

## Teenage pregnancy risk factors and complications in Karbala province

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### Abstracts

The period of transition between childhood to adult hood is called adolescent. The WHO defined the age of this period between (15-19 ) y. Female when become pregnant during this period called teenage or adolescent pregnancy. Adolescent birth rate is one of health indicators for family and community health, in addition to other indicators such as maternal mortality and antenatal care coverage, these indicators monitor of health of population.

Adolescent pregnancy is public phenomenon worldwide. More prevalent in sub-Saharan African countries and low in south Korea. Ninety percent of children that born to women less than 20 years are lived in developing countries.

### Patients and methods

A case control study was included 141 mothers visiting Al Askan primary health care center in Kerbala city for postnatal care and for baby's vaccination followed the delivery, in period from 1<sup>st</sup> February 2018 to 30<sup>th</sup> September 2018. The women ages were enrolled in study range from (15- 35 ) y. Participants divided into groups cases represented mother experience pregnancy below age of 20 years and control group included mother experience pregnancy over age of 20 years.

**Result :** Sixty-one women were represented the number of cases in study with mean age  $18.4 \pm 1.3$  and eighty women were represented control group with age  $29.1 \pm 4.8$ . Anemia was more frequent complication presented in adolescent group in 86.8% while in adult pregnant women 51.2% this difference was highly significant p-value close to 0.001.

**Conclusion :** The study concludes the pregnancy during adolescent period has significantly higher rate of adverse outcome mostly on mother life that lead to more medical complication.

**Kew word:** pregnancy, teenage, anemia.

الحمل في فترة المراهقة عوامل الخطورة والمضاعفات

الخلاصة

المقدمة : ان الفترة بين الطفولة والبلوغ تعرف بالمرهقة وحسب تعريف منظمه الصحة العالمية فهي تشمل الاعمار بين (15-19) سنه , وان حدوث الحمل في هذه الفترة عند النساء يسمى بالحمل في فترة المراهقة ونسبه

هذا الحمل تعتبر مؤشر لكثير من الامور مثل صحة الأسرة والمجتمع , معدل الوفيات للأمهات , والرعاية الأولية للحامل . ان الحمل في سن المراهقة يمثل ظاهرة عالمية عامة , وهي اكثر انتشارا في بلدان شبه الصحراء الافريقية و اقل انتشار في كوريا الجنوبية . 90% من الاطفال الذين يولدون لأمهات اعمارهن اقل من 20 سنة يعيشون في البلدان النامية .

طرية العمل : تم اخذ عينة من النساء شملت 141 مراجعة الى م ص الرعاية الاولى في الاسكان في محافظة كربلاء من اللواتي حضرن للرعاية لغرض زيارة ما بعد الولادة وللحاق الطفل حديث الولادة , وكانت مدة الدراسة من الاول من شباط ( 2018 ) ولغاية الثلاثين من شهر ايلول ( 2018 ) . النساء المشمولات الدراسة كانت اعمارهم تتراوح بين ( 15 – 35 ) سنة . تم تقسيم المشاركات الى مجموعتين الاولى ممن كانت اعمارهم اقل من 20 سنة اثناء الحمل والثانية تشمل اللواتي اعمارهن اكثر من 20 سنة في فترة الحمل .

النتائج : كانت النتائج 61 مشاركة اعمارهن اقل من 20 سنة و 80 مشاركة اعمارهن اكثر من 20 سنة . كانت نسبته مضاعفات الحمل اكثر عند النساء ذوات الاعمار الاقل من 20 سنة فمثلا مرض فقر الدم كان من المضاعفات المتكررة عند الاعمار اقل من 20 سنة حيث كان بمعدل 86,8% بينما كان بمعدل 51,2% عند الاعمار الاكثر من 20 سنة الفرق بين المجموعتين واضح ويعتبر ذا قيمة علمية .

الاستنتاج : تم الاستنتاج من هذه الدراسة بان مضاعفات الحمل تزداد اكثر بنسبه ذات قيمه عند الحوامل في عمر المراهقة مقارنة بالحوامل في عمر البلوغ .

