

Effect of Maternal Age on the Mother and Neonatal health in Baghdad Maternity Hospitals

تأثير عمر الأمومة على صحة الأم و الوليد (الحديث الولادة) في مستشفيات بغداد للولادة

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المستخلص:

الهدف: لمقارنة صحة الأم والوليد بين المجاميع العمرية، لإيجاد العلاقة بين المجاميع العمرية وصحة الأم والوليد.
المنهجية: دراسة وصفية أجريت في صالات الولادة لثلاث مستشفيات تعليمية في مدينة بغداد من ٢٨ شباط الى ٢٨ أيار في عام ٢٠١٣. اختيرت عينة غير احتمالية (غرضية) من ٣٠٠ امرأة ماخضة من صالات الولادة تم تصنيفهم حسب العمر إلى ثلاث مجاميع عمرية المجموعة ١ (١٩ ≤) سنة، المجموعة ٢ (٢٠-٣٥) سنة والمجموعة ٣ (≥٣٥) سنة. جمعت المعلومات من خلال استخدام استبانة ومقابلة المرضى، تكونت الاستبانة من ٣ أجزاء (١) المعلومات الديموغرافية (٢) المضاعفات الصحية خلال الحمل (٣) الحالة الصحية لحديث الولادة، حددت مصداقية استبانة الاستبانة خلال مجموعة من الخبراء وتم تحديد الثباتية من خلال الدراسة الإستطلاعية. استخدمت إجراءات التحليل الوصفي (التكرارات، النسبة المئوية) وإجراءات التحليل الاستنتاجي (معامل الارتباط و اختبار مربع كاي) في تحليل البيانات.
النتائج: أظهرت النتائج أن النسبة الأعلى لكل مجاميع الدراسة كانت من خريجات الدراسة الابتدائية وكن ربات بيت من الحضر. أكثر من نصف المجموعة ١ والمجموعة ٢ كانت لهم علاقة قرابة مع أزواجهن. النسبة الأعلى للمضاعفات في المجموعة الأولى هي فقر الدم، التهابات الجهاز البولي، الحمل المتعدد، قلة السائل الأمنيوسي، زيادة السائل الأمنيوسي، تأخر نمو الجنين داخل الرحم، ولادة بعد أوانها، انخفاض علامات أيكار، قلة وزن حديث الولادة، تشوهات خلقية، متلازمة الكرب التنفسي، متلازمة استنشاق العقي وموت حديث الولادة. النسبة الأعلى للمضاعفات في المجموعة الثالثة ارتفاع ضغط دم الحمل، سكري الحمل، النزف خلال الحمل، ولادة قبل أوانها، انفجار السائل الأمنيوسي قبل أوانه وزيادة وزن حديث الولادة. بينت الدراسة أيضاً وجود علاقة معنوية بين المجاميع العمرية وبين ارتفاع ضغط الدم، ولادة قبل الأوان، وعلامات أيكار، وزن حديث الولادة ومتلازمة الكرب التنفسي.
التوصيات: مقدمي الخدمة يحتاجون للوعي حول زيادة مشاكل صحة الأم والوليد في طرفي عمر الأمومة (عمر المراهقة وعمر الأمومة المتقدم) وتقديم بروتوكول معاملة الأمومة والطفل لتحسين الصحة الأكمل للأم وحديثي الولادة.

Abstract:

Objectives: to compare health of mothers and neonatal among age groups, to find out the correlation between age groups and mother and neonatal health.

Methodology: A descriptive study was carried out at delivery rooms of three teaching hospitals in Baghdad city from Feb. 28th through May. 28th, 2013. A purposive (non-probability) sample of 300 laboring women was selected from delivery rooms categorized into three groups, group 1 (≤19) years, group 2 their age between (20-35) years old and group 3 their age (≥35) years. The data were collected through the use of constructing questionnaire, an interview technique with mothers and reviewing their medical records as means of data collection; The questionnaire consist of 3 parts: (1) demographic data (2) health of mothers during pregnancy (pregnancy complications) (3) neonate health status. The validity of the study questionnaire was determined through a panel of experts and the reliability of the study questionnaire was determine by the application of pilot study. Descriptive statistical analysis procedure (frequencies and percentages) and inferential data analysis procedure (chi-square, P-value, split- half approach and Cronbach's Alpha correlation coefficients) were applied for data analysis.

