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Choice of public versus private hospital for maternity care: a cross-sectional questionnaire study

So-Ling LAU, MBChB, MRCOG
Jessica Yun-Pu LAW, MBBS, FRCOG
Kwok-Keung TANG, MBChB, FRCOG
Department of Obstetrics and Gynaecology, Pamela Youde Nethersole Eastern Hospital, Hong Kong

Objective: To determine factors influencing the choice of public versus private hospital for maternity care and the satisfaction level of women on obstetric service.
Methods: Women who attended their first antenatal visit between 1 March 2018 and 30 April 2018 at the Pamela Youde Nethersole Eastern Hospital were contacted via telephone at 6 to 12 weeks after delivery to complete a questionnaire about (1) details of delivery, (2) factors affecting choice of hospital for maternal care, and (3) satisfaction towards obstetric services, whether to return to the same hospital for next delivery, and breastfeeding practices.
Results: 409 (89.1%) of 459 women completed the questionnaire. Of the 409 respondents, 308 (75.1%) delivered in our public hospital and 101 (24.6%) delivered in private hospitals. Those who chose to deliver in the private hospitals were more likely to be older (34.07 vs 32.56, p=0.007), primiparous (69.3% vs 52.3%, p=0.003), and have tertiary or higher education level (85.1% vs 54.9%, p<0.001). In the public hospital group, more women had normal vaginal delivery (57.5% vs 19.8%, p<0.001) and fewer women had Caesarean section (32.8% vs 77.2%, p<0.001). The private hospital group had higher rating for antenatal service, with more women rated ≥4 (94.1% vs 81.8%, p=0.024). More women in the public hospital group than in the private hospital group would return for next delivery (93.8% vs 86.1%, p=0.014) and practiced full or partial breastfeeding (91.6% vs 73.3%, p<0.001).
Conclusion: The overall rating to both public and private obstetric services in Hong Kong is good. 24.6% of women chose delivery at private hospitals for reasons such as having designated doctor-in-charge, choice on mode of delivery, and safety issue. The Caesarean section rate was higher in women who chose delivery at private hospitals. Further studies are warranted to investigate the reasons why these women prefer Caesarean delivery.

Keywords: Hospitals, private; Hospitals, public; Obstetrics; Patient satisfaction; Surveys and questionnaires

Introduction

In Hong Kong, the healthcare system comprises public and private sectors. Both sectors cover primary to tertiary levels of care, including obstetric service. Pregnant women are free to choose between public and private hospitals for antenatal care, delivery, and postnatal care. Some women even choose to receive antenatal care in both sectors and to deliver in either sector.

There are eight public hospitals in Hong Kong that provide obstetric services. When the viability of pregnancy is confirmed, Hong Kong residents can register at one of the eight public hospitals for antenatal care free of charge. The antenatal services include assessments and routine screening tests; other specific tests such as structural scan may be included depending on the hospital service and indications. A flat rate of HK$100 (US$13) per day is charged for hospital stay before and after delivery, irrespective to the mode of delivery or tests performed. In 2006/2007, the government subsidises 95% of the costs[1].

Private hospitals provide more personalised and accessible services to those who can afford. The Department of Health regulates all private hospitals and clinics under the Medical Clinics Ordinance. Private hospitals adopt a market principle, and prices are based on the cost of medical services and demand. Pregnant women can choose the attending doctors, antenatal services, and the mode and time of delivery.

In recent years, pregnant women commonly express the wish to deliver at private hospitals during antenatal follow-up at public hospital. When comparing the number of registered antenatal cases and the number of deliveries in our unit (Figure 1), around one-third of women who registered for antenatal care did not deliver in our unit. The aim of the present study was to determine factors

Correspondence to: Dr So Ling LAU
Email: caitlynlau@gmail.com

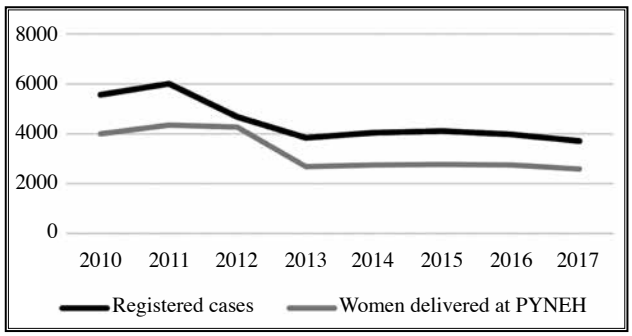

Figure 1. The number of registered antenatal cases and the number of deliveries at Pamela Youde Nethersole Eastern Hospital (PYNEH).

