

**SAINT PAUL'S HOSPITAL MILLENNIUM MEDICAL
COLLEGE**

DEPARTMENT OF PUBLIC HEALTH



**THE ELDERLY PRIMIGRAVIDA: ASSESSMENT OF MAGNITUDE AND
PREGNANCY OUTCOMES AT SAINT PAUL'S HOSPITAL
MILLENNIUM MEDICAL COLLEGE, ADDIS ABABA, ETHIOPIA. A
FIVE YEARS REVIEW, SEPT 2005 - AUGUST 2009 EC.**

**A RESEARCH REPORT TO BE SUBMITTED TO THE DEPARTMENT
OF PUBLIC HEALTH IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF MEDICINE**

BY: HALID MELKAMU (INTERN)

JULY/2018

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Summary

Introduction: Maternal and child health is affected by many variables and maternal age is the most important of them. Woman having their first pregnancy at the age of 35 or above are considered elderly primigravida and these pregnancies are considered high risk, traditionally. The cohort of this group of mothers is increasing for various reasons; Pursuit of career or financial goals, better contraception, longer life expectancy, higher education etc., being mentioned as common reasons. Several studies conducted in different parts of the world indicated that elderly primigravida pregnancies are at higher risk of bad outcomes both maternal and perinatal wise compared to younger counterparts. Though, previously, this problem was of developed countries, with the current globalization and sociocultural advances of societies, it has become a global fact that women are delaying childbearing.

Objectives: The aim of this study was to determine the magnitude and pregnancy outcomes of elderly primigravida pregnancies at Saint Paul's Hospital Millennium Medical College over the past five years 2005 (Sept.) to 2009 (august) EC.

Methods: A facility based Descriptive cross sectional study design was employed to analyze 108 cases of elderly primigravida from a total of 38,501 deliveries in the hospital in the 5 years period. The medical records of this patients were retrieved from record room and required data extracted using a well-designed data abstraction tool and analyzed using SPSS version 20. Descriptive analysis of the data; percentages, means, median and mode were calculated. Frequency tables, graphs and pie charts are drawn to present the results.

Results: There were a total of 38,501 deliveries in the hospital in the past five years; 2005 (Sept.) to 2009 (august) EC. The magnitude of elderly primigravida in this study was 0.28% and both maternal and perinatal outcomes of these pregnancies were found to be higher than young primigravida of reference literatures and this was consistent with findings from those studies.

Conclusion: The Magnitude of elderly primigravida in our center is low. Adverse maternal and perinatal outcomes are also found to be high.

Key words: *Elderly primigravida, Maternal Outcomes, Perinatal Outcomes.*

Abbreviations and Acronyms

APH	Ante Partum Hemorrhage
BMI	Body Mass Index
CDC	Center for Disease Control and Prevention
CS	Cesarean Section
CPD	Cephalo-Pelvic Disproportion
DM	Diabetes Mellitus
EC	Ethiopian calendar
ELB	Extremely Low Birth Weight
FIOL	Failed induction of labour
GA	Gestational Age
HEG	Hyper Emesis Gravidarum
IGTT	Impaired Glucose Tolerance Test
IUFD	Intra uterine fetal demise
LBW	Low Birth Weight
NBW	Normal Birth Weight
NICU	Neonatal Intensive Care Unit
ObGyn	Obstetrics and Gynecology
PPH	Post-Partum Hemorrhage
PIH	Pregnancy Induced Hypertension
PG	Primigravida
PROM	Premature Rupture of Membranes
SPHMMC	Saint Paul's Hospital Millennium Medical College
SPSS	Statistical Package for social sciences
VLBW	Very Low Birth Weigh

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1. Introduction

1.1. Background

Maternal and perinatal health is influenced by sociodemographic factors including maternal age, parity, social class and ethnicity (1). Elderly nulliparity is considered high risk, traditionally, and studies conducted in different centers revealed conflicting results; some of them claiming a comparable outcome, both maternal and perinatal, of old primigravida women with their younger counterparts, while others found that there is, in fact, increased risk of old primigravida women, both obstetric and perinatal wise (2).

The term old primigravida was used loosely with no clear age cutoff until 1958 GC when the counsel of the international federation of obstetrics and gynecology defines it as being woman with first pregnancy at age of 35 and above. Since then it has become traditional that 35 years of age is the cutoff to define advanced maternal age. Despite this fact some investigators still believe that “age is a continuum of risk” and put themselves against giving a cutoff age limit (3).

All over the world women are delaying childbearing for various reasons (2). With socio cultural advances, what previously was the case in developed countries, delayed child bearing, currently has become a global fact (4). Pursuit of career or financial goals, better contraception, longer life expectancy, higher education etc., have been mentioned as possible reasons for this phenomenon (2). For example, in Finland in 1997, 8.3% of all primigravida women were 35 years of age and above. By 2007, this had increased to 10.4 % and another study in Sweden showed a comparable prevalence of elderly primigravida in the year 2007 as that of Finland, 10% (5). In general the cohort of women >35 years old in their first pregnancy is increasing (2).

Traditionally pregnant women older than 35 years are considered at increased risk for complications during pregnancy and labor (6, 7). Increased incidence of preterm labour, post-partum hemorrhage, hypertensive disorders, Caesarean birth, and maternal and perinatal mortality has been reported, However, it has also been suggested that, if these women do not have hypertension or diabetes, the course and outcome of pregnancy will be comparable to that in primigravida of younger age (2). The risk related to pregnancy in women above 35 years of age, especially primigravida, is thought to be related to ageing reproductive system, ageing body

and the actual increased medical risk that comes with ageing; hypertension, diabetes mellitus, increased BMI (2, 6).

In recent years several studies have tried to show the obstetric risk carried by advanced maternal age, with particular focus on elderly primigravida (2). Most, almost all, of these studies are confined to developed countries and results from these studies come with contradictory findings (6) and none such studies have been conducted in our center, in fact, in our country, as well. Throughout this study I will try to see the figure of the situation in our center.

