OPEN ACCESS ORIGINAL RESEARCH ARTICLE

FETOMATERNAL OUTCOME IN TEENAGE TERM PREGNANCY

Maria Pervaiz[1], Saima Khattak[2]

ABSTRACT

BACKGROUND: Teenage pregnancy, involving women aged 13-19 years, is prevalent in developing countries like Pakistan due to early marriages, low socioeconomic status, and illiteracy. **OBJECTIVE OF THE STUDY:** The study's objective was to assess the outcomes for both the mother and the fetus in teenage term pregnancies. **METHODOLOGY:** The Department of Obstetrics and Gynecology at Lady Reading Hospital in Peshawar conducted this cross-sectional study. The study included 246 adolescent patients who were pregnant and between the ages of 12 and 19 with primary gravida and gestational ages greater than 28 weeks. The statistical analysis software SPSS version 21.0 was used to analyze the data. **RESULTS:** Age range in this study was from 12 to 19 years with mean age of 17.451±1.25 years, mean parity 0.000±0.00, mean gestational age 34.512±2.18 weeks and mean BMI was 24.390±1.18 Kg/m2. PPH was observed in 10.6% patients, Tears 15.4%, Low Birth Weight 11.8%, Still Birth 3.3%, Low Apgar Score 19.9% and NICU Admission was 13.4%. **CONCLUSION:** This study demonstrated that low birth weight, stillbirth, low Apgar score, and NICU hospitalization are big issues for babies born to adolescent mothers, while PPH and tears are issues for adolescent pregnant women. The government should raise the legal marriage age, enhance education, offer excellent nutrition, prenatal checkups, psychological care, and promote contraception to prevent underage marriages.

KEYWORDS: Teenage Pregnancy, Maternal Outcome, Fetal Outcome

1. Medical Officer, Department of Obstetrics and Gynaecology, Medical Teaching Institution, Lady Reading hospital peshawar
2. Assistant Professor, Department of Obstetrics and Gynaecology, Medical Teaching Institution, Lady Reading Hospital Peshawar, Pakistan.

Corresponding Author: Dr. Saima Khattak,Assistant Professor, Department of Obstetrics and Gynaecology, Medical Teaching Institution, Lady Reading Hospita,Peshawar, Pakistan.Email: dr_saima_79@yahoo.com

How To Cite This Article: Pervaiz M[1], Khattak S[2,] **FETOMATERNAL OUTCOME IN TEENAGE TERM PREGNANCY.** JPUMHS;2024:14:01,95-102. http://doi.org/10.46536/jpumhs/2024/14.01.501

RECEIVED FEB 07.2024, ACCEPTED ON 15 MARCH 2024, PUBLISHED ON 30 MARCH 2024.

INTRODUCTION

Teenage pregnancy, involving women aged 13-19 years, is prevalent in developing countries like Pakistan due to early marriages, low socioeconomic status, and illiteracy[1]. It affects 12% of annual births globally, with an incidence of 90% in developing countries[2]. Teenage girls face higher complications during operative and cesarean deliveries compared to normal vaginal deliveries. Maternal complications include obstructed labor, prolonged labor, instrumental delivery, caesarean section, fetal distress, malpresentation, cephalopelvic disproportion, postpartum hemorrhage, and perineal tears[3]. Lower socioeconomic girls often have malnutrition and inadequate pelvis, leading to obstructed labor[4]. In Sudan, 59% of teenage girls experienced obstructed labor[5].

Normal vaginal delivery, instrumental delivery, and caesarean section are all options for delivery. Perinatal outcomes include being alive and healthy (84%), having a low birth weight (20%), and being admitted to the NICU (42%)[6]. In Peshawar, Pakistan, 51% of 18-19 year olds are pregnant, with 6% having an instrumental birth and 7.5% having a Caesarean section. Low birth weight and stillbirth are examples of fetal problems[7].

Teen pregnancy is a prevalent problem among girls, especially in developing nations where

early marriage is the main cause. Early pubertal development, a history of sexual abuse, poverty, a lack of loving parents, cultural and family patterns of early sexual experience, a lack of school or job objectives, and poor school performance or dropping out are all factors that contribute to early pregnancy. Early childbearing has a detrimental impact on education, poverty, unemployment, and self-esteem[8]. Higher rates of illness and death for the mother and the child are associated with adolescent pregnancy. Teenage moms are more likely to have socioeconomic disadvantages throughout their life, which can have a negative impact on their education and health. Adolescent girls are more vulnerable to illnesses and disorders including STIs, drug addiction, and accidents because of biological and social reasons[9].

