Impact of Antenatal Maternal Risks among Grand Multiparous Women on Pregnancy Outcomes

Huda Abdul Jaleel Ahmed[1], Muna Abdulwahab Khaleel[2], Mustafa Kurji Mansor[3*]

[1, 2] Al-Bayan University, College of Nursing /Iraq

[3] Ministry of Health / Iraq

Kurji.mustafa@gmail.com

Abstract

Background- Pregnancy can be viewed as a developmental stage with its own distinct developmental tasks as well as pregnancy produces marked changes in a woman's body, and it's accompanied with minor discomfort such as nausea, vomiting, urinary frequency, and fatigue. Sometime the pregnancy is complicated by pathologic processes that are dangerous to the health of the mother and fetus in only 5-20% of cases. However, only limited studies have so far been done to identify the maternal isks in Antenatal and its Impact on Pregnancy Outcomes among Grand-Multiparous Women

Objective- Identify antenatal maternal risks among grand multiparous women and its impact on pregnancy outcome. **Methodology-** A descriptive, cross sectional study design was utilized. Purposive sample of (200) laboring women which consist two groups 100 multiparous women had (Para2-4) and 100 grand multiparous women had (Para ≥ 5) , who were admitted in three hospitals (Baghdad Teaching Hospital, Al- Yarmook Teaching Hospital, Fatima Al- Zahra'a Maternity and Pediatric Teaching Hospital), during the period from 29 April to 8 August 2010. The data was collected through interview technique and use constructed questionnaire format which consists four parts. The data were collected through face to face interview technique and by using questionnaire format. Data were analyzed through the application of descriptive and inferential statistical analysis. **Results-** The results revealed that the occurrence of antenatal maternal risks were significantly more among grand multipara who had (para≥5) compared to multipara who had (para 2-4) (P≤0.05), these complications were: anaemia, pregnancy induced hypertension, ante partum haemorrhage, stress urine incontinence, mal presentation, macrosomia, and uterus prolapse. Health status of the majority of neonates for both groups (85%, 82%) were good, their Apgar score was (7-10) in five minute of neonate's life, and most of them did not have congenital anomalies, only 3% in each group had neonate death after delivery. There is a significant relationship in age for both groups and antenatal risks. **Conclusion-** The occurrence of antenatal maternal risks is significantly higher in grandmultiparity compared with multiparty. **Recommendations-** Importance of providing health awareness for mothers concerning risks associated with antenatal which are increased in subsequence and high pregnancies through educational programs and mass media and emphasize on nursing role in this field. Improvement and promotion of antenatal health services especially for those risky women.

Keywords: -Antenatal maternal complication, Grand multipara, Multipara.

1. Introduction

In 1865 Matthew Duncan suggested that, by the mere virtue either of having born numerous children or of being advanced in age, a pregnant woman might become a threat both to herself and to her unborn child [1]. During the 1920 a wider recognition emerged of the maternal problems of pregnancy as well as those of labor [2]. The term grandmultipara was introduced in 1934 by Bethel Solomon, who called the grandmultipara "The dangerous multipara" since then , many studies have explored the relationship between grandmultiparity & obstetric complications ; some studies have reported notably increased risks , whereas others have reported only minor risks or even lower frequencies of certain complications [3]. In 1954 Scharm stated "To –day the grand multipara has truly become the vanishing American". A similar process in England was noted by law [4]. Unfortunately, this is not so in other countries. There are many women who have not yet realized or come to accept the value of family planning, ever since these authors drew attention to the dangers associated with high parity [5].The international federation of gynecology and obstetrics defined grandmultiparity of the fifth to ninth whereas women who are undergoing their tenth or more delivery are considered to be great- grand multipara [6].The incidence of grand multipara is low in the developed countries today. However, the prevalence remains high in developing countries, but the grand multipara contributes to one- third of total morbidity and mortality [7, 8].

Objective

The study aimed to identify antenatal maternal risks among grand multiparous women on pregnancy outcome, and their relation with some variables.

