

DELIVERY CARE SATISFACTION AT GOVERNMENT HOSPITALS IN XIENGGHUANG PROVINCE UNDER THE MATERNAL AND CHILD HEALTH STRATEGY IN LAO PDR

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ABSTRACT

Satisfaction with delivery care for mothers giving birth at medical facilities, particularly hospitals, affects birth place selection. Lao PDR faces high maternal and infant mortality, and the government had introduced the Maternal and Child Health Strategy to Xiengkhuang Province in 2009 to combat high maternal and infant mortality there. This study aimed to determine the levels of delivery care satisfaction among mothers who gave birth in hospitals and examine the associations between satisfaction and background factors. This was a cross-sectional study, conducted from July to August of 2013, for 246 mothers who gave birth at three hospitals. A logistic regression model was applied to estimate odds ratios (ORs) and 95% confidence intervals (CIs) of the factors. The majority of respondents were ≤ 25 years of age (57.3%), educated in ≤ 12 years (64.2%), unemployed (77.6%), and with more than one child (60.2%). Most mothers (93.5%) received antenatal care at least one time. Among the 16 components of satisfaction, less than half of the respondents were satisfied with sanitary facilities (22.0%), cleanliness (39.4%), their infant's health condition (42.7%), opportunity to clarify doubts about baby care (48.8%), their own health condition (43.5%), and privacy maintained during care (45.5%). The components with more than 80% satisfaction among the respondents were the politeness and respect shown by midwives (88.6%), nurses (85.4%), and doctors (80.1%) as well as medical service facilities (81.7%). Overall satisfaction was significantly associated with higher husband's education (OR=2.36, 95% CI=1.07–5.19) and longer hospital stay (OR=2.30, 95% CI=1.28–4.14) when 15 background factors were adjusted. In conclusion, mothers who gave birth at hospitals in Lao PDR were generally satisfied, except for sanitary facilities, and cleanliness of facilities.

Key Words: Delivery care satisfaction, Lao PDR, Quality of care

INTRODUCTION

Developing countries, including Lao People's Democratic Republic (Lao PDR), are facing high maternal and infant mortality. Unsafe delivery and complications at childbirth are the leading

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causes of maternal and infant deaths.^{1,2)} Progress has been made in Lao PDR with a reduction of infant mortality rate (IMR) per 1,000 births from 70 to 68 between 2005 and 2011. During the same period, the maternal mortality rate (MMR) has declined from 405 to 357 deaths per 100,000 live births.³⁾ However, the current rate of progress is not fast enough to achieve the relevant Millennium Development Goals (MDGs), which aim to reduce infant mortality rate by two-thirds and maternal mortality rate by three-fourths by 2015.^{4,5)}

In Lao PDR district hospitals are community health facilities which provide preventive and curative services, and refer patients to provincial hospitals. Provincial hospitals provide curative health care services at the provincial level, as well as provide health care for the entire population of the region. Public health care facilities are poorly utilized, with a bed occupancy rate of 44.6% at a provincial level in 2011.⁵⁾ Only 37.5% of births in Lao PDR are delivered in a health facility.³⁾ The antenatal period presents important opportunities for reaching pregnant women with a number of interventions that may be vital to their health and well-being and to that of their infants (e.g., physical exams, monitoring blood pressure, taking urine and blood samples).⁶⁾ Based on Maternal and Newborn Care Guideline, pregnant women in Lao PDR are recommended to receive antenatal care (ANC) at least 4 times.⁶⁾ However, only 18.3% women received such ANC services.³⁾ The ability to pay is a major barrier against utilization. Subsequently, the purchase of drugs and/or the use of traditional healers are common as initial health-seeking behaviors.⁵⁾