Results: the finding of the study indicated that the highest percentages of all the study groups were primary school graduates, urban and housewives. More than half of mothers in group 1 (teenage mothers) and group 2 (20-35) years were related to their husband, while the highest percentages of mothers in group 3 (advanced maternal age) were not related to their husband. The highest percentages of complications present in group 1 (teenage mothers) were anemia, urinary tract infection, multiple pregnancy, Oligohydramnios, poly-hydramnios, intra uterine growth retardation, Post-term labor, low Apgar score, low birth weight, congenital anomalies, respiratory distress syndrome, meconium aspiration syndrome and neonatal death. The highest percentages of complications present in group 3 (advanced maternal age) were pregnancy induced hypertension, gestational diabetes, antepartum haemorrhage, pre-term labor, premature rupture of membrane and macrosomia. There is a statistical significant correlation between age groups and hypertension and preterm, Apgar score, neonatal weight and respiratory distress syndrome.

Recommendations: Care providers need to be aware about the increasing of obstetrical and neonatal health complications in the extremities of maternal age (teenage and advanced maternal age) and adjust obstetrical and neonatal management protocols to ensure optimal maternal and neonatal health.

Keywords: Teenage pregnancy, Advanced maternal age, neonatal health.

Introduction:

Maternal age at conception has long been demonstrated to have a significant correlation with pregnancy outcome and maternal health. Classically, very young (<20 years old) and old (= or >35 years) women have been classified as high-risk categories for child bearing. Recently, career, education, financial, and other goals have coerced women to delay childbearing all over the world, maternal age of 15-18 years old or less and age of 40 years or more increase the risk of preterm delivery⁽¹⁾.

The reflex of a woman to pregnancy is influenced by various factors, through which women's age at pregnancy time can be known as the most important factor that has undeniable effect on pregnancy process and labor⁽²⁾.

There is a direct correlation between the increasing rate of perinatal death risk, low birth weight and very low birth weight in aged women. They have discussed the high age of mothers as an independent risk factor for perinatal death⁽³⁾ so the high age of mothers is an independent risk factor for perinatal death. It has been widely documented that advanced maternal age confers risk to both mother and child's health⁽⁴⁾. The influences of advanced maternal age and delayed childbearing on perinatal outcome have. It has been shown that pregnant women age 35 years or older experience an increased risk of intrauterine fetal death, pregnancy-induced hypertension, gestational diabetes, and delivery by cesarean⁽⁵⁾.

Adverse pregnancy outcomes like preterm delivery, low birth weight infant, respiratory distress syndrome, stillbirths and perinatal deaths have all been associated with adolescent mothers. Teenage pregnancies have been reported to be associated with an adverse obstetric outcome⁽⁶⁾.

Methodology:

A purposive (non-probability) sample of 300 laboring women was categorized into three groups, Ladies who were in labor at the age ≤19

yrs. were selected for the study as a (group 1). Women who were in labor at the age between (20-35) years old were selected for the study as a (group 2). Women who were in labor in age ≥35 yrs. were too selected for the study as advanced maternal age (group 3). The sample was selected from delivery rooms of the 3 hospitals Baghdad Teaching Hospital, Al-Elwiyah Maternity Teaching Hospital and Ibn Al –Balady Maternity and Pediatric Hospital in Baghdad city. The data were collected period from 28 February till 28 May 2013. A questionnaire format was used for data collection consist of 3 parts:

1. A demographic data sheet, consist of (6) items, which include age, level of education, occupation, consanguinity, residency and socioeconomic status.
2. this part reveals data related to health of mothers during pregnancy (pregnancy complications) among study groups which consist of (12) items, which include Anemia, pregnancy Induced Hypertension, Gestational Diabetes, Urinary Tract Infection, Multiple pregnancy, antepartum haemorrhage, pre-term labor and premature rupture of membrane.
3. This part includes (6) items, it is concern the estimation of neonatal health status in the first 5 minutes of life includes Apgar score, neonate weight and congenital anomalies.