## Introduction

The period of transition between childhood to adult hood is called adolescent. The WHO defined the age of this period between (15-19) y. Female when become pregnant during this period called teenage or adolescent pregnancy. Adolescent birth rate is one of health indicators for family and community health, in addition to other indicators such as maternal mortality and antenatal care coverage, these indicators monitor of health of population<sup>(1)</sup>. Adolescent pregnancy is public phenomenon worldwide. More prevalent in sub-Saharan African countries and low in south Korea. Ninety percent of children that born to women less than 20 years are lived in developing countries<sup>(2)</sup>. Rate of teenage pregnancy in USA was 67.8 pregnancy per 1000 women age 15-19 years in 2008 which is a highest of developed countries, in 2010 the rate drop to become 34.4 births per 1000 women aged 15-19 years<sup>(3)</sup>. In south Asian countries the rate may reach to 30 %, in India which is the highest one in Asia the rate 60 pregnant teenage per 1000 women the rate decrease in industrialized Asian nation such as Singapore countries<sup>(4)</sup>.

In Arab countries have dominate teenage marriage and with family planning immediate become pregnant. And reported in Egypt and other countries of north Africa about 65 per 1000 pregnant women<sup>(5)</sup>. Teenage pregnancy faces many types of complications during pregnancy and child birth, these might be attribute to her own body maturation and emotional development which occur in pubertal period<sup>(2)</sup>. Bad obstetric result relates to in complete maturation of genital tract and musculoskeletal system of teenage female, which worse with low age of female. Many studies reported abortion, preterm delivery, low birth weight and anemia in adolescent pregnant women in compared to older women age more 20 years when become pregnant<sup>(6)</sup>. More complication in this age group may lead to death among adolescent pregnant in rate double than adult women. In addition to produce psychological upset in teenage female after pregnancy

specially when unwanted pregnancy, these effect directly on family life and social relation<sup>(5)</sup>. Importantly to avoid these adverse effects of pregnancy in adolescent by strictly identification of risk factors that predispose to these complications and build up a plan to preventive measure embed in health system of country<sup>(1)</sup>. However, the double burden of pregnancy and growth in teenage female superimpose more risk factors on health of female. Bad nutrition habit or some poor nutrition with early child bearing might be expose women to many serious health problems that prevalent in others women during pregnancy, first of all anemia which consider highly frequent during adolescent pregnancy<sup>(7)</sup>. Anemia during pregnancy have risky obstetric concern because this condition might be related numerous complications for example low birth weight, prematurity, preterm delivery, stillbirth and neonatal mortality<sup>(8)</sup>.

Another maternal complication such as preeclampsia, perineal tear and episiotomy are again commonly presented among adolescent. In addition to caesarean section, antepartum heamorrhage and post term labour<sup>(9)</sup>. Multiple factors attributed to pre term labor including infection of genital tracts, extragenital chronic infection, stress and life style factors all these might be determinants in teenage pregnancy than older women pregnancy<sup>(10)</sup>. Moreover, anatomical criteria of cervix with short in adolescent also would cause preterm delivery, evidence from numerous study favor immaturity and delay physiological developmental in teenage are more likely for obstetric complications<sup>(11)</sup>.

Some studies show caesarean section rate increase in adolescent pregnancy in compared to older women pregnancy due to prolong and obstructed labour, while others studies found the rate not different among two groups of women<sup>(12)</sup>. Additionally, children born for adolescent female are more likely to have poor educational, behavioral and health outcomes than children born to adult parents<sup>(1)</sup>. Integrated and comprehension prenatal care from pregnancy to delivery and child care are good suggestion to decrease risk of complication experience by teenage women during pregnancy<sup>(13)</sup>. Close antenatal care advice on health nutrition, correction of anemia, early detection of preeclampsia and good intra natal and postnatal care all important. With preferable delivery must be in hospital that have good resources <sup>(6)</sup>. Corner stone in intervention to decrease risk factors is health education to empower the girls to increase self-confidence and prepare female to delay marriage, and introduce of effective family planning methods to delay first pregnancy or elongated the space between pregnancies<sup>(9)</sup>.

