Journal of Health Science 6 (2018) 91-99
doi: 10.17265/2328-7136/2018.02.004

Parity 3 or More at Haiphong Hospital of Obstetrics and Gynecology in 2016

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Abstract: Background: Although increasing parity increased the risk of pregnancy complications and despite of Vietnam's family planning policy of two-child, the percent of women having three or more children has tended for five years. Objectives: (1) Find out the prevalence of parity ≥ 3 and their reasons at Haiphong Hospital of Obstetrics and Gynecology in 2016; (2) Describe the methods of labor and its adverse outcomes. Materials and methods: A cross-sectional in 485 women had delivered three or more infants at Haiphong Hospital of Obstetrics and Gynecology from June to August, 2016. Results: The prevalence of parity ≥ 3 is 11.9%, no relation to geopraphy, education and career. The main reasons are unplanned pregnancy and desire to have a baby boy. The sex ratio at birth is 162. The proportion of cesarean delivery is 53.4%, in which is due to an old C-section. Conclusion: serious gender is imbalance among women having three or more baby (162 baby boys per hundred baby girls).

Key words: Parity 3 or more, sex ratio at birth, Haiphong Hospital of Obstetrics and Gynecology.

1. Background

Population is one of the decisive factors for the sustainable development of the country. Population and family planning work are considered as one of the important tasks of national development strategy, which is the basic factor to improve the quality of life of each family and the whole society.

According to the General Statistics Office, the 89.5 million people population of Vietnam is ranked 13th in the world, and will continue to increase rapidly in the coming time [1]. The rapid population growth has hindered the pace of socio-economic development, causing great difficulties in improving the lives and limiting intellectual, cultural and physical developmental conditions of race. In addition, neonatal gender imbalance (114 boys for every 100 girls) is also raising concerns about the negative impact on social life.

The rate of third and higher order births has continued to increase over the past five years, with 50% of those giving birth to a third child have good finacial situation. This is considered a new phenomenon in our country's population problems. Having a third child or more in particular, multiple births are generally high risk pregnancies with many dangerous events such as placenta, fetal presentation abnormalities, fetal macrosomia, uterine rupture, postpartum hemorrhage [2]. This issue is not only a burden for the whole society but also a heavy professional pressure for gynecologists.

At Haiphong Hospital of Obstetrics and Gynecology, there are no studies on the prevalence, causes and outcomes of parity three or more. Therefore, we conducted a study "Studying the mode and results of labor of third or higher order birth at the Hai Phong Obstetrics Hospital in 2016" aiming to: (1) Determine the rate and the reasons for having a third child or more at Haiphong Hospital of Obstetrics and Gynecology in 2016, (2) Describe the method of birth and pregnancy outcomes in the above subjects.

2. Objectives and Research Methods

2.1 Research Subjects

2.1.1 Selection Criteria

- Women who have a third or higher birth at

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Haiphong Hospital of Obstetrics and Gynecology;

- Agree to participate in the study.

2.1.2 Exclusion Criteria

- Women who have delivered a third child or more from another place;
- Do not agree to participate in the research.

2.2 Research Methods

2.2.1 Study Design

A cross-sectional descriptive study.

2.2.2 Location, Time of Research

Haiphong Hospital of Obstetrics and Gynecology, 2016.

2.2.3 Sample Size

$$n = \frac{(Z_{1-\alpha/2})^2.p.q}{d^2}$$

where, n: minimum research sample size; α = statistically significant level; with α = 0.05, the coefficient Z (1-α/2) = 1.96; p = 0.121 (prevalence of parity 3 or more in Department of Pregnancy and Prenatal Diagnostics, Haiphong Hospital of Obstetrics and Gynecology in 2015, according to Nguyen Thi Mai Phuong [3]); q = 1-p; d: expected error, choose d = 5%. Therefore: $n = (1.96)^2 \times 0.121 \times 0.879/(0.05)^2 = 454$. In fact, in the 3 months from 1 June to 31 August 2016, we collected data on 485 subjects.

2.2.4 Data Processing and Analysis

Use SPSS 16.0 and Excel 2013 software for computational variables and proportional value comparison. With quantitative variables: compute and compare mean values. Chi-square and Fisher's exact tests are used to check statistical hypotheses.

3. Research Result

3.1 Some Common Features

The average age of 485 pregnant women with the third pregnancy was 32.8 ± 4.3, the majority of subjects are in the age group of 25-40 (90.1%). The 89.5% of these cases were the third births, 9.9% were the fourth 48 births, two cases of the fifth childbirth and one of the sixth one.