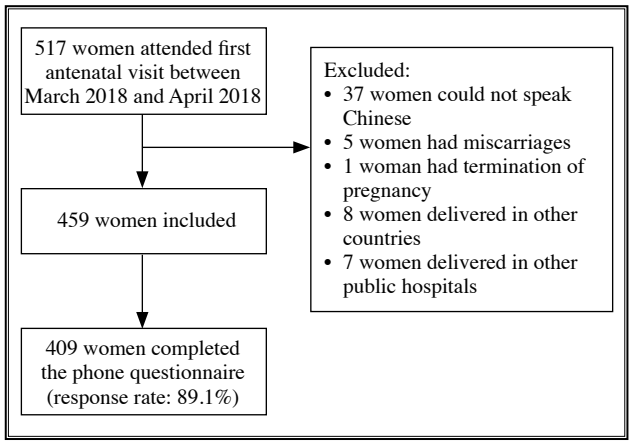

Figure 2. Flowchart for recruitment

influencing the choice of public versus private hospital for maternity care and the satisfaction level of women on obstetric service.

Methods

This cross-sectional study was approved by the Hong Kong East Cluster Research Ethics Committee (reference no.: HKECREC-2019-017). Medical records of pregnant women who attended their first antenatal visit between 1 March 2018 and 30 April 2018 at the Pamela Youde Nethersole Eastern Hospital were retrieved from the clinical management system. Those aged <18 years or those who could not speak Chinese were excluded, as were those who had miscarriage eventually or who delivered in other public hospitals or countries. Women were contacted via telephone at 6 to 12 weeks after delivery to complete a questionnaire (Appendix). The purpose and nature of the study were explained; verbal informed consent was obtained before participation. Failure to contact was declared after 4 unsuccessful attempts.

There was no validated questionnaire to assess women's satisfaction towards obstetric service. Therefore, relevant questions were designed based on studies on similar topics[2,3]. The questionnaire was divided into three parts: (1) details of delivery, including the place of delivery, gestation, mode of delivery, and reasons for operative delivery; (2) factors affecting choice of hospital for maternal care, including convenience, economical factor, safety, paediatric support, designated doctor-in-charge, choice of mode of delivery, choice of specific hospital, and choice of delivery time; and (3) satisfaction towards obstetric services in a scale of 1 to 5 (very poor to very good) in terms of antenatal service, labour ward/operative delivery service, and postnatal service; whether to return to the same hospital for next delivery; breastfeeding practices (full, partial, or not breast feeding), and any other comments regarding obstetric service.

The sample size was estimated using an online calculator[4]. In 2012 to 2016, the mean annual number of patients who booked our antenatal service was 4018, which was used as the number of patients booked in 2018. The confidence limit was taken as 5% and the variance as 2. To achieve a confidence level of 90%, the necessary sample size was estimated to be 406.

Statistical analyses was conducted using SPSS (Windows version 23.0, IBM Corp, Armonk [NY], USA). Women who gave birth in public or private hospital were compared using the Pearson Chi-square test or Fisher's exact test for categorical variables and the Mann-Whitney *U* test for continuous variables with a highly skewed distribution. A p value of <0.05 was considered statistically significant.

Results

Of 517 women attended their first antenatal visit during the study period, 58 were excluded because of inability to speak Chinese (n=37), miscarriage (n=4), termination of pregnancy (n=1), delivery in other countries (n=8), and delivery in other public hospitals (n=7), and the remaining 459 were invited to participate. Of the latter, 409 (89.1%) completed the questionnaire (Figure 2).