Methodology

A descriptive, cross sectional study design was utilized. Purposive sample of (200) laboring women which consist two groups 100 multiparous women had (Para2-4) and 100 grand multiparous women had (Para ≥ 5) , who were admitted in three hospitals (Baghdad Teaching Hospital, Al- Yarmook Teaching Hospital, Fatima Al- Zahra'a

doi.org/10.31838/hiv22.02.20 Received: 23.01.22, Revised: 23.04.22, Accepted: 08.08.22

Maternity and Pediatric Teaching Hospital), during the period from 29 April to 8 August 2010. The data was collected through interview technique and use constructed questionnaire format which consists four parts, first part socio-demographic characteristics, second part reproductive history, third part maternal health problems during the current pregnancy. Validity and Reliability of the questionnaire were determined through panel of experts and pilot study, data were analyzed through the application of descriptive statistical analysis (percentage, frequencies, mean and standard deviation) and inferential statistical analysis (Chi-square test, Fisher's test, Correlation coefficient), and all the statistical procedures were tested at P ≤0.05.

2. Results and Discussion

Table (1) Distribution of the Studied Sample According to the Socio-demographic and Personal Characteristics:

Age / years	Multipara		Grand multipara	
	F	%	F	%
≤20	9	9%	0	0%
21-25	37	37%	14	14%
26-30	28	28%	23	23%
31-35	17	17%	24	24%
36-40	9	9%	32	32%
≥41	0	0%	7	7%
Total	100	100%	100%	100%
Mean±SD	27.1±6.0		33.2±6.1	
Level of education	**Multipara**		**Grand multipara**	
	F	%	F	%
Illiterate	9	9%	12	12%
Read & write	2	2%	15	15%
Primary	43	43%	42	42%
Intermediate	20	20%	20	20%
Secondary	13	13%	9	9%
College	13	13%	2	2%
Total	100	100%	100	100%
Employment	**Multipara**		**Grand multipara**	
	F	%	F	%
Not employed	90	90%	97	97%
Employed	10	10%	3	3%
Total	100	100%	100	100%
Consanguinity	**Multipara**		**Grand multipara**	
	F	%	F	%
Related to husband	57	57%	59	59%
Not related to husband	43	43%	41	41%
Total	100	100%	100	100%
Residency	**Multipara**		**Grand multipara**	
	F	%	F	%
Governorate	92	92%	93	93%
Outskirts	3	3%	4	4%
District	5	5%	3	3%
Total	100	100%	100	100%
Social status	**Multipara**		**Grand multipara**	
	F	%	F	%
High	3	3%	1	1%
Middle	20	20%	7	7%
Low	77	77%	92	92%
Total	100	100%	100	100%

Table (2) Distribution of the Studied Sample According to Reproductive Characteristics.

Gravidity	Multipara		Gravidity	Grand multipara	
	F	%		F	%
2	37	37%	5-7	73	73%
3	43	43%	8-10	21	21%
4	20	20%	>10	6	6%
Total	100	100%	Total	100	100%
Mean±SD	2.9±0.7		Mean±SD	6.9±1.9	
Parity	**Multipara**		**Parity**	**Grand multipara**	
	F	%		F	%
2	47	47%	5-7	86	86%
3	37	37%	8-10	12	12%
4	16	16%	>10	2	2%
Total	100	100%	Total	100	100%
Mean±SD	2.7±0.7		Mean±SD	5.9±1.5	
No. of abortion	**Multipara**		**No. of abortion**	**Grand multipara**	
	F	%		F	%
None	85	85%	None	45	45%
1	15	15%	1	33	33%
2	0	0%	2	16	16%
≥3	0	0%	≥3	6	6%
Total	100	100%	Total	100	100%
Mean±SD	0.2±0.4		Mean±SD	0.9±1.0	
No. of still birth	**Multipara**		**No. of still birth**	**Grand multipara**	
	F	%		F	%
None	93	93%	None	89	89%
1	6	6%	1	9	9%
2	1	1%	2	2	2%
Total	100	100%	Total	100	100%
Mean± SD	0.08±0.3		Mean±SD	0.1±0.4	
No. of alive children now	**Multipara**		**No. of alive children now**	**Grand multipara**	
	F	%		F	%
2	55	55%	5-7	89	89%
3	35	35%	8-10	9	9%
4	10	10%	>10	2	2%
Total	100	100%	Total	100	100%
Mean±SD	2.6±0.7		Mean±SD	5.7±1.5	

Table (3) Distribution of the Studied Sample According to the Following Variables (Age at Marriage, Using Contraceptive, Place of Previous Delivery).

