

ORIGINAL RESEARCH ARTICLE

A comparative analysis of teenagers and older pregnant women concerning maternal and neonatal adverse outcomes in Raymond Mhlaba sub-District, South Africa

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Abstract

Teenage pregnancy has become a common global public health issue, associated with increased risk of obstetric complications and adverse neonatal outcomes. Teenagers are more prone to obstetric complications compared to older women. This study examined the maternal and neonatal adverse outcomes among teenagers, and compared them with older pregnant women. This study extracted maternal and neonatal adverse outcomes from 196 medical records of women delivered at Fort Beaufort Hospital from April 2017 to March 2018. Teenagers developed anaemia (13%) and pre-eclampsia (2.1%) during pregnancy as compared to older pregnant women. Most of the women delivered through normal vertex, although the teenagers had the highest percentage of caesarean section (27%) compared to the older women. Few proportions of women developed complications during delivery, however, obstructed labour (14.7%), prolonged labour (11.5%), foetal distress (14.8%) was more prevalent in teenagers. Most neonates were delivered at preterm birth and were alive across all age groups. However, few of the preterm births (23.2%) and very premature neonates (7.4%) occurred among the teenager mothers compared to older women. Few neonates had an Apgar score of less than 7 in 1 minute across all age groups. The risk of obstructed labour, prolonged labour, and foetal distress was predominant among teenagers compared to the older women. There was high incidence of vaginal deliveries, preterm babies and low Apgar score among teenagers compared to the older women. The findings of this study revealed that the teenagers start booking at the second trimester, which may impose the risk of complications if not observed at an early stage. There was high incidence of vaginal deliveries, preterm babies and low Apgar score among teenagers compared to the older women. Programmes to support early antenatal bookings for teenagers are important to address adverse maternal complications associated with late antenatal bookings. (*Afr J Reprod Health* 2020; 24[4]:138-146).

Keywords: Teenage pregnancy, Maternal and neonatal adverse outcomes, Older pregnant women, South Africa

Résumé

La grossesse chez les adolescentes est devenue un problème de santé publique mondial courant, associé à un risque accru de complications obstétricales et d'issues néonatales défavorables. Les adolescentes sont plus sujettes aux complications obstétricales que les femmes plus âgées. Cette étude a examiné les résultats indésirables maternels et néonataux chez les adolescents et les a comparés à ceux des femmes enceintes plus âgées. Cette étude a extrait les résultats indésirables maternels et néonataux de 196 dossiers médicaux de femmes accouchées à l'hôpital de Fort Beaufort d'avril 2017 à mars 2018. Les adolescentes ont développé une anémie (13%) et une pré-éclampsie (2,1%) pendant la grossesse par rapport aux femmes enceintes plus âgées. La plupart des femmes ont accouché par un sommet normal, bien que les adolescentes aient eu le pourcentage le plus élevé de césarienne (27%) par rapport aux femmes plus âgées. Peu de proportions de femmes ont développé des complications lors de l'accouchement, cependant, le travail dystocique (14,7%), le travail prolongé (11,5%) et la détresse fœtale (14,8%) étaient plus fréquents chez les adolescentes. La plupart des nouveau-nés ont été nés prématurément et étaient vivants dans tous les groupes d'âge. Cependant, peu de naissances prématurées (23,2%) et de nouveau-nés très prématurés (7,4%) sont survenues parmi les mères adolescentes par rapport aux femmes plus âgées. Peu de nouveau-nés avaient un score Apgar inférieur à 7 en 1 minute dans tous les groupes d'âge. Le risque de dystocie, de travail prolongé et de détresse fœtale était prédominant chez les adolescents par rapport aux femmes plus âgées. Il y avait une incidence élevée d'accouchements vaginaux, de bébés prématurés et un faible score d'Apgar chez les adolescents par rapport aux femmes plus âgées. Les résultats de cette étude ont révélé que les adolescents commencent à réserver au deuxième trimestre, ce qui peut entraîner un risque de complications s'il n'est pas observé à un stade précoce. Il y avait une incidence élevée d'accouchements vaginaux, de bébés prématurés et un faible score d'Apgar chez les adolescents par rapport aux femmes plus âgées. Les programmes visant à soutenir les réservations prénatales précoces pour les adolescents sont importants.