1.2. Statement of the problem

Several studies have examined advanced maternal age in relation to adverse pregnancy outcomes, including but not limited to stillbirth, preterm-delivery, gestational diabetes and hypertension, small and large for gestational age, as well as elective or emergency C-sections (3, 8). Unfortunately, many studies have reported contradictory conclusions about the specific outcomes adversely affected by maternal age as well as the strength of the association (9). The discordance could be due to a variety of factors, including the differences in the populations studied, the definition of adverse outcomes that were examined and the choice of the reference group (2). Despite the contradictory findings, overall research suggests that advanced maternal age is linked to various adverse pregnancy outcomes that may affect both mother and new born (2). Numerous articles have concluded that advanced maternal age is more likely to be associated with increased obstetric and maternal complications, including adverse labor and birth outcomes (10).

Women of advanced maternal age are more likely to exhibit various delivery complications. The risk of Caesarean delivery increases with maternal age for both primiparas and multiparas, and an even higher difference for nulliparous women compared to women of younger reproductive year especially with regard to CS rates. In addition to Caesarean delivery, labor inductions, long postpartum hospitalizations, prolonged and dysfunctional labor, excessive bleeding and breech presentation have been shown to increase with maternal age and shown to be more common on the elderly primigravida (2).

Similar studies conducted in the developing world, like ours, are scarce (5) and in fact none have been done in our center. Moreover obstetric and perinatal outcomes have multiple factors contributing to them (1). One such factor determining obstetric and perinatal outcome is the

sociodemographic characteristics of the population studied and in fact to a higher degree is the sophistication and advance of the obstetric care of a particular setup, which, actually, is ever advancing (2). Hence it's wise to know the exact figure of the condition in a given setup with a given advance of obstetric care at a given period of time, so that the actual obstetric effect of being an elderly primigravida can be compared with results from other centers (2).

Advances in antenatal care, including screening and treatment options have led to better antenatal and perinatal outcomes, These options, together with the increasing number of women childbearing for the first time after the age of 35 years old should possibly lead to a reevaluation of the definition of old primigravida (2), Hence, this study is intended to evaluate the actual figure of the condition in our center with the current level of advancement in obstetric care and generate baseline data that could serve as a spring board for other fellow investigators.

1.3. Significance of the study

Maternal and child health is one of the focuses of the current health system of the country and hence it is of paramount importance to identify high risk pregnancies and give a special obstetric and perinatal care to such pregnancies in order to achieve the expected goal on maternal and child health. Though several studies have evaluated the obstetric risks carried by elderly primigravida pregnancies, almost all are confined to developed countries and even their findings are conflicting and in fact none has been conducted in our center. Moreover, with the current “Empowering Women” phenomenon and socio-cultural advancement of the society the number of women delaying their first pregnancy to later ages is increasing. The primary purpose of this study is, hence, to generate baseline figure of the problem in our center that will open door for further investigators and help as a spring board to look in to the problem deeper and it will also help health policy makers and physicians practicing in obstetrics to give the due care for elderly primigravida pregnancies.

2. Literature Review

1.1. Magnitude

The global prevalence of advanced maternal age pregnancies is increasing and expected to be different for different population groups. It's natural that more developed societies to have a higher prevalence which is attributed to the large scale women education and decision making and empowerment compared to their counterparts in developing countries, where a woman delaying pregnancy is not common, though it's a changing fact in the contemporary universe (4).

Extremes of maternal age adversely affect pregnancy outcomes. Teenage pregnancy, under 19 years of age, has been thoroughly studied because it is a public health concern in both developed and developing countries, especially in the developing world. On the contrary, advanced maternal age has only more recently become a leading topic for researchers (2).

According to the CDC in the United States mean maternal age increased to 25.8 years in 2012, from 25.6 years in 2011 (11). Additionally, first births to women 35 and older has risen steadily from 1 out of 100 births in the 1970s compared to 1 out of 12 births in 2006 (11,12). According to Martinez, Daniels and Chandra, the number of first births to women age 35 to 44 years, rose from 601 in 1995 to 976 in 2006 to 2010 (13). It has been widely documented that maternal age in pregnancy is increasing around the globe (14). In defining this rising trend, a commonly accepted definition of advanced maternal age is 35 years or greater, although some researchers arguing that advanced maternal age should defined as either earlier or later, at 30 or 40 years respectively (8).

Another study in Finland came up with the prevalence of old primigravidae to be 8.3% in 1997 and repeated in 2007 and showed the prevalence to rise by about 2% in the ten years period. Similar study in Sweden showed the prevalence of old primigravidae to be 10% in 2007 which is comparable to that in Finland, countries with comparable socio cultural and economic background (4).

A study done at king Hussein medical center, Aman, Jordan in 2000 GC found a prevalence of 1.6%. In Saudi Arabia a study conducted in king fahd hospital, khobar, kingdom of Saudi Arabia in 2003, the prevalence of old primigravidae was 8.3% (15, 16).

Another study conducted in Port Harcourt Teaching Hospital, 2004 and published on Niger journal of medicine come up with a prevalence of 2% (1).

A five year review research conducted in a teaching hospital in Nigeria and published in 2014 on Niger J Med founds the incidence of elderly primigravidae to be 2.6% (1). In another study in Nigeria which was a 10 years systematic review of maternal and perinatal outcomes from 2001 to 2010 and published in 2011 the incidence of elderly primigravidae was 0.42% (2). 0.07% prevalence of elderly primigravidae has been reported by Ilesanmi (1998) in Ibadan, Nigeria (17).

Prevalence of 0.65% have been reported by Sivalingam and Avalani (1989) in Malaysia after they prospectively analyzed 90 cases of elderly primigravidae over a two years period (18).

