

Teenage Pregnancies: Obstetric Outcomes and their Socio Economic Determinants a Descriptive Study at Teaching Hospital Kandy

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Abstract

Introduction: Teenage pregnancies account for approximately 6.1% of total pregnancies in Sri Lanka. The objectives of the study were to assess obstetric and psychological outcomes and socioeconomic determinants of teenage pregnancy.

Method: A cross-sectional descriptive study carried out on 182 pregnant teenagers for a period of seven months. The validated translation of the Edinburgh Postnatal Depression Scale (EPDS), questions on socioeconomic status and obstetric outcomes were recorded.

Results: Teenage pregnancy rates for Sinhalese, Tamil and Muslim were 87.4%, 8.2% and 4.4% respectively. The social support was adequate as 177(97%) were living with partners or parents. Unwanted pregnancies accounted for 13(7.1%) of teenage pregnancies at term. Outcomes were; birth weight 2.69 kg (2.57-2.81kg), pre-term labour 17(9.7%), hypertensive disorders 20(11.1%) and perinatal depression 30(16.5%). 75(42.9%) of pregnant teenagers were separated from one or both parents for more than six months in their childhood. There were no pregnant teenagers from upper social class, while 69(46.6%) were from middle and 79(53.4%) were from lower social class. Disruption to family structure and parental educational level of primary school less had 2.32 times and 2.78 times higher risk of perinatal depression in pregnant teenagers respectively.

Conclusion: Teenage pregnancies in Sri Lanka are unique compared to other countries as they did not appear to be related to ethnicity and had good social support. Disruption to family structure and socioeconomic background of the parents were risk factors for adolescent pregnancy. Although the majority were wanted pregnancies there was a significant amount of unwanted pregnancies at term.

Keywords: Teenage pregnancy, adolescent pregnancy, obstetric outcomes, Kuppuswamy socio-economic scale, perinatal depression

INTRODUCTION

Although the incidence of teenage pregnancy is declining in most western countries, the scenario in developing countries may be changing for the worse¹. The family health bureau of Sri Lanka estimates teenage pregnancies to be approximately 6.1% of total pregnancies².

Studies done in Europe show that the most consistent factor associated with teenage pregnancy is a low socioeconomic status including disruption

of family^{3,4}. This factor could be a potential risk factor in Sri Lanka, as breakdown of family structure is a frequent event due to mothers leaving the country to work as domestic aides or fathers joining the defence forces. A dislike of attending school also appears to be associated with an increased risk of teenage pregnancy⁵. The educational status of parents may also be an independent risk factor which has however not been assessed.

Pregnancy induced hypertension, preeclampsia, preterm labour, low birth weight and increased neonatal morbidity and mortality have been found to be associated with teenage pregnancies^{6,7,8,9}.

Psychiatric disorders are also found to be more prevalent in pregnant teenagers with 32.5% having at least

one psychiatric disorder while one third had two or more psychiatric disorders¹⁰. Postnatal depression was the commonest psychiatric disorder, albeit with a wide variation in the prevalence due to different methods used. However postnatal depression is now accepted to be around 13%¹¹. The adverse psychological effects of teenage pregnancy may be of greater concern than obstetric or medical complications as it may limit education, employment and life-long career opportunity for teenage mothers¹². This may itself cause mental trauma that would have consequences for subsequent children [13]. However it is not known if depression occurs independently of socio-economic factors in teenage pregnancies. Although India and Sri Lanka have high adolescent pregnancy rates it is noteworthy to consider the fact that the rural sector accounts for the majority of teenage pregnancies in Sri Lanka^{2,14}. Traditionally pregnant mothers from rural sector have a supportive family background which may probably explain the relatively better obstetric outcome of teenage pregnancies in Sri Lanka¹⁵. There were no studies assessing the outcome of teenage pregnancy independent of socio-economic risk factors in Sri Lanka. This study was carried out to determine the prevalence of selected socioeconomic risk factors, obstetric outcome and perinatal depression in pregnant teenagers delivering in ward 06 of the Teaching hospital, Kandy.