Mots-clés: Grossesse chez les adolescentes, Résultats indésirables maternels et néonataux, Femmes enceintes âgées, Afrique du Sud

Introduction

Teenage pregnancy is a serious public health issue associated with increased risk of obstetric complications and adverse neonatal outcomes. Adverse maternal and neonatal outcomes such as caesarean section, assisted delivery, preterm delivery, low birth weight, fresh stillborn and macerated stillborn are prevalent among teenagers¹⁻⁵. The phenomenon of teenage pregnancy is seemingly increasing nationwide, despite the various preventive measures such as sex education, HIV campaigns, use of variety contraceptives and condom use. This does not only put the burden on the government, family and society but also to the teen mother herself, who is likely to develop adverse outcomes during pregnancy and labour⁶.

In the South African context, statistics have shown an alarmingly high prevalence of teenage pregnancy. For instance, the Gauteng Province has the highest number of teenage pregnancies with 4,919, followed by Eastern Cape with 3,898, Mpumalanga, 3,196, North West, 278 and Free State with 325⁷. Teenage is a transition period from childhood to adulthood, and during this period, teenagers are engaged in sexual activity³. Teenagers have the conviction of being grown up and mature to have sex; and presumably, their lack of knowledge predisposes them to unprotected sex, which may result in unwanted, unplanned pregnancies and sexually transmitted infections including HIV/AIDS.

The Demographic and Health Survey indicated that 2.4% of the pregnant adolescents became pregnant by the age of 15 years⁸. Pregnancy and childbirth complications are the leading cause of death among 15 to 19-year-old girls, globally, with low and middle-income countries accounting for 99% of global maternal deaths of women aged between 15 to 49 years⁴.

Teenage pregnancy is one of the common public health problems worldwide today, with deleterious health effects to the foetus, mother and the neonate⁹. Therefore, the need to devise preventive measures to decrease morbidity and mortality rate of both the mother and the infant

becomes crucial. Teenage mothers are more likely to develop adverse medical and obstetric outcomes, such as hypertensive disease, anaemia, infection, depression, prolonged and obstructed labour, vacuum or forceps delivery compared to the older pregnant women. Further, preterm birth, low birth weight, stillbirths and asphyxia are more common in teenagers than adult pregnant women, which result in high number of deaths and increased chances of health problems of the baby in future¹⁰.

Several studies concerning teenage pregnancy in South Africa¹¹⁻¹³, have reported clinical health adverse outcomes, and with increased trend¹¹. Intriguingly, if contraceptives are available free of charge at the public health facilities, how could one explain the escalating and persistent number of teenage pregnancies in South Africa? One could imagine the adverse health outcomes these mothers and their infants face. Teenage pregnancy has deleterious health effects to the foetus, mother and neonate. Therefore, a comparative analysis of pregnancy related factors of teenage and older women would enable the development of intervention programmes needed to address specific population pregnancy in the South African context. This present study examines the maternal and neonatal adverse outcomes among teenage mothers, in comparison to older pregnant women in Raymond Mhlaba sub-district, South Africa.

Methods

Research design, population and sample

This retrospective study included all available maternal medical records of discharged nulliparous singleton teenagers and older pregnant women who had delivered at Fort Beaufort Hospital from April 2017 to March 2018. Data were extracted from the available maternal medical records of 196 (95 teenagers and 101 older pregnant women) patients of for analysis. All 97 teenagers' charts were used for the data collection. However, the remaining 405 (502 pregnant women – 97 teenagers = 405) non-teenagers was deemed too large to use as a control

group. Therefore, a proportional but statistically significant sample size from the population was used for comparison as non-teenager group. For the calculation of the sample size of a population of 502, the sample size was estimated as 101 maternity charts. The sample size was estimated based on the following formula¹⁴ and as modified¹⁵:

$$n = \frac{(z^2 * p * q)}{e^2}$$

Where: n = number of charts;

z = 1.96 (value of the normal distribution standard - reliable level of 95%);

p = ratio of respondents for option "yes" (p = 0.5);

q = ratio of respondents for option "no" (q = 0.5);

e = sample error (maximum tolerable difference; e = 0.05).

