

## Maternal and fetal outcome of grandmultiparity, among women in labour, in king Abdul-Aziz medical city, experience from Saudi Arabia

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### Abstract

**Objective:** To determine the maternal and fetal outcome of grandmultiparity in King Abdul-Aziz Medical City

**Method:** This is a descriptive prospective cross-sectional study was carried out in King Abdul-Aziz Medical City in the period from June-Dec 2016.. Study population was all grand multipara admitted for delivery and managed in the labour room in King Abdul-Aziz Medical City. Data was collected using a coded direct interview questionnaire. Most of women were reviewed by me. Data was analyzed by computer using statistical package for social science (SPSS) software version 16 and the results were expressed in tables and figures consent was obtained.

**Result:** Total number of grandmultipara women included in this prospective review was 400. Regarding the maternal outcome we found that those who discharged well were 366 (91.5 %), severe morbidity 33 (8.25 %) and unfortunately 1 (0.25 %) maternal death. Those who developed complications were 124/400 (31 %). These were abnormal fetal presentation 30 (7.5 %), postpartum haemorrhage 28 (7 %), long hospital stay 22 (5.5 %), labour dystocia 20 (5 %), antepartum haemorrhage 8 (2 %), uterine rupture 8 (2 %), precipitated delivery 5 (1.2 %) and others 3 (0.8 %). Regarding fetal outcome who discharged well 370 (92.5 %), fetal death 22 (5.5 %), congenital malformation 6 (1.5 %) and severe morbidity were 2 (0.5 %). Total delivery with fetal complications was 59/400 (13.8 %). Grand multiparas were significantly associated with chronic hypertension (p 0.002), diabetes mellitus (p 0.05), anaemia (p 0.001) and gestational diabetes (p 0.005). No statistically significant associations were found in pre-eclampsia (p 0.04) and renal diseases (0.30)

**Conclusion:** We concluded that women with high birth order are at increased risk for adverse obstetric outcomes (maternal and fetal). The risk is higher for great grand multiparous women compared to grand multiparous women.

**Keywords:** grandmultipara, maternal outcome, fetal outcome, Saudi Arabia

### Introduction

Grandmultiparity has been associated with maternal and fetal adverse outcome included medical disorders such as diabetes mellitus and iron deficiency anemia, As well as obstetrics complications such as antepartum hemorrhage, mal presentation, cesarean section rate, postpartum hemorrhage, moreover a high perinatal mortality rate [1]. However, these adverse outcome can be overcome in the present of good perinatal care and satisfactory health care conditions [2, 3]. It has been reported an incidence of grand multiparity as 5.3 % with different variation of the incidence of grandmultiparity by region possibly due to the lack of consensus on the definition of grandmultiparity [1, 4]. The influences of maternal age on the pregnancy outcomes in Saudi Arabia has been inadequately studied and linked the adolescents' pregnancy association with preterm delivery and low birth weight but no other major morbidities when compared with adults' pregnancy, which may be attributed to the socioeconomic profile of pregnant adolescents in Saudi Arabia and the free access and use of maternity care [5, 6, 7].

In Saudi Arabia two major factors contributed to the high incidence of grand multiparas; large family is desirable for cultural reasons and early age of marriage. This study aimed to determine the maternal and fetal outcome of grandmultiparity in King Abdul-Aziz Medical City.

### Methodology

This is a prospective cross-sectional chart review study was carried out in King Abdul-Aziz Medical City (KAMC), KSA. KAMC considered one of the largest and most advanced medical complexes in the Middle East with a total capacity of 1095 beds. The Obstetrics & Gynecology Hospital with its latest state of the art medical technology is a pioneer tertiary care center providing specialized medical care for women. The study group included all women admitted to the labour room during the period of the study (used to calculate the incidence). Details analysis was done to the grand multipara during the study period.

The selection criteria based on all grand multipara admitted for delivery and managed in the labour room in National Guard Hospital. Refusal of the patients, diagnosed as intrauterine fetal death and previous cesarean section were excluded.

Management of labour by the hospital protocol. The following definitions were considered in this study:

- Grand multigravida has been pregnant 5 time and more
- Great grand multipara has delivered 7 or more infants before 24 weeks gestation

The data was collected using a coded direct interview questionnaire. Most of women were reviewed by the principal investigator himself.

Data was analyzed by computer using statistical package for social science (SPSS) software version 22. Categorical variables were described using frequencies and percentages. A univariate analysis was done using Chi-squared test for categorical variables. A p-value of less than 0.05 was considered statistically significant.

The ethical clearance were obtained from the hospital board. Also consents were obtained from all participants. The confidentiality of the patients were established through coding the data collecting sheet.