1.2. Pregnancy outcomes

It is generally assumed that women >35 years of age have an increased risk for complications during pregnancy. Hypertension and diabetes mellitus, both chronic and pregnancy related are thought to be more common in the elderly pregnant. Beside these, the ageing reproductive system and the ageing body together add to the more common occurrence of intrapartum and newborn complications (2).

The incidence of pregnancy-induced hypertension (PIH) in 25–29 year old nulliparous and multiparous women amounts to ~7 and 3%, respectively. By the age of 35 years in women matched with the controls, these incidences have doubled to 14 and 7% respectively (19, 20).

Pre-eclampsia affects three times as many gravidas >35 years than those of younger age, irrespective of parity (2). The incidence of chronic hypertension increases with age. Pre-eclampsia occurs more frequently in women with pre-existent hypertension than in previously normotensive women; the incidence varies from 10 to 50% (2).

In 1996 Anate M and et al conducted a comparative study of obstetric outcomes between the elderly and younger primigravidae and concluded that there is no significant difference with regard to gestational age at delivery, pre eclampsia/PIH, instrumental delivery, and need for oxytocin between elderly and younger primigravidas, on the other hand there was statistically significant difference in the incidence of fetal malpresentation (elderly PG 5%, young 1.4%

p<0.001), PPH (elderly PG 1.7%, young 0.7% p<0.001), CS (elderly PG 36.7%, young 6.9% p<0.001), perinatal morbidity (elderly PG 26.7%, young 12.9% p<0.005), fetal anomalies (elderly PG 1.7%, young 5.7% p <0.005) and perinatal mortality (elderly PG 4.2%, young 1.4% p<0.005) (7).

A study conducted by Oboro VO and et al in 2006 concluded that pregnancies in the old primigravidae are prone to complications, but the overall perinatal outcomes were good, when managed accordingly. However, Birth trauma and perinatal mortality are the same between the two groups (21).

Prysak M and et al conducted a retrospective record review at three suburban hospitals in 1995 and nulliparous women 35 years and above have higher rate of antepartum, intrapartum and newborn complications than nulliparous women aged 25-29 years but not an increased perinatal mortality (20).

Ojule JD and et al conducted a two years retrospective case-control study in 2011 and their conclusion was that the elderly primigravidae are at increased risk of preterm and cesarean delivery. In their study the CS rate of the elderly primigravida was 58.1% compared to 32.1% in their young primigravida control counterpart's with p value of 0.001. The preterm delivery rate was 10.8% vs. 5.1% with p=0.03. Birth asphyxia in the elderly primigravidae was 9.5% and there was no still birth in these groups while the younger controls have 1.1% still birth. There was no congenital malformation in both groups (6).

A case control study conducted In Singapore by Tan KT and et al in 1994 when they examined the risk involved with advanced maternal age, the obstetric performance and neonatal outcome compared to younger controls in the context of modern obstetric care in Singapore and their findings looked; pre-eclampsia was the commonest complication (17.1%), followed by PTL (16.2%) and DM (including IGTT) (16.2%). In the control group the corresponding incidences were 10.8%, 6.3%, and 2.8%. The CS rate was twice as common in the study group (32.4%). Labour induction and instrumental delivery were common in the control group (28.8% and 31.5%, respectively) than the study group. The perinatal mortality rate of the study group was similar to the controls and there was no maternal mortality recorded (22).

In India in 1994 Allahbadia and et al investigated 317 cases of elderly primigravidae over a three years period (Jan. 1987-Jan. 1990) prospectively at Lokmania Tilak municipal general hospital, Mumbai and they found a higher incidence of breech presentation, prolonged labour and operative intervention. There was no maternal mortality in this study, as well (23).

Eleje GU and et al made a five year review of pregnancy outcome of elderly primigravidae in 1994 in a low resource setting compared to younger controls and their findings were consistent with above mentioned researches. CPD, fetal distress and primary PPH were statistically higher in the study group ($p < 0.05$) and the CS and episiotomy rates as well (53.7% and 94.6%, respectively). They have also looked into other parameters: and anemia, HEG, DM and fibroids were also statistically higher in the study group. Naqvi MM and et al also reported a comparative findings in 2004 (24, 25).

Enehu AU and et al in 2004 conducted a comparative study of perinatal outcome among elderly and younger nulliparae at University of Port Harcourt Teaching Hospital and their conclusion was that Elderly nulliparae aren't at increased risk of adverse perinatal outcome compared to younger counterparts (1).

A case control study in nigeria in 2011 that compared the maternal and perinatal outcomes between elderly and younger primigravidae over a period of 10 years from 1st January 2001-31st December 2010 came up with findings that are in the side of those studies that report increased risk in the elderly primigravidae. Among the elderly primigravidae 22.34% women developed pregnancy induced hypertension and/or preeclampsia during antenatal period compared 6.38% in the control and the difference was statistically significant and 52.13% of the elderly primigravidae had caesarean delivery compared to 12.76% of the younger mothers, $X^2=30.26$, $p < 0.0001$. There was no statistically significant difference in the incidence of premature rupture of membranes (PROM), placental abruption, preterm labour/contractions, instrumental vaginal deliveries and fetal outcome in the two groups. There were 3 babies delivered with congenital anomalies in the studied population. A baby each in both the cases and control group with spina bifida occulta and another in the case with hypospadias. However, there was no statistically significant difference in the occurrence of these anomalies between the two groups (17).

In Malaysia a three years prospective study evaluated 90 cases of elderly primigravida from 1 Jan 1983 to 31 Dec 1985 and their finding was consistent with other studies. PIH (31.3 %), prolonged labour (21.2 %), LBW (8.9%), CS rate of (54.4%), HEG (3.3 %) and Macrosomia (6.7 %) all of which are higher compared to the general hospital population (18).

3. Objectives

3.3. General Objective

- To assess the magnitude and pregnancy outcomes of Elderly primigravidae pregnancies at SPHMMC, Addis Ababa, Ethiopia over a five years period, Sept. 2005 - August 2009 EC.