The value p = q = 0.5 is recommended for the cases where one does not know anything about the possible ratios of respondents for yes/no - population parameter.

The sample size n and margin of error E are given by:

$$x = Z^c / 100 * 2r(100 - r)$$

$$n = N^x / ((N - 1)E^2 + x)$$

$$E = \text{Sqrt} \left[\frac{(N - n)x}{n(N - 1)} \right]$$

Data collection

In this study, a self-designed checklist was used for data collection. The checklist was divided into three sections. Section A contained a biographical data and obstetric history of the participants (age, marital status, employment history, life style and obstetric history). Section B focused on the maternal adverse outcomes (pre-eclampsia, anaemia, diabetes mellitus, cardiac diseases, ante-partum haemorrhages, infections, methods of deliver, obstructed labour, prolonged labour, preterm labour post-partum haemorrhage and mental illnesses). Section C solicits information on neonatal adverse outcomes (preterm births, low birth weights, birth asphyxia, small for gestation, low Apgar score, neonatal admissions in ICU and neonatal deaths).

Data analysis

The Statistical Package for Social Sciences (SPSS) version 22 was used for data analysis. Descriptive

statistics (frequency and percentages) were applied for data analysis.

Results

Table 1 shows the socio-demographic, lifestyle and clinical characteristics of the participants. Most of the participants were teenagers (13-19 years) (n=95; 48%). Majority of the participants were single (n=156; 76.6%) and unemployed (n=173; 88.3%). Most participants had never smoked cigarettes (n=158; 80.6%) and did not drink alcohol (n=121; 62.0%), quit smoking (n=13; 7.0%), and stop drinking alcohol (n=18; 9.0%) during pregnancy. Most teenagers attended the antenatal clinic during their second trimester of gestation (n=73; 77%) as compared to other age groups.

Most gestational bookings took place in the second trimester and participants in the age category of between 20-39 years had more bookings in the first trimester compared to the teenagers. The majority of the participants tested negative on syphilis (n=188; 96.4%), and were receiving antiretroviral therapy (n=149; 76.0%).

Maternal adverse outcomes

Table 2 shows that across all age groups, teenagers developed few conditions during pregnancy, namely anaemia (13%) and pre-eclampsia (2.1%). As shown in Table 3, most of the women in all age groups delivered through normal vertex. Very few delivered by caesarean section, although the teenagers had the highest percentage (n=26; 27%) in comparison with other age groups. There was no case of assisted delivery (Forceps and Vacuum extraction) in all age groups.

Table 4, indicated few proportion of women developed complications during delivery, however, obstructed labour (n=14; 14.7%), prolonged labour (n=11; 11.5%), foetal distress (n=14; 14.8%) occurred more in teenagers than other age groups. The proportion of preterm labour high among age group 40 years and above. Table 5 shows the complications developed post-delivery was low (less than 10%).

