

Knowledge of free delivery policy among women who delivered at health facilities in Oudomxay Province, Lao PDR

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ABSTRACT

To promote the utilization of maternal health services and reduce financial barriers, the Laos government introduced its “Free Maternal Health Services Policy” in 2012. This policy provides free maternal health services for pregnant women, which includes costs related to treatment, transportation, food fees, referral and an incentive for four antenatal care appointments. This study aims to ascertain the knowledge level regarding this policy among Lao women and determine their level of satisfaction with the maternal service provision. This is a cross-sectional study conducted in Xay district, La district, and Namore district of Oudomxay province, in August 2015. Three hundred and sixty women who delivered their children at the health facilities from July 2014 to June 2015 were randomly selected from the list of mothers who lived in each area. The majority of women had heard about the free delivery policy and knew that the main health services related to delivery and pregnancy were free of charge. Logistic regression analysis showed that education level ($P=0.026$), length of stay ($P<0.0001$) and receiving transportation support ($P=0.005$) had significant associations with the knowledge level. The women were highly satisfied with the quality of the services, health care providers, and health facilities. However, most mothers were not satisfied with accessibility to health facilities. To increase utilization of health facilities and reduce the maternal mortality ratio in rural areas, the government needs to improve people’s education status and health care accessibility.

Key Words: free delivery policy, health facility, knowledge, Laos, maternal care.

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INTRODUCTION

Since the Millennium Development Goals (MDGs) was introduced by the World Health

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Organization (WHO) in 2000, maternal health (MDG5) has improved around the world. Globally, the maternal mortality ratio (MMR) declined by 45% between 1990 and 2013, and the number of maternal deaths per 100,000 live births dropped from 380 to 210.¹⁾ Several developing nations have made great progress in maternal health outcomes, even in countries with a high MMR.¹⁾ Although maternal health and MMR have improved, a huge number of women still die during pregnancy or delivery due to complications such as hemorrhage, hypertensive disorders, and sepsis.²⁾ The WHO estimated that 289,000 women had died during pregnancy and childbirth worldwide in 2013.¹⁾ These deaths could have been reduced if the women had visited maternal health facilities during pregnancy, childbirth, and during the month after delivery.³⁾

The Lao People's Democratic Republic (Lao PDR) has made significant progress in the improvement of maternal health outcomes in the past two decades and was on-track to achieve the MDG5 in 2015.⁴⁾ For instance, the MMR declined from 905 per 100,000 live births in 1990 to 197 in 2015.⁵⁾ Other indicators of maternal health were also improved between 2005 and 2012; the percentage of pregnant women who had antenatal care (ANC) at least once increased from 28.0% to 54.0%. The percentage of deliveries attended by health personnel and institutional deliveries increased from 20.0% to 41.5% and from 17.0% to 38.0%, respectively.⁶⁾ According to the report of the Lao PDR Maternal Death Review 2011–2013, 83.0% of maternal deaths occurred after deliveries⁶⁾ and only 40.0% of mothers received postnatal care (PNC).⁷⁾

The population of Lao was 6,788,516 in 2015, and there are 18 provinces, 148 districts and 10,902 villages. There are 999 health centers which are the lowest level of health facilities, 136 district hospitals, 17 provincial hospitals and 9 central hospitals.⁸⁾ The average number of medical care workers of health centers is 5–7, including one or two doctors (or assistant doctors) and two or three nurses or midwives. The number of villages covered by a health center is usually 7–12 and it depends on the location or the distance from other health centers. All health facilities provide basic ANC, PNC and delivery service, and high-risk patients are treated at hospitals depending on the risk.