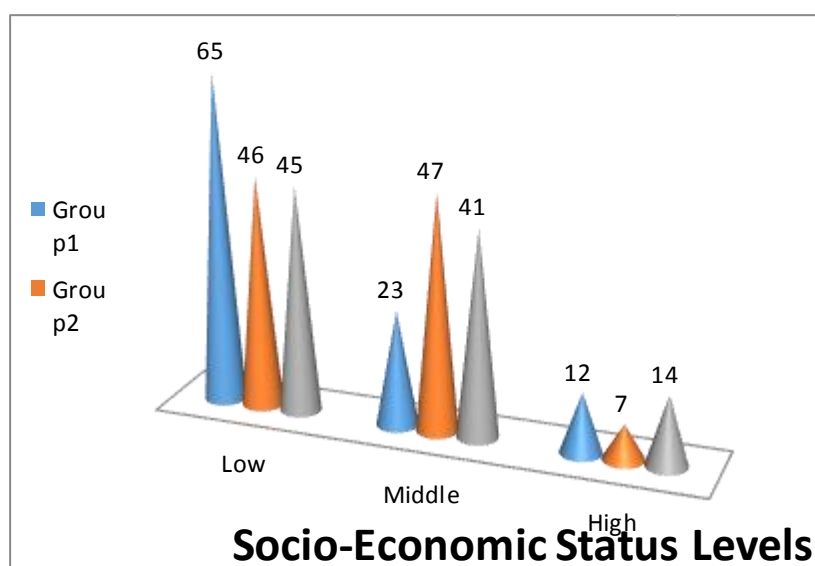
The validity of the instrument was established through a panel of experts (who have had more than 5 years of experience in their specialty field) to investigate the clarity, relevance and adequacy of the questionnaire in the order to achieve the present study objectives. These experts were noted to review the questionnaire format for content clarity relevancy and adequacy. Few modifications were carried on the questionnaire format according to the (17) experts' opinions. The reliability was determined by the application of split- half approach and Cronbach's Alpha correlation coefficients. Statistical analysis were applied in the form of frequencies, percentages, chi-square and P-value.

Results:**Table 1.** Distribution of demographic data of mothers

Variables	Age groups					
	Group 1		Group 2		Group 3	
	≤19 yrs.		20-34 yrs.		≥35yrs.	
Level of Education	f	%	f	%	f	%
Illiterate	17	17	26	26	15	15
Read and write	27	27	8	8	7	7
Primary	38	38	38	38	25	25
Intermediate	17	17	9	9	19	19
Secondary	1	1	11	11	11	11
Institute/University	0	0	7	7	23	23
High education	0	0	1	1	0	0
Occupation	f	%	f	%	f	%
House wife	99	99	97	97	77	77
Employed	1	1	3	3	23	23
Consanguinity	f	%	f	%	f	%
Not Related	39	39	47	47	66	66
Related to husband	61	61	53	53	34	34
Residency	f	%	f	%	f	%
Urban	74	74	76	76	88	88
Rural	26	26	24	24	12	12
Total	100	100	100	100	100	100

f=frequency, %: percentage

The highest percentages of group 1, 2, 3 were primary school graduates (38%, 38% and 25%) respectively, The highest percentages of group 1 (≤19) years, group 2 (20-34) years and group 3 (≥35) years old (99%, 97% and 77%) were housewives, while the lowest percentages (1%, 3% and 23%) were employee. More than half of group 1 (≤19) years (61%) and group 2 (20-34) years (53%) were related to their husband, while the highest percentages of mothers how didn't related to their husband (66%) were present in group 3 (≥35) years. The highest percentages of group 1, 2, 3 were urban (74%, 76% and 88%) respectively.

**Figure 1.** Distribution of Socio-Economic Status among Study Groups

This figure show that the highest percentages of low socioeconomic level (65%) were present in group1, while the highest percentages of high socioeconomic level (14%) were present in group3, and there is significant relationship between SES with age groups.

Table 2. Distribution of the Correlation between Age Groups with Demographic Data

Age groups	Variables	χ^2	S.	P-value
	Level of Education	67.270	H.S	0.000
	Occupation	36.142	H.S	0.000
	Consanguinity	15.389	H.S	0.000
	Residency	6.994	N.S	0.030

χ^2 = chi squared test, S. = significant at p-value \leq 0.05, P value= probability level

This table shows that there is a statistical significant relationship between some socio-demographic characteristics (mother education, occupation and Consanguinity) with their age groups: group 1 (\leq 19) years, group 2 (20-34) years and group 3 (\geq 35) years old.