A still-developing girl's pregnancy raises her nutritional needs, which might result in malnutrition and pregnancy problems. High rates of maternal illness and death are also caused by recourse to abortion, including unsafe abortion. Teenage moms are more likely than older mothers to become pregnant while they are young, and their children are also more likely to experience health problems, behavioral problems in social situations, difficulties with self-control, and inferior intellectual and academic success[10].

Prematurity and low birth weight raise the risk of harmful outcomes such as cerebral palsy, blindness, hearing, mental impairment, and infant mortality[11]. Compared to adult pregnant women, the mother's death rate is twice as high. Poor outcomes for adolescents are attributed in part to a combination of biological and social factors. The only biological markers that consistently link with poor pregnancy outcomes are low pre-pregnancy weight and height, parity, and poor pregnancy weight gain[12]. Nutrition plays a major role in how well a pregnancy turns out, with low birth weight (LBW) babies mostly being associated with prepregnancy weight and inadequate weight increase during pregnancy. Teens typically have poorer diets and higher metabolic demands for growth than adults, which results in lesser nutritional reserves[13]. The study's objective was to assess the outcomes for both the mother and the fetus in teenage term pregnancies.

MATERIALS AND METHODS

This descriptive cross-sectional study was carried out at the Lady Reading Hospital in Peshawar's B Unit in the department of obstetrics and gynecology. The time frame for this study was June 1st to December 1st 2021. The sample size was at least 246 in total. The WHO sample size calculation was used to determine it, with the following assumptions: a 95% confidence level, 5% relative precision, and a 20% frequency of fetamatemal result. To acquire samples, a suitable non-probability sampling technique was employed. Mothers older than 20 years old and patients with any other medical condition were excluded. Participants with primary gravida and gestational ages between 12 and 19 were included.

Following the patient's informed consent and approval from the Institutional Research Ethics Board, a standardized questionnaire based on many fetamaternal outcomes was completed. Adverse effects on mothers and fetuses were handled in accordance with departmental guidelines.

The statistical analysis software SPSS version 21.0 was used to analyze the data. Quantitative characteristics including as age, parity, gestational age, and BMI were provided as mean±SD. For categorical variables such as educational status, instrumental delivery, normal vaginal delivery, signs of a cesarean section, PPH, types of tears, low birth weight, low Apgar score, stillbirth, and NICU admissions, frequency and percentage were calculated. Age, parity, gestational age, and BMI were stratified in the results for the fetus. After stratification by the chi-square test, a P-value of less than 0.05 was considered significant.

RESULTS

Recruiting 246 patients in the 12-to 19-year-old age range resulted in a mean age of 17.4±1.2 years, mean parity of 0.00±0.0, mean gestational age of 34.5±2.2 weeks, and mean BMI of 24.4±1.2 kg/m2. With 47.2% and 38.6%, respectively, the highest primary educational and illiterate ratios were found among these patients who were recruited. The majority of cases (58.1%) had a normal vaginal delivery, whereas the remaining cases (17.1% and 25.6%) had instrumental or cesarean sections. Of the cases, there was malpresentation in 14.3%, cephalopelvic disproportion in 15.9%, obstructed labor in 33.3%, and fetal distress in 36.5% of cases. Admission rates to the neonatal intensive care unit were 10.6%, 11.8%, 3.3%, 19.9%, and

13.4%, respectively, for postpartum hemorrhage, low birth weight, stillbirth, and low apgar score (Table 1).