Age at the marriage	Multipara		Grand multipara	
	F	%	F	%
≤15	12	12%	10	10%
16-20	41	41%	46	46%
21-25	32	32%	38	38%
26-30	14	14%	4	4%
≥ 31	1	1%	2	2%
Total	100	100%	100	100%
Using contraceptive	**Multipara**		**Grand multipara**	
	F	%	F	%
No	40	40%	37	37%
Yes	60	60%	63	63%
Total	100	100%	100	100%
Place of previous delivery	**Multipara**		**Grand multipara**	
	F	%	F	%
Hospital	82	82%	59	59%
Home	3	3%	7	7%
Both	15	15%	34	34%
Total	100	100%	100	100%

Table (4) Distribution of the Study Sample according to Data Related to the Current Pregnancy.

Gestational age at birth	Multipara		Grand multipara	
	F	%	F	%
≤37	25	25%	26	26%
38-42	75	75%	71	71%
>42	0	0%	3	3%
Total	100	100%	100	100%
Mean±SD:	38.4±2.8		38.4±2.9	
Attendance of prenatal care	**Multipara**		**Grand multipara**	

	F	%	F	%
Not attending	8	8%	11	11%
Regular attending	39	39%	23	23%
Irregular attending	53	53%	66	66%
Total	100	100%	100	100%
Type of prenatal care	**Multipara**		**Grand multipara**	
	F	**%**	**F**	**%**
None	8	8%	11	11%
Private	33	33%	36	36%
Primary health care center	4	4%	16	16%
Both	53	53%	33	33%
*Other	2	2%	4	4%
Total	100	100%	100	100%
No. of prenatal care visits	**Multipara**		**Grand multipara**	
	F	**%**	**F**	**%**
None	8	8%	11	11%
1-5	48	48%	65	65%
6-10	42	42%	23	23%
11-15	2	2%	1	1%
Total	100	100%	100	100%
Mean±SD:	5.23±3.04		4.05±2.84	
*Other Indigenous midwifes', hospital consultant.				

Table (5) Distribution of the Study Sample (Multipara, Grand multipara) According to the Occurrence of Antenatal Risks.

Antenatal Risks	Multipara		Grand multipara		Total	χ^2	df	S.	P≤0.05
	F	%	F	%					
1. Anemia	45	45%	65	65%	110	8.081	1	S	.004
2. Hypertension	16	16%	29	29%	45	4.846	1	S	.028
3.Diabetes Mellitus	2	2%	6	6%	8	2.083	1	N.S	.149
4.Antepartum hemorrhage	5	5%	16	16%	21	6.438	1	S	.011
4.a Placenta previa	4	4%	12	12%	16	6.348	1	N.S	0.37
4.b Placenta accreta	1	1%	6	6%	7	3.701	1	N.S	.054
4.c Abruptio placenta	0	0%	1	1%	1	1.005	1	N.S	.316
5. Intra uterine death	3	3%	0	0%	3	3.046	1	N.S	.081
6.Intra uterine growth retardation	0	0%	1	1%	1	1.005	1	N.S	.316
7.Multiple pregnancy	5	5%	1	1%	6	2.749	1	N.S	.097
8.Preterm gestation	24	24%	25	25%	49	.027	1	N.S	.869
9. Post term gestation	0	0%	3	3%	3	3.046	1	N.S	.081
10.Stress incontinence	31	31%	45	45%	76	4.160	1	S	.041
11. Urinary tract infection	58	58%	62	62%	120	.333	1	N.S	.564
12. Oligohydramnios	9	9%	7	7%	16	.272	1	N.S	602
13. Polyhydramnios	3	3%	3	3%	6	.000	1	N.S	1.000
14.Pre mature rupture membrane	3	3%	2	2%	5	.205	1	N.S	.651

Table (6) Distribution of Neonate Weight, Apgar Score, Congenital Anomalies after Delivery.