Oudomxay province is one of the provinces where maternal health was improved in Lao PDR, and the improvement was in parallel with that of the national level in the last five years (2008–2013). For example, the percentage of mothers who received ANC increased from 19.4% in 2008 to 46.0% in 2013. Similarly, the percentage of facility-based delivery and skilled birth attendance increased twofold in the same period.⁹⁾ Additionally, the percentage of women receiving PNC was 0.7% in 2008 and improved dramatically with a 43% increase between 2010 and 2013.⁹⁾

Even though the maternal health status has been improved in Laos, MMR still remains high compared to other countries in southeast Asia.¹⁰⁾ This poor state of maternal health in Laos is due to a number of factors which keep Lao women away from seeking maternal health services. These factors include social and cultural practices during delivery, quality of health care, accessibility of health care, and financial barriers.¹⁰⁾ Previous studies in the Philippines and Ethiopia showed that age, education, occupation and residence were associated with the use of maternal health services.^{11,12)} In Laos, financial barriers are a major impediment to the use of maternal health services.^{10,13)}

In order to promote the utilization of maternal health services and reduce financial barriers, the Laos government introduced its “Free Maternal Health Services (FMHS) Policy” in 2012.¹³⁾ This policy states that pregnant women shall receive free maternal health service (ANC, PNC and delivery), which includes all treatment, transportation support (2.5–6.5 USD) and a food fee during their stay in health facilities (5 USD for pregnant women and a family member), and costs related to referral (transportation and treatments). The transportation fee is 2.5 USD and 6.5 USD for women who live within 3–6 km and more than 6 km away from health facilities, respectively.¹⁴⁾ When a pregnant woman completes four visits of ANC (ANC4), she can receive

4 USD as an incentive.¹⁴⁾ This policy was made based on the positive outcomes of a pilot project of free maternity care in two districts of Savannakhet province.¹³⁾ In the pilot project, the percentage of deliveries at health facilities increased from 8.5% to 23.7% from 2009 to 2011.¹³⁾ However, the FMHS policy has not been fully implemented in all services and districts yet. In 2014, 56% of health facilities provided free maternal care and delivery according to the FMHS policy and 63% of pregnant women had received the services nationwide.¹⁵⁾

In Xay district, La district, and Namore district of Oudomxay province, the implementation of the FMHS policy does not provide the services of food fees and the ANC4 incentive. Support for referral was provided through official vans, or a small amount of cash when pregnant women went to referral hospitals by themselves. The Global Alliance for Vaccines and Immunization (GAVI) financially supports these three districts in order to provide free delivery at health facilities, free ANC and free PNC.¹⁶⁾ GAVI also provided three vans to the three districts to support the transportation of pregnant women instead of transportation fees.

Two studies on the FMHS policy were previously conducted on the effectiveness of the policy implementation in Laos.^{10,13)} However, there have been no studies about awareness and knowledge of pregnant women toward the FMHS policy in Laos. This study aims to ascertain the knowledge level regarding the policy among Lao women and determine their satisfaction with the maternal service provisions.

MATERIALS AND METHODS

Subjects

This was a cross-sectional study conducted by means of face-to-face interviews in Xay district, La district and Namore district of Oudomxay province, Lao PDR, in August 2015. The province has seven districts with 1 provincial hospital, 6 district hospitals, and 46 health centers. GAVI has been providing financial support for the implementation of free delivery in the three districts in the province. The districts were purposively selected because the expenditure on data collection of this study was supported by GAVI. Twenty-six health care workers were trained for data collection, and one of them was trained to check the completeness of all questionnaires. The subjects of this study were 360 women who delivered their children at health facilities from July 2014 to June 2015. The health facilities in the three districts consisted of 21 health centers, two district hospitals, and one provincial hospital. Each health facility randomly selected 15 women from the list of mothers who lived in the area covered by the health facility. This study obtained ethical approval from the Ethics Committee of Lao PDR. Informed consent was obtained from the 360 women. The sample size was a little less than 384 calculated from the Fischer's formula, $Z^2p(1-p)/I^2$, where Z is 1.96 for $\alpha=0.05$, proportion (p) is 0.5, and precision (I) is 0.05.¹⁷⁾