Although accessibility to health facilities and availability of information on delivery care can reduce maternal mortality and morbidity, it may be insufficient to reach the MDGs. Health care facilities are needed to provide appropriate quality services in order to save the lives of mothers and infants.⁷⁾ Starting in 2011, Lao PDR established a maternal, neonatal and child health strategy to improve quality care and increase the proportion of delivery at hospitals.^{1,5,8)} Therefore, maternal satisfaction with delivery care at hospitals is one of the most important indicators for determining delivery care performance.^{9,10)} Some studies have shown that patient satisfaction is influenced by a wide variety of aspects, such as accessibility, interpersonal aspects of care, technical aspects of care, physical environment, and outcome of care.^{11,12)} One study has shown the importance of patient satisfaction to a health facility in terms of its positive relationship with treatment results, health care utilization, and physical and mental health of patients.¹³⁾ Hence, high patient satisfaction is associated with greater health awareness and health facility use.¹⁴⁾ In addition, patient satisfaction with health care is associated with health workers' satisfaction,^{12,15,16)} which influences continuity of care utilization.¹¹⁾ Conversely, patient dissatisfaction with care has negative impacts on decisions to seek, access, and receive adequate health care.⁷⁾ However, some identified negative impacts were reflected in a number of health outcomes, including maternal and infant mortality rate, perinatal infections, perceived health status, and hygiene compliance.¹⁷⁾ Feelings of satisfaction are essential to maintaining maternal health, as well as providing continuous, quality care of maternal and child health.^{2,11,17)} In short, continuity of maternal and child care is related to the levels of satisfaction of mother and family members with health providers and health facilities.¹⁵⁾ Many studies have examined mothers' level of satisfaction with delivery care.^{9,11-14,17-21)}

Patient satisfaction is a key determinant of quality of care and an important component in measuring performance.¹⁸⁾ In addition, it is important that the hospitals promoting client-oriented health services should carry out in-depth research on factors determining satisfaction in the respective culture.²²⁾ Some factors such as those related to practices in the hospital may be altered by hospital authorities and health providers. Recognition of non-modifiable factors such as patients' background characteristics is also important for health managers and hospital authorities to target patients at risk for bad experiences with each aspect of care. The results of this study provide scientific evidence regarding mothers' satisfaction with delivery care at hospitals in developing countries; consideration of satisfaction by health policy makers might be necessary

for improving the quality of mother and newborn care, and reducing MMR and IMR in these countries. However, there have been no studies regarding this issue in Lao PDR. We aimed to determine the levels of delivery care satisfaction among mothers who gave birth in hospitals, and to examine the associations between their overall delivery care satisfaction and background factors.

MATERIALS AND METHODS

Subjects

This was a cross-sectional study conducted from July to August 2013 at two district hospitals in Kham and Koun, and one provincial hospital in Peak, in Xiengkhuang Province, Lao PDR. These hospitals were selected due to convenience of access and data collection. Subjects were patients who gave birth at the hospitals and were alive at discharge. Those who agreed to participate in the study were enrolled. Self-administered, semi-structured questionnaires were distributed to the participants. A total of 350 questionnaires were distributed; 100 in each district hospital and 150 in the provincial hospital. Out of the distributed questionnaires, 246 were collected.

Questionnaires

The questionnaires consisted of two parts; background factors and components of delivery care satisfaction. The background factors comprised district, religion, ethnicity, marital status, education, occupational status, husband's education, husband's occupational status, parity, delivery method, ANC attendance, frequency of received ANC consultations, monthly family income, fee for delivery service, and length of hospital stay. Delivery care satisfaction was examined via 16 components in 5 aspects; two components for accessibility (ability to reach hospital from residence, waiting time at hospital), five components for interpersonal skills (privacy maintained during treatment, encouragement at delivery, politeness and respect from nurses, politeness and respect from doctors, and politeness and respect from midwives), four components for technical skills (medical facility, competence of health staff, information on newborn care, and opportunity to clarify doubts), three components for physical environment (cleanliness in ward, availability of beds, and sanitary facilities), and two components for outcome of care (health condition of newborn, health condition of mother). Each component was answered on a five-point Likert scale; 1 for very dissatisfied, 2 for dissatisfied, 3 for neutral, 4 for satisfied, and 5 for very satisfied. The questions were developed from a previously published study done by Senarath *et al.*, 2006, to study client satisfaction with perinatal care in Sri Lanka.¹²⁾ The questions were translated into Lao by two authors (P. K. and C. T.) in 2013.

Data analysis

Mothers' satisfaction levels measured by Likert scale were grouped into 1 and 2 for dissatisfaction, 3 for neutral, and 4 and 5 for satisfaction. The overall delivery care satisfaction was expressed by the mean of all 16 components. Scores of less than 4 were classified as "unsatisfied", and scores of 4 to 5 were classified as "satisfied". Similarly, to examine overall satisfaction with facilities, satisfaction with interpersonal skills, technical skills, and physical environment were analyzed separately. Multivariate logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CIs) of the background factors for mothers' satisfaction. A two-tailed *P*-value of less than 0.05 was considered to be statistically significant. Data from the questionnaires were analyzed using Statistical Package for the Social Sciences (SPSS), version 21.0.