Table 3. Health of Mothers among Study Groups

Variables	Age groups					
	Group 1		Group 2		Group 3	
	\leq 19 yrs.		20-34 yrs.		\geq 35yrs.	
	f	%	F	%	f	%
Anemia	73	73	65	65	54	54
pregnancy Induced Hypertension	14	14	10	10	38	38
Gestational Diabetes	3	3	8	8	9	9
Urinary Tract Infection	63	63	55	55	47	47
Multiple pregnancy	4	4	1	1	2	2
APH	Placenta Previa		13	13	20	20
	Others		7	7	3	3
Olig Hydramnios	19	19	9	9	16	16
Poly Hydramnios	6	6	3	3	6	6
IUGR	5	5	3	3	4	4
Pre-Term	7	7	6	6	20	20
Post Term	7	7	4	4	6	6
PROM	3	3	1	1	6	6

f=frequency, %: percentage

This table presents the incidence of complications during pregnancy among the study sample and it shows that: The highest percentages of complications present in group 1 during pregnancy were anemia (73%), urinary tract infection (63%), multiple pregnancy (4%), Oligohydramnios (19%), poly hydramnios (6%), intra uterine growth retardation (5%) and Post-term labor (7%). The highest percentages of complications present in group 3 during pregnancy were pregnancy induced hypertension (38%), gestational diabetes (9%), antepartum haemorrhage (6%), pre-term (20%) and premature rupture of membrane (6%).

Table 4. The Correlation between Age Groups and Health of Mothers

Age groups	Variables	χ^2	S.	P-value
	Anemia	7.899	N.S	0.019
	pregnancy Induced Hypertension	27.975	H.S	0.000
	Gestational Diabetes	3.321	N.S	0.190
	Urinary Tract Infection	5.172	N.S	0.075
	Multiple pregnancy	4.048	N.S	0.400
	APH	6.653	N.S	0.155
	Olig Hydramnios	4.208	N.S	0.122
	Poly Hydramnios	1.263	N.S	0.532
	IUGR	0.521	N.S	0.771
	Pre-Term	12.462	S.	0.002
	Post Term	0.873	N.S	0.646
	PROM	3.931	N.S	0.140

χ^2 = chi squared test, S. = significant at p-value ≤ 0.05 , P value= probability level

This table shows that there is a significant correlation between age groups and health problems which are hypertension (P=0.000) and preterm (P= 0.002), while there is no significant relationship with other complications.

Table 5. Neonatal Health among Study Groups

Variables		Age groups					
		Group 1		Group 2		Group 3	
		≤ 19 yrs.		20-34 yrs.		≥ 35 yrs.	
		f	%	f	%	F	%
Apgar Score	0-3	11	11	7	7	9	9
	4-6	32	32	9	9	31	31
	7-10	57	57	84	84	60	60
Neonatal Weight	< 2.5 kg	21	21	11	11	17	17
	2.5-4 kg	60	60	85	85	60	60
	> 4 kg	19	19	4	4	23	23
Congenital Anomalies		9	9	3	3	6	6
Respiratory Distress Syndrome		41	41	13	13	30	30
Meconium Aspiration Syndrome		13	13	4	4	8	8
Neonatal Death		11	11	4	4	5	5

f=frequency, %: percentage

This table shows that the highest percentage of low Apgar score (0-3) were (11%), low birth weight (21%), congenital anomalies (9%), respiratory distress syndrome (41%), meconium aspiration syndrome (13%) and neonatal death (11%) present in group 1. While the highest percentage of macrosomia (23%) in group 3.

Table 6. The Correlation between Age Groups and Neonatal Health

Age groups	Variables	χ^2	S.	P-value
	Apgar Score	21.510	H.S	0.000
	Neonatal Weight	22.287	H.S	0.000
	Congenital Anomalies	3.191	N.S	0.203
	Respiratory Distress Syndrome	19.742	H.S	0.000
	Meconium Aspiration Syndrome	5.324	N.S	0.070
	Neonatal Death	4.607	N.S	0.100

χ^2 = chi squared test, S. = significant at p-value ≤ 0.05 , P value= probability level

The result shows that there is high significant relationship between pregnant mother age group and Apgar score, neonatal weight and respiratory distress syndrome, while there is no significant relationship between pregnant mother age group with congenital anomalies, meconium aspiration syndrome and neonatal death.

Discussion:

Data analysis of the result states that the 2 extremes of maternal age (mothers age (≤ 19) years and mothers age (≥ 35) years) increase risk on mother and neonate health.

The findings of present study supported evidence are available in the study that reported the highest percentages of all the study groups: were primary school graduates⁽⁷⁾.

The highest percentages of all study groups were housewives, Teenage mothers more likely to be housewives maybe related to the low education degree which not helping if they want to have a job or an employment, it may be related to the society of their families, they like to be dependent member of family. On the opposite of the advanced maternal age more likely to be an employment or have their own job that is related to their independent personality.

All of this study groups have high percentage of consanguinity because of the nature of Iraqi society which favorite the related marriage due to social, economic and religious factors.