**Results**

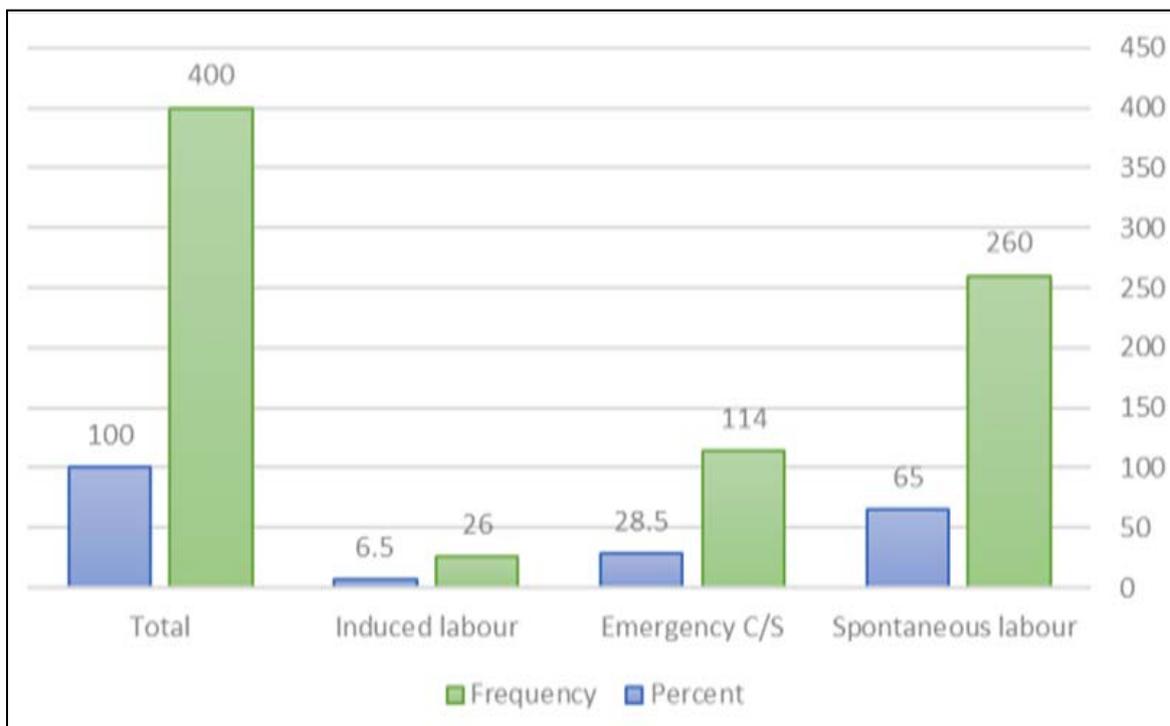
A total of 3500 women delivered during the study period. A total of 400 grand multiparous women met the inclusion criteria and were assessed. The incidence of Grand multipara in King Abdul-Aziz Medical City was calculated from all deliveries in the study period and found to 14.3 % from all deliveries. Their age was 34.3±4.5, parity was 5±1.5, number of miscarriage was 0.8±0.8 and gestational

age at time of delivery was 38.8±1.8.m. Most of them from were Saudi women 320 (80 %) and the rest were non-Saudi 80 (20 %).

The most common chronic disease and co-morbidities were chronic hypertension 24/400 (6%), Diabetes mellitus 24/400 (6%) and anaemia 19/400 (4.8%). Grand multiparas were significantly associated with chronic hypertension (p 0.002), diabetes mellitus (p 0.05), anaemia (p 0.001) and gestational diabetes (p 0.005). No statistically significant associations were found in pre-eclampsia (p 0.04) and renal diseases (0.30) (Table 1).

**Table 1:** Distribution according to chronic disease and morbidities during current pregnancy and comparison between chronic diseases and co- morbidities in grand multiparas. (n=119/400)

|                      |     |      |       |
|----------------------|-----|------|-------|
| Anaemia              | 19  | 4.8  | 0.001 |
| Gestational diabetes | 18  | 4.5  | 0.005 |
| Thyroid Diseases     | 17  | 4.3  | 0.50  |
| Preeclampsia         | 15  | 3.8  | 0.40  |
| Renal diseases       | 2   | 0.5  | 0.30  |
| Total                | 119 | 29.8 |       |



**Fig 1:** Distribution according to the mode of delivery. Maternal and Fetal Outcome of Grandmultiparity, KAMC, Saudi Arabia (n=400)

Most common mode of delivery was spontaneous labour 260/400 (65 %), emergency C/S 114/400 (28.5 %) and induced labour represented by 26/400 (6.5 %) (Figure 1).

Regarding the maternal outcome, this study revealed that who discharged well were 366/400 (91.5 %), severe morbidity 33/400 (8.25 %) and unfortunately 1/400 (0.25 %) were maternal death. Those who developed complications were 124/400 (31 %). These were abnormal fetal presentation 30/400 (7.5 %), postpartum haemorrhage 28/400 (7 %), long hospital stay 22/400 (5.5 %), labour dystocia 20/400 (5 %), antepartum haemorrhage 8/400 (2 %), uterine rupture 8/400 (2 %), precipitated delivery 5/400 (1.2 %) and others 3/400 (0.8 %) (Table 2).