Ethics

This study was approved by the Ethical Committee, Ministry of Health, Lao PDR, number 034/NECHR on May 7th, 2013. Informed consent was obtained from each participant.

RESULTS

Background characteristics

As shown in Table 1, 120 (48.8%) out of 246 mothers received delivery care service at the provincial hospital of Peak. Among the respondents, 141 (57.3%) were aged 25 years or less, 149 (60.6%) were of an ethnic religion, 147 (59.8%) were of the Laoloum ethnicity and 81 (32.9%) were of the Hmong ethnicity, 191 (77.6%) were unemployed, 158 (64.2%) had education equal to or less than 12 years, 176 (71.5%) had a monthly family income less than 300,000 kip (approximately 40\$), and 148 (60.2%) had two or more children. 232 (94.3%) underwent vaginal delivery. Most of the mothers 230 (93.5%) received antenatal care at least one time and 135 (54.9%) received ANC \geq 4 times. 164 (66.7%) had paid delivery services fees, and 144 (58.5%) stayed in hospital \leq 1 night.

Table 1 Background characteristics and satisfaction based on overall satisfaction score of respondents (n=246)

Characteristics	Dissatisfaction		Satisfaction		Total	
	n	(%)	n	(%)	n	(%)
District						
Peak	13	(10.8)	83	(69.2)	120	(100)
Kham	0	(0.0)	35	(66.0)	53	(100)
Koun	0	(0.0)	39	(53.4)	73	(100)
Age						
\leq 25 years	8	(5.7)	88	(62.4)	141	(100)
\geq 26 years	5	(4.8)	69	(65.7)	105	(100)
Religion						
Ethnic religion	7	(4.7)	101	(67.8)	149	(100)
Buddhism	6	(6.2)	56	(57.7)	97	(100)
Ethnicity						
Hmong	5	(6.2)	43	(53.1)	81	(100)
Kummou	1	(5.6)	14	(77.8)	18	(100)
Laoloum	7	(4.8)	100	(68.0)	147	(100)
Education						
\leq 12 years of education	9	(5.7)	102	(64.6)	158	(100)
\geq 13 years of education	4	(4.5)	55	(62.5)	88	(100)
Occupational status						
Employed	1	(1.8)	34	(61.8)	55	(100)
Unemployed	12	(76.5)	123	(64.4)	191	(100)
Husband's education						

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≤ 12 years of education	5	(3.9)	91	(70.5)	129	(100)
≥ 13 years of education	8	(6.8)	66	(56.4)	117	(100)
Husband occupational status						
Employed	7	(8.0)	51	(58.6)	87	(100)
Unemployed	6	(3.8)	106	(66.7)	159	(100)
Parity						
Primipara	7	(7.1)	66	(67.3)	98	(100)
Multipara	6	(4.1)	91	(61.5)	148	(100)
Delivery method						
Normal vaginal delivery	11	(4.7)	147	(63.4)	232	(100)
Cesarean section	2	(14.3)	10	(71.4)	14	(100)
ANC ^a attendance						
Yes	11	(4.8)	150	(65.2)	230	(100)
No	2	(12.5)	7	(43.8)	16	(100)
Frequency of ANC ^a						
<4 times	4	(3.6)	66	(59.5)	111	(100)
≥4 times	9	(6.7)	91	(67.4)	135	(100)
Family income monthly						
≤ 300,000 Kip (≤40 \$)	5	(2.8)	117	(66.5)	176	(100)
>300,000 Kip (>40 \$)	8	(11.4)	40	(57.1)	70	(100)
Fee for delivery service						
Yes	10	(6.1)	105	(64.0)	164	(100)
No	3	(3.7)	52	(63.4)	82	(100)
Length of stay in hospital						
≤1 night	4	(2.8)	103	(71.5)	144	(100)
≥2 nights	9	(8.8)	54	(52.9)	102	(100)

Overall satisfaction score (mean of the 16 components) was grouped by 1.00 to 2.00 for “dissatisfaction”, 3.00 to 3.99 for “neutral”, and 4.00 to 5.00 for “satisfaction”. The percentages for the neutral group are not listed.