3.4. Specific Objectives

- To determine the magnitude of Elderly primigravidae at SPHMMC over the years September 2005-August 2009 EC.
- To assess the maternal outcomes of elderly primigravida pregnancies with in the years September 2005 to August 2009 EC at SPHMMC.
- To identify the perinatal outcomes of elderly primigravida pregnancies in the years September 2005 to August 2009 EC at SPHMMC.

4. Methods

4.3. Study Area

The study is conducted at St. Paul's Hospital Millennium Medical College (SPHMMC). SPHMMC is located in the capital city of Ethiopia, Addis Ababa. It is one of the largest hospitals in the country and it was built in 1969 by Emperor Haile Selassie in collaboration with the German Evangelical Church. It was Named Saint Paul General Specialized Hospital until 2008 when a medical school opened at the hospital with the intention to alleviate the severe shortage of medical doctors at the country and since then its name changed to SPHMMC. It currently has 392 beds, with an annual average of 200,000 patients and a catchment population of more than 5 million. ([https://en.m.wikipedia.org/wiki/St. Paul's Hospital Millennium Medical College](https://en.m.wikipedia.org/wiki/St._Paul's_Hospital_Millennium_Medical_College)).

4.4. Study Design

A facility based descriptive cross sectional study was employed to analyze 108 cases of elderly primigravida.

4.5. Population

4.5.1. Source Population

The source population for this study is all pregnant women who came to SPHMMC for labor and delivery.

4.5.2. Study Population

The study population for this study is all elderly primigravida pregnancies that came to SPHMMC for labor and delivery from September 2005 to August 2009 EC.

4.5.2.1. Inclusion criteria

Women who delivered at SPHMMC from September 2005- August 2009 EC.

4.5.2.2. Exclusion Criteria

- Women with incomplete medical records
- Women with multiple gestation

4.6. Sample size and Sampling Procedure

The medical records of women who fulfilled the inclusion criteria is selected using systematic random sampling. Using age as a reference, from delivery registry charts at labour ward and emergency ObGyn OPD, the medical record number of all women whose age is ≥ 35 is listed in the chronological order from September 2005-August 2009 EC and from this those who are elderly primigravida are identified and put chronologically. Systematic random sampling technique was planned to extract the required sample size from this list but there were a total of only 108 elderly primigravida pregnancies that fulfilled the inclusion criteria in the five years period which is less than the calculated sample size, which is 160, and hence we take them all and analyzed them.

4.6.1. Estimation of Sample Size

The Sample size was estimated by using the formula: $n = (Z_{\alpha/2})^2 \cdot P(1-p) / d^2$ using the Assumptions;

$Z_{\alpha/2}$ = the standard normal deviation, 1.96, which corresponds to the 95% confidence interval.

P = the best estimate of the prevalence in the target population, for this study proportion estimate of 0.0042 is used from a study in Nigeria conducted in 2011 which is believed to be comparable to our setup and also a latest one (2011), since we don't have no estimate in our center.

Taking a p value of 50 % will, as well, be over estimation because it isn't this common to see elderly primigravida, from daily clinical practice experience, so p value of 50% isn't taken for this study.

q = complementary proportion = $(1-P) = 0.9958$

d = degree of accuracy desired, since the p value is less than 40 % ($p=0.0042$) the degree of accuracy desired will be taken as 1 % i.e. $d=0.01$.

Where: n = the desired sample size

$$n = (1.96)^2 \times 0.0042 \times 0.9958 / (0.01)^2$$

Hence $n=160$, but there were only 108 cases of elderly primigravida and we analyzed them all.

4.7. Data Collection and Analysis Procedure

Data was collected from patient medical records using a well-designed data extraction tool. The necessary demographic variables and the maternal-perinatal outcomes are extracted from the patient's medical records. Data was checked for completeness and repetitions and was feed to SPSS version 20 and descriptive analysis was done and results presented with frequency tables, graphs and pie charts.

4.8. Data Quality control

Each questioner was given a number based on that data was checked after collection for consistency and completeness and during feeding to the SPSS care is taken to avoid repetition of the same data. Data cleanup also was done before Analysis started.

4.9. Ethical Clearance

Data collection was started after ethical clearance been granted from department of Public health, SPHMMC, ethical clearance committee.

4.10. Variables of the Study

- **Demographic characteristics;** age, marital status, religion, and ethnicity.
- **Pregnancy Outcome of the sample population;**
 - Antepartum outcomes; HEG, PIH, DM, PROM and APH.
 - Intrapartum outcomes; duration of labor, malpresentation, Augmentation, Onset of Labor, FIOL, CS delivery, PPH, instrumental delivery and Episiotomy.
 - Perinatal Outcomes; IUFD, Still Birth, Birth Asphyxia, GA at delivery, Birth weight, Birth Defects, and NICU Admission.

4.11. Operational Definitions and Definition of Terms

- **Pregnancy Outcomes:** Maternal and Perinatal outcomes.
- **Maternal Outcomes:** for this study maternal outcomes include; *Antepartum outcomes* (HEG, PIH, DM, PROM and APH) and *Intra Partum Outcomes* (duration of labor, malpresentation, Augmentation, induction, FIOL, CS delivery, PPH, instrumental delivery and Episiotomy).