Table 1: Patients distribution according to Educational Status, Normal Vaginal Delivery, Instrumental delivery, Cesarean Section, Indication of Cesarean Section, Postpartum Hemorrhage, Low Birth Weight, Still Birth, Low Apgar Score, and Neonatal Intensive Care Unit Admission

Parameter	**Frequency & Percentage of Patients**	
Education Status	**Frequency N**	**Percentage %**
Uneducated	95	38.6
Primary	116	47.2
Secondary and higher	35	14.2
Total	246	100
Normal Vaginal Delivery		
Yes	143	58.1
No	103	41.9
Instrumental Delivery		
Yes	42	17.1
No	204	82.9
Cesarean Section		
Yes	63	25.6
No	183	74.4
Indication of Cesarean Section		
Fetal Distress	23	36.5
Malpresentation	9	14.3
Cephalopelvic Disproportion	10	15.9
Obstructed Labour	21	33.3
Postpartum Hemorrhage		
Yes	26	10.6
No	220	89.4
Tears		
Yes	38	15.4
No	208	84.6
Low Birth Weight		
Yes	29	11.8
No	217	88.2
Still Birth		
Yes	8	3.3
No	238	96.7
Low Apgar Score		
Yes	49	19.9
No	197	80.1
Neonatal Intensive Care Unit Admission		
Yes	33	13.4
No	213	86.6

Normal vaginal delivery was mostly observed in 16-19 years age with 56.5%. While gestational age was found greater than 36 weeks in 63.3% among normal vaginal delivery cases (Table 2).

Table 2: Stratification of Normal vaginal delivery according to Age, gestational age, parity, and BMI

Age (years)	**Normal Vaginal Delivery**		**p-value**
	Yes	**No**	
12-15	21 (70%)	9 (30%)	0.160
16-19	122 (56.5%)	94 (43.5%)	
Total	143 (58.1%)	103 (41.9%)	
Gestational age (weeks)			
28-36	124 (57.4%)	92 (42.6%)	0.538
>36	19 (63.3%)	11 (36.7%)	
Total	143 (58.1%)	103 (41.9%)	
Parity			
0	143 (58.1%)	103 (41.9%)	1.000
>0	0 (0%)	0 (0%)	
Total	143 (58.1%)	103 (41.9%)	
BMI(kg/m^2)			
≤25	64 (60.4%)	42 (39.6%)	0.534
>25	79 (56.4%)	61 (43.6%)	
Total	143 (58.1%)	103 (41.9%)	

Table 3: Stratification of Instrumental Delivery according to Age, gestational age, parity, and BMI

Age (years)	**Instrumental Delivery**		**p-value**
	Yes	**No**	
12-15	4 (13.3%)	26 (86.7%)	0.561
16-19	38 (17.6%)	178 (82.4%)	
Total	42 (17.1%)	204 (82.9%)	
Gestational age (weeks)	**Instrumental Delivery**		**p-value**
	Yes	**No**	
28-36	37 (17.1%)	179 (82.9%)	0.950
>36	5 (16.7%)	25 (83.3%)	
Total	42 (17.1%)	204 (82.9%)	
Parity	**Instrumental Delivery**		**p-value**
	Yes	**No**	
0	42 (17.1%)	204 (82.9%)	1.000
>0	0 (0%)	0 (0%)	

Total	42 (17.1%)	204 (82.9%)	
BMI (kg/m^2)	**Instrumental Delivery**		**p-value**
	Yes	**No**	
≤25	18 (17%)	88 (83%)	0.973
>25	24 (17.1%)	116 (82.9%)	
Total	42 (17.1%)	204 (82.9%)	

Table 4: Stratification of Cesarean Section according to Age, gestational age, parity, and BMI

Age (years)	**Cesarean Section**		**p-value**
	Yes	**No**	
12-15	5 (16.7%)	25 (83.3%)	0.231
16-19	58 (26.9%)	158 (73.1%)	
Total	63 (25.6%)	183 (74.4%)	
Gestational age (weeks)			
28-36	57 (26.4%)	159 (73.6%)	0.453
>36	6 (20%)	24 (80%)	
Total	63 (25.6%)	183 (74.4%)	
Parity			
0	63 (25.6%)	183 (74.4%)	1.000
>0	0 (0%)	0 (0%)	
Total	63 (25.6%)	183 (74.4%)	
BMI (kg/m^2)			
≤25	25 (23.6%)	81 (76.4%)	0.527
>25	38 (27.1%)	102 (72.9%)	
Total	63 (25.6%)	183 (74.4%)	

Table 5: Stratification of Postpartum Hemorrhage according to Age, gestational age, parity, and BMI