Table 1: Socio-demographic, lifestyle and clinical characteristics of the participants

Variables	Age groups (years)				Total n (%)
	13-19 n (%)	20-29 n (%)	30-39 n (%)	40+ n (%)	
Marital status					
Single	89(93.7)	39(76.0)	26(60.5)	3(37.5)	157(80.0)
Married	6(6.3)	10(20.0)	16(37.2)	1(12.5)	33(18.0)
Divorced	0(0.0)	1(2.0)	0(0.0)	3(37.5)	4 (1.0)
Co-habiting	0(0.0)	1(2.0)	0(0.0)	1(12.5)	2(1.0)
Employment status					
Employed	2(2.1)	4(8.0)	12(29.0)	3(37.5)	21(11.7)
Unemployed	93(97.8)	47(92.0)	30(71.0)	5(62.5)	175(89.0)
Smoking status					
Yes	9(9.5)	9(22.0)	6(14.3)	1(12.5)	25(13.0)
Never smoked	77(81.0)	39(71.0)	35(83.3)	7(87.5)	158(80.0)
Quit smoking during pregnancy	9(9.5)	3(7.0)	1(2.4)	0(0.0)	13(7.0)
Alcohol consumption					
Yes	27(29.0)	23(24.0)	7(21.0)	0(0.0)	57(29.0)
Never drank	55(58.0)	29(57.0)	29(69.0)	7(87.5)	120(62.0)
Quit drinking during pregnancy	13(13.0)	1(1.8)	4(9.0)	0(0.0)	18(9.0)
Trimester					
First	8(8.0)	17(33.3)	16(38.1)	2(25.0)	43(21.9)
Second	73(77.0)	27(52.9)	21(50.0)	4(50.0)	125(63.8)
Third	14(15.0)	7(13.7)	5(25.0)	2(25.0)	28(14.2)
Obstetrics history (syphilis)					
Positive	3(3.2)	3(6.0)	2(4.8)	0(0.0)	8(3.6)
Negative	92(96.8)	48(94.0)	40(95.2)	8(100)	188(96.4)
Obstetrics history (retroviral disease)					
Positive	16(16.8)	8(16.0)	19(45.2)	4(50.0)	47(24.0)
Negative	79(83.2)	43(84.0)	23(54.8)	4(50.0)	149(76.0)
Highly active antiretroviral therapy					
Yes	16(16.8)	8(15.7)	19(45.2)	4(50.0)	47(24.0)
No	79(83.2)	43(84.3)	23(54.8)	4(50.0)	149(76.0)

Table 2: Conditions developed during pregnancy stratified by age groups

Variables	Age groups (years)				Total n (%)
	13-19 n (%)	20-29 n (%)	30-39 n (%)	40+ n (%)	
Anaemia					
Yes	12(13.0)	5(10.0)	3(7.1)	0(0.0)	20(10.0)
No	83(87.0)	46(90.0)	39(92.9)	8(100)	176(90.0)
Pre-eclampsia					
Yes	2(2.1)	1(2.0)	3(7.1)	0(0.0)	6(3.0)
No	93(97.9)	50(98.0)	39(92.9)	8(100)	190(97.0)
Diabetes mellitus					
Yes	0(0.0)	0(0.0)	1(2.4)	0(0.0)	1(0.5)
No	95(10.0)	51(100)	41(97.6)	8(100)	195(99.5)
Cardiac diseases					
Yes	2(2.1)	1(2.0)	0(0.0)	0(0.0)	3(1.5)
No	93(97.9)	50(98)	42(100)	8(100)	193(98.5)
Ante-partum haemorrhage					
Yes	0(0.0)	0(0.0)	1(2.4)	0(0.0)	1(0.5)
No	95(100)	51(100)	41(97.6)	8(100)	195(99.5)
Urinary tract infection					
Yes	25((26)	15(29.4)	6(14.3)	1(12.5)	46(23.5)
No	70(74)	36(70.6)	36(85.7)	7(87.5)	150(76.5)

Table 3: Methods of delivery

Variables	Age groups (years)				Total n (%)
	13-19 n (%)	20-29 n (%)	30-39 n (%)	40+ n (%)	
Normal Vertex					
Yes	69(72.6)	44(86.2)	36(85.8)	8(100)	157(80.0)
No	26(27.4)	7(13.8)	6(14.3)	0(0.0)	39(20.0)
Caesarean section					
Yes	26(27.4)	7(13.7)	6(14.3)	0(0.0)	38(19.4)
No	69(72.6)	44(86.3)	36(85.7)	8(100)	158(80.6)
Forceps					
Yes	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
No	95(100)	51(100)	42(100)	8(100)	196(100)
Vacuum extraction					
Yes	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
No	95(100)	51(100)	42(100)	8(100)	196(100)