Of the 409 respondents (mean age, 32.9 years), 308 (75.1%) delivered in our public hospital and 101 (24.6%) delivered in private hospitals. Those who chose to deliver in the private hospitals were more likely to be older (34.07 vs 32.56, p=0.007), primiparous (69.3% vs 52.3%, p=0.003), and have tertiary or higher education level (85.1% vs 54.9%, p<0.001) [Table 1]. Overall, 387 (94.6%) women delivered at or after term (37 weeks of

Table 1. Characteristics and mode of delivery of participants

	Overall (n=409)*	Public hospital group (n=308)*	Private hospital group (n=101)*	p Value
Age, y	32.93, 33 (30-36)	32.56, 33 (30-36)	34.07, 34 (32-37)	0.007
Parity				0.003
0	231 (56.5)	161 (52.3)	70 (69.3)	
1	151 (36.9)	120 (39.0)	31 (30.7)	
2	21 (5.1)	21 (6.8)	0 (0.0)	
3	4 (1.0)	4 (1.3)	0 (0.0)	
4	1 (0.2)	1 (0.3)	0 (0.0)	
5	1 (0.2)	1 (0.3)	0 (0.0)	
Smoking				0.042
Non-smoker	351 (85.8)	261 (84.7)	90 (89.1)	
Ex-smoker	23 (5.6)	15 (4.9)	8 (7.9)	
Smoker, stop at first trimester	35 (8.6)	32 (10.4)	3 (3.0)	
Drinking				0.696
Non-drinker	389 (95.6)	290 (94.8)	99(98.0)	
Ex-drinker	6 (1.5)	5 (1.6)	1 (1.0)	
Drinker, stop at first trimester	11 (2.7)	10 (3.3)	1 (1.0)	
Drinker, continue during pregnancy	1 (0.2)	1 (0.3)	0 (0.0)	
Educational level				<0.001
Primary	1 (0.2)	1 (0.3)	0 (0.0)	
Secondary	150 (36.7)	135 (43.8)	15 (14.7)	
Tertiary and higher	255 (62.3)	169 (54.9)	86 (85.1)	
Others	3 (0.7)	3 (1.0)	0 (0.0)	
Gestation				0.513
≥37 weeks	387 (94.6)	289 (93.8)	97 (97.0)	
34-36 weeks	19 (4.6)	16 (5.2)	3 (3.0)	
30-33 weeks	3 (0.7)	3 (1.0)	0 (0.0)	
Mode of delivery				<0.001
Normal vaginal delivery	197 (48.2)	176 (57.5)	19 (19.8)	
Vacuum extraction	26 (6.4)	23 (7.5)	3 (3.0)	
Low forceps delivery	6 (1.5)	6 (2.0)	0 (0.0)	
Caesarean section	179 (43.8)	100 (32.7)	78 (76.5)	
Intrauterine death	1 (0.2)	1 (0.3)	0 (0.0)	

* Data are presented as mean, median (interquartile range) or No. (%) of participants

gestation). The preterm birth rates were similar in public and private hospital groups (6.2% vs 3%). There was no premature birth <30 weeks of gestation. Overall, 197 (48.2%) women had normal vaginal delivery, 26 (6.4%) women had vacuum-assisted delivery, 6 (1.5%) women had forceps-assisted delivery, 179 (43.8%) women had Caesarean section, and one woman had intrauterine death of fetus and vaginal delivery. In the public hospital group, more women had normal vaginal delivery (57.5% vs 19.8%, p<0.001) and fewer women had Caesarean section (32.8% vs 77.2%, p<0.001) [Table 1]. The most common indication for Caesarean section was previous Caesarean section (38%) in the public hospital group and maternal request (56.4%) in the private hospital group (Table 2).

The most common reason for choosing private

Table 2. Indications for Caesarean section

Indication	Public hospital group (n=100)*	Private hospital group (n=78)*
Maternal request	0	44 (56.4)
Previous Caesarean section	38 (38)	14 (17.9)
Breech and other abnormal presentation	10 (10)	3 (3.8)
Fetal distress/pathological cardiotocography	15 (15)	1 (1.3)
Cephalopelvic disproportion	14 (14)	1 (1.3)
Failed induction of labour	16 (16)	1 (1.3)
Twins pregnancy	2 (2)	2 (2.6)
Severe pre-eclampsia	1 (1)	0
Pregnancy induced hypertension	0	1 (1.3)
Prelabour rupture of membrane	0	2 (2.6)
Cord round neck	0	3 (3.8)
Genital wart (secondary)	0	1 (1.3)
Suspected marcosomnia	0	1 (1.3)
Placenta previa	4 (4)	1 (1.3)
Oligohydramnios	0	1 (1.3)
Antepartum haemorrhage	0	1 (1.3)
Placental aging	0	1 (1.3)