3.2 Rate and Cause of Parity 3 or More and Some Related Factors

3.2.1 Rate of Parity 3 or More

The total number of 3 or more children at our hospital in three months is 485, accounting for 11.89% of total births.

3.2.2 Reasons of Parity ≥ 3 and Relevant Factors

The most common reason is unplanned pregnancy (194/485 cases, accounting for 40.0%), followed by desire for boy (145 cases, accounting for 29.9%). Desires for girls are lowest rate reason (24 cases, 4.9%). Of the 194 unplanned pregnancy cases, 36.1% had no contraceptive. Contraceptives that are mostly used are natural contraceptives (Coitus interruptus or Fertility awareness) (27.4%).

3.3 Methods of Delivery and Pregnancy Outcomes

3.3.1 Distribution of Delivery

There were 256 women undergoes cesarean section at this time, accounting for 53.4%, higher than the vaginal delivery which accounts for 46.0% and only 3 cases (0.6%) undergoes forceps delivery.

3.3.2 Distribution of Gestational Age and Gender

The majority of cases in our study gave birth at term (86.4%) and the sex ratio at birth is 162.

4. Discussion

4.1 Some General Characteristics

Fig. 1 shows that the average age of 485 pregnant women with the third pregnancy onwards at Haiphong Hospital of Obstetrics and Gynecology in 2016 was 32.8 ± 4.3, the majority of subjects are in the age group of 25-40 (90.1%). However, there were 9 cases of third childbirth under 25 years old and 37 mothers giving birth the third time onwards after 40 years. Particularly, there was a new 21-year-old woman who had three children and a 46-year-old woman gave birth for the fifth time, although pregnancy and childbirth at an early age or an advanced one increased the risk of abnormal pregnancy (hypertension, gestational diabetes mellitus, abortion, premature birth, etc.) as

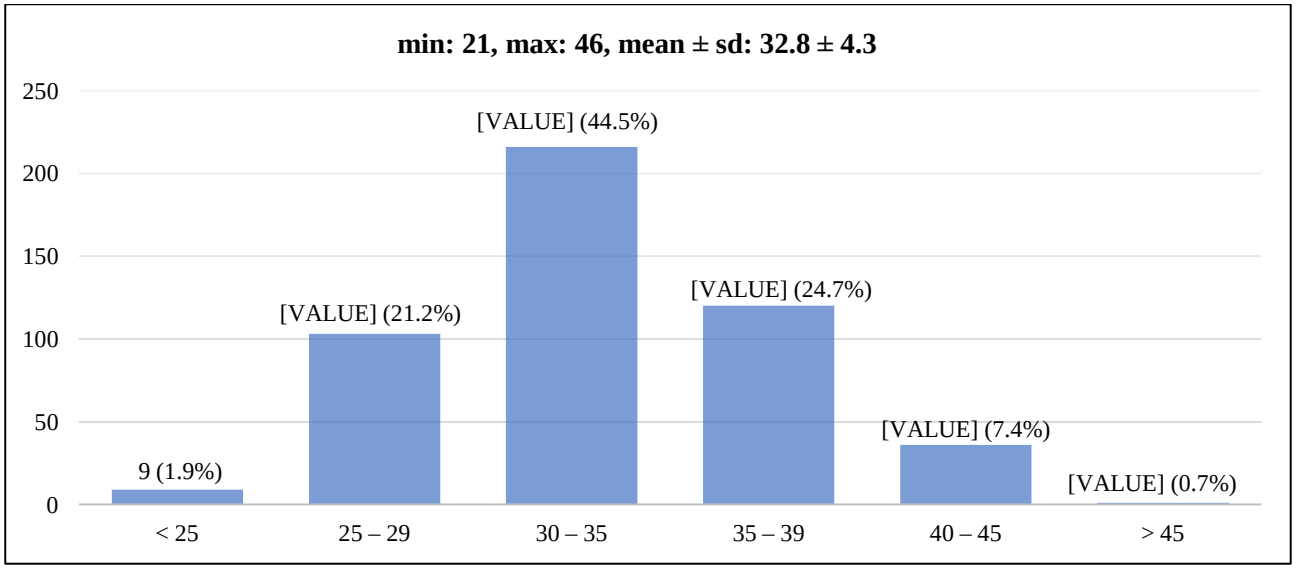

Fig. 1 Mother's age distribution.