Table 4: Complications developed during delivery

Variables	Age groups (years)				Total n (%)
	13-19 n (%)	20-29 n (%)	30-39 n (%)	40+ n (%)	
Preterm labour					
Yes	23(24.0)	4(7.8)	6(14.0)	2(25.0)	35(17.9)
No	72(76.0)	47(92.2)	36(86.0)	6(75.0)	161(82.1)
Obstructed labour					
Yes	14(14.7)	3(6.0)	0(0)	0(0)	17(8.6)
No	81(85.3)	48(94.0)	42(100)	8(100)	179(91.4)
Prolonged labour					
Yes	11(11.5)	2(3.9)	2(4.8)	0(0.0)	15(7.7)
No	84(88.5)	49(96.1)	40(95.2)	8(100)	181(92.3)
Foetal distress					
Yes	14(14.8)	3(5.9)	4(9.5)	0(0.0)	21(10.7)
No	81(85.2)	48(94.1)	38(90.5)	8(100)	175(89.3)

Table 5: Complications developed post delivery

Variables	Age groups (years)				Total n (%)
	13-19 n (%)	20-29 n (%)	30-39 n (%)	40+ n (%)	
Post-partum haemorrhages					
Yes	6(6.3)	0(0.0)	0(0.0)	0(0.0)	6(3.1)
No	89(93.7)	51(100)	42(100)	8(100)	190(96.9)
Infections					
Yes	1(1.0)	1(1.9)	0(0.0)	0(0.0)	2(1.0)
No	94(99.0)	50(98.1)	42(100)	8(100)	194(99.0)
Mental illness					
Yes	0(0.0)	0(0.0)	1(2.4)	0(0.0)	1(0.5)
No	95(100)	51(100)	41(97.6)	8(100)	195(99.5)

Table 6 indicates that most of neonates were delivered at preterm birth and were alive across all age groups. However, few of the preterm births (n=22; 23.2%) and very premature neonates (n=7; 7.4%) occurred among the teenager mothers compared to other age groups. Few neonates were born with birth asphyxia (n=9; 9.5%) in women ages 30-39 years.

The age group of 30-39 years had the highest resuscitation (n=4; 9.5%) and admission (n=1; 2.4%). Few neonates had an Apgar score of less than 7 in 1 minute across all age groups, with teenagers having highest percentage (n=3; 3.4%) and less than 10 in 5 minutes among women ages 30-39 years (n=2; 4.9%).