* Data are presented as No. (%) of participants

Table 3. Rating for obstetrics service, return for next delivery, and breast-feeding practice

Item	Public hospital group (n=308)*	Private hospital group (n=102)*	p Value
Rating for antenatal service			0.024
1 (very bad)	1 (0.3)	0 (0.0)	
2 (bad)	7 (2.3)	0 (0.0)	
3 (neutral)	48 (15.6)	6 (5.9)	
4 (good)	133 (43.2)	45 (44.6)	
5 (very good)	119 (38.6)	50 (49.5)	
Rating for labour and delivery service			0.312
1 (very bad)	1 (0.3)	0 (0.0)	
2 (bad)	6 (1.9)	0 (0.0)	
3 (neutral)	23 (7.5)	4 (4.0)	
4 (good)	106 (34.4)	31 (30.7)	
5 (very good)	172 (55.8)	66 (65.3)	
Rating for postnatal service			0.553
1 (very bad)	0 (0.0)	0 (0.0)	
2 (bad)	6 (1.9)	0 (0.0)	
3 (neutral)	30 (9.7)	10 (9.9)	
4 (good)	104 (33.8)	39 (38.6)	
5 (very good)	168 (54.5)	52 (51.5.0)	
Return for next delivery			0.014
Yes	288 (93.8)	87 (86.1)	
No	19 (6.2)	14 (13.9)	
Breast-feeding			<0.001
Full	141 (45.8)	20 (19.8)	
Partial	141 (45.8)	54 (53.5)	
No	26 (8.4)	27 (26.7)	

* Data are presented as No. (%) of participants

hospital for delivery was designated doctor-in-charge (44.6%), followed by choice on mode of delivery (37.6%) and safety (27.7%). Whereas the most common reason for choosing public hospital for delivery was economical factor (48.1%), followed by convenience (46.4%), paediatric support (44.2%), and safety (40.6%). 10.7% of women also considered factors such as previous delivery experience and comments from friends and internet. For those who delivered at private hospitals and also registered in the public hospital for delivery, the common reasons cited were paediatric support (n=47, 46.5%), safety (n=43, 42.6%), economical factor (n=38, 37.6%), and convenience (n=12, 11.9%).

The public and private hospital groups were comparable in terms of rating for labour and delivery service (p=0.312) and postnatal service (p=0.553) [Table 3]. The private hospital group had higher rating for antenatal service, with more women rated ≥4 (94.1% vs 81.8%, p=0.024) [Table 3]. More women in the public hospital group than in the private hospital group would return for next delivery (93.8% vs 86.1%, p=0.014) and practiced full or partial breastfeeding (91.6% vs 73.3%, p<0.001) [Table 3].

Discussion

Telephone survey is effective for data collection has a higher response rate than paper- or web-based survey and can reduce self-selection bias[5]. The absence of face-to-face contact in a telephone interview may reduce response bias[6].

The Caesarean section rate is 32% in the United States[7], 34.9% in Mainland China, 27.4% in Taiwan, 35% in Hong Kong, and >45% in Brazil, Egypt, and Turkey[8]. In the present study, 24.6% of women chose to deliver in private hospitals, and one major factor was choice on mode of delivery (37.6%). The Caesarean section rate was 77.2% in the private hospital group and 32.8% in the public hospital group. The significantly higher Caesarean section rate in the private hospital group was mainly due to maternal request (56.4%). Fear of vaginal birth, the severe form of which is known as tokophobia, is a common reason[9], as are fear of childbirth and loss of control[10-12]. Caesarean section is viewed as a 'consumerist discourse' and a means of birth convenience[13]. The ability to choose the place, time, doctor for delivery can facilitate woman's employment and social engagement. However, Caesarean section on maternal request makes delivery into surgery and is associated with surgical risks and potentially heavier postpartum haemorrhage. Based on the principle of beneficence and non-maleficence, Caesarean section on maternal request is unjustifiable in terms of potential risks and benefits. The risk of morbid adherence of placenta and placenta previa increases in women with scarred uterus[14-16]. The incidence of anterior placenta previa and placenta accrete increases significantly in women with previous Caesarean sections. The incidence of placenta accrete is 1.18% among patients with placenta previa and 80% in patients with previous Caesarean section[15]. Furthermore, Caesarean section involves a higher cost than vaginal birth, and a government-funded healthcare system cannot advocate procedures with no tangible benefit. We encouraged trial of vaginal delivery, unless there is a clinical indication for Caesarean section. Women having normal vaginal delivery recover faster and have a shorter hospital stay, and this is associated with a higher breastfeeding rate and lower risk of maternal mortality[17].