^aANC= Antenatal care

Delivery care satisfaction for each factor

Table 2 presents the mothers’ delivery care satisfaction. Among the 16 components of the satisfaction, less than half of the respondents were satisfied with the sanitary facilities (22.0%), cleanliness (39.4%), infant’s health condition (42.7%), opportunity to clarify doubts about baby care (48.8%), their own health condition (43.5%), and privacy maintained during care (45.5%). The components with more than 80% of the respondents were satisfied with the politeness and respect shown by midwives (88.6%), nurses (85.4%), and doctors (80.1%) as well as medical service facilities (81.7%). Although the difference was not large, the percentage of satisfaction with medical staff was higher for nurses and midwives than for doctors.

Table 2 Delivery care satisfaction (n=246)

Delivery care satisfaction factors	Dissatisfaction			Satisfaction			Mean	(± SD ^b)
	n	(%)	(95% CI ^a)	n	(%)	(95% CI ^a)		
Accessibility								
1 Ability to reach hospital from residence	59	(24.0)	(18.8–29.8)	139	(56.5)	(50.1–62.8)	3.56	(±1.59)
2 Waiting time at hospital	24	(9.8)	(6.4–14.2)	171	(69.5)	(63.4–75.2)	4.02	(±1.24)
Interpersonal aspects of care								
3 Privacy maintained during care	63	(25.6)	(20.3–31.5)	112	(45.5)	(39.2–52.0)	3.34	(±1.51)
4 Encouragement at delivery by health staff	47	(19.1)	(14.4–24.6)	153	(62.2)	(55.8–68.3)	3.79	(±1.52)
5 Politeness, courtesy and respect from doctors	24	(9.8)	(6.4–14.2)	197	(80.1)	(74.5–84.9)	4.22	(±1.20)
6 Politeness, courtesy and respect from nurses	25	(10.2)	(6.7–14.6)	210	(85.4)	(80.3–89.5)	4.42	(±1.21)
7 Politeness, courtesy and respect from midwives	15	(6.1)	(3.5–9.9)	218	(88.6)	(84.0–92.3)	4.53	(±0.97)
Technical aspects of care								
8 Medical facilities in the ward (drugs, equipment, etc.)	22	(8.9)	(5.7–13.2)	201	(81.7)	(76.3–86.3)	4.24	(±1.15)
9 Competence of care provision by health staff	48	(19.5)	(14.8–25.0)	127	(51.6)	(45.2–58.0)	3.50	(±1.40)
10 Information on newborn	45	(18.3)	(13.7–23.7)	137	(55.7)	(49.2–62.0)	3.59	(±1.40)
11 Opportunity to clarify doubts about baby care	63	(25.6)	(20.3–31.5)	120	(48.8)	(42.4–55.2)	3.30	(±1.51)
Physical environment in ward								
12 Cleanliness	48	(19.5)	(14.8–25.0)	97	(39.4)	(33.3–45.8)	3.34	(±1.39)
13 Availability of beds	47	(19.1)	(14.4–24.6)	154	(62.6)	(56.2–68.7)	3.81	(±1.52)
14 Sanitary facilities (water, toilets, and bathrooms)	106	(43.1)	(36.9–49.5)	54	(22.0)	(16.9–27.7)	2.54	(±1.43)
Outcome of care								
15 Health condition of newborn	80	(32.5)	(26.7–38.8)	105	(42.7)	(36.4–49.1)	3.13	(±1.60)
16 Health condition of mother	45	(18.3)	(13.7–23.7)	107	(43.5)	(37.2–49.9)	3.44	(±1.39)

Each component of satisfaction score was grouped by 1 and 2 for “dissatisfaction”, 3 for “neutral”, and 4 and 5 for “satisfaction”. The percentages for the neutral group are not listed; ^a Confidence interval, ^b Standard deviation

Associations between delivery care satisfaction and background factors

In the overall satisfaction, 38.6 % of the respondents were satisfied (satisfaction level of 4 to 5). Figure 1 shows the distribution of the overall satisfaction score for the hospital. The distribution of scores for the provincial hospital in Peak included both the higher and lower ends.

After adjusting for 15 potential confounders, the adjusted OR was 2.31 for the mothers who gave childbirth at the district hospital of Koun (95% CI=1.14–4.65) relative to mothers at the provincial hospital of Peak (Table 3). Mothers of Kummou ethnicity were less likely to be satisfied with delivery care service than Hmong mothers (adjusted OR=0.25; 95% CI=0.06–0.94). The adjusted OR was 2.36 for the mothers who had husbands with ≥ 13years of education (95% CI=1.07–5.19) relative to the mothers who had husbands with ≤ 12 years of education. The

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adjusted OR was 2.30 for the mothers who stayed in hospital ≥ 2 nights (95% CI=1.28–4.14).