Weight	Multipara		Grand multipara		χ^2	df	S.	p≤0.05
	F	%	F	%				
<2500gm	8	8%	10	10%	9.26	2	S	0.026
2500-4000gm	84	84%	69	69%				
>4000gm	8	8%	21	21%				
Total	100	100%	100	100%				
Mean±SD	3130±565.5		3121.5±623.7					
Apgar score at 5 min of neonate life	Multipara		Grand multipara		χ^2	df	S.	p≤0.05
	F	%	F	%				
0-3	3	3%	0	0%	4.25	2	N.S	.119
4-6	12	12%	18	18%				
7-10	85	85%	82	82%				
Total	100	100%	100	100%				
Congenital anomalies	Multipara		Grand multipara		χ^2	df	S.	p≤0.05
	F	%	F	%				
None	96	96%	97	97%	.705	1	N.S	.703
Present	4	4%	3	3%				
Total	100	100%	100	100%				
death after delivery	Multipara		Grand multipara		*F	df	S.	p≤0.05
	F	%	F	%				
No	97	97%	97	97%	.8836	1	N.S	0.1
Yes	3	3%	3%	3%				
Total	100	100%	100	100%				
*F Fisher's test								

Table (7) Association of Antenatal Maternal Risks with Socio-demographic Characteristics of the Studied Sample.

Socio-demographic variables	Multipara				Grand multipara			
	χ^2	df	S.	P≤0.05	χ^2	df	S.	P≤0.05
Age	42.651	28	S	.038	44.591	28	S	.024
Educational level	26.662	35	N.S	.843	24.453	35	N.S	.909
Occupation	12.509	7	N.S	.085	7.448	7	N.S	.384
Socioeconomic status	8.797	14	N.S	.844	8.537	14	N.S	.860
Prenatal care visit	14.385	21	N.S	.853	12.923	21	N.S	.526

Thirty seven percent of multipara was within age group of (21-25) years with a mean of 27±6.0 , while nearly one third (32%) of grand multipara was within age group 36-40 years with a mean of 33.2±6.1. Martin et al. [9] reported that the average age of the study group was 25.1 years, which was a suitable age for reproduction. Simonsen et al. [10] reported that numerous obstetrics complications have been independently associated with progressive maternal age. In addition, older women with 5 or more babies known as risk group [3], Lee [11] considered the age factors that increase the hazards of high parity, so the grand multipara is an older woman and suffers those disabilities which accompany age; especially her cardio-vascular system is less resilient so that hypertensive disease is more manifest. The educational level for most mothers in both groups (43%, 42%) was limited (primary school graduates) as shown in (Table 1). This result agrees with Roman et al. [12] who stated in their study that concerning obstetric and neonatal outcomes in grandmultiparity that grand multipara was in lower level of education, and consistent with Shamshad [13] who reported that the level of education status almost poor in grand multiparous women. Mothers of poor level of education often face the following consequences: social isolation, poor life habits, low education level, maltreatment, stress, and depression, in addition young mothers are at greater risk of leaving school or attaining a lower level of education [14]. The majority of (multipara, grand multipara) (90%, 97%) were housewives. These findings are consistent with Shawky et al. [15] study that reported there are (92.4%) women housewives. woman's employment during the pregnancy may have an effect on her child's health especially risk of low birth weight and pre term [13].