The teenage mother's husband and father of her child should be involved in adolescent pregnancy and child-care plans with access to teaching and vocational training, child-care skills classes, and contraceptive education. We would assist as resources for pregnant adolescents and their babies, the teenager's family<sup>(13)</sup>.

**Aim of study :** Identification of adverse events that happened in teenage pregnancy.

**Patients and methods**

A case control study was included 141 mothers visiting Al Askan primary health care center in Kerbala city for postnatal care and for baby's vaccination followed the delivery, in period from 1<sup>st</sup> February 2018 to 30<sup>th</sup> September 2018. The women ages were enrolled in study range from 15- 35 years. Participants divided into groups cases represented mother experience pregnancy below age of 20 years and control group included mother experience pregnancy over age of 20 years. From two groups, a detail information about sociodemographic and obstetric history in guidance of prepared questionnaire. Also, data extracted from patients file which store in health center. The questionnaire was used for data gathering comprised of three parts: -

- 1- Demographic information: age, education level, occupation, residency
- 2- History about health of mothers during pregnancy: Anemia, pregnancy induced hypertension, gestational diabetes, urinary tracts infections, antepartum hemorrhage, preterm labor and premature rupture of membrane, in addition antenatal history during pregnancy.
- 3- Neonatal health: weight, admitted to newborn unite and congenital anomaly.

Inclusion women only with singleton previous pregnancy and without any medical condition before pregnancy such as hypertension, diabetes, thyroid disease and heart diseases. Education level subdivided into three group according to graduated school read and write, primary school and secondary school and above. Antenatal care classified according to regularity of mother in visited to private care, hospital and primary health care centers. Regarding the ethical issues, oral consent from participants were consider and brief explanation about purpose of study and benefits, furthermore any question raise by women should had clear responded. In addition to official permission from health directorate.

### Statistical analysis:

Data was collected and included in a data-based system and analyzed by statistical package of social sciences (SPSS, Inc., Chicago, IL, USA) version 20.

Discrete variables presented as number and percentage, were analyzed using chi square. Continuous variable presented as mean and standard deviation. Significance was set at the  $P \leq 0.05$  level in all analyses.

**Result :** Sixty-one women were represented the number of cases in study with mean age  $18.4 \pm 1.3$  and eighty women were represented control group with age  $29.1 \pm 4.8$ . in table one show demographic character of study sample, regarding educational level 24.7% read and write, 36.7% of women were graduated from primary school and 38.6% had secondary school graduation. In addition, 61% of them were house wife and 39% were still student or employed. Moreover, 12.8% of women lived in rural area in compared to 87.2% were lived in urban area.

Table 1: demographic characters

		No.	Percent
	Case	61	43.2%
	Control	80	56.8%

Education	Read and write	35	24.7%
	primary	52	36.7%
	Secondary and above	54	38.6%
Occupation	House wife	86	61%
	Student or employed	55	39%
Residence	Urban	123	87.2%
	Rural	18	12.8%