Comment: The majority of people who have 3 or more children are aged 25-40 (90.1%).

Table 1 Occupational, geographical, educational level distribution.

	Number of births (n, %)				*p*
	Total	3	4	≥ 5	
Occupation					
Civil servant	102 (21.0)	98 (96.1)	4 (3.9)	0 (0)	0.18
Worker	88 (18.1)	79 (89.8)	9 (10.2)	0 (0)	
Farmer	34 (7.0)	31 (91.2)	3 (8.8)	0 (0)	
Houswife	216 (44.5)	185 (85.6)	29 (13.4)	2 (0.9)	
Freelancer	45 (9.3)	41 (91.1)	3 (6.7)	1 (2.2)	
Geography					
Urban	238 (49.1)	210 (90.7)	26 (8.9)	2 (0.4)	0.62
Countryside	247 (50.9)	224 (88.2)	22 (10.9)	1 (0.8)	
Education level					
Secondary of lower	83 (17.1)	69 (83.1)	13 (15.7)	1 (1.2)	0.24
Highschool	240 (49.5)	217 (90.4)	21 (8.8)	2 (0.8)	
College/University or higher	62 (33.4)	148 (94.1)	14 (8.6)	0 (0)	
Total	485 (100)	434 (89.5)	48 (9.9)	3 (0.6)	

Comment: There were no differences in geography, occupation and educational attainment ($p > 0.05$).

well as the risk of abnormalities due to chromosomal abnormalities.

We found in Table 1 that the majority of cases were the third childbirth (accounting for 89.5%), only 48 cases were the fourth 48 births (accounting for 9.9%), two cases of the fifth childbirth and one of the sixth one. Although the proportion of housewives (44.5%) and high school education level (49.5%) was the highest as well as the number of women from the suburbs (247) was higher than in the inner city (238), there was no association between occupation, education and geography with births for the third time onwards ($p > 0.05$). Notably, there are 98 public servants who had the parity 3, four had the parity 4; 196 people with a college or university degree gave birth to more than 2 children. Although the law of Vietnam no longer prohibits the birth of third child, but also does not encourage and there are many forms of reprimand and criticism to limit the rate of multiple births which leads to excessive population growth.

But the high proportion of civil servants who give birth to children despite the limitations of their work suggests the need for in-depth study of the reasons for their decision.

4.2 Rate and Reasons for Having a Third Child or More

4.2.1 Rate of Third Childbirth Onwards

In 3 months from June to August 2016 (Table 2), our hospital received 4,108 births, including 434 women having third child birth (accounting for 10.66%), 48 fourth childbirths (accounting for 1.16%), 02 fifth childbirth and 01 sixth one (accounting for 0.07%), resulting in the total number of 3 or more children is 485, accounting for 11.89% of total births.

4.2.2 The Reason for Giving Birth 3 Times or More and Some Related Factors

(1) The reason for giving birth 3 times or more by birth.

The most common reason is unplanned pregnancy (194/485 cases, accounting for 40.0%), followed by desire for boy (145 cases, accounting for 29.9%). Desires for girls are lowest rate reason (24 cases, 4.9%) showed in the Fig. 2.

By further analysis of the distribution of reason for giving multiple childbirths in each circumstance (Table 3), we found that the most frequent reason for giving birth to the third child was unplanned pregnancy (40.8%), followed by the desire for a son (20.9%). The situation in the fourth birth was opposite, the most common reason is desired for a son (37.5%). From the fifth birth onwards, there are only two reasons: expecting a son or a breaking plan.

(2) Contraceptive methods in unplanned pregnancy cases.

The results of the study in Fig. 3 and Table 4 show that of the 194 unplanned pregnancy cases, 36.1% had no contraceptive. Contraceptives that are mostly used

Table 2 Rate of third time or more births in total births from June to August 2016 (n = 4,108).