METHODS

A cross-sectional descriptive study was done from December 2009 to June 2010 including all teenage mothers (13-19 years) delivering in ward 06, Teaching Hospital, Kandy, Sri Lanka. Assuming a 13% prevalence of postnatal depression [11], with a margin of error of 5% and a power of 80%, a minimum sample size of

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Competing interests: None

174 was calculated. Eligible patients were briefed on the study by the principal investigator and informed written consent was obtained. Data was collected using a questionnaire on day one after delivery. Assistance was given by ward staff only for patients who were unable to complete the questionnaire on their own. Information related to obstetric outcome of the pregnancy were recorded by the principal investigator after reviewing medical records of the patients.

Hypertensive disorders in Pregnancy was diagnosed based on the International Society for the Study of Hypertension in Pregnancy (ISSHP) classification¹⁶. Vaginal, instrumental, caesarean section were considered as the modes of delivery. Low birth weight was considered as a birth weight less than 2.5 kg. Pre-term birth was taken as delivery of a baby <37 weeks completed pregnancy. Edinburgh Postnatal Depression Scale

(EPDS) which is an accepted screening tool for 'perinatal depression' was used on day one after delivery¹⁷. The validated Sinhala and Tamil translations of the EPDS were used for this purpose and a score of nine or more was considered as screening test positive for perinatal depression^{18,19}.

Disruption to family structure was considered in 3 categories; those who lived with both parents, those who lived with only one parent for more than 6 months or those who did not live with any parent for more than 6 months in their childhood. The educational status of both the mother and father were obtained, and whichever that was higher was considered as the educational level of the parents. The educational level of subjects were also obtained. Categorization of the educational status was based on the updated 'Kuppuswamy' socioeconomic scale [Table 01]²⁰. The occupational status of parents, partner and patient

were obtained. Categorization of the occupation was also based on the updated 'Kuppuswamy' socioeconomic scale [Table 01]²⁰. The parental occupational status was the higher level of occupation in either the mother or father. The categorization of monthly income was also based on the updated 'Kuppuswamy' socioeconomic scale²⁰. It was adjusted for a Sri Lankan scenario by multiplying the income categories by the Purchasing Power Parity (PPP) ratio between Sri Lanka and India at the time of the study [Table 01]²¹. Categorization into socioeconomic class was based on parental parameters; combined parental income, occupation and level of education using the 'Kuppuswamy' socioeconomic class scale [Table I]²⁰. Ethical approval was obtained from the Ethical Review Committee of the Faculty of Medicine, Peradeniya, Sri Lanka.

Table I – Kuppuswamy socioeconomic class scale as applied to Sri Lanka

Educational status	Occupation		Monthly income		
	Score	Score	Rupees *	Score	
Illiterate	1	Unemployed	1	< 2506/=	1
≥ Primary-middle†	2	Unskilled	2	2506-7515/=	2
≥ Middle –pre secondary‡	3	Semi-skilled	3	>7515-12526/=	3
Pre secondary	4	Skilled	4	>12526-18744/=	4
Secondary	5	Technical	5	>18744-25055/=	6
Post-graduate	6	Semi-professional	6	>25055-50109	10
Honours	7	Professional	10	>50109	12

*The income categories in India were multiplied by the ratio of PPP difference between India and Sri Lanka. The PPP for India was 2.16 while it was 5.53 for Sri Lanka at the time of the study. Therefore the income categories for Sri Lanka were 2.56 times the Indian income categories. The above mentioned values were for Sri Lanka.

†Represents primary school up to middle school

‡Represents middle school up to pre secondary

Interpretation of Socioeconomic classes by score; 26-29 upper, 16-25 upper middle, 11-15 lower middle, 5-10 upper lower and <5 lower class respectively.