- **Perinatal Outcomes:** IUFD, Birth Asphyxia, GA at delivery, Birth weight, Birth Defects, and NICU Admission.
- **Elderly Primigravida:** woman whose first pregnancy occurs at the age of ≥ 35 years of age. (*FIGO, 1958*)
- **Young primigravida:** woman who gets pregnant before 35 years of age. (*Ojulu JD, et al 2011*)
- **Birth Asphyxia:** Five minute Apgar score less than 7. (*Ojulu JD, et al 2011*)
- **Prolonged Labor:** duration of Labor of ≥ 18 hrs
- **LBW:** Birth weight between 1500 and 2499gm. (*Uptodate 21.6*)
- **VLBW:** 1000gm- 1499gm. (*Uptodate 21.6*)
- **ELBW:** <1000gm. (*Uptodate 21.6*)
- **NBW:** Birth weight between 2500gm and 3999gm. (*Uptodate 21.6*)
- **Macrosomic:** Birth weight ≥ 4000 gm. (*Uptodate 21.6*)
- **Preterm:** Delivery before 37 weeks of gestation. (*Uptodate 21.6*)
- **Term:** Delivery between 37 and 42 weeks of gestation. (*Uptodate 21.6*)
- **Post term:** Delivery that occurs past 42 weeks of gestation. (*Uptodate 21.6*)

5. Results and Discussion

Results

Socio Demographic Character

There were a total of 38,501 deliveries at the hospital from the year September 2005 to August 2009 of which 108 were elderly primigravida. All the elderly primigravida were less than 40 years old and 53.4 % were 35 years old. The maximum age is 39. Mean age at delivery was 35.95 with median and modal age of 35. The following bar histogram depicts the age distribution of the elderly primigravida mothers.

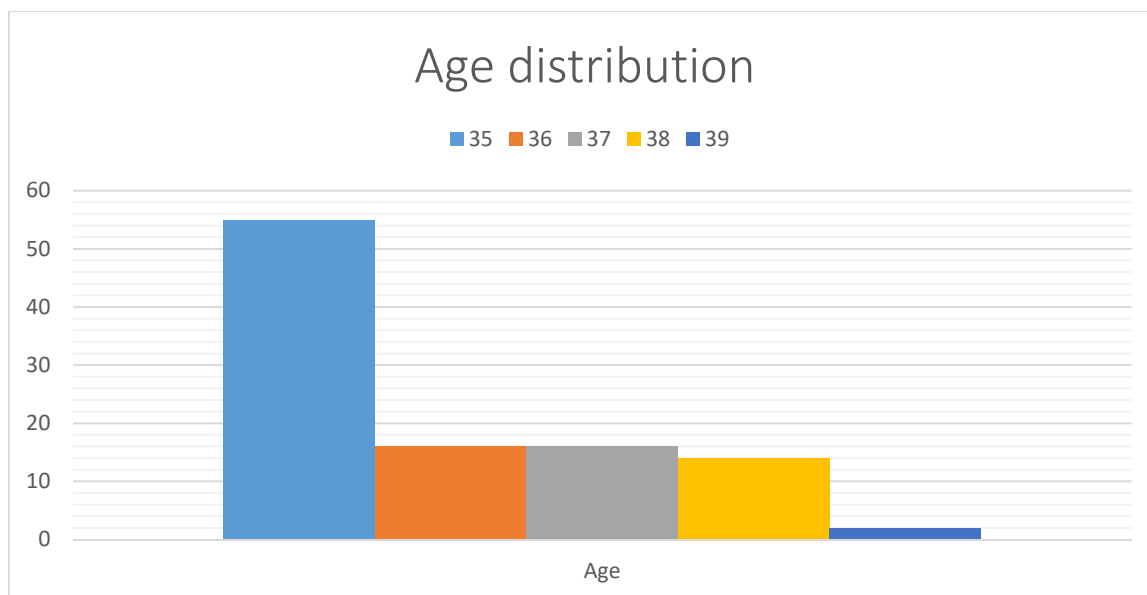


Figure 1. Age distribution of old primigravida at SPHMMC during the study period

With regard to other demographic characteristics all elderly primigravida were married except there was one single elderly primigravida in the study. Amhara and Oromo are the most dominant ethnic groups in the study, Oromo being 48.5% and Amhara 45.8%. Residence wise we classified the study group in to from Addis and from outside Addis and Sixty eight percent of the women included in the study are from Addis Ababa and the rest 32% from outside Addis Ababa.

It was difficult to get the educational level of the study population in that; specific educational level not documented some times and in others educational level not documented at all. We prefer excluding the educational level from the questioner due to incompleteness. The following frequency table summarizes the demographic character of the study population.

Table 1. Socio Demographic figure of elderly primigravida at SPHMMC during the study period

Variables	Frequency	Percent
Marital Status		
Married	95	92.2%
Single	1	1%
Undocumented	7	6.8%
Ethnicity		
Oromo	50	48.5%
Amhara	42	40.8%
Gurage	1	1%
Silte	2	1.8%
Undocumented	8	7.8%
Address		
Addis Ababa	70	68%
Outside of Addis Ababa	33	32%
Religion		
Orthodox	81	78.6%
Muslim	6	5.8%
Protestant	11	10.7%
Not documented	5	4.9%

Magnitude of Elderly Primigravida

There were a total of 38,501 deliveries at the hospital from the year September 2005 to August 2009, of these 108 were elderly primigravida making the Magnitude of elderly primigravida 0.28%. Five of the elderly primigravida were excluded from the study, three were twine pregnancies and 2 had incomplete medical record.

Pregnancy Outcomes

Pregnancy induced hypertension, diabetes mellitus, antepartum hemorrhage, PROM, prolonged labor, and caesarian section rate among others were the maternal outcomes of interest that this study has focused on.

Pregnancy induced HTN was categorized in to preeclampsia, severe preeclampsia, gestational HTN and other components, and the prevalence of HTN in general during pregnancy was 48.5% with the prevalence of preeclampsia being 14.6%, severe preeclampsia 4.9%, chronic HTN

10.7%. The following frequency table shows the distribution of HTN related to pregnancy in the study group.

Table 2. Types and frequency of Hypertension in pregnancy for the elderly primigravida at SPHMMC during the study period.