Significant associations with the interpersonal skills aspect were observed for husband's education, as well as length of stay in hospital. For the technical skills aspect, location, whether they had received ANC, and length of stay in hospital were significant factors, while frequency of received ANC was a significant factor for the physical environment aspect.

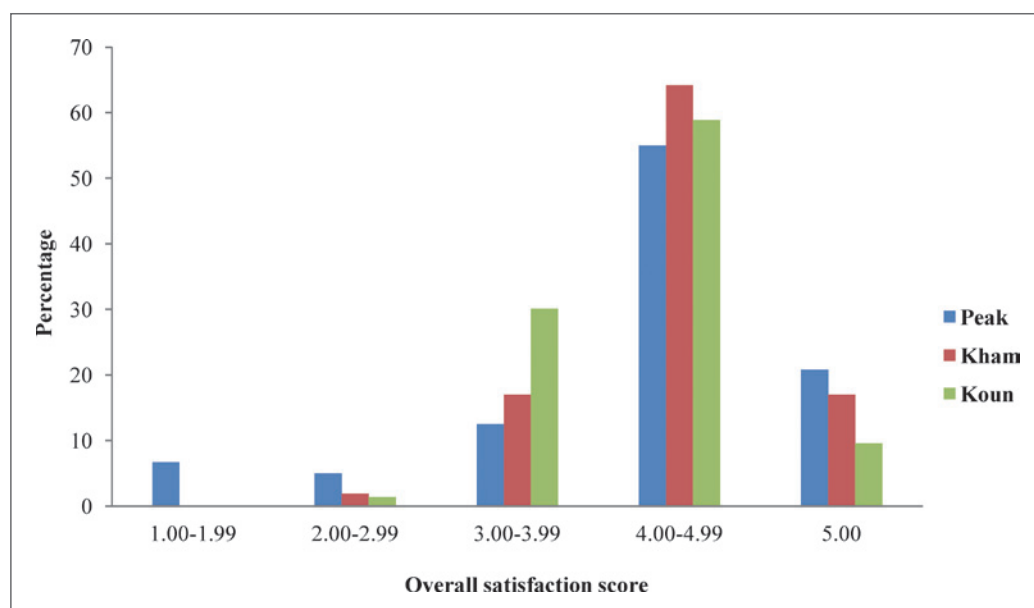


Fig. 1 Distribution of overall satisfaction score by hospital

Table 3 Odds ratio (OR) and 95% confidence interval (CI) of the background factors for the different aspects and overall satisfaction (n=246)

Variable	Interpersonal aspect			Technical aspect			Physical environment			Overall Satisfaction		
	OR	(95 % CI)	P-value	OR	(95 % CI)	P-value	OR	(95 % CI)	P-value	OR	(95 % CI)	P-value
District												
Peak	1	Reference		1	Reference		1	Reference		1	Reference	
Kham	1.37	(0.60–3.10)	0.452	0.33	(0.16–0.89)	0.025	0.53	(0.24–1.18)	0.121	1.14	(0.51–2.56)	0.755
Koun	1.82	(0.89–3.70)	0.100	0.73	(0.36–1.51)	0.398	1.36	(0.68–2.71)	0.388	2.31	(1.14–4.65)	0.020
Age												
≤ 25 years	1	Reference		1	Reference		1	Reference		1	Reference	
≥ 26 years	0.83	(0.44–1.56)	0.554	0.69	(0.37–1.30)	0.251	0.98	(0.53–1.80)	0.945	0.70	(0.38–1.32)	0.270
Religion												
Ethnic religion	1	Reference		1	Reference		1	Reference		1	Reference	
Buddhism	1.14	(0.04–36.32)	0.940	0.36	(0.02–5.85)	0.471	0.43	(0.03–5.56)	0.521	1.86	(0.17–19.85)	0.610
Ethnicity												
Hmong	1	Reference		1	Reference		1	Reference		1	Reference	
Kummou	0.31	(0.09–1.12)	0.074	0.57	(0.15–2.10)	0.395	0.41	(0.11–1.57)	0.193	0.25	(0.06–0.94)	0.040
Laoloum	0.96	(0.08–11.43)	0.959	0.27	(0.02–4.50)	0.362	0.50	(0.04–6.68)	0.598	1.32	(0.12–14.85)	0.823
Education												
≤ 12 years of education	1	Reference		1	Reference		1	Reference		1	Reference	