Age (years)	**Postpartum Hemorrhage**		**p-value**
	Yes	**No**	
12-15	3 (10%)	27 (90%)	0.914
16-19	23 (10.6%)	193 (89.4%)	
Total	26 (10.6%)	220 (89.4%)	
Gestational age (weeks)			
28-36	23 (10.6%)	193 (89.4%)	0.914
>36	3 (10%)	27 (90%)	
Total	26 (10.6%)	220 (89.4%)	
Parity			
0	23 (10.6%)	220 (89.4%)	1.000
>0	0 (0%)	0 (0%)	
Total	26 (10.6%)	220 (89.4%)	
BMI(kg/m^2)			
≤25	12 (11.3%)	94 (88.7%)	0.739
>25	14 (10%)	126 (90%)	
Total	26 (10.6%)	220 (89.4%)	

Table 6: Stratification of Tears according to Age, gestational age, parity, and BMI

Age (years)	**Tears**		**p-value**
	Yes	**No**	
12-15	6 (20%)	24 (80%)	0. 462
16-19	32 (14.8%)	184 (85.2%)	
Total	38 (15.4%)	208 (84.6%)	
Gestational age (weeks)			
28-36	31 (14.4%)	185 (85.6%)	0.202
>36	7 (23.3%)	23 (76.7%)	
Total	38 (15.4%)	208 (84.6%)	
Parity			
0	38 (15.4%)	208 (84.6%)	1.000
>0	0 (0%)	0 (0%)	
Total	38 (15.4%)	208 (84.6%)	
BMI (kg/m^2)			
≤25	14 (13.2%)	92 (86.8%)	0. 398
>25	24 (17.1%)	116 (82.9%)	
Total	38 (15.4%)	208 (84.6%)	

Table 7: Stratification of Low Birth Weight according to Age, gestational age, parity, and BMI

Age (years)	**Low Birth Weight**		**p-value**
	Yes	**No**	

12-15	2 (6.7%)	28 (93.3%)	0.353
16-19	27 (12.5%)	189 (87.5%)	
Total	29 (11.8%)	217 (88.2%)	
Gestational age (weeks)			
28-36	25 (11.6%)	191 (88.4%)	0.779
>36	4 (13.3%)	26 (86.7%)	
Total	29 (11.8%)	217 (88.2%)	
Parity			
0	29 (11.8%)	217 (88.2%)	1.000
>0	0 (0%)	0 (0%)	
Total	29 (11.8%)	217 (88.2%)	
BMI (kg/m^2)			
≤25	11 (10.4%)	95 (89.6%)	0.550
>25	18 (12.9%)	122 (87.1%)	
Total	29 (11.8%)	217 (88.2%)	

Table 8: Stratification of Still Birth according to Age, gestational age, parity, and BMI

Age (years)	Still Birth		p-value
	Yes	No	
12-15	2 (6.7%)	28 (93.3%)	0.260
16-19	6 (2.8%)	210 (97.2%)	
Total	8 (3.3%)	238 (96.7%)	
Gestational age (weeks)			
28-36	8 (3.7%)	208 (96.3%)	0.284
>36	0 (0%)	30 (100%)	
Total	8 (3.3%)	238 (96.7%)	
Parity			
0	8 (3.3%)	238 (96.7%)	1.000
>0	0 (0%)	0 (0%)	
Total	8 (3.3%)	238 (96.7%)	
BMI (kg/m^2)			
≤25	2 (1.9%)	104 (98.1%)	0.294
>25	6 (4.3%)	134 (95.7%)	
Total	8 (3.3%)	238 (96.7%)	

Table 9: Stratification of Low Apgar Score according to Age, gestational age, parity, and BMI

Age (years)	Low Apgar Score		p-value
	Yes	No	
12-15	6 (20%)	24 (80%)	0.991
16-19	43 (19.9%)	173 (80.1%)	
Total	49 (19.9%)	197 (80.1%)	
Gestational age (weeks)			
28-36	44 (20.4%)	172 (79.6%)	0.634
>36	5 (16.7%)	25 (83.3%)	
Total	49 (19.9%)	197 (80.1%)	
Parity			
0	49 (19.9%)	197 (80.1%)	1.000
>0	0 (0%)	0 (0%)	
Total	49 (19.9%)	197 (80.1%)	
BMI (kg/m^2)			
≤25	19 (17.9%)	87 (82.1%)	0.496
>25	30 (21.4%)	110 (78.6%)	
Total	49 (19.9%)	197 (80.1%)	

Table 10: Stratification of Neonatal Intensive Care Unit Admission according to Age, gestational age, parity, and BMI

