum period (χ^2=7.2603; p=0.007).

However, statistically significant association could not be revealed in teen mothers having different pregnancy outcomes compared to non teen mothers. Teenage mothers also showed same rates of live births or abortions as non teen mothers (χ^2=2.61; p=0.10). Further, the rate of low birth weight also showed no difference between teen & non teen mothers (χ^2=3.672; p=0.055). Simultaneously no difference in starting breastfeeding within one hour of delivery by both teen and non teen mothers (χ^2=0.0024; p=0.961). Further, the study was unable to elicit the presence of a relationship between teenage pregnancy and having complications of the newborn within 48 hours of delivery (χ^2=1.369; p=0.237).

DISCUSSION

Summary of findings: The rate of teenage pregnancy was 10.1% while 22.9% of them were below 18 years and 38.7% of all were not legally married. Significant statistical association was observed for encountering problems in breastfeeding within the first 48 hours of delivery (χ^2=6.652; p=0.009), for satisfactory weight gain within the first month (χ^2=6.71; p=0.009) and mother starting a modern family planning method at six weeks after delivery (χ^2=7.2603; p=0.007). However, statistically significant association could not be observed between outcome of pregnancy (χ^2=2.61; p=0.I0), birth weight (χ^2=3.672; p=0.055), starting breastfeeding within one hour of delivery (χ^2=0.0024; p=0.961) and newborn getting complications within 48 hours of delivery (χ^2=1.369; p=0.237).

Comparison of results of this study with other studies: Compared to international estimates which have big differences among countries, the present study gives fairly a high value for the rate of teenage pregnancies, closer to that of under developed countries. The rate of teenage pregnancies is very much higher than the findings of the national level of 3.0% revealed in Demographic and Health Survey (DHS) 2016. However, in DHS 2016 only assessed is who had a living child and those who were pregnant for the first time. There, teen mothers who got their pregnancies aborted have not included thus could have underestimated the situation. Neither the district variations nor the sector variations as rural urban and estate have been assessed, probably due to the inadequacy of the sample size to elicit a significant change in that study.

However, the definition of teenage pregnancy used in DHS was up to 19 years. This factor may have contributed to having lower levels of teenage pregnancies in DHS 2016 (Department of census and statistics, 2016). According to the reporting in the Reproductive Health Management Information System operated in Sri Lanka, teenage pregnancies show a declining trend in the country except for a few districts (Vavuniya, Ampara, Trincomalee, Anuradhapura and Polonnaruwa districts). It has further reduced from 5.3% in 2013 to 4.8% in 2016 in the country. The Rathnapura district also showed a reducing trend having 6.07% and 4.82% in the years 2013 and 2016 respectively. Further the proportion of teenage pregnancies in the Rathnapura district was 6.5% in Registrar General data and 7.7 % in reported data by the field health care worker providing home based care to the family; the Public Health Midwife (PHM) (Family Health Bureau, 2016) However, the estate people being the least privileged corner of the country had got a comparatively higher rate of teenage pregnancies than other sectors as evident by the present study. It has been observed by Gunawardana *et al* in three districts using Registrar General data in 2006 that Colombo, Baticaloa & Anuradhapura districts have the highest rates of live births to females 19 years and that among Sri Lankan Tamils being 7.4%. Since 97.2% of the current study sample consisted of

Tamils in the present study, the findings of high incidence of teenage pregnancies are compatible with the available evidence (UNFPA Sri Lanka, 2014). However, all these sources may not have included terminated teenage pregnancies leading to under reporting the true picture because even in the current study, 3.2% (one case) of the participants has got the pregnancy terminated.