The highest percentages of all the study groups their residencies were urban. This result isn't consistent with study, conducting in Ethiopia were they indicated that there were significantly higher percentage of teenage mothers lived in rural areas compared with adult mothers⁽⁸⁾.

The result shows that the highest percentages of complications present in group 1 (teenage mothers) during pregnancy were anemia the findings of present study supported evidence is available in the studies that reported the teenage mothers had a higher incidence of anemia^(7,9), urinary tract infection May be because teenage mothers less likely to care about their health and less experience about hygiene, Oligohydramnios, polyhydramnios, the findings of present study

supported evidence is available in the study that reported that it higher in teenage group but not statistically significant⁽⁶⁾, intra uterine growth retardation was high in group 1 (teenage mothers)⁽¹⁰⁾ The findings of present study supported evidence is available in the study that reported there was no statistically significant difference between cases and controls regarding maternal age in years, ($P=0.83$). The findings of present study supported evidence is available in the study that reported no significant difference between teenage group and adult group but the IUGR was higher in teenage group as a comparison with adult group⁽¹¹⁾, and Post-term labor the findings of present study supported evidence is available in the study that reported that it was higher among teenage mothers⁽⁶⁾.

In the present study the highest percentages of complications present in group 3 (advanced maternal age) during pregnancy were pregnancy induced hypertension, gestational diabetes The findings of present study supported evidence is available in the study reported that a higher incidence of maternal medical diseases, such as hypertensive disorders⁽¹²⁾, diabetes was seen among the advanced aged mothers more than among the young mothers and The findings of present study supported evidence is available in the study that reported that preeclampsia increase with increase age of mother⁽²⁾ and supported evidence is available in the study that reported that Women aged ≤ 21 years were found to have [compared with women 36-40 years old], lower rates of GDM⁽¹³⁾.

The result shows that the highest percentage of antepartum haemorrhage present in group 3 The findings of present study supported evidence is available in the study was conducted at maternity ward of Kathmandu university hospital, district, (Outcomes

adolescent pregnancy) in Nepal which compare between two groups of maternal age (15-19 years and 20-24 years) reported that maternal complication antepartum hemorrhage was higher among adolescents⁽¹⁴⁾.

The highest percentage of pre-term labor was found in group 3 (advanced maternal age. The findings of present study supported evidence is available in the study that reported that preterm is more common in women of younger & older age –the risk is increased in teenagers and in women over 30s⁽¹⁵⁾.

The highest percentage of premature rupture of membrane was found in group 3 in present study. The findings of present study supported evidence is available in the study that reported the highest percentage of premature rupture of membrane were in advanced maternal age⁽¹⁶⁾. The findings of present study supported evidence is available in the study that reported that preterm is more common in women of younger & older age –the risk is increased in teenagers and in women over 30^(2, 15, and 16).

The highest percentages of macrosomia were found in group 3. The findings of present study supported evidence is available in the study that reported that women age <35 years old had babies with macrosomia⁽¹⁶⁾. The highest percentage of low Apgar score (0-3) was found in teenage group. The findings of present study supported evidence is available in the study that reported that the risks of very low Apgar score and low Apgar score were significantly higher in infants born to mothers <17 years old than infants born to mothers of 20–24 years old⁽¹⁷⁾ and The findings of present study supported evidence is available in the study that reported that most common complication of pregnancy was low birth weight in ≤ 18 years old women and there was a statistical association between maternal age and macrosomia and low birth weight⁽¹⁶⁾. The findings of present study supported evidence are available in the study that reported that no significant difference in the frequency of congenital anomalies respiratory distress syndrome, meconium

aspiration syndrome and neonatal death for teenage pregnancy⁽⁶⁾.

Recommendations:

1. Care providers need to be aware about the association of increased obstetrical and neonatal health complications in the two extremities of maternal age groups (teenage and advanced maternal age) and adjust obstetrical and neonatal management protocols to ensure optimal maternal and neonatal health.
2. The best way of having good healthy neonates is by planning and encouraging having pregnancies in between 20-34 years of age and this is our mission to have a healthy community in the future.
3. In order to reduce occurrence of adolescent childbearing and its consequences, education\ information may provide benefit to those female adolescents with inconsistent pregnancy intentions. For those who are already pregnant at teenage, quality maternity services should be provided.
4. Education, nutritional support, and family planning, along with creating awareness among the community and also the school girls about the importance of reproductive health, antenatal care, family life, and population education will definitely help in transforming the community into healthy and responsible women, giving birth to a healthy future generation.

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