Age (years)	NICU Admission		p-value
	Yes	No	
12-15	5 (16.7%)	25 (83.3%)	0.577
16-19	28 (13%)	188 (87%)	
Total	33 (13.4%)	213 (86.6%)	
Gestational age (weeks)			
28-36	29 (13.4%)	187 (86.6%)	0.989
>36	4 (13.3%)	26 (86.7%)	
Total	33 (13.4%)	213 (86.6%)	
Parity			
0	33 (13.4%)	213 (86.6%)	1.000
>0	0 (0%)	0 (0%)	

Total	33 (13.4%)	213 (86.6%)	
BMI (kg/m^2)			
≤25	11 (10.4%)	95 (89.6%)	0.224
>25	22 (15.7%)	118 (84.3%)	
Total	33 (13.4%)	213 (86.6%)	

DISCUSSION

In Pakistan, teenage pregnancies resulting from consanguineous and young marriages are not uncommon. Teenage pregnant girls have different needs in terms of reproduction. Adolescent girls in developing nations often die as a result of pregnancy and childbirth complications in their teenage pregnancies[14]. Because 70,000 girls perish every year from becoming pregnant before reaching a suitable age for their physical development, teenage pregnancies and deliveries are considered high risk pregnancies[15]. In adolescent pregnant girls, enhanced myometrial function, higher suppleness of connective tissue, and decreased cervical compliance are all supportive of improved spontaneous vaginal birth. Our study's mode of delivery, which found that 25.6% of women had cesarean sections and 58.1% of women delivered vaginally, demonstrated that teenage moms had a significantly higher incidence of spontaneous vaginal delivery. Our findings are consistent with a study that found 25% of women had cesarean sections and 71% of women delivered vaginally[16]. In a different study, 92% of teenage women gave birth vaginally[17]. In a related study from Indonesia, 40.3% of adolescent women had a cesarean section[18]. According to an Iranian study, 17.5% of newborns were delivered by caesarean section and 82.5% of teenage moms gave birth to their children through this method[19]. Comparable to a research where the mean age of the teenage subjects was 17.3±1.5 years, the mean age of the female participants in our study was 17.4±1.2[20]. In another research, the average age of adolescent mothers was 17.8 years old[17]. Similar to a local study that found fetal distress and obstructed labor to be the primary indications of caesarean sections, our study found that fetal distress and obstructed labor were the most common causes of cesarean sections, at 36.5% and 33.3%, respectively[21]. On the other hand, a different international study found that 25.3% of C/Sections were caused by non-progression of labor[18].

Teenage pregnancy carries a number of health hazards. Teenagers who are pregnant and receive inadequate prenatal care typically experience worsening anemia during labor and the postpartum period. Severe anemia can cause premature delivery, low birth weight and related issues, sepsis, postpartum hemorrhage, higher risk of morbidity in children, and lower productivity in adults at work, in addition to compromising physical and cognitive development[22]. In our study, 35.89% of teenage females who were pregnant also had anemia, which is comparable to another study where 46% of teenage girls were anemic[20]. In another research, 67% of adolescent moms reported to be anemic; this high percentage might be attributed to the high number of immigrant women from tribal regions[23]. A Rawalpindi research also found that anemia affected 58% of teenage pregnant mothers[24].

PPH was found in 10.6% of patients in the current study, tears in 15.4%, low birth weight in 11.8%, stillbirth in 3.3%, low Apgar score in 19.9%, and NICU admission in 13.4% of cases. A study found that among mothers under the age of 20, the rate of stillbirth in the first week of a newborn's life was 50% higher[25]. According to an Indian study, teenage deliveries had a lower 1-minute Apgar score (<7) than adult deliveries. Low Apgar score 8 is associated with the following factors: gestational age, duration of the second stage of labor, use of forceps delivery or vacuum extraction, and body mass index during the week prior to delivery[26].