	Number of birth			
	3	4	≥ 5	Total
n	438	48	3	485
%	10.66	1.16	0.07	11.89

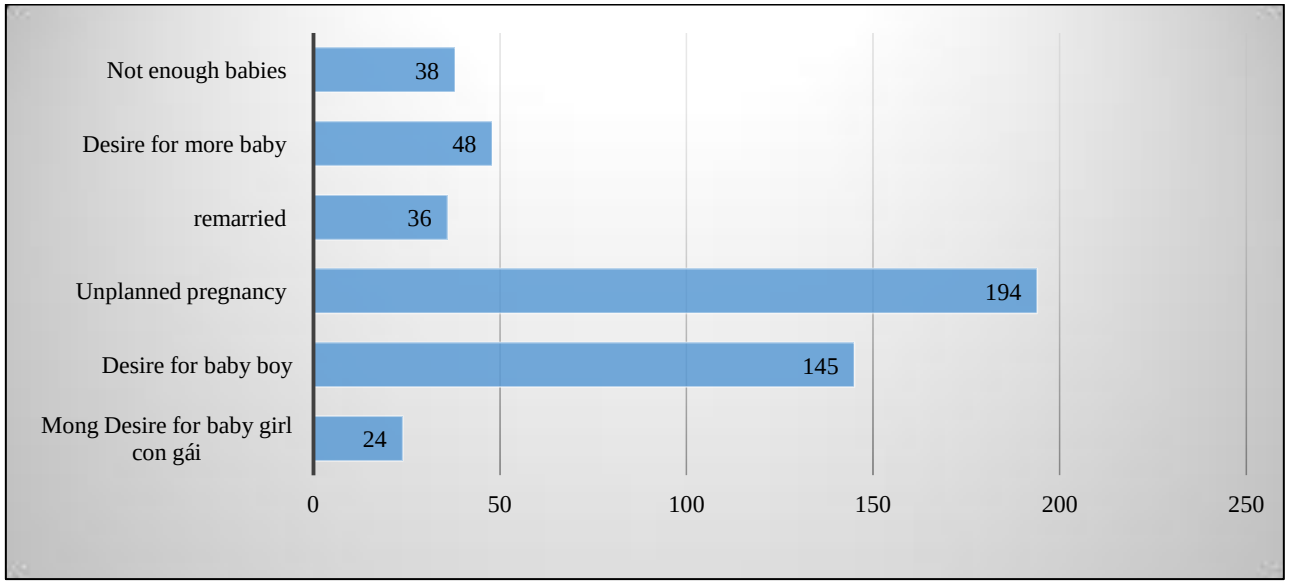

Fig. 2 Distribution of reasons for having a third child or more.

Comment: The reason for giving birth to 3 or more children accounted for the highest rate is unplanned pregnancy (194/485, accounting for 40.0%), followed by desire for boys (145 cases, accounting for 29.9%). Reasons of desire for baby girls are lowest (24 cases, 4.9%).

Table 3 Reason of birth by number of births.

Reasons \ No of birth	3		4		≥ 5	
	n	%	n	%	n	%
Desire for baby girl	23	5.3	1	2.1	0	0
Desire for baby boy	126	20.9	18	37.5	1	33.3
Unplanned pregnancy	177	40.8	15	31.2	2	66.7
Remarried	30	6.9	6	12.5	0	0
Desire for more baby	41	9.4	7	14.6	0	0
Not enough babies (≤ 1 healthy baby actually)	37	8.5	1	2.1	0	0

Comment: The most common reason for giving birth to a third child is unplanned pregnancy (40.8%), followed by the desire for baby boy (20.9%). The fourth births show an opposite result, the most common reason is desire for a son (37.5%). From the fifth birth onwards, there are only two reasons for expecting a son or unplanned pregnancy.