Table 6: Neonatal adverse outcomes

Variables	Age groups (years)				Total n (%)
	13-19 n (%)	20-29 n (%)	30-39 n (%)	40+ n (%)	
Alive					
Yes	89(93.7)	48(90.5)	41(97.6)	7(87.5)	185(94.4)
No	6(6.3)	3(9.5)	1(2.4)	1(12.5)	11(5.6)
Intra-uterine death					
Yes	3(3.2)	1(2.0)	0(0.0)	1(12.5)	5(2.0)
No	92(96.8)	50(98)	42(100)	7(87.5)	191(98.0)
Neonatal death					
Yes	1(1.0)	1(2.0)	1(2.4)	0(0.0)	3(1.6)
No	91(99)	49(98)	41(97.6)	7(100)	188(98.4)
Still birth					
Yes	2(2.2)	1(1.9)	0(0.0)	1(12.5)	4(2.1)
No	89(97.8)	50(98.1)	42(100)	7(87.5)	188(97.9)
Preterm birth					
Yes	66(69.5)	46(90.2)	33(78.6)	7(87.5)	152(77.5)
No	29(30.5)	5(9.8)	9(21.4)	1(12.5)	44(22.5)
Premature					
Yes	22(23.2)	4(8.2)	7(16.7)	1(12.5)	34(17.6)
No	73(76.8)	45(91.8)	35(83.3)	6(87.5)	159(82.4)
Very Premature					
Yes	7(7.4)	0(0.0)	1(2.4)	0(0.0)	8(4.1)
No	88(92.6)	51(100)	41(97.6)	7(100)	187(95.9)
Birth asphyxia					
Yes	2(2.2)	0(0.0)	4(9.5)	0(0.0)	6(3.2)
No	87(97.8)	51(100)	38(90.5)	7(100)	183(96.8)
Resuscitated					
Yes	8(8.9)	2(3.9)	4(9.5)	0(0.0)	14(7.4)
No	81(91.1)	49(96.1)	38(90.5)	7(100)	175(92.6)
Admitted in Neonatal ICU					
Yes	2(2.3)	0(0.0)	1(2.4)	0(0.0)	3(1.6)
No	87(97.7)	50(100)	41(97.6)	6(100)	184(98.4)
Apgar score					
Less than 7 in (1 minutes)	3(3.4)	1(2.9)	1(2.5)	0(0.0)	5(62.5)
Less than 10 in (5 minutes)	1(1.1)	0(0.0)	2(4.9)	0(0.0)	3(37.5)

Discussion

The present study compared teenagers, older pregnant women, and the impact of teenage pregnancy on maternal and neonatal adverse outcomes at Raymond Mhlaba sub district in Eastern Cape. Consistent with other studies conducted elsewhere, the present study found that the teenagers attended antenatal clinic during the second and third trimester^{9,16}. During the first trimester, teenagers would still hide their pregnancy, as they are in a state of denial, largely because the pregnancy is unplanned. Others do not attend the antenatal clinic due to the fear of rejection by parents and society¹. Ayuba and Gani's study¹⁷ found late antenatal booking of teenagers being associated with unemployment and non-formal education. Intuitively, lack of money for transport could be a likely reason for the late

detection of the adverse outcomes, especially those diagnosed late with pre-eclampsia/eclampsia in this present study. Health education regarding the importance of early booking of antenatal care after pregnancy positive to pregnancy must be emphasised to every woman to prevent the complications. Most of teenagers tested positive on retroviral diseases, seldom received antiretroviral therapy. This is because they refuse to disclosed or perhaps still in denial that they are HIV positive as well as being pregnant.

Across all age groups, teenagers developed few conditions during pregnancy, namely anaemia (13%) and pre-eclampsia (2.1%). Najim *et al.*⁹ argued that anaemia is the most common condition among teenagers given their bodies are still developing and competing with the foetus that also needs nutrients. Consequently, the pregnant teenager develops anaemia, and the depletion of

nutrients to the unborn fetus causing intra uterine growth retardation. Anaemia is a serious health problem resulting to maternal and perinatal mortality, premature deliveries, low birth weight and malnutrition¹⁵. The demographic data of the participants indicates that most teenagers are unemployed and less educated; therefore, it is possible that they could barely afford to buy nutritious foods needed by the fetus and the mother. Ultimately, maternal malnutrition during pregnancy may increase the risk of gestational anaemia, maternal and fetal death, high blood pressure, miscarriage. Studies have found that teenagers have increased risk of developing pre-eclampsia, eclampsia, diabetes mellitus, cardiac diseases, ante-partum haemorrhages^{5,17,18}. Few teenagers developed pre-eclampsia in this study. This study was conducted in a district hospital, where all complicated pregnancies are being referred to a tertiary hospital, which could partly explain the relatively low pre-eclampsia observed among teenagers. Contrastingly, Althebo *et al.*⁵ also observed a lower risk of pre-eclampsia in pregnant teenagers.