A study conducted in India between the ages of 18 and 19 found that 29.6% of teenage pregnancies occurred there. Teenage female illiteracy was 17%[27]. In terms of delivery mode, 37.3% of babies are delivered vaginally. 3.6% and 15.3%, respectively, were caesarean sections. Fetal distress (4%), obstructed labor (4.6%), and cephalopelvic disproportion (21.3%) were the reasons for a caesarean section. According to the perinatal outcome, low birth weight (20%), NICU admissions (42%), and alive and well (84%)[28]. A study conducted in Peshawar, Pakistan, found that 51% of 18–19-year-olds were pregnant when they were teenagers. In terms of delivery method, instrumental delivery accounts for 6%. Section by Caesarean (7.5%). Stillbirth (9%), low birth weight (54%), and other fetal

complications[1]. Even though the risk of an unfavorable fetal outcome is extremely low in developed nations, it is higher for children born to teenage moms than for those born to mothers in their twenties. Our fetal outcome study found that the incidence of stillbirth was 3.3% and the percentage of low birth weight births was 11.8%. These findings are comparable to a local study that found that 20.04% of newborns to teenage women had low birth weights[29]. A different study revealed that 24% of adolescent mothers gave birth to low-birth-weight babies; this high rate could be attributed to the study's selection criteria, which limited the sample to anemic teenage mothers[30].

CONCLUSION

This study discovered that while PPH and tears are the issues teenage pregnant women face, low birth weight, stillbirth, low Apgar scores, and NICU admission are major problems for the babies of teenage mothers. Teenage girls getting pregnant is a serious public health issue. Even though teenage girls can receive modern medical care to manage their obstetrical problems, there are still risks associated with teenage pregnancy. These risks can be reduced with appropriate prenatal care, institutional delivery, and postnatal care.

AUTHORS CONTRIBUTION

MP & SK conceived, designed and did statistical analysis & editing of manuscript, is responsible for integrity of research.

MP & SK did data collection, manuscript writing, review and final approval of manuscript.

GRANT SUPPORT & FINANCIAL DISCLOSURES

None

ETHICS APPROVAL: The ERC gave ethical review approval.

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin.

ACKNOWLEDGEMENTS: We are thankful to all who were involved in our study.

REFERENCES

1. Farhana Jabeen Shah SI, Syeda Anmol Saba Shah, Rehman Sher, Muhamamd Masaud, Muhammad Arif Khan. Factors and Consequences Leading to Teenage Pregnancy in Women Visiting Tertiary Care Hospital of Peshawar. Pakistan Journal of Medical and Health Sciences.14(1):331-4
2. Eldessouki KHM, Quodi MAE, Mahmoud S, Hassane A. Assessment of The Impact of Teenage Pregnancy on Pregnancy Outcome among Pregnant Women in Minia University Hospitals, Minia Governorate. Egypt J Community Med. 2020;38(2):87-95
3. Kumar S. A Clinical Study of Primary Cesarean Section in Multiparous Women. ProQuest Dissertations Publishing: Rajiv Gandhi University of Health Sciences (India); 2019.
4. Ayenew AA. Incidence, causes, and maternofetal outcomes of obstructed labor in Ethiopia: systematic review and meta-analysis. Reproductive health. 2021;18:1-14
5. Bayo P, Belaid L, Tahir EO, Ochola E, Dimiti A, Greco D, et al. "Midwives do not appreciate pregnant women who come to the maternity with torn and dirty clothing": institutional delivery and postnatal care in Torit County, South Sudan: a mixed method study. BMC Pregnancy and Childbirth. 2020;20:1-14
6. Mansouri HA. Perinatal factors and neonatal outcome of very low birth weight and extremely premature babies at KAUH. Bahrain Medical Bulletin. 2001;23(2):1-10
7. Shah FJ, Fareed A, Zakori WU, Ullah I, Khan H. Frequency and outcome of adolescent pregnancy in population of Peshawar. Pakistan Postgraduate Medical Journal. 2018;29(1):8-12
8. Kabir MR, Ghosh S, Shawly A. Causes of early marriage and its effect on reproductive health of young mothers in Bangladesh. American Journal of Applied Sciences. 2019;16(9):289-97
9. Rexhepi M, Besimi F, Rufati N, Alili A, Bajrami S, Ismaili H. Hospital-based study of maternal, perinatal and neonatal outcomes in adolescent pregnancy compared to adult women pregnancy. Open access Macedonian journal of medical sciences. 2019;7(5):760
10. Maheshwari MV, Khalid N, Patel PD, Alghareeb R, Hussain A. Maternal and neonatal outcomes of adolescent pregnancy: a narrative review. Cureus. 2022;14(6)
11. Pinto F, Fernandes E, Virella D, Abrantes A, Neto MT. Born preterm: a public health issue. Portuguese Journal of Public Health. 2019;37(1):38-49
12. Aji AS, Lipoeto NI, Yusrawati Y, Malik SG, Kusmayanti NA, Susanto I, et al. Association between pre-pregnancy body