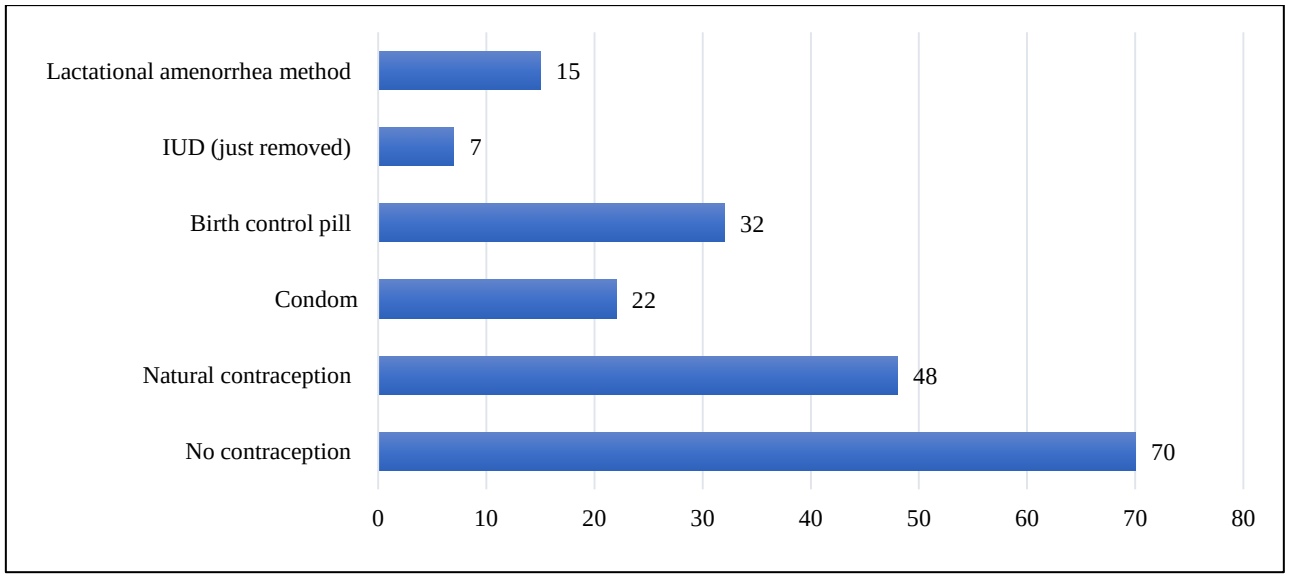

Fig. 3 Contraceptive measures currently in use at the time of third or higher childbirth in unplanned pregnancies.

Comment: Of the 194 pregnant women who gave birth to multiple unintended pregnancies, 36.1% did not use any contraceptive. The contraceptive that is most commonly used is natural contraceptive (Coitus interruptus or Fertility awareness) (27.4%).

Table 4 Contraceptive methods applied in women who have unwanted births by number of births.

Contraceptive method	3		4		≥ 5		*p*
	n	%	n	%	n	%	
No contraception	69	98.6	1	1.4	0	0	0.009
Natural methods	43	89.6	5	10.4	0	0	
Condom	13	76.5	4	23.5	0	0	
Birth control pills	29	90.6	2	6.2	1	3.1	
Lactational amenorrhea method	12	80.0	3	20.0	0	0	
IUD (just removed)	11	91.7	0	0	1	8.3	

Comment: Those who do not use any contraceptive method, use natural contraceptive or medication stop at the third childbirth, the fourth birth rate is very low. In contrast, the likelihood of having a fourth child is higher in women using condom or lactational amenorrhea method.

are natural contraceptives (Coitus interruptus or Fertility awareness) (27.4%). Those who did not use any contraceptive method, those used natural contraceptives or medication would only have the third birth, the fourth birth rate is very low. In contrast, the likelihood of having a fourth child is higher in

condom users and in lactational amenorrhea method practicers. The Ministry of Health said the contraceptive prevalence decreased about 0.9% in the five years from 2010 to 2015. In the first six months of 2016, the number of long-term contraceptives users reached 40% of the plan, short-term contraceptives methods users achieve 95% of the plan [1]. These numbers indicate the need to further promote advocacy and family planning services providing in the community, in order to reduce the rate of unplanned births.

(3) Distribution of distance between last childbirth and this one by reasons.

The results of the study in Fig. 4 and Table 5 show that the average length of time between the birth being investigated and the previous birth in the desire for a son group was the longest (6.01 years). The further the distance between two childbirths is, the more likely the reason for this one is desired for a son or an unplanned pregnancy (p = 0.007). This again confirms the prominent reasons that led to giving births multiple times is due to desire for a son or an unplanned pregnancy, proving that the work of population in general and family planning in particular are still questions in Vietnam. At the same time, the idea of gender inequality, male dominant thoughts still exist in the consciousness and action of a part of the population.