Pregnancy related HTN	Frequency	Percent
No PIH	53	51.5%
Preeclampsia	15	14.6%
Superimposed Preeclampsia	5	4.9%
Severe Preeclampsia	5	4.9%
Chronic HTN	11	10.7%
Gestational HTN	14	13.6%
Total	103	100%

The prevalence of DM was 22.3% and gestational DM was the most prevalent, 20.4 % and Pregestational 1.9%. Antepartum hemorrhage occurred in 9 (8.7%) of the mothers, in 6 (5.8%) it's due to placenta previa and in 3 (2.9%) due to abruption. PROM occurred in 15.5% of the mothers. Labor was prolonged, greater than 18 hrs. In 35 (34.3%) of the mothers.

Malposition and malpresentation were not common occurrences as well is labor induction and augmentation. Face and breech presentation are the only malpresentations encountered. The rate of CS delivery is 19.4% of which 2.9% elective and 16.5% emergency. There was not a single case of PPH and labor was augmented in 5 (4.9%) of the elderly primigravida. Episiotomy was done for 63 (75.9%) of the elderly primigravida. There was 1 (1%) forceps delivery. The maternal outcomes are summarized in the following frequency distribution table. There was no maternal mortality encountered in the study.

Table 3. Maternal pregnancy outcomes of the elderly primigravida at SPHMMC during the study period.

Maternal Outcomes	Frequency	Percent
Diabetes mellitus		
Gestational	21	20.4%
Pre gestational	2	1.9%
No DM	80	77.7%
PROM		
No PROM	87	84.5%
Had PROM	16	15.5%
APH		
Had no APH	94	91.3%
APH due to PP	6	5.8%
APH due to AP	3	2.9%
DOL		
<18hrs	67	66.3%
>=18hrs	34	33.6%
Labor not started	3	0.1%
Malpresentation		
Breech	5	4.9%
Face	1	1%
No Malpresentation	95	94.1%
Malposition		
POP	3	2.9%
No Malposition	98	97.1%
Cesarean Section		
No CS	83	80.6%
Elective CS	17	16.5%
Emergency	3	2.9%

Onset of Labor	Frequency	Percent
Spontaneous	96	93.2%
induced	5	4.9%
Labor not started	2	1.9%
Augmentation of Labor		
Labor not Augmented	96	95%
Labor Augmented	5	4.9%

The birth weight, Apgar score and gestational age at delivery along with birth defect and still birth were the perinatal outcome measures that are employed in this study to assess the rate of bad perinatal outcome in general.

The first, the fifth and tenth minute Apgar scores were retrieved from the charts but due the large scale incompleteness of the tenth minute Apgar score recording we excluded it from the questioner. The fifth minute Apgar score of less than 5 is used to define perinatal Asphyxia. Accordingly, a total of 9 babies (8.7%) have fifth minute Apgar score of less than 7 hence making prevalence of perinatal asphyxia 8.7%. The following bar graphs will summarize the first and fifth minute Apgar score of the study participants.

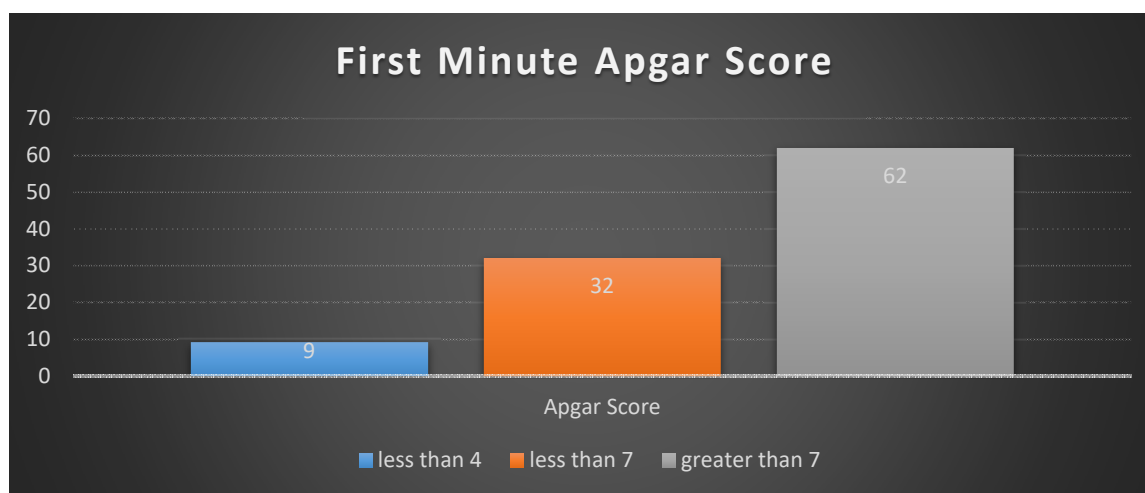


Figure 2. First Minute Apgar score of the neonates delivered from the study subjects during the study period.

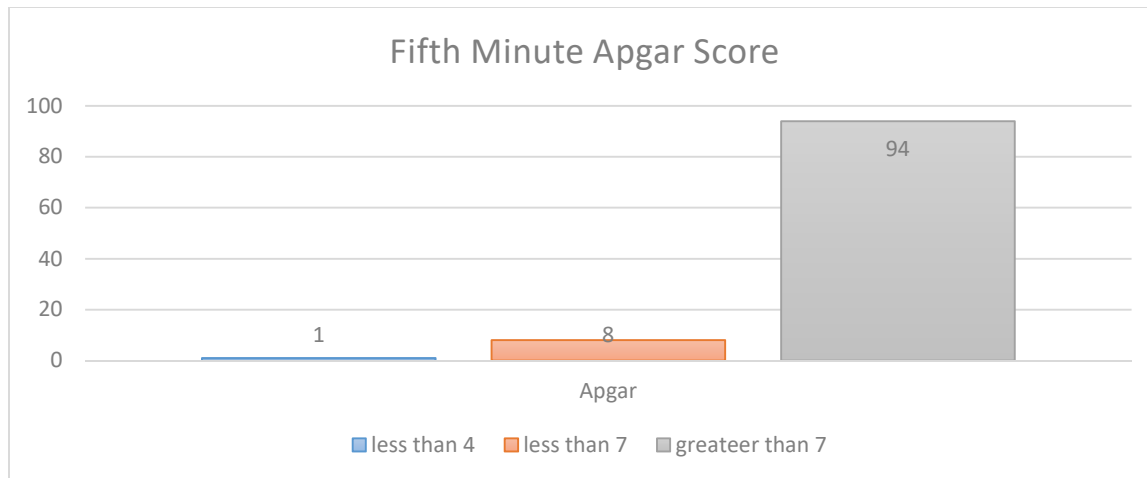


Figure3. Fifth minute Apgar score of the neonates delivered from the study subjects during the study period.