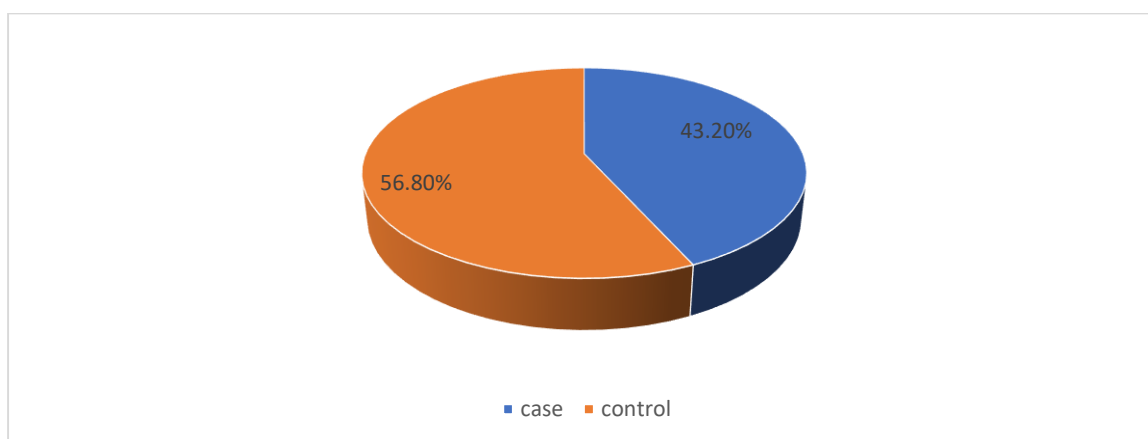


Figure 1: distribution of samples.

There were no statistical association between demographic characters and two groups of women, 49.2% of women in teenage pregnancy and 27.5% from adult pregnant women were graduated from primary school, 32.7% in adolescent group and 18.7% in older mother were not obtain any educational degree or they left school in early age.

On other hand 90% of older women were lived in urban area in contrast to teenage women which are 83.6% lived in urban area, as shown in table 2.

Table 2: show the difference between case and control about demographic characters.

		Case (61)		Control (80)		Total	p-value
		No.	%	No.	%		
Education	Read and write	20	32.7%	15	18.7%	35	0.8

	primary	30	49.2%	22	27.5%	52	
	Secondary and above	11	18.1%	43	53.8%	54	
Occupation	House wife	42	68.8%	44	55%	86	0.1
	Student or employed	19	31.2%	36	45%	55	
Residence	Urban	51	83.6%	72	90%	123	0.3
	Rural	10	16.4%	8	10%	18	

Anemia was more frequent complication presented in adolescent group in 86.8% while in adult pregnant women 51.2% this difference was highly significant p-value close to 0.001. other complication, preeclampsia presented in teenage about 14.7% and in control group show 2.5% also this difference statistically considerable. Urinary tracts infection, 81.9% presented in adolescent group and 67.5% in older women but not statistically significant. These complication and others are show in table 3.

Table 3: complications of pregnancy according to case and control

		Cases		Controls		p-value
		No.	%	No.	%	
Anemia	<11	53	86.8%	41	51.2%	0.001
Antenatal visit	1-2 visit	29	47.5%	35	43.8%	0.7
	≥ 3 visits	32	52.4%	45	56.2%	
PET		9	14.7%	2	2.5%	0.01
Eclampsia		3	4.9%	1	1.2%	0.4
Gestational diabetes		2	3.2%	4	5%	0.9
UTI		50	81.9%	54	67.5%	0.08
Term	full term	43	70.5%	32	40%	0.5
	preterm	15	24.5%	17	21.2%	
	Post term	3	5%	31	38.8%	
APH		4	6.5%	7	8.7%	0.8
Oligohydramnios		13	21.3%	10	12.5%	0.2
Polyhydramnios		5	8.1%	8	10%	0.9

In table four , 67.2% of adolescent pregnant delivered by normal vaginal labour, meanwhile in adult group there were 63.8% normal delivery. In regard to cesarean section presented in adult control group more than the adolescent 36.2% and 32.8% respectively.

Table 4: distribution of mode of delivery.

Mode of delivery	Cases		Control		p-value
	No.	%	No.	%	
Normal	41	67.2%	51	63.8%	0.8
Cesarean section	20	32.8%	29	36.2%	
Total	61		80		