In the present study, the lower rating of antenatal service in public hospital may be related to the discrepancy in the expectation of ultrasound service in routine antenatal follow-up. In our hospital, ultrasound service is provided to all registered pregnant women at 11 to 14 weeks of gestation for measuring nuchal translucency (as part of the Down syndrome screening test in first trimester), for determining the order of pregnancy, and for detecting major fetal structural anomalies and uterine or pelvic abnormalities. In later gestation, ultrasound service is provided to those with clinical indications only, owing to limited resource. Ultrasonographic measurement of fetal size does not reduce the incidence of small-for-gestational-age baby or improve perinatal outcome[18]. Contrarily, private hospitals offer ultrasound service at every antenatal visit to monitor fetal growth and serve the purpose of viewing baby and taking photos. Ultrasound service is an attractive proposition to pregnant women[19], probably owing to the visual confirmation of the reality of pregnancy, gaining reassurance about the well-being of the fetus, and a sense of 'meeting' the baby[20]. However, it may cause anxiety, shock, and disappointment when a scan shows a problem[21]. Furthermore, women may not understand well the diagnostic capabilities, limitations, and safety concern of the ultrasound[21,22].

This study has a few limitations. The questionnaire was not validated. Conducting the interview by telephone limits the length of the questionnaire and therefore questions are short and choices limited. However, for the question about reason for delivery at private hospital, only 12 (11.9%) women suggested other factors such as company benefit, relative being staff of the private hospital. Moreover, a pilot study showed that the questionnaire was easy for both participants and interviewer to understand and respond.

Conclusion

The overall rating to both public and private obstetric services in Hong Kong is good. 24.6% of women chose to delivery at private hospitals for reasons such as having designated doctor-in-charge, choice on mode of delivery, and safety issue. The Caesarean section rate was higher in women who chose to delivery at private hospitals. Further studies are warranted to investigate the reasons why these women prefer Caesarean delivery.

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Conflicts of interest

The authors have no conflicts of interest to disclose.

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Appendix. Questionnaire

你好，我是東區尤德夫人那打素醫院婦產科醫生_____醫生/_____姑娘，現正在進行一個關於產科服務的意見問卷調查，目的是希望改善產前及產科服務，查看選擇產科服務的因素和評分。另外，我們會在醫院管理局電腦網絡提取閣下之前登記產前提交了的基本資料。是次蒐集的意見及所有資料絕對保密，完全出於自願性質。請問你願唔願意參加問卷調查?

1. 你的BB是在哪裡出生?
   ☐東區醫院 ☐私家醫院 ☐其他 (請註明)_____
2. BB是在多少週的時候出生?
3. 你是如何生BB的?
   ☐順產 ☐助產 (吸盤) ☐助產 (產鉗) ☐剖腹手術
4. 如是助產/剖腹，請説明其原因
5. 生產後，身體上有否特別問題出現?

   _____
6. 為何選擇在東區醫院/私家醫院生產?
   ☐方便 ☐經濟 ☐安全 ☐兒科配套 ☐可選擇醫生 ☐可選擇生產方式
   ☐可選擇醫院 ☐可選擇出生時間 (不適用於東區醫院生產女士) ☐其他
7. 為何也在東區醫院預約? (不適用於東區醫院生產女士)
   ☐方便 ☐經濟 ☐安全 ☐兒科配套 ☐其他
8. 請你就產前得到的服務給予一個評分。
   (最差) 1 2 3 4 5 (最好)
9. 請你就在產房時或生產的服務給予一個評分。
   (最差) 1 2 3 4 5 (最好)
10. 請你就產後得到的服務給予一個評分。
    (最差) 1 2 3 4 5 (最好)
11. 如果下次再懷孕，你會不會在同一間醫院生產?
    ☐會 ☐不會
    如不會，請註明原因_____
12. 對產科服務，其他意見。
13. 請問你有沒有餵人奶?
    ☐全人奶 ☐部分人奶 ☐沒有

謝謝您的寶貴意見！