Still birth and intrauterine fetal demise were a rare occurrences in that there was only one case of still birth and it was a fetus delivered from severe preeclamptic mother with no ANC follow-up and it was an IUFD detected upon first evaluation in Hospital.

There were no deliveries that extend beyond 42 wks and all were above 28 wks. The maximum gestational age at delivery was 39 wks and the minimum was 30 wks. The rate of preterm deliveries, deliveries less than 37 wks is 72 (69.9%) and the rest 31 (30.1%) are term deliveries, ranging in the week 37 to 39 wks. The mean gestational age at delivery was 37.03 wks.

Majority of the new born 98 (95.1%) have NBW and only 2 (1.9) % macrosomic baby. There was 1 (1%) VLBW and 2 (1.9%) LBW. There was no case of ELBW. The minimum birth weight at delivery was 1300 gms and the maximum was 4100 gms. The mean birth weight at delivery 3218.5 gms and mode birth weight of 3100 gms. The following figure summarizes the birth weight outcome of the study participants.

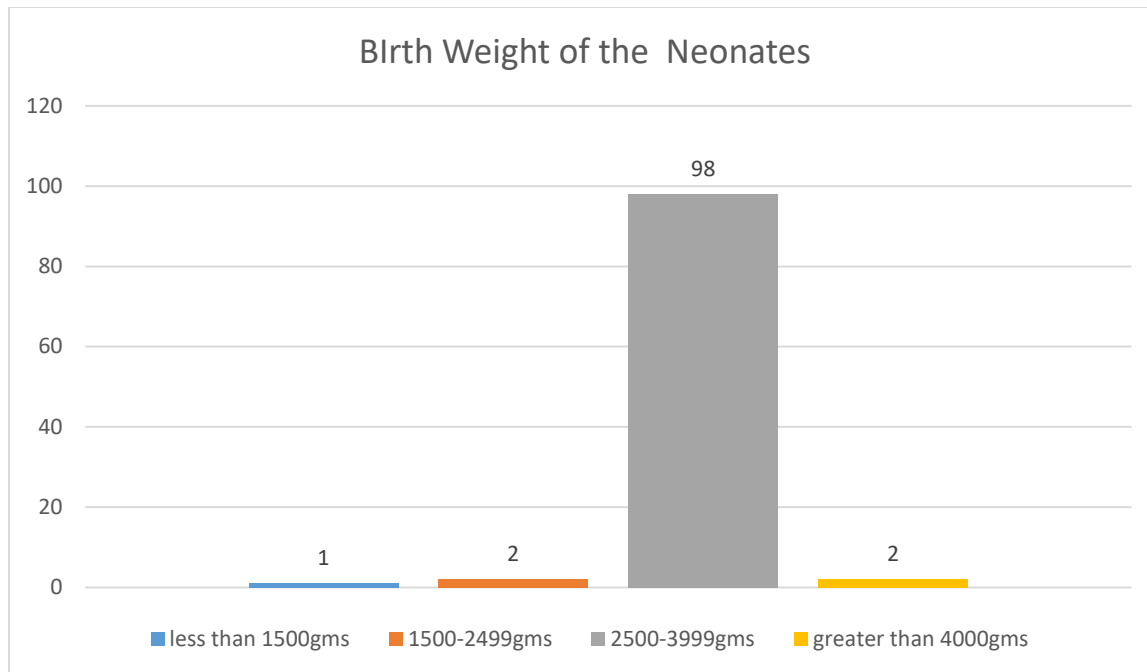


Figure 4. Birth weight outcome of neonates delivered from the study Subjects at SPHMMC during the study period.

The rate of NICU admission was 42 (41.2%) and there was no birth defect in all the elderly primigravida deliveries.

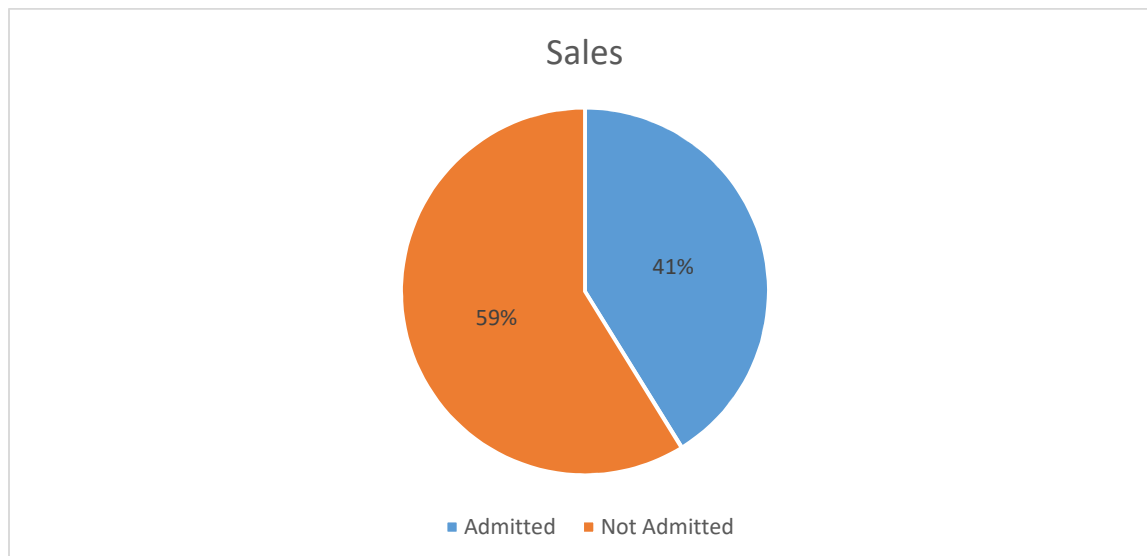


Figure 5. Rate of NICU Admission among neonates delivered from the study participants at SPHMMC during the study period.