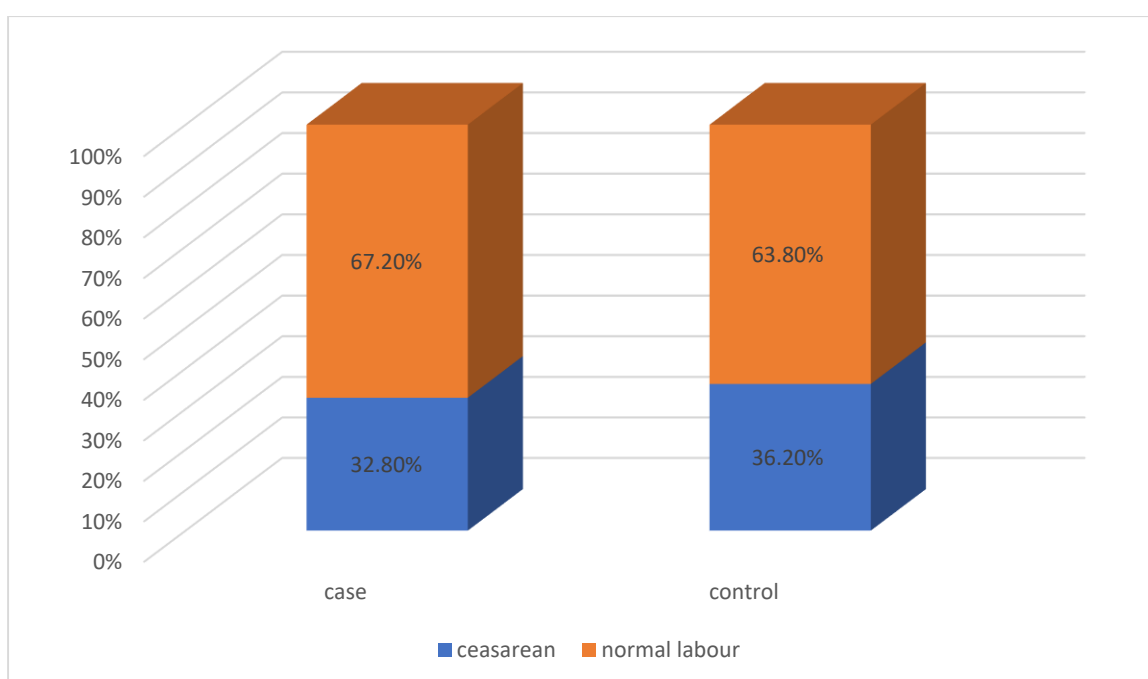


Figure 2: mode of delivery distribution.

Regarding the results of babies of mothers, 36% of adolescent mother born babies weight of them less than 2.5 kg while 18.7% of adult mothers born low weight babies this difference was statistically significant. Forty-five-point nine percent of newborn for teenage group admitted to neonatal unite in contrast to 23.7% of babies of adult mother admitted to same unite, as shown in table 5.

Table 5: babies variables according to study groups.

Baby	Cases		Controls		p-value
	No.	%	No.	%	
Weight	22	36%	15	18.7%	0.03

< 2.5 kg					
Neonatal unite admission	28	45.9%	19	23.7%	0.009
Congenital anomaly	2	3.2%	3	3.7%	0.7

## Discussion

Numerous studies stated that pregnancy during adolescent age give rise to many complications, which effected baby and women in same time and may be end with death. Most of these complications are preventable<sup>(11)</sup>. The results from systemic review study showed the adolescent female experience many types of adverse outcome during pregnancy and delivery<sup>(14)</sup>. On other hand data suggested from WHO report stated death and stillbirth in first week are fifty percent more in adolescent pregnant than among babies of women in age 20-29 years old<sup>(15)</sup>. Cunningham study reported that teenage pregnant women are more susceptible to suffer from adverse medical and obstetric complication than adult women, such as anemia, infection, hypertensive during pregnancy<sup>(16)</sup>. The result of our study reveals the higher prevalence of anemia among adolescent group rather than control group, which recorded 86.8% in comparison to adult group 51.2%, this result consistent to many studies that reported highest percentage of anemia<sup>(17)</sup>. The study by Anwar N. Al-Bassam supported the evidence of teenage pregnant had higher incidence of anemia during their pregnancy he reported 88% of adolescent pregnant women had anemia<sup>(18)</sup>. Najim and coworker done study in Bagdad agree with our result they reported anemia was 73% in early adolescent and 60% in late adolescent whilst in adult pregnant only 27%<sup>(19)</sup>. Another study by Al samaria conveyed 54% of pregnant women in teenage had anemia, another study in samara reported 17.4% of adolescent had anemia during their pregnancy<sup>(20)</sup>. The study done in Babylon city reported 29% of case had anemia and 16% in control group with same design to our study<sup>(21)</sup>. The higher risk of anemia in adolescent come from increase requirement of iron during this age of female growth, inadequate nutritional supply of iron give rise to negative balance and end with anemia in pregnancy<sup>(14)</sup>. Other main reasons may be attributed to malnutrition, intestinal infestations, reduced intake of nutrients and inherited factors, secondary disease, poverty, poor hygiene, medication, Lack of iron usually is also due to heavy blood loss as a result of menstruation, or parasite infections such as hookworms, ascaris, and schistosomiasis. All these condition lowers blood haemoglobin (Hb) concentrations and hence causes anemia<sup>(10)</sup>. Effective supplementation covers the course of the pregnancy (folic acid in first trimester, iron+ folic acid in second and third trimesters)<sup>(9)</sup>.