Questionnaire and measurement

The interview material was semi-structured and comprised of 3 sections: background information, knowledge of the FMHS policy, and satisfaction with service provision. The section on background information consisted of 2 components: demography (7 questions) and utilization of services (16 questions). The section on knowledge of the policy contained 16 questions related to an information source on the policy and services; free delivery at health facilities, free ANC, free PNC, transportation fee, food fee, and an incentive for ANC4. Each correct answer was coded as 1 and each wrong answer was coded as 0. The mean score for knowledge was used as a cut-off point to identify the "level of knowledge" among participants.¹⁸⁾ Women with scores below the mean were grouped into the "low level of knowledge" group, while those with scores

above the mean were classified into the “high level of knowledge” group (total score: 16, min: 0, max: 16, mean: 8.6).

Twenty questions concerning satisfaction were answered on a five-point Likert scale ranging from very dissatisfied to very satisfied.¹⁹⁾ Scores of 1 and 2 were grouped into dissatisfaction, 3 was categorized into neutral, and 4 and 5 were grouped into satisfaction.²⁰⁾ The questionnaires were developed based on the FMHS policy¹⁴⁾ and two previous studies which were conducted on maternal and child health services and satisfaction with health services in 2013 in Laos.²⁰⁾

Data analysis

Statistical Package for Social Sciences (SPSS) version 22 was used for data analysis. Logistic regression was employed to estimate odds ratios (OR) with 95% confidence interval (CI). A P-value of <0.05 was considered significant.

RESULTS

Background characteristics of respondents

As shown in Table 1, the average age of the 360 women was 23.0 years (15–41 years) and 70.0% of respondents lived less than 6 km from health facilities. The primary occupation was farmer (75.0%), and approximately 20% of women were illiterate while the rest had some form of formal education. Lao Theung (70.6%) and animist (81.9%) were dominant in the ethnicity and religion variables, respectively. Most respondents (97.8%) received ANC while only 41.7% received PNC. A high percentage of surveyed mothers (77.8%) delivered their babies in health centers, 13.3% delivered in district hospitals and 8.9% in the provincial hospital. Only 8.6% of women stayed for 2 or more days in health facilities after delivery, and the majority of them (87.3%) did not receive any support for transportation.

Knowledge of the FMHS policy

Out of 360 respondents, 354 (98.3%) had heard about the FMHS policy. Table 2 summarizes the knowledge level regarding the policy among the 354 women. A total of 277 women (78.2%) received the policy information from health personnel, 43.8% was informed by the head of the village, and 10.5% of women had heard from their family members, friends, relatives, and so on. Of the 354 women, 91.0%, 93.2%, and 82.2% knew that delivery at health facilities, ANC and PNC were free, respectively. The foremost knowledge regarding the policy information was about the purpose (59.0%) and the target population of the policy (55.9%). However, the level of knowledge concerning financial benefits was low. Only 2.9% of mothers knew about the services related to food fees for a family member, 3.7% about an incentive for ANC4, and 25.4% about the free ambulance service or transportation support for delivery.

Association between background information and knowledge of the FMHS policy

The total score regarding knowledge of the policy was 16, with a mean score of 8.6. We decided that women with higher scores than the mean were to be considered the “high level of knowledge” group and the others the “low level of knowledge” group. Among 360 respondents, 193 (53.6%) had scores higher than the mean. Binary logistic regression analysis using all demographic characteristics showed that ethnicity, religion, education, length of stay (the number of days that women stayed at health facilities after delivery) and received transportation support were associated with the knowledge level regarding the policy (Table 3). Logistic regression analysis using these five variables showed that the education, length of stay and transportation

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Table 1 Demographic background of respondents (N=360)