≥ 13 years of education	0.55	(0.24–1.24)	0.150	1.21	(0.55–2.66)	0.639	0.99	(0.46–2.15)	0.986	0.84	(0.39–1.84)	0.665
Occupational status												
Employed	1	Reference		1	Reference		1	Reference		1	Reference	
Unemployed	0.93	(0.38–2.41)	0.320	1.33	(0.54–3.30)	0.540	1.07	(0.44–2.59)	0.879	0.91	(0.37–2.22)	0.832
Husband's education												
≤ 12 years of education	1	Reference		1	Reference		1	Reference		1	Reference	
≥ 13 years of education	2.90	(1.31–6.47)	0.009	0.57	(0.80–3.92)	0.158	1.68	(0.79–3.60)	0.179	2.36	(1.07–5.19)	0.033
Husband occupational status												
Employed	1	Reference		1	Reference		1	Reference		1	Reference	
Unemployed	1.19	(0.55–2.58)	0.655	1.31	(0.60–2.86)	0.497	0.93	(0.44–1.96)	0.848	1.11	(0.52–2.39)	0.791
Parity												
Primipara	1	Reference		1	Reference		1	Reference		1	Reference	
Multipara	0.81	(0.44–1.51)	0.515	0.97	(0.52–1.80)	0.918	1.74	(0.94–3.20)	0.076	1.05	(0.56–1.94)	0.888
Delivery method												
Normal delivery	1	Reference		1	Reference		1	Reference		1	Reference	
Cesarean section	0.96	(0.28–3.30)	0.951	1.04	(0.31–3.50)	0.954	0.58	(0.17–2.03)	0.394	0.76	(0.22–2.61)	0.662
ANC ^a attendance												
Yes	1	Reference		1	Reference		1	Reference		1	Reference	
No	0.59	(0.17–2.00)	0.395	4.37	(1.15–16.56)	0.030	0.74	(0.23–2.39)	0.610	1.49	(0.46–4.86)	0.506
Frequency of ANC ^a												
<4 times	1	Reference		1	Reference		1	Reference		1	Reference	
≥4 times	0.80	(0.40–1.59)	0.521	0.81	(0.41–1.60)	0.547	0.41	(0.21–0.82)	0.011	0.73	(0.37–1.45)	0.367
Family income monthly												
≤ 300,000 Kip (≤40 \$)	1	Reference		1	Reference		1	Reference		1	Reference	
>300,000 Kip (>40 \$)	1.76	(0.93–3.38)	0.088	0.63	(0.32–1.23)	0.175	1.76	(0.92–3.35)	0.085	1.49	(0.78–2.86)	0.227
Pay for delivery service												
Yes	1	Reference		1	Reference		1	Reference		1	Reference	
No	1.00	(0.52–1.94)	0.985	1.18	(0.60–2.33)	0.635	0.98	(0.51–1.89)	0.962	0.91	(0.47–1.76)	0.785
Length of stay in hospital												
≤1 night	1	Reference		1	Reference		1	Reference		1	Reference	
≥2 nights	2.63	(1.45–4.76)	<0.001	3.07	(1.70–5.55)	<0.001	1.46	(0.82–2.60)	0.198	2.30	(1.28–4.14)	0.006

Odds ratio adjusted for district, age, religion, ethnicity, education, occupational status, husband's education, husband's occupational status, parity, delivery method, received antenatal care, number of received antenatal care, family's monthly income, pay for delivery service, and length of stay in hospital; ^a Antenatal care

DISCUSSION

This study showed that the respondents were satisfied with many components of delivery care in the district/provincial hospitals but were unsatisfied with some components of service, which was similar to several previous studies.^{9,12,21} One possible general reason for the high satisfaction could be due to the locations of this study. A national maternal and child health strategy in Lao PDR was implemented in the hospitals of this province, which included free delivery care service, health provider training, health facility renovation, and provision of medical equipment and supplies. In this sense, the findings obtained in this study could be applicable for the facilities under such a national health strategy.