This prompts the need to encourage early visits to antenatal services by pregnant women in order to realize the full benefit of antenatal interventions, and ultimately



reduce maternal mortality and other undesirable birth outcomes<sup>(7)</sup>. One study disagrees with our result that reported adult pregnant women experience more anemia prevalence than adolescent female, 8.2% and 7.9% respectively<sup>(22)</sup>. Other result reveal 81.9% of adolescent women had urinary tracts infection during pregnancy while in adult pregnant women 67.5%. these because adolescent mother less likely try to keep care about health and hygiene<sup>(19)</sup>. Also study by Mahomood<sup>(23)</sup> in Baghdad reported 9.2% of adolescent pregnant women had urinary tracts infection while Alsamarai stated 22% in same age group<sup>(21)</sup>. Urinary tract infection might be because hormonal, physiologic and mechanical changes increase the risk of urinary stasis, vesico-ureteral reflux and urine alkalinity all of which ease bacterial growth. Many studies have reported significantly advanced rates of adverse maternal and perinatal outcomes as a result of UTI in pregnancy<sup>(21)</sup>. Preeclampsia also significant difference between two study group in case group 14.7% and in control group just 2.5%. in consistent to study by Anwar N. Al-Bassam he recorded 11% of teenage pregnant and adult women 3.3% had experience preeclampsia<sup>(18)</sup>. In present study reported 24.5% of adolescent pregnant end with preterm labour which is more prevalent than control group 21.2%, in accordance to study by Anwar S. Qasim that stated that preterm occur frequently in younger women than older pregnant<sup>(17)</sup>. Support evidence come from study that reported 19.7% in case group and 3.2% in control group<sup>(23)</sup>, with agreement with other study done in Baghdad show 15.5% in adolescent group and in adult pregnant women was 4.3%<sup>(19)</sup>. In addition, study in Babylon stated 11.9% of adolescent pregnancy lead to preterm deliveries in compared to 6% older pregnant women<sup>(21)</sup>. Preterm labour may be due to immaturity of the reproductive organ of teenage female, poor nutrition, in sufficient antenatal care, urinary tracts infection and anemia<sup>(24)</sup>. Our study reported 32.8% of case group deliver by caesarian section in compared to control group 36.2%, the teenage had low rate of caesarian section, in consistent to Mahomood study which is show 39% in adolescent and 59% in adult pregnant<sup>(23)</sup>. This result in consist with others study done in Italy which reported that (66.6%) of teenage pregnant women had a normal vaginal delivery as compared to (46.7%) of control group<sup>(7)</sup>. Other study in Pakistan showed 18% of adolescent pregnant delivery by caesarian section and 13% from adult pregnant delivered by caesarian section<sup>(25)</sup>. In addition, many studies conclude the teenage women with sufficient antenatal care and social support reveal no increase in risk of adverse out come during pregnancy and might be low rate of caesarian section<sup>(26)</sup>.

## Conclusions and Recommendation

The study concludes the pregnancy during adolescent period has significantly higher rate of adverse outcome mostly on mother life that lead to more medical complication and effect on family and social role of mother. In turn this effect may be reverse on community. Discover this problem need strong action to prevent or decrease complication by education, nutritional support and family planning and counselling. Alongside with good health education target family girls in school to explain importance of delay marriage.

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