Table II - The basic characteristics of subjects (n=182)

Age	n	Percentage %
<17 years	15	8.2%
≥17 years	167	91.8%
Mean age	18.1	
Range	(15-19)	
95% CI	(18-18.2)	
Ethnicity		
Sinhalese	159	87.4%
Tamil	15	8.2%
Muslim	8	4.4%
Background		
Living with partner	93	51.1%
Living with parents	84	46.2%
Living alone	5	2.7%
Pregnancy		
Planned	73	40.2%
Unplanned but wanted	96	52.7%
Unwanted	13	7.1%
Educational status of patient		
Illiterate	16	8.8%
>Primary - middle school	38	20.9%
>Middle school - secondary	128	70.3%

Table III - Obstetric outcomes

	n	Percentage %	(95% CI)
Mode of delivery			
Vaginal	124	68.1%	(63.5-72.7%)
Instrumental	12	6.6%	(2.9-10.3%)
Caesarean section	46	25.3%	(19-31.6%)
Birth weight *			
Mean (kg)			2.69 (2.57-2.81)
<2.5 kg	46	25.8%	
Pre-term labour **	17	9.7%	(5.3-14.1%)
Hypertension in pregnancy ***			
None	159	88.8%	(84.2-93.4%)
Hypertension only	18	10.1%	(5.7-14.5%)
Pre-eclampsia + eclampsia	2	1.1%	(-0.4- 2.6%)

* Birth weight was available in 178 cases

**data regarding pre-term labour was in available in 175 cases

*** data regarding hypertension in pregnancy was available in 179 cases

RESULTS

A total of 182 pregnant teenagers were included in the study. Patients in the sample ranged from 15 to 19 years. The mean age was 18.1 years (18.0-18.2). Majority (87.4%) of the sample were Sinhalese by ethnicity. 97% were either living with their partner or parents. Planned pregnancies accounted for 40.2% while 52.7% were unplanned but wanted pregnancies. There were no subjects who studied beyond secondary school (Table 01).

There were 30 patients (16.5%) who tested positive for peri-partum depression. The birth weight was 2.69 kg (2.57-2.81). Pre-term labour and hypertensive disorders were found in 17 (9.7%) and 20 (11.2%) of patients respectively (Table III).

On consideration of disruption to family structure, 5 patients did not live with their biological parents while another 70 lived with only one parent for more than 6 months during their childhood (Table IV).

Educational status was regrouped in to two main groups; less than middle school and middle school or more. (Table IV). Occupational status of parents was regrouped in to two main groups; unemployed and unskilled in one group and the other being semi-skilled or more (Table IV). Parental monthly income was regrouped in to 2 main groups; less than Rs.7515 and more than Rs.7515 (Table IV). Categorization in to socioeconomic classes showed that 79 belonged to the lower class while 69 belonged to the lower middle class. There were none in the upper middle or upper classes (Table IV).

Teenage mothers who had been separated from one or both parents for more than 6 months in at some point in their childhood appeared to have a 2.32 times higher risk of having perinatal depression compared to other teenage mothers who were not separated from their parents (Table V). Patients of parents who were educated up to primary school or less had a 2.78 times higher risk of perinatal depression compared to patients whose parents were educated up to or above middle school level. The occupational status, total monthly income, socioeconomic

class of parents, educational status of the patient, pregnancy status and birth weight of the baby was not associated with perinatal depression (Table V).

The immediate background of the patient had a bearing on the perinatal depression as three out of five patients who were living alone were screening

test positive. Patients who lived with parents or partners did not have a higher risk of perinatal depression (Table V).