Components of satisfaction

Even in these conditions, the present study has identified components of high satisfaction and low satisfaction. Components of low satisfaction were sanitary facilities, cleanliness of facility, infant's health condition, opportunity to clarify doubts about baby care, mothers' own health condition, and privacy maintained during care. These findings were consistent with a study in Sri Lanka reporting clients less satisfied with privacy during care, sanitary facilities, and opportunity to clarify doubts about advice,¹²⁾ and another study in Cambodia demonstrating that less than half of patients were satisfied with sanitation of community hospital.²³⁾ Likewise, a study in Nigeria reported that only one-fifth of pregnant mothers were satisfied with the timely response of hospital staff to their doubts about health information,²⁴⁾ and another study in New Delhi, India found that less than half of mothers were satisfied with information about the care of newborns they got from postnatal unit of hospital.²⁵⁾ This might be due to the levels of care being closely associated with the economic conditions of the areas and local health care providers' knowledge, skill and attitudes .

Components of high satisfaction in this study were the politeness, courtesy, and respect from providers (nurses, midwives, and doctors) and medical service facilities in the ward (drug, equipment, etc.). These findings were similar to those in studies in developed countries reporting that mothers were highly satisfied with care provided by midwives, nurses, and doctors, in that order.^{26,27)} This might be explained by the health providers' interpersonal skills in the area of this study approaching the levels of those in developed countries.

Factors associated with satisfaction

The study showed that the total satisfaction scores of the provincial hospital of Peak were more distributed in the lower end of the scale in comparison to the two district hospitals. It might be due to the reluctance of the respondents at the district hospitals to criticize their health care providers.²⁸⁾ After adjusting for district, significant associations of overall satisfaction were observed for ethnicity, husband's education, and length of stay in hospital. Similarly, a study in Taiwan reported that mothers' satisfaction was associated with length of stay in the postnatal nursing center.²¹⁾ This is in contrast with many previous studies reporting that patients' satisfaction was associated with age, education, parity, occupational status, and family income.^{24,25,29-32)} This inconsistency might be explained by the relatively different background of the countries, as well as different levels of patient expectation.

Satisfaction with the interpersonal aspects of care was associated with two factors; husband's education, and length of stay in hospital. District, ANC attendance, and length of stay in hospital were associated with satisfaction for the technical skills aspect, while frequency of received ANC was the only associated factor for satisfaction with physical environment. A study in Sri Lanka reported that satisfaction on physical environment aspect was associated with ethnicity and family incomes, while interpersonal aspect was associated with parity and low birth weight (less than 2,500g), and distance and parity were associated with the technical aspect.¹²⁾ One possible reason might be the methods of recruitment of subjects. The participants in this study were only mothers who gave birth at hospitals, while the subjects of the Sri Lanka study received a lower level of services and treatments.

Limitations of this study

There were several limitations in this study. Firstly, the study was conducted in Xiengkhuang province, which was a target area for implementation of a government strategy, the obtained findings may have low generalizability, both to the whole of Lao PDR, as well as private hospitals or underfunded facilities. Further research in satisfaction at non-governmental and/or underfunded

facilities is necessary. Secondly, the study area consisted of various ethnic groups with different socio-economic backgrounds such as language, culture, and belief. The subjects were from the Laoloum, Kummou, and Hmong ethnic groups. Although these were the three primary ethnic groups in the study area, there might be different responses among the different ethnic groups. Thirdly, this study was conducted based on self-administered questionnaires. In the study, the literacy rate of female was 89.2% in Xiengkhuang province, Lao PDR.³⁾ Therefore, respondents who could not read or write were excluded from the study. Although rejection was not recorded, it was assumed that mothers who did not participate in the study were very limited. Fourthly, the participants were only mothers who gave birth in hospitals from July to August. The seasonality might influence the responses. Other possible influences may be the accessibility of the hospitals, though such effects might be limited.

Conclusions

The mothers giving birth at hospitals in Xiengkhuang province, Lao PDR, were generally satisfied with the services, but sanitary facilities, cleanliness, opportunity to clarify doubts about baby care, infant's health condition, mother's health condition, and privacy maintained during care were components with relatively low satisfaction. These components should be improved in the future. However, the authors would like to concentrate on the important components of sanitary facilities and cleanliness in particular. Cleanliness of the sanitary facility is an important strategy to prevent in-hospital contamination, one cause of mother and infant mortality. The authors of this study recommend that hospital authorities should focus on sanitary facilities, through services such as garbage collection, wastewater disposal and cleaning systems, in order to maintain mothers' satisfaction and maintain the condition of sanitary facilities.

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CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interests.

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