4.3 Methods of Delivery and Pregnancy Outcomes

4.3.1 Methods of Delivery

The results of the study in Fig. 5 show that 256 women undergo cesarean section at this time, accounting for 53.4%, higher than the vaginal delivery

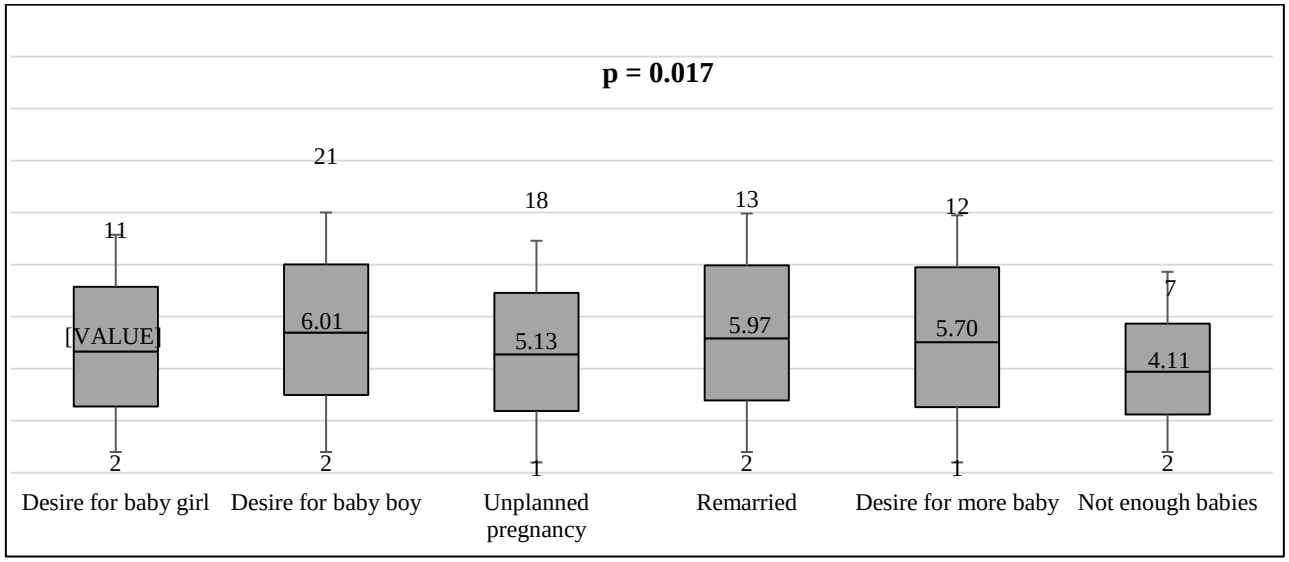

Fig. 4 Mean distance between the previous birth and this birth.

Comment: The longer the distance is, the more likely the baby is due to desire for a baby boy or unplanned pregnancy.

Table 5 Distribution of childbirth methods in "Desire for baby boy" group.

	Vaginal delivery		C-section		Forceps delivery	
	n	%	n	%	n	%
First time	114	78.6	31	21.4	0	0
Second time	108	74.5	37	25.5	0	0
Third time	52	41.3	71	56.3	3	2.4
Fourth time	16	88.9	2	11.1	0	
Fifth time	1	100	0	0	0	0

Comment: The rate of cesarean delivery in third childbirth is higher than the first and second ones, but the opposite is the case in the fourth.

which accounts for 46.0% and only 3 cases (0.6%) undergoes forceps delivery. The C-section childbirth rate is always higher than the vaginal one, as in other studies in HaiPhong such as Dao Thi Hai Yen, 53.4% C-section cases of a total 2,400 full-term pregnancies 2005 and 2015 at Haiphong Hospital of Obstetrics and Pregnancy [4]. About causes of caesarean section in this childbirth, the results of Fig. 6 show the main cause is due to former caesarean sections (148 cases, accounting for 57.8%), including one woman who had three cesarean sections and a daughter for each time, there are 06 subjects with a history of two former caesarean sections and one of them had a ruptured uterus at 22 weeks gestation. The history of multiple cesarean deliveries is a very high risk pregnancy, with potential risks such as ectopic pregnancy in caesarean section scar, uterine rupture, placenta previa, placenta accreta etc. affecting the lives of both mothers and children. This is really a difficult problem, a professional challenge for gynecologists.

4.3.2 Distribution of Gestational Age and Gender

(1) Newborn Gender

The ratio of boys to girls in our study was 13:8. Dao Thi Hai Yen surveyed 2,400 full term infants in two periods of 10 years apart, finding that gender imbalances in Viet Nam in general and Hai Phong in particular are increasing. In 2005, there were 48 females in each of 52 males. By 2015, the proportion of males and females was 56:44. The dramatic increase in the sex ratio at birth in our study (162) compared with 114.3 in our entire population [5], which is higher than the biological standard of 105, may be decided by the third and onwards childbirths reasons.