The study found that most of teenagers delivered vaginally and few had caesarean section. Tyeberg *et al.*¹⁹ study reported more normal vaginal deliveries, and fewer caesarean section among teenagers than adult women. There is a belief that caesarean section is due to biological immaturity that causes cephalo-pelvic disproportion (CPD) among teenage girls. It is conflicting whether caesarean section is more common in teenagers than older women¹⁸. Perhaps, as earlier eluded, the existing nature of referral system involving complicated pregnancy cases in the setting may explain the low caesarean section rates observed in teenage pregnant women in this present study.

Regarding the assisted deliveries, no vacuum or forceps deliveries were conducted across all age groups. Perhaps this could be because complicated deliveries were referred to a tertiary hospital. Torvie *et al.*²⁰ in their study argued that in comparison to the adult women, teenage pregnant girls had more forceps deliveries than adult woman maybe due to poor maternal bearing down effort. However, Torvie *et al.*^{20,21} study reported forceps delivery was performed due to immaturity of the pelvic bones and birth canal of the young teenagers. Immature adolescents are more likely to have caesarean section and operative

vaginal deliveries like vacuum and forceps extraction.

This study revealed that teenagers had slightly higher proportion of preterm labour as compared to older women. Preterm labour among teenagers may be due to intra-uterine growth restriction associated with maternal malnutrition and maternal smoking during pregnancy²². Few teenagers in this study had obstructed, prolonged and fetal distress as compared to other age groups. This contributes to the few numbers of caesarean sections among the teenagers. This finding is consistent with the study by Moraes *et al.*¹⁸ indicated that CPD and prolonged labour predispose teenager girls to deliver through caesarean section. Interestingly, this present study found no post-delivery complication. Tyeberg *et al.*¹⁹ also in their study found that teenagers were less prone to post-partum haemorrhages.

Concerning the neonatal adverse outcomes, the current study revealed that teenagers had a greater number of preterm babies and 3.4% of APGAR score less than seven in one minute as compared to other age groups. Other risk outcomes were absent among the cohort of women studied in this present study, however, other studies have reported low birth weight (LBW), preterm birth, Neonatal Intensive Care Unit (NICU) admissions and neonatal deaths are higher in adolescents than older age groups^{17,23} also affirmed high rates of LBW infants; premature babies and lower Apgar scores below 7 among teenagers as compared to older women. Decreased maternal age especially mothers aged 15 years or younger are prone to low birth weight and preterm birth.²⁴. Congruent with these studies, premature babies among teenage women was more prevalent compared to the older women in this current study.

Ethical Considerations

Approval was obtained from the University Research Ethics committee (Ref No GOO191STSH01). The permission to collect data was obtained from the Provincial Department of Health's Research and Epidemiology sector, and from the management of Fort Beaufort Hospital in Raymond Mhlaba Sub- district. The anonymity and confidentiality of the information from the medical records was maintained.

Limitations

Hence, the findings of the present study are based on a retrospective data collected from one hospital; the results cannot be generalised to all the teenagers in Raymond Mhlaba sub district, Eastern Cape nor South Africa at large. The Fort Beaufort Hospital is a district hospital, which refers complicated pregnancies to tertiary hospitals, so this may not be a true reflection of maternal adverse outcomes among pregnant teenagers as compared to older pregnant women. Further studies involving tertiary hospital would provide clear insight on the relationship between teenagers and adverse outcomes.

Conclusion

The findings of this study indicate that the teenagers start booking at the second trimester, which may impose the risk of complications if not observed at an early stage. There was high incidence of vaginal deliveries, preterm babies and low Apgar score among teenagers compared to the older women. In order to prevent teenage pregnancy, the Department of Health should develop programmes like road shows; create awareness in schools on the effects of teenage pregnancy, and contraceptives should be accessible in all public health facilities as well as schools to reduce teenage pregnancies.

Conflict of Interests

The authors declare that there are no competing or potential conflicts of interest.

Contribution of Authors

NT and DTG conceptualized the study. NT collected the data. UBO drafted the manuscript. NT and DTG read and made inputs to the manuscript. All authors read and approved the final version of the manuscript for submission.

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