Characteristics	N	%	Characteristics	N	%
Age (years)			Income		
Average age	23.0 years		< 120 USD	291	80.8
<19	102	28.3	≥ 120 USD	69	19.2
20–24	140	38.9	Residence		
25–29	76	21.1	< 6 km	252	70.0
30–34	23	6.4	≥ 6 km	108	30.0
35 or more	19	5.3	Antenatal Care		
Occupation			No	8	2.2
Officer	7	1.9	Yes	352	97.8
Farmer	270	75.0	Postnatal care		
Housewife	83	23.1	No	210	58.3
Ethnicity			Yes	150	41.7
Lao Lum	40	11.1	Place of delivery		
Lao Theung	254	70.5	Provincial Hospital	32	8.9
Hmong	51	14.2	District Hospital	48	13.3
Others	15	4.2	Health Center	280	77.8
Religion			Length of stay (days)		
Buddhist	62	17.2	1	329	91.4
Animist	295	82.0	2 or more	31	8.6
Christian	3	0.8	Received transportation support		
Education			No	314	87.2
Illiterate	71	19.7	Yes	46	12.8
Primary	177	49.2			
Secondary	84	23.3			
High	28	7.8			

Table 2 Knowledge of the policy information (N=354)

Variables	N	(%)
Source of information		
Health personnel	277	(78.2)
Head of village	155	(43.8)
Others ^{a)}	37	(10.5)
Policy information		
The purpose of the policy	209	(59.0)
Eligible person	198	(55.9)
Registration place	146	(41.2)
Responsible person for referral in community	299	(84.5)
No charge for ANC	322	(91.0)
No charge for delivery	330	(93.2)
No charge for PNC	291	(82.2)
No charge for emergency referral	162	(45.8)
Transportation support	90	(25.4)
Fee for food (pregnant women)	16	(4.5)
Fee for food (a family member)	10	(2.9)
Incentive for ANC4	13	(3.7)

Multiple answers were allowed.

^{a)}Others means family members, friends, relatives and social media.

ANC, antenatal care; PNC, postnatal care; ANC4, four times of ANC.

Table 3 Odds ratio (OR) and 95% confidence interval (CI) of high level of knowledge on the policy (n=360)

Characteristics	Total	High ^{a)}	Crude		Adjusted ^{b)}		P-value
	N	N (%)	OR (95% CI)		OR (95% CI)		
Ethnicity							
Lao Lum	40	16 (40.0)	1 (Reference)		1 (Reference)		
Lao Teung	254	145 (57.1)	1.99 (1.01–3.94)*		2.06 (0.76–5.55)		0.155
Hmong	51	21 (41.2)	1.05 (0.45–2.44)		0.61 (0.19–2.01)		0.419
Other	15	11 (73.3)	4.13 (1.12–15.25)*		4.77 (1.00–22.68)		0.050
Religion							
Buddhist	62	26 (42.0)	1 (Reference)		1 (Reference)		
Animist	295	165 (56.0)	1.76 (1.01–3.06)*		1.75 (0.78–3.93)		0.177
Christian	3	2 (66.70)	2.77 (0.24–32.18)		3.64 (0.27–49.86)		0.333
Education							
Illiterate	71	38 (53.5)	1 (Reference)		1 (Reference)		
Primary	177	90 (50.8)	0.89v(0.52–1.56)		0.77 (0.41–1.43)		0.403
Secondary	84	44 (52.4)	0.96 (0.51–1.79)		1.04 (0.50–2.15)		0.922
Higher	28	21 (75.0)	2.61 (0.98–6.90)*		3.42 (1.16–10.01)**		0.026
Length of stay							
1	329	168 (51.0)	1 (Reference)		1 (Reference)		
2 or more	31	25 (81.0)	3.99 (1.59–9.99)*		6.25 (2.31–16.71)**		<0.0001
Received transportation support							
No	314	160 (51.0)	1 (Reference)		1 (Reference)		
Yes	46	33 (72.0)	2.44 (1.24–4.82)*		2.94 (1.38–6.26)**		0.005

* $P<0.05$; ** $P<0.001$ ^{a)}High level of knowledge; ^{b)}Adjusted for ethnicity, religion, education, length of stay and received transportation support**Table 4** Satisfaction score of respondents (N=360)