Table 7 also showed a significant difference in neonatal sex at birth (p = 0.001). The proportion of boys is 2.4-4.0 times higher than that of girls in the case of sex selection at birth or desire for more babies. However, the ratio of male to female is quite balanced if the woman gave birth to the third onwards child due to objective reasons such as not enough children, other marriages or broken plans. Particularly, the rate for successful male births was 80%, but in the girl group, the success rate was only 29.2%, suggesting a higher chance of having a baby boy if the mother is active to practice several solutions to increase the birth rate of the selected gender.

(2) Gestational Age at Birth

Table 6 showed the majority of cases in our study gave birth at term (86.4%), only 45 cases before 37 weeks (9.3%) and 21 births after 40 weeks (4.3%). The incidence of preterm birth was higher in males than in females, but the number of full term and post term pregnancy was lower (p = 0.021). Some international authors have also shown evidence that male gestations are more likely to witness a post term pregnancy fetal ones. In a study of nearly 2 million singleton babies born by white mother vaginal delivery reported in February 2015 at the annual meeting of the American Maternal and Child Association in San Diego, California), Peelen M. et al. found that the prevalence of labor in both sexes was the same before 38 weeks 3 days gestational age, but from 38 weeks 4 days to 40 weeks 6 days for gestational age, male genders are more likely to be born than female fetuses [6].

5. Conclusions

In a prospective study of 485 women with parity three onwards in three months from June to August 2016 at Haiphong Hospital of Obstetrics and Gynecology, we draw some conclusions:

- The rate of parity 3 or more is 11.9%, there is no difference in this ratio by geography, education and occupation showed in Table 8.
- The main reason is unplanned pregnancy and desire for a son.
- Sex ratio 162, which is much higher when compared to all births (115).
- The rate of cesarean section is 53.4%, in which the cause of the former cesarean section is the largest (57.8%). There are 6 women having two cesarean deliveries and one woman having cesarean section 3 times.

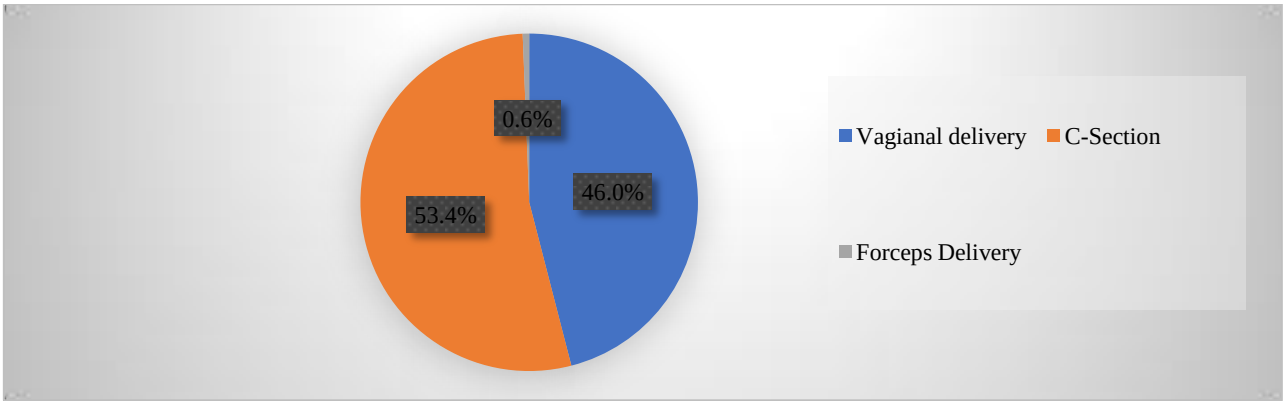

Fig. 5 Methods of delivery distribution.

Comment: The rate of vagianl delivery is highest (53.4%). There are only three cases (accounting for 0.6%).