Result indicates that more than half of mothers in both groups (57%, 59%) were related to husband (table 2). Nath et al. [16] mentioned in their study the prevalence of consanguineous marriages in a rural community and its effect on pregnancy outcome in India, the prevalence of consanguinity was found to be 36%, and the majority of the marriages were between first cousins (54.44%), fetal

loss was seen to be significantly higher in the consanguineous group as compared to non-consanguineous group, while no significant effect of consanguinity was observed on the number of stillbirths, neonatal mortality, obstetrical complications and congenital malformations, only 7.6% of the women were aware about the hazards of a consanguineous marriage. Obeidat et al. [17] mentioned in his study the consanguinity and its adverse pregnancy outcomes: the North of Jordan experiences consanguineous marriages were significantly associated with low birth weight delivery, preterm delivery, and births with congenital anomalies compared with Non- consanguineous marriages.

In addition, results indicates the study groups almost (92%, 93%) were from governorate and the other come from district and outskirts. These findings are in a consistent with Rayamajhi et al. [18] who reported that 60.4% of the grand multipara live at a rural resident compared with 27.7% of multipara because the higher parity is more frequently encountered in the rural and low socioeconomic population and these compounding factors continue to pose a high risk in the obstetric and perinatal outcome. The findings reveals that (77%, 92%) of (multipara, grand multipara) were from low socioeconomic status (table 2). Lack of knowledge is one of the contributing factors for poor health among many people of low socioeconomic status [19]. Forty three percent of multipara had 3 pregnancies while 73% of grand multipara had 5-7 pregnancies. Obah [7] stated that grand multipara (para ≥5) more to perinatal complications rather than multipara (Para1-4). Shamshad [13] reported the lack of health education , religious taboos, against use of family planning methods and vogue of having large families (especially in a rural areas) accounts for increased incidence of high gravidity. Akwuruoha et al. [20] revealed that there is an increased risk of perinatal outcomes in grand multiparous women rather than multiparous women. Shahid et al. [6] reported in their study that maternal complications increase with increase of parity, so the grand multipara still as high risk pregnancy.

The result indicates that (85%, 45%) of (multipara, grand multipara) did not have abortion, while (15%) of multipara had one abortion, while more than half of grand multipara(55%) had abortions, (33%) of them had at least one abortion as shown in table 3. This result accords with Karim et al. [21] who stated in his study that the spontaneous abortion was found more in the grand multipara compared with other parturients. The finding reveals that (93%, 89%) of (multipara, grand multipara) did not have still birth, while (6%, 9%) had one still birth(table 3). These findings accords with Sipim et al. [22] who mentioned that the still birth in the grand multipara was higher than in the women of low parity(1.9%Vs0.9%). Most of the study sample (55%, 89%) in (multipara, grand multipara) had alive child (2, 5-7), while the lowest (10%, 2%) had (4, 10 and more) alive child . Limiting births and spacing them at least two years apart are good for maternal and child health [22]. Every pregnancy carries potential health risks for women, even for women who appear healthy and at low risk [23]. The result indicates that (41%, 46%) of (multipara, grand multipara) their ages at marriage were (16-20 years) table 4. Both teenaged mothers (younger than 20 years) and older mother (35 years or above) are associated with higher than average rates of pre – term birth, growth restriction, and perinatal mortality [24]. Rayamajhi et al. [18] reported that (28.8%, 55.7%) of (multipara, grand multipara) their ages at marriage were between (16- 20) years(11). WHO [25] found that approximately 16 million girls their ages 15-19 became pregnant, with 95% of them are in the developing countries that is due to the low socioeconomic status and low education (The result indicates that (60%, 63%) in (multipara, grand multipara) used the contraceptive, while (40%, 37%) did not use contraceptive.

The findings show that the highest percentage (75%, 71%) of (multipara, grand multipara) their gestational age between 38- 42 weeks that is considered full term with mean &SD(38.4 ± 2.8 , 38.4 ± 2.9) weeks . Roman et al. [12] reported that the mean &SD of the gestational age in(multipara, grand multipara) were (38.2 ± 2.2 , 37.9 ± 2.7) week.