Table IV – Socioeconomic risk factors

	n	Percentage %	(95% CI)
Family structure *			
Lived with 0 or 1 parent	75	42.9%	(35.6-50.2%)
Lived with both parents	100	57.1%	(49.8-64.4%)
Educational status of parents **			
< Middle school	51	30.7%	(23.7-37.7%)
≥ Middle school	115	69.3%	(62.3-76.3%)
Occupation of parents ***			
Unemployed or unskilled	85	53.8%	(46.0-61.6%)
Semi skilled or more	73	46.2%	(38.4-54.0%)
Monthly income of parents ****			
<7515	66	42.3%	(34.6-50.0%)
>7515	90	57.7%	(50.0-65.4%)
Socioeconomic class *****			
Upper	-	-	-
Middle	69	46.6%	(38.6-54.6%)
Lower	79	53.4%	(45.4-61.4%)

*data available for 175 cases

**data available for 166 cases, illiterate-10, up to primary school-41, up to middle school-111, up to secondary school-4.

***data available for 158 cases, unemployed-13, unskilled job -72, semi-skilled job -29, skilled / technical grade job – 44.

****data available for 156 cases, < Rs.2506 in 10, Rs.2506 - 7515 in 56, Rs.7515 - 12526 in 41, Rs.12526 - 18744 in 27, Rs.18744 – 25054 in 22.

*****data available for 148 cases

Table V – Perinatal depression and risk factors

	n (%)	Odds ratio (95% CI)	P value
Family structure			
Lived with both parents*	100 (57.1)	1	
Lived with 0 or 1 parent	75 (42.9)	2.32 (0.97-5.58)	0.01
Educational status of parents			
≥Middle school*	115 (69.3)	1	
≤Primary school	51 (30.7)	2.78 (1.15-6.74)	0.01
Occupation of parents			
Semi skilled or more*	73 (46.2)	1	
Unemployed or unskilled	85 (53.8)	0.92 (0.36-2.34)	0.84
Monthly income of parents			
≥Rs 7515/=*	90 (57.7)	1	
<Rs 7515/=	66 (42.3)	1.25 (0.52-2.98)	0.59
Socioeconomic class of parents			
Middle*	69 (46.6)	1	
Lower	79 (53.4)	0.52 (0.22-1.23)	0.102
Educational status of patient			
≥Middle school*	128 (70.3)	1	
<Primary school	54 (29.7)	1.3 (0.55-3.05)	0.51
Background of patient			
Living with parents*	84 (46.2)	1	
Living with partner	93 (51.1)	0.92 (0.41-2.05)	0.82
Living alone**	05 (2.7)	#	0.22
Pregnancy status			
Planned*	73 (40.1)	1	
Unplanned or unwanted	96 (52.7)	0.99 (0.44-2.24)	0.98
Low birth weight of baby			
>2.5 kg*	132 (74.2)	1	
≤2.5 kg	27 (25.8)	1.22 (0.45-2.35)	0.92

*reference category

**Fisher exact test result was taken.

DISCUSSION

Teenage pregnancy proportions by ethnicity in the study were lower than the ethnic proportions in the community unlike in the US where a higher rate was observed among minority black and Hispanic communities^{22,23}. This may suggest that ethnicity may not be a risk factor for teenage pregnancy in Sri Lanka.

It is possible to assume that a majority of the study sample had a satisfactory support structure as they were living with their partner or parents, a finding that transcends ethnic, socioeconomic barriers in an Asiatic culture. However the reason for living with parents instead of their partners was not assessed and neither was it assessed whether the subject was satisfied in either of the backgrounds.

In this study almost sixty percent of the pregnancies were either unplanned or unwanted, which was comparable to a similar study done in Galle, Sri Lanka, however both studies were hospital based studies²⁴. Of the teenagers who were delivering 7% were unwanted pregnancies even at this juncture. Whether this group of patients represents the true amount of unwanted pregnancies is doubtful as some patients may have opted for termination even if it is illegal in the present day legal backdrop.

Caesarean section rate was higher compared to other studies done in Sri Lanka which may be due to a change in obstetric practice as data in these studies were almost fifteen years old^{15,25}. The setting also may be a factor as tertiary hospitals were found to have a higher rate of caesarean section compared to provincial hospitals²⁵.