Since the age at marriage is legally approved as 18 years, a certain percentage of teenage mothers are unmarried or cohabiting with the partner. Being too young, they bear the highest risk of disadvantages of too early pregnancies while not having legal responsibility for the partner, they also are subjected to socio economic threats as well. In the current study also nearly one fourth mothers are unmarried. Being in the least privileged sector in the country with very poor socio economic status, not having legal responsibility exerts another burden to the lives of these mothers and siblings as well. Simultaneously, 21 of teenage mothers in the study (67.7%) have got unplanned pregnancies. This factor of having the highest rates of unplanned pregnancies has been proven by the study of Gunawardana *et al* as 13.3% births of teenage mothers are 'illegitimate' in the estate sector[8] . With the known factor of association between teenage pregnancies and their poor outcomes, this alarms the health system on the preventability of teenage pregnancies with provision of modern family planning methods (Department of census and statistics, 2016). Further, 65% of those with unplanned pregnancies did not know about family planning methods although each estate has an allocated PHM to provide family planning services. It warrants the quality of service provision by estate PHMs and also the monitoring and supervision of their performance. Considering the association of the pregnancy outcomes with the age of the mothers, the DHSs are not proving that information. In the present study one case (3.2%) were found being terminated. Although many studies have revealed the existence of high rates of poor pregnancy outcomes in teenage mothers, the inability to observe a statistical association in relation to outcomes in the current study may be due to inadequacy of sample size. It was unable to elicit statistically significant association between the birth weight and the teenage pregnancies. Although many health indicators of maternal and child health in Sri Lanka are very close to that of developed countries, low weight at birth of Sri Lanka is fairly high (around 13%). It may be the reason not to have significant differences between two groups. In Sri Lanka, 99.9% deliveries take place in hospitals and the breast feeding practices have been recognized as the world's best, starting breastfeeding within one hour of delivery did not show significant difference between teen & non teen mothers. For the same reason, compared with other pregnancies, teenage pregnancies were not at a higher risk of newborn complications.

However, statistical association could be observed for encountering problems in breastfeeding within the first 48 hours of delivery by teen mothers compared to non teen mothers. Further, babies of teenage mothers had significantly failed to gain satisfactory weight within the first month. Due to the fact that being a teenager, such a mother is not mature to handle the baby with correct positioning & attachment to overcome the problems of breast feeding. They are too immature to understand the process of newborn care which prevents children becoming malnourished. These problems may be contributed by the absence of trained staff adequately to handle these mothers and newborns with special attention because caring practices within 48 hours of delivery mainly depend on the service provision of the hospital staff. For not having gained satisfactory weight by one month, care given to the baby as well as to the mother at home seems to be inadequate. Provision of domiciliary care by the estate PHM is also questionable since she should attend the feeding practices of the babies of teen mothers with special attention.

Simultaneously, significant statistical association could be observed for the mother not starting a modern family planning method at six weeks after delivery by teen mothers. Since most of teen mothers are selecting a family planning method for the first time only after the delivery, they would not have started a method if services are not provided by the PHM adequately. This also highlights the inadequate post natal care by the estate PHM, because she is the home based key service provider to estate mothers. Thus the available findings of the study raise the question of adequacy of domiciliary care in relation to all the levels of maternal care. High teenage pregnancy rate indicates poor preconception care. Further, 67.7% of teenage pregnancies were unplanned, and 65% of them were unaware about the possibility of preventing the unplanned pregnancy by using modern family planning methods. Simultaneously inadequate provision of post natal care is evident by the facts encountering breast feeding practices by 48 hours and also that most of them were not using a family planning method at the end of postpartum period. Considering the situation in the nearest country; India, a study has revealed that in an urban setting, the mean age of marriage was 17 years while that of first pregnancy was 18.8years. it has also revealed that the mean age at marriage as well as the age at first child birth was less in Muslim community. In the present study, no any Muslim woman included thus such relationship could not be assessed[14].

Strengths and Limitations of the study: the ability of conducting a community based study was strength. Further, availability of well trained health volunteers and well developed health infrastructure also contributed to have sound conclusions at the end. However, the data on birth weight of the child was taken from the child's health record and not measured by the researcher. Having dependent secondary data was a limitation to the study. **Conclusions:** High rate of teenage pregnancies with poor pregnancy outcomes in estates warrants identification of risk factors in future studies to design preventive programmes to improve maternal and child health in estates. Special programmes needed to improve the provision of domiciliary care by PHM.

Glossary of Abbreviations

USA	United States of America
UNFPA	United Nations Population Fund
GCE	General Certificate of Education
IAQ	Interviewer Administered structured Questionnaire
DHS	Demographic and Health Survey
PHM	Public Health Midwife

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