The finding indicates that more than half of the studied groups (53%, 66%) attended prenatal care irregularly . The first antenatal visit otherwise known as booking visit should be at the first trimester between 8-14 weeks. The main purpose of this visit is to obtain comprehensive history, establish gestational age and indentify any maternal or fetal risk factors. Thus, a visit at this appropriate period has been associated with significantly reduction of maternal and perinatal morbidity and mortality [26]. The finding indicates that (48%, 65%) of the studied groups visited prenatal care about 1-5visits. This finding is consistent with Rayamajhi et al. [18] who reported in their study that 31% of grand-multipara attended prenatal care about less than 3 visits , while 38.2% of multipara attended 3-5 visits.

Table (5) shows that there were a significant differences among (multipara , grand-multipara) during current pregnancy, this table shows the major health problem is anemia(45% ,65%) .Range of Hb level among multipara was 8-10 gm/dl with a mean &SD was 9.6 ± 0.64 , while the range of Hb levels among grandmultipara was 7.5-10 gm /dl, with a mean &SD was 9.5 ± 0.66 ,hypertension (16%, 29%), antepartum hemorrhage (5%, 16%),stress incontinence (31%, 45%), these results accord with Obah [7] who stated that anemia was more common in grand multipara (Para≥5) than multipara (Para≤4) about (62%, 89%) due to poor nutrition repeated pregnancies low socioeconomic status. Nordin et al. [27] who stated that hypertension is associated with increase age and grand multipara tend to be older women. The result indicates that (84%, 69%) their weight of neonate of (multipara, grand multipara) is between 2500-4000 gm . High parity is a risk factor for adverse fetal outcomes. However, the impact of heightened parity is more manifest as shortened gestation rather than physical size restriction [28].The risk of poor birth outcomes is greatest among the youngest mothers (aged15 years and under). Clearly, therefore, continued work is needed to educate women, particularly young women, about the need to begin prenatal care early in pregnancy [29].

Ahmed et al. [30] who reported that there is statistical difference in the two groups about increased incidence of large babies (macrosomia) 19.7% comparing to 9.4% , whereas the incidence of low birth weight was almost doubled in MP group 14.1% compared to 7.4 % in GMP. Apgar score of the neonates for the majority of the study groups was ranged between 7-10 at the fifth minute of the neonate life [30].The results indicate that the majority (96%, 97%) of (multipara, grand multipara) did not have congenital anomalies, while (4%, 3%) had congenital anomalies which are hydrocephalus and anencephaly . The cause of 40-60% of congenital anomalies in humans is unknown [31]. When a baby dies in the first 28 days of life, it is called neonatal death. In the United States in 2006, about 19,000 babies died in their first month [32]. The results of the present study indicate that (97%, 97%) of neonates live after birth, only (3%, 3%) neonates die after delivery due to RDS, hydrocephalus and anencephaly . These results are confirmed by Nordin et al. [27] who stated in their study about grand multiparity is a significant risk factor in this new millennium that were few early neonatal deaths in grand multipara. Table (7) explains the relationship between the antenatal maternal risk with socio-demographic characteristics, that there is significant association between age of (multipara, grand multipara) and antenatal maternal risk. These findings accord with Shamshad [13] who stated that maternal risk increase with age especially with grand multipara, increased age of grand multipara put them at risk for complications. While with the other socio-demographic characteristics such as educational level, occupation, socioeconomic status and prenatal care visit, there is no significant relationship. Early booking should be encouraged irrespective of parity .No single pregnancy is the same as the other and unexpected adverse outcome may occur despite previous uncomplicated pregnancies, these needs for more health education [26].

3. Conclusions

Based on the study results, discussion and critical interpretation of such findings, the study arrived at the following conclusions:

1. Most multipara had 3 gravidity and 2 parity, while grand multipara had 5-7 gravidity and the same range for parity...
2. Nearly two-third of both groups used contraceptive methods. Most of them previously delivered in hospitals.
3. Most of both groups attended prenatal care throughout the current pregnancy irregularly, 1-5 visits only.
4. There are significantly higher differences in the occurrence of some antenatal risks which were anemia, hypertension, antepartum hemorrhage and stress incontinence among grand multipara than multipara.
5. Health status of the neonate for both groups were good, they weighted between 2500 – 4000 gm, their Apgar score at five minute was 7-10 , almost they have no congenital anomalies . And there is a significant difference in weight of neonate only Neonatal deaths for both groups are (3%), although are not significant.
6. There is significant association between maternal ages of both groups with the number of antenatal maternal risks.