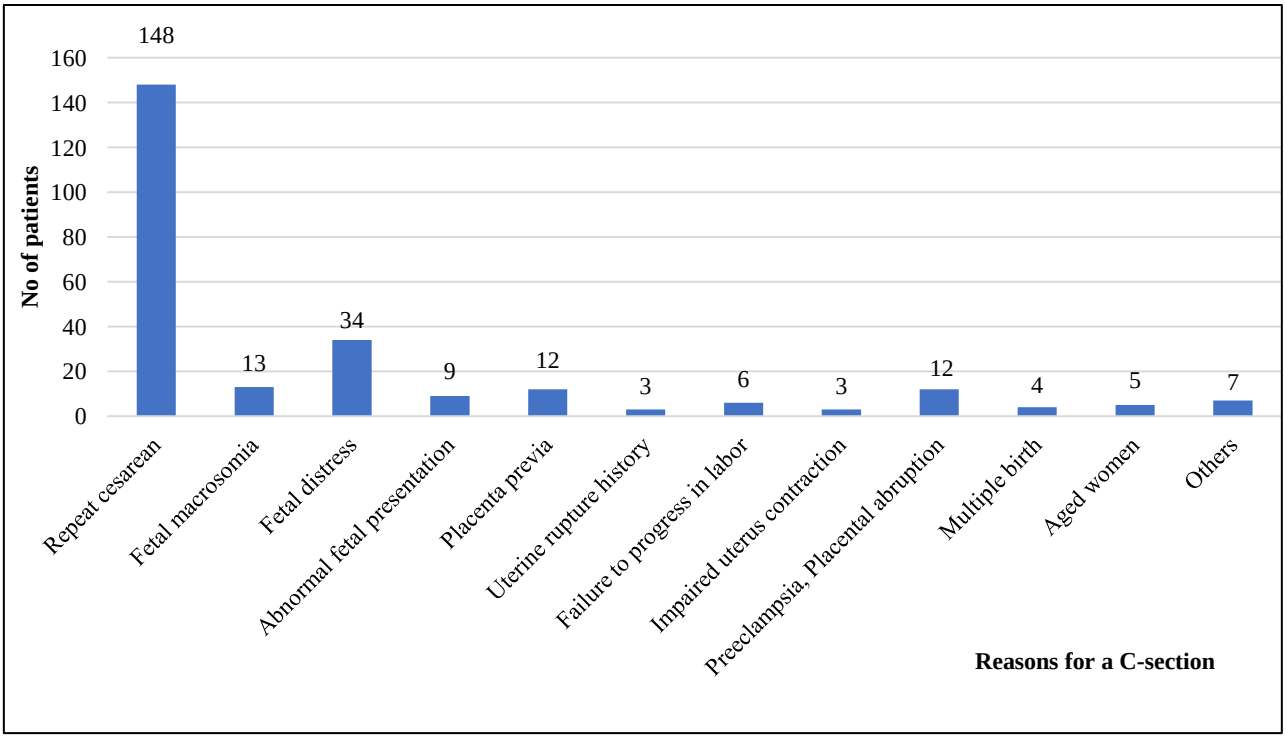

Fig. 6 Reasons for a C-section.

Comment: The major reason is repeat cesarean (148/256, account for 57.8%).

Table 6 Distribution of gestational age at birth and gender.

Gestational age at birth (weeks) Gender	< 37	37-40	> 40	Total	*p*
Female	24 13.0%	157 84.9%	4 2.2%	185 38.1%	0.021
Male	21 7.0%	262 87.3%	17 5.7%	300 61.9%	
Total	45 9.3%	419 86.4%	21 4.3%	485 100%	

Comment: Girl: boy ratio is 13: 8. Preterm pregnancy rate in female group is higher while full term and postterm pregnancy rate is lower in male group ($p = 0.021$).

Table 7 Gender distribution by reasons for parity 3 or more.

Reasons	Female		Male		*p*
	n	%	n	%	
Desire for baby girl	7	29.2	17	70.8	< 0.001
Desire for baby boy	29	20.0	116	80.0	
Unplanned pregnancy	92	47.4	102	52.6	
Remarried	18	50.0	18	50.0	
Desire for more baby	19	39.6	29	60.4	
Not enough babies (≤ 1 heathy baby actually)	20	52.6	18	47.4	

Comment: There are significant differences in neonatal sex at birth based on the reason for third child onwards (p = 0.001). The proportion of boys is 2.4-4.0 times higher than that of girls in the case of sex selection at birth or desire of more babies. However, the ratio of male to female is quite balanced if the pregnancy is due to objective reasons such as not enough children, other marriages or broken plans.

Table 8 Rate of parity 3 or more in Vietnam (source General Statistic Office).

Year	Total fertility rate (child/woman)	Rate of parity 3 or more (%)
National		
2011	1.99	14.7
2013	2.10	14.3
2015	2.10	15.2
Haiphong Hospital of Obstetrics and Gynecology		
2015		12.1
2016		11.9

Recommendations

There should be solutions to limit severe gender imbalance in cases with parity 3 or more.

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