mass index and gestational weight gain on pregnancy outcomes: a cohort study in Indonesian pregnant women. BMC pregnancy and childbirth. 2022;22(1):492
13. Marshall NE, Abrams B, Barbour LA, Catalano P, Christian P, Friedman JE, et al. The importance of nutrition in pregnancy and lactation: lifelong consequences. American journal of obstetrics and gynecology. 2022;226(5):607-32
14. Iqbal S, Zakar R, Fischer F, Zakar MZ. Consanguineous marriages and their association with women's reproductive health and fertility behavior in Pakistan: Secondary data analysis from Demographic and Health Surveys, 1990–2018. BMC Women's Health. 2022;22(1):118
15. Saleh MA. Outcomes of Teenage Pregnancy at Benghazi Medical Center 2019-2020. International Journal of Science Academic Research. 2022;3(3):358-3602
16. Flamm BL, Newman LA, Thomas SJ, Fallon D, Yoshida MM. Vaginal birth after cesarean delivery: results of a 5-year multicenter collaborative study. Obstetrical & Gynecological Survey. 1991;46(6):360-1
17. Ishtiaq S, Malik U, Bugio QUA, Gajani S. Contraception knowledge and pregnancy outcomes in adolescent Pakistani mothers. Pakistan Journal Of Surgery. 2016;32(4):278-82
18. Kayika IPG, Utama TK. Increased Rate of Cesarean Section among Teenage Mothers Attending a Tertiary Teaching Hospital in Indonesia. Indonesian Journal of Obstetrics and Gynecology. 2017:131-4
19. Jamali S, Javadpour S, RakeshJahromi A, Haghbeen M. Teenage Versus Adult Pregnancy: Maternal and Neonatal Outcomes. Journal of Fundamental and Applied Sciences. 2017;9(2):1170-82
20. Naz U. Comparison of obstetric outcome in terms of the risk of low birth weight, preterm delivery, cesarean section rate and anemia in primigravid adolescents and older primigravida. J Coll Physicians Surg Pak. 2014;24(2):131-4
21. Shaikh F, Abbas S, Sultana F, Yousfani S, Hasan T. Adverse outcome of a teenage pregnancy. J Liaquat Uni Med Health Sci. 2016;15(04):179-82
22. Kumari S, Garg N, Kumar A, Guru PKI, Ansari S, Anwar S, et al. Maternal and severe anaemia in delivering women is associated with risk of preterm and low birth weight: A cross sectional study from Jharkhand, India. One Health. 2019;8:100098
23. Naseem Saba, Hamayun M, Bilal M. Out Come Of Teen Age Pregnancy. Biomedica. 2013;29(1):27-31
24. Sarwar A, Iftikhar T. Comparative study of obstetrical outcomes of teenager and older primigravida. Annals of PIMS. 2016;1815:2287
25. Stanton C, Lawn JE, Rahman H, Wilczynska-Ketende K, Hill K. Stillbirth rates: delivering estimates in 190 countries. The Lancet. 2006;367(9521):1487-94
26. Verma K, Baniya GC. A comparative study of sociodemographic profile and fetal outcome in teenage and adult mother. Indian Journal of Obstetrics and Gynecology Research. 2017;4(1):39-44
27. Gautam L, Gupta A, Khadka R, Pant GP. A study to assess contributing factors of teenage pregnancy in Sunsari district of Nepal. Indian Journal of Youth and Adolescent Health (E-ISSN: 2349-2880). 2020;7(2):5-11
28. Thobbi VA, Dandavate V, Bijjaragi B, Askar N. An analytic study on maternal and fetal complications as the pregnancy outcome in teenage pregnancy. Al Ameen Journal of Medical Sciences. 2017;10(1):39-43
29. Tanveer Q, Fatima A. Adolescent pregnancy: A comparative study from the teaching hospital of Lahore, Pakistan. The Professional Medical Journal. 2016;23(06):727-30
30. Jusoh N, Ismail TAT, Daud A. Anemia Among Teenage Pregnancy In Northwestern Malaysia: What Are The Factors? International Journal of Collaborative Research on Internal Medicine & Public Health. 2015;7(12):196