4. Recommendations

1.Grandmultipara are considered risky women so they need for early and proper pregnancy evaluation and regular antenatal checkup, and they need follow up for mother and neonate.

2. High parity at risk that requires special care and referral of such women in well- equipped and adequately staffed hospitals.

3. Mass media should play a significant role in presenting the reproductive health aspects among the population such as healthy hygiene, nutrition, immunization, family planning, breast feeding and the nurse should take her role through health education.

4. Concentrated efforts need to be directed in reducing high parity through effective family planning initiatives and supervision of this group should be available.

5. Because of missing a lot of important data in patient records, there is a need for improvement of data base concerning details information regarding mother's medical and obstetrical history which is useful for retrospective studies.

5. References

1. Cherney J, Cherney D. Assessing silage quality. Silage science and technology. 2003;42:141-98. https://doi.org/10.2134/agronmonogr42.c4

2. Opara LU. Bruise susceptibilities of 'Gala'apples as affected by orchard management practices and harvest date. Postharvest Biology and Technology. 2007;43(1):47-54. https://doi.org/10.1016/j.postharvbio.2006.08.012

3. Heffner LJ. How Much Does Parity Matter? Obstetrics & Gynecology. 2005;106(3). https://doi.org/10.1097/01.aog.0000177661.89742.9f

4. Schram E. The problem of the grand multipara. American Journal of Obstetrics and Gynecology. 1954;67(2):253-62. https://doi.org/10.1016/0002-9378(54)90116-7

5. Baker M. Restructuring family policies: Convergences and divergences. University of Toronto Press, 2006. https://doi.org/10.3138/9781442679283

6. Shahid R, Mushtaq M. Compilications of grand multiparity. Pakistan Armed Forces Medical Journal. 2009;59(3):310-14. Available from: https://www.pafmj.org/index.php/PAFMJ/article/view/1772

7. Obah T. Obstetrical complication in grandmultiparity. Medical channel. 2010;15(4):53-8.

8. Padubidri V, Anand E. Textbook of obstetrics. BI Publications Pvt Ltd, 2006.

9. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Munson ML. Births: final data for 2002. Natl Vital Stat Rep. 2003;52(10):1-113. https://doi.org/10.1007/s10903-020-01044-z

10. Simonsen SME, Lyon JL, Alder SC, Varner MW. Effect of Grand Multiparity on Intrapartum and Newborn Complications in Young Women. Obstetrics & Gynecology. 2005;106(3):454-60. https://doi.org/10.1097/01.aog.0000175839.46609.8e