Variables	Satisfaction		Dissatisfaction	
	N	%	N	%
Accessibility				
Ability to reach health care facility	173	48.1	34	9.4
Distance from residence to health care facility	150	41.7	39	10.8
Availability of transportation	168	46.7	66	18.3
Transportation support	22	6.1	334	92.8
Staffs				
Availability of staff (reception setting)	295	81.9	6	1.7
Staff availability during labor stage	249	69.2	10	2.8
Politeness of staff	279	77.5	2	0.6
Services				
Waiting time	262	72.8	10	2.8
Information provision	230	63.9	15	4.2
Fulfillment of your needs	257	71.4	13	3.6
Safety and security	302	83.9	0	0.0
You received enough attention from staff	252	70.0	3	0.8
Staff's concern for your condition	261	72.5	6	1.7
Staff's concern for your child's condition	289	80.3	2	6.0
Level of care in general	293	81.4	0	0.0
Facility				

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Cleanliness of facility	215	59.7	12	3.3
Cleanliness of delivery room	209	58.1	16	4.4
Availability of equipment	278	77.2	10	2.8
Availability of medicine	296	82.2	4	1.1
Costs				
Are you satisfied with the fee that the policy covers	202	56.1	85	23.5

Overall satisfaction score was grouped as follows: 1 to 2 for “dissatisfaction,” 3 for “neutral,” and 4 to 5 for “satisfaction.” The percentage for the neutral group is not listed.

support had significant associations with the knowledge levels. Women with higher education had a higher level of knowledge than the women with lower education such as secondary school, primary school, or no education ($P=0.026$). Women who stayed in health facilities for 2 or more days ($P<0.0001$) and had transportation support ($P=0.005$) had a high level of knowledge more than the other women.

Satisfaction with maternal health service

Table 4 presents respondents' level of satisfaction with health facilities and health services. More than half of the respondents were satisfied with the service provision, staff behavior, facility environment, and costs. Concerning staff, 81.9% of women were satisfied with the availability of staff at the reception area, and 83.9% felt safe and secure when they were admitted. The satisfaction level was high in the readiness of medicine and medical equipment, too (82.2% and 77.2%, respectively). Overall satisfaction with the level of care was 81.4%. However, accessibility and costs were factors with which women were highly dissatisfied.

DISCUSSION

Our study showed that most of the women (97.7%) who gave birth at health facilities had heard about the policy. They understood well about the main health services related to delivery and free charge of delivery. However, only about 50% of women knew the purpose and the actual registration system. The policy information on perinatal service was not widely spread to the women, although these services were related to money. Our study showed that most participants (78.2%) had heard about the policy from health care workers, followed by the head of the village (43.8%). This is consistent with previous studies conducted in Nigeria and Ethiopia,^{21,22} but not in Nepal where family members and friends were main information sources.²³ These results suggest that an important source of health care information to local people depends on the country or culture. Our study showed that health care workers are the most important source of information for mothers in Laos. Taken together, to spread more detailed information about the policy and useful services to mothers, it may be good to give education on it to health care workers and encourage them to tell pregnant women or mothers in Laos.

In this study, ANC utilization was very high (97.8%), which might be due to the high percentage of educated women (80.3%) and the awareness of free ANC (91.0%). Similar results were found in a study in Nigeria, which showed that the high utilization of ANC (78.6%) might be due to the high rate of literacy and ANC awareness.¹⁷ Our analysis also showed that women with higher education had higher level of knowledge regarding the policy. These results suggested that education is a very important factor in improving the coverage of maternal health care in developing countries.