The general improvement in living standards may explain the improved rate of low birth weight in our study^{15,26}. The rate of hypertension in pregnancy was very much higher than available figures from Sri Lanka¹⁵.

Disruption to family was shown to be associated with adolescent pregnancy, a trend that was observed in our study as well⁴. This may seem plausible in the context of a deprived socioeconomic background necessitating parents to seek employment in the security forces or work abroad as housemaids.

The immediate background of the patient; i.e. whether they were living with their parents or their partner did not appear to have a bearing on perinatal depression unless they were alone, in which case there was a high risk of perinatal depression.

Disruption to family structure during childhood was shown to be associated with a tendency for depression, which may be due to the predisposition of risk factors for depression itself such as poverty and abuse. Subgroup analysis of risk factors showed that if the parents of a teenage mother were educated up to primary school or less she would be at a higher risk of depression. However the occupation of parents and the combined parental monthly income were not associated with a risk of depression. This may be due to disparities of income and occupation that may not necessarily mirror the educational level or the presence of a supportive network for the patients which may have countered the negative effects of poverty²⁷. An unplanned pregnancy or a low birth weight baby was not associated with depression, a fact that may further substantiate the possibility of a good supportive network in these patients in spite of their poverty.

As information of parents regarding occupation, educational level and parental income were obtained through patients there would have been some degree of inaccuracy as it was not always possible to verify the information through parents themselves as they were not always present. Another limitation was that emotional stresses may have affected the EPDS score as it was administered on day one. However the EPDS test is a screening test for perinatal depression and its true value lies in its predictive value. Furthermore if it was administered at a later date following discharge the dropout rates would have been much higher as these patients are not from 'ideal' backgrounds.

CONCLUSION

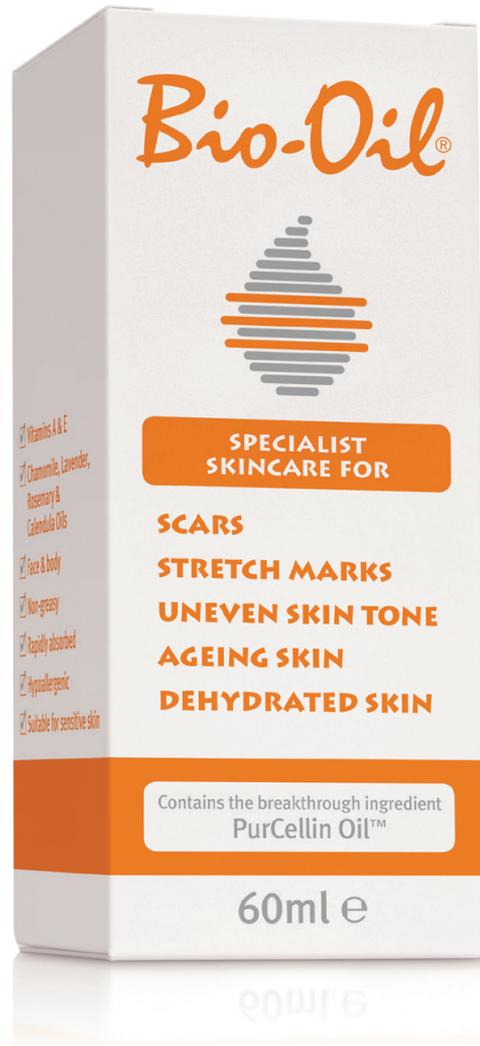
Socioeconomic factors leading to adolescent pregnancy are quite different compared to other countries as they were not prevalent in ethnic

minorities and appeared to have adequate social support. Disruption to family structure and socioeconomic background of the parents were risk factors for teenage pregnancy. There was a significant amount of unwanted pregnancies even at term, a fact that suggests that the true magnitude of the problem may be far worse when taking in to account the likelihood of abortion, albeit illegal in Sri Lanka. ■

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