**Table 2:** Distribution according to maternal outcome. Maternal and Fetal Outcome of Grandmultiparity- KAMC- Saudi Arabia (n=400) (n of complications=119/400)

| Maternal complications      | Frequency | Percent |
|-----------------------------|-----------|---------|
| Abnormal fetal presentation | 30        | 7.5     |
| Postpartum haemorrhage      | 28        | 7       |
| Long hospital stay          | 22        | 5.5     |
| Labour dystocia             | 20        | 5       |
| Antepartum haemorrhage      | 8         | 2       |
| Uterine rupture             | 8         | 2       |
| Precipitated delivery       | 5         | 1.2     |
| Others                      | 3         | 0.8     |
| Total                       | 124/400   | 31      |

Regarding fetal outcome; those who admitted to the nursery 65/400 (discharged well 370/400 (92.5 %), fetal death 22/400 (5.5 %), congenital malformation 6/400 (1.5 %) and severe morbidity were 2/400 (0.5 %). The accounted fetal complications was 59/400 (13.8%) including all deliveries with fetal complications. Those who admitted to nursery were 65/400 (16.2 %).The complications were Fetal Macrosomia 32/59 (8 %), low Apgar score 6 (1.5 %), Meconium stain 5 (1.2 %), fetal trauma 2 (0.5 %), asphyxia 4 (0.1 %), Fresh still birth 10 (2.5 %).Out of the total baby those who admitted to nursery were 35/65 (53 %) were admit from 1-3 days and 30/65 (47 %) admitted from 4-8 days (Table 3).

**Table 3:** Distribution according to fetal outcome. Maternal and Fetal Outcome of Grandmultiparity- KAMC- Saudi Arabia (n=400) (n of complications=119/400)

| Fetal outcome              | Frequency | Percent |
|----------------------------|-----------|---------|
| Discharged                 | 370       | 92.5    |
| Death                      | 22        | 5.5     |
| Congenital malformation    | 6         | 1.5     |
| Severe morbidity           | 2         | 0.5     |
| Total                      | 400       | 100     |
| <b>fetal complications</b> |           |         |
| Fetal Macrosomia           | 32        | 8       |
| Fresh still birth          | 10        | 2.5     |
| Low Apgar score            | 6         | 1.5     |
| Meconium stain             | 5         | 1.2     |
| Asphyxia                   | 4         | 0.1     |
| Fetal trauma               | 2         | 0.5     |
| Total                      | 59/400    | 13.8    |

## Discussion

The study demonstrates that in this population, women who had previously delivered five or more babies do not have a significantly increased incidence of complications particularly in the intrapartum period compared with women who had previously delivered two or three babies.

Regarding the maternal outcome this study confirmed the findings in the previous studies [8, 9] which did not find increased complication rates among grandmultipara. These studies were conducted in ultra-orthodox Jewish communities with high socio-economic background and equal access to medical care. High socio-economic backgrounds, however, are not a prerequisite for favourable results; both Toohy *et al.* [10] and King *et al.* [11] reported highly favorable outcomes in a group of women with low socio- economic status. In contrast two other studies from Israel reported an increase in classical complications said to be associated with grandmultiparity [12, 13]. This difference may be because neither study used aged matched controls and advanced maternal age has been associated with a higher incidence of chronic hypertension, diabetes, and other antepartum complications which may also influence intrapartum events. Babinski *et al.* [14] did match for age and socio- economic status. They found that high parity groups have their own risk factors, but the rate of some complications decreases with higher parity. Thus in conclusion our study adds weight to the overall view that in a modern healthcare setting, grandmultiparity is not associated with a significant increased risk of the classic complications said to be associated with grandmultiparity. This correlated with literature as in multivariate analysis of parity and pregnancy outcome reported a significantly

increased risk of "any obstetric complication" in GM when compared with primiparas [15]. The obstetric complications included antepartum hemorrhage, gestational diabetes, pregnancy induced hypertension, premature rupture of the membranes, and threatened premature labor, postpartum hemorrhage, and third-degree tear [15].

The perinatal mortality in grand multipara is also high due to various factors like preterm labour and prematurity, premature induction of labour. In this regard this study had revealed that fetal complications in about 13.8 %. Those who admitted to nursery were 16.2 %.The complications were fetal macrosomia 8 %, low Apgar score 1.5 %, meconium stain 1.2 %, fetal trauma 0.5 %, asphyxia 0.1 % and fresh still birth 2.5 %.When compared with the literature that grand multiparty was found an independent risk factor for labour dystocia, and perinatal mortality. Great grand multiparty was found an independent risk factor for labour dystocia, labour dystocia, and perinatal mortality. Grand and great grand multiparty are independent risk factors for labour dystocia and perinatal mortality [16].

We can conclude that women with high birth order are at increased risk for adverse obstetric outcomes (maternal and fetal). The risk is higher for great grand multiparous women compared to grand multiparous women.

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## Conflict of Interest

Authors declared that there was no conflict of interest

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