The majority of respondents knew that the services related to maternal health care were available in health facilities (ANC; 91.0%, delivery; 93.2% and PNC; 82.2%). These results show that mothers knew about the core service provisions of maternal care, which is consistent with the results of previous studies in other developing countries.^{21,24)} However, 354 women answered that they had heard about the policy although all 360 women had benefit from the policy when they delivered at health facilities. Similarly, the number of women who knew about the ANC was 322, which was lower than the number of women who had received ANC by 30. Of these 30 women, all had heard about the policy but did not know the details of free ANC. Approximately 74% of them lived near health facilities, and 55% had two or more children. These data suggest that most of the 30 women must have known about ANC and therefore some of 360 women may have misunderstood the questions.

The educational status, length of stay after delivery, and reception of transportation support were significantly associated with the level of knowledge of the FMHS policy. A high level of education lead to the high knowledge level regarding the policy; it might be due to the fact that mothers with higher education possibly have more opportunities to access health care information. These results were consistent with the results of previous studies conducted in Ethiopia, Sierra Leone, India, and China indicating that knowledge of health care was higher among mothers who had completed higher education.²⁵⁻²⁸⁾ Another study in Poland showed similar results, indicating that low-level education decreased the level of awareness concerning health care.²⁹⁾

Mothers who stayed at health facilities for two or more days had a higher level of knowledge than women who stayed in health facilities for only one day. It can be assumed that mothers with longer stays in health facilities had more opportunities to receive information on health care from the health care providers. This study also showed that more mothers who received transportation support had a high level of knowledge than mothers who did not receive this support. It can be said that women who experienced transport support already knew about their available support options.

Mothers' satisfaction with the services related to delivery was high with regard to service renderers, care provider behavior, and facility readiness. The satisfaction levels in these three categories were ranged from 64% to 84%, 62% to 72%, and 58% to 82%, respectively. These results were similar to those of previous studies in developing countries such as Bangladesh, Ethiopia, India, and Cameroon.³⁰⁻³³⁾ However, the majority of mothers were not satisfied with the physical accessibility and transportation to health facilities. As of recently, 94% of villages can be accessed by roads in Oudomxay province. However, 85% are mountain areas and not all villages can be accessed during the rainy season.³⁴⁾ Transportation services to health facilities are also unstable during the rainy season.³⁴⁾ Even if transportation is available, mothers may not be willing to seek out health care providers because one-third of the households of Oudomxay province is poor.³⁴⁾ Our study found that one-third of women lived 6 km or more away from health facilities and that most women were poor with less than 120 USD of monthly income. Although the majority of women did not receive transportation service, it was available to all who wanted it. These results suggest that transportation services should be available during all seasons and the implementers of the FMHS policy should provide more suitable transportation support to communities in order to increase maternal care utilization and reduce financial barriers.

There are some limitations in this cross-sectional study. Firstly, this study was conducted in only three districts of one province out of 18 provinces, so that the respondents cannot be assumed to be representative of the whole country in Laos. Secondly, the participants of the study were only women who delivered their children at the health facilities; women who delivered their children at home may show different results. Thirdly, there was some confusion regarding the data collection tools leading to some of the questions being dismissed. We did not use data

for analysis which were obviously inconsistent with other results. To improve the data collection tools, they must be clear, precise, and consistent with the purposes of the study.

This is the first report from Laos to assess the knowledge level of the FMHS policy among mothers. Our results showed that the majority of women had heard about the free delivery policy and knew the main health services related to delivery and pregnancies were free of charge. However, very few women knew that mothers can receive an incentive for ANC4 and a food fee during their stay at health facilities. In order to provide equal services to all mothers, the Lao government should instruct all health facilities to strictly implement the full-service package regarding the FMHS policy. Higher levels of education, staying for two or more days in health facilities, and receiving transportation support were factors that had a significant association with the level of knowledge regarding the policy. Among the services related to delivery, mothers were highly satisfied with the quality of service provided by health facilities and care providers. However, most mothers were not satisfied with the physical accessibility and transportation support to health facilities. To increase utilization of health facilities and reduce MMR in rural areas, the government needs to cooperate with several sectors to improve people's education status and health care accessibility.

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CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interests.

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