Discussion

The prevalence of elderly primigravida in this study, 0.28 %, is less than that reported in Finland (8.3%) and Sweden (10%) in 1997 and 2007 respectively (4). It is also less than prevalence in Jordan in 2000 GC which was 1.6% (15). A Malaysian study that analyzed 90 cases of elderly primigravida in 1989 found a prevalence of 0.65 % which is still higher than that found by this study (18). Different studies in Nigeria conducted in 2004 and 2014 in Port Harcourt Teaching hospital found a prevalence 2% and 2.6% (2, 17). The lower prevalence in this study is because women in this part of the world venture into marriage at an earlier age and therefore start child bearing before they are 35 years especially when compared to the European studies.

On the other hand the prevalence in this study, 0.28%, is higher than that of the result found in Ibadan Nigeria in 1998 which was 0.07% (18).

The rate of PIH among elderly primigravida reported in this study, 48.5 % is significantly higher than reported by Pyrsak M, et al in 1995 which was 7% (20) and 22.4 % reported in Nigerian study (17). A 1985 Malaysian study also had a general rate of hypertension in pregnancy, 31.3% which is lower than the finding of this study (18). However, the rate of both PIH and preeclampsia in particular is higher in the elderly primigravida participated in our study compared to the young primigravida in those studies which is consistent with their finding. This can, in fact, also be due to the fact that SPHMMC is a tertiary center and cases referred to the hospital are already with complications.

Preeclampsia was the dominant variant of pregnancy related hypertension in the study, 14.6% and this figure is bigger than that reported by Aboniaaj, Maise in Georgia state university in 2015 which was 10% (2). Tan KT and et al in 1994 come up with prevalence of preeclampsia 17.1% which is higher than the finding of this study. A Nigerian case control study in 2011 had a significantly lower rate of preeclampsia, 6.38% compared to this study. Compared to the young primigravida in those studies, however, the finding of this study is consistent, rate of preeclampsia and PIH in general is higher in the elderly primigravida.

The caesarian section rate in this study, 19.4% is lower than that in all the literatures revised by the investigator; Tan KT and et al in 1994 reported a CS rate of 32.4%, Eleje, GU 1994 53.7% which is significantly higher than that in this study. This major difference may be attributable to the small sample size in this study though it's in keeping with the results from the other studies

as far as comparison with elderly primigravida is considered. DM and APH are also higher in this age group compared to the young primigravida (17, 18, 22, and 24).

Labor induction, augmentation, and other labor related abnormalities including malposition, malpresentation and prolonged labor were compared with results from Ojulu GD and TanKT and induction and augmentation were higher in the young primigravida and consistent with this is the outcome in this study when compared with those results. In contrast malposition and malpresentation are higher in the old primigravida (6, 22). Perinatal wise LBW, and perinatal asphyxia and premature delivery are higher in the elderly primigravida in this study compared to the young counter parts of a Malaysian study and that reported by Ojulu Jd etal (6, 16). The rate of LBW in this study 2.9%, however, is far low when compared to the EDHS 2016 estimate which was 13% and this can be due to the very low sample size of this study (26).

6. Limitations of the Study

One important limitation of this study was the fact that it retrospective study as a result of which all the necessary and required data was not found. Lack of comparative group, not including young primigravida who delivered at the hospital from September 2005 to August 2009, due to time and financial constraints was another limitation which caused us not to generalize our results on the old primigravida with reference to the young ones.

7. Conclusions

The magnitude of elderly primigravida in our hospital is Low. Adverse maternal and perinatal outcomes are found to be high in the elderly primigravida except labor related abnormalities which are prolonged labor, induction of labor and augmentation of labor.

8. Recommendations

1. Giving special antenatal care including frequent ANC follow-up and labor and delivery care may help in decreasing the complications mentioned.
2. Conducting a prospective comparative study on this topic will be helping to have a concrete evidence about “is delaying first pregnancy Risky in our setup?”

9. References

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Annexes

Data Extraction Tool

Questionnaire no.

Demographic characteristics			
Age			
Marital Status	Married		
	Not married		
	Divorced		
	Widowed		
Religion	Muslim		
	Christian		
	Others (Specify)		
Ethnicity	Amhara		
	Oromo		
	Silte		
	Others (Specify)		
Address			
Educational Status			
Maternal Outcomes			
Antepartum Outcomes	PIH	Chronic HTN	
		Gestational HTN	

		pre eclampsia	
		Super imposed Pre eclampsia	
		Eclampsia	
	DM	Gestational	
		Pre gestational	
	HEG		
	APH	Placenta Previa	
		Abruptio placenta	
		Others (Specify)	
	PROM		
Intra Partum Outcomes	Duration of labour (Hours)		
	Malpresentations	Breech	
		Others	
	Malposition	POP	
		Others (specify)	
	Onset of Labour	Spontaneous	
		Induced	
	FIOL		
	Augmentation		
	CS delivery	Emergency	

		Elective	
	PPH		
	Instrumental deliveries	Vacuum	
		Forceps	
	Episiotomy		
Perinatal Outcomes			
Apgar score	First minute		
	Fifth minute		
	Tenth minute		
IUFD			
Still Birth			
GA at delivery			
Birth Weight			
Birth Defects			
NICU Admission			