11. Lee K. The hazards of grandmultiparity. The Bulletin of the Hong Kong Medical Association. 1967:39-47.

12. Roman H, Robillard P-Y, Verspyck E, Hulsey TC, Marpeau L, Barau G. Obstetric and Neonatal

Outcomes in Grand Multiparity. Obstetrics & Gynecology. 2004;103(6):1294-9. https://doi.org/10.1097/01.AOG.0000127426.95464.85SS
13. Shamshad B. Age and parity related problems affecting outcome of labour in grand multiparas. Pak J Med Res. 2003;42(4):179-84.
14. Obah R. Effect of Teenage pregnancy. 2010. Available from: http://www.edennewspaper.net/
15. Shawky S, Milaat W. Early teenage marriage and subsequent pregnancy outcome. EMHJ-Eastern Mediterranean Health Journal. 2000;6(1):46-54. Available from: https://apps.who.int/iris/handle/10665/118833
16. Nath A, Patil C, Naik V. Prevalence of consanguineous marriages in a rural community and its effect on pregnancy outcome. Indian Journal of Community Medicine. 2004;29(1):41. Available from: https://journals.lww.com/ijcm/pages/default.aspx
17. Obeidat BR, Khader YS, Amarin ZO, Kassawneh M, Al Omari M. Consanguinity and Adverse Pregnancy Outcomes: The North of Jordan Experience. Maternal and Child Health Journal. 2010;14(2):283-9. https://doi.org/10.1007/s10995-008-0426-1
18. Rayamajhi R, Thapa M, Pande S. The challenge of grandmultiparity in obstetric practice. Kathmandu Univ Med J (KUMJ). 2006;4(1):70-4. Available from: http://europepmc.org/abstract/MED/18603872
19. National Center for Education Statistics. Digest of Education Statistics 2008. U.S. Department of Education, 2009. Available from: https://nces.ed.gov/pubs2009/2009020.pdf
20. Akwuruoha E, Kamanu C, Onwere S, Chigbu B, Aluka C, Umezuruike C. Grandmultiparity and pregnancy outcome in Aba, Nigeria: a case–control study. Archives of Gynecology and Obstetrics. 2011;283(2):167-72. https://doi.org/10.1007/s00404-009-1296-5
21. Karim SA, Memon AM, Qadri N. Grandmultiparity: a continuing problem in developing countries. Asia-Oceania Journal of Obstetrics and Gynaecology. 1989;15(2):155-60. https://doi.org/10.1111/j.14470756.1989.tb00170.x
22. Sipim P, Von Wendt L, Hartikainen-sorri A-L. The Grand Multipara-Still an Obstetrical Challenge? Obstetrical & Gynecological Survey. 1991;46(4):219-20. Available from: https://journals.lww.com/obgynsurvey/Citation/1991/04000/The_Grand_Multipara_Still_an_Obstetrical.13.aspx
23. WHO. Safe Motherhood and Child Development: How Men Can Help. 1998;XXVI(2).
24. Luke B, Brown MB. Elevated risks of pregnancy complications and adverse outcomes with increasing maternal age. Human reproduction. 2007;22(5):1264-72. https://doi.org/10.1093/humrep/del522
25. WHO. Teenage pregnancies cause many health, social problems [Internet]. World Health Organization. 2009. Available from: https://apps.who.int/mediacentre/multimedia/podcasts/2009/teenage-pregnancy-20090213/en/index.html
26. Nwagha U, Ugwu O, Anyaehie U. The influence of parity on the gestational age at booking among pregnant women in Enugu, South East Nigeria. Nigerian journal of physiological sciences. 2008;23(1-2). https://doi.org/10.4314/njps.v23i1-2.54928
27. Nordin NM, Fen CK, Isa S, Symonds EM. Is grandmultiparity a significant risk factor in this new millennium? Malays J Med Sci. 2006;13(2):52-60. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3349485/
28. Aliyu MH, Salihu HM, Keith LG, Ehiri JE, Islam MA, Jolly PE. High Parity and Fetal Morbidity Outcomes. Obstetrics & Gynecology. 2005;105(5 Part 1). https://doi.org/10.1097/01.aog.0000157444.74674.75
29. Alameda County Public Health Department. Alameda County Health Status Report 2006 [Internet]. Oakland, CA: Alameda County Public Health Department. 2006. Available from: https://acphd-web-media.s3-us-west-2.amazonaws.com/media/data-reports/city-county-regional/docs/achsr2006.pdf
30. Ahmed BI, Kenyab N, Saleh N, Azzam A, Almohandi H. Pregnancy Outcome in Grand and Great Grand Multiparity. Qatar Medical Journal. 2005;2005(1). https://doi.org/10.5339/qmj.2005.1.12
31. Bezerra Guimarães MJ, Marques NM, Melo Filho DA. [Infant mortality rate and social disparity at Recife, the metropolis of the North-East of Brazil]. Sante (Montrouge, France). 2000;10(2):117-21. Available from: http://europepmc.org/abstract/MED/10960809
32. Mathews TJ, MacDorman MF. Infant mortality statistics from the 2006 period linked birth/infant death data set. Natl Vital Stat Rep. 2010;58(17):1-31. Available from: https://pubmed.ncbi.nlm.nih.gov/20815136/