

Research Report

Name : Outavong Phathamavong

Organization (at the time of the grant):

Department of Health Policy and Planning, The University of Tokyo

Title of Research:

Antenatal care enhancing hospital delivery and child immunization among minor ethnic populations in Louang Namtha province, Lao PDR

Purpose of Research:

Numerous studies in developing countries indicated factors affecting the ANC. In their systematic review, Simkhada et al. showed that socio-demographic factors, availability and accessibility, affordability, health insurance, women's status in the household, and women's knowledge, attitude, belief and culture affected the ANC utilization in developing countries.

The contribution of ANC to the reduction of maternal mortality was found to be limited in some studies because the prediction of complications threatening the mother's life was low. It might be true in countries with low MMR and high ANC coverage. A study in Surabaya, Indonesia showed the association between maternal mortality and number and onset of ANC visits. Many studies, moreover, demonstrated the benefits of the ANC visits on birth weight of newborn baby (Fujita et al., 2005), hospital delivery and delivery attended by skill personal, postpartum care, TT vaccine of women, child immunization and breast-feeding practices.

Although there is a low ANC utilization rate and low proportion of delivery at healthcare facilities in Laos, there are no studies to explore associated determinants and no study on beneficial effects of ANC on MCH services utilization such as hospital delivery and child immunization in Laos. This study aimed to fill this gap, specifically to assess ANC utilization rates among mothers who live in the rural area of Laos, to investigate the determinants of ANC utilization and to explore whether ANC utilization enhances the mother's decision-making regarding the place of delivery and immunization status of the children under five.

Content/Methodology of Research:

Methods

Study design and study site

A community based, cross-sectional survey was carried out in Viengphukha district, Louang Namtha province in January 2008. Louang Namtha, a mountainous province located in north of Laos, was identified as one of poverty-stricken provinces, consisting of five districts of which three

were classified as poor. Viengphukha was one of the poor districts, notable for its lack of electricity. There were 46 villages and 11 minor ethnic groups. Total population was 19,996 people.

There are 9 health centers in Viengphukha district; of these, 5 health centers covering 21 catchment villages were randomly selected by simple random sampling method. Five villages were excluded due to inaccessibility, and the remaining 16 villages were targeted for our field survey. The entire 1,213 households were recruited in this study and visited by research assistants; however, 1007 (83%) were available for interview. Two households were excluded because household representatives refused to participate. Of the participating 1005 households, 620 had at least a child aged less than five years. Among households with children under five, parents of children under five were interviewed.

Data collection

Door-to-door technique was used in this study to ensure that all households were visited trained research assistants. Face-to-face interview using semi-structured questionnaire was conducted to household representative for households without children aged under five and parents of children aged under five for households which children aged under five were identified. The questionnaire was developed to investigate the socio-demographic and characteristic of the participants and their households, experiences of MCH care service utilization among mothers during the most recent pregnancy, and the immunization status of their youngest child. The immunization status was confirmed by checking the vaccination card (yellow card).

Ethical considerations

This study was approved by the National Ethics Committee For Health Research, Ministry of Health in Laos before we conducted field survey. Verbal informed consent was obtained from each participant before an interview.

Data analysis

Data analysis was done using the SPSS statistic program version 13.0 for Windows. Chi-square test was performed to explore the determinants of ANC visits, delivery at healthcare facility and full immunization of children under five. The statistically significant factors for the chi-square test were included in the binary logistic regression analysis. A p-value of less than 0.05 was considered as statistical significance in our study.

Results

Utilization of health facility

One hundred forty five (23.4%) of 620 mothers with children under five had at least one ANC visit, of which 4.5% had at least four ANC visits during the most recent pregnancy (Table2). 558 (90%) of deliveries took place at home, of which 4.8% were assisted by skill birth attendant and 24.7% were assisted by traditional birth attendant (TBA). Among children under five, 25.2% were received full immunization.

Determinants of ANC visits

In Table 3, the results of chi-square test showed that the education level of fathers and mothers were directly associated with ANC visits (OR=2.3; $p<0.001$ & OR=2.9; $p<0.001$, respectively). ANC visits among mothers whose household income were more than 5 US\$ were 1.5 times higher than the others ($p<0.05$). Furthermore, ANC visits among lowland and midland mothers were 19.7 and 6.0 times higher than highland mothers, respectively ($p<0.001$). Mothers living in a village with health center were more likely to visit ANC at least one time than mothers in a village without health center (OR=2.5; $p<0.001$).

Logistic regression analysis showed that ethnicity is a statistically significant predictor for ANC: ANC visits among lowland and midland mothers were 3.9 and 7.2 times, respectively, higher than highland mothers ($p<0.01$ & $p<0.01$, respectively). Mothers who had attended school were more likely to have had at least one ANC visits (adjusted OR=1.6; $p<0.05$).

ANC enhancing hospital delivery and child immunization

Bivariate analysis showed that, home deliveries were less likely when mothers and fathers had higher education. Mothers living in the village without the health center and having no ANC visits during the most recent pregnancy were more likely to do home delivery (Table 4). Home delivery was higher among highland (OR=30.6; $p<0.001$) and midland (OR=6.9; $p<0.001$) than lowland mothers. In a logistic regression analysis only ANC visits remains a strong association with home delivery (adjusted OR=20.1; $p<0.001$).

Children of the parents who have higher educational level and have more than 5 US\$ monthly income were less likely to have incomplete immunization (Table 4). Incomplete immunization was 4.5 times higher among highland children than lowland. Furthermore, children living in the village without a health center and whose mother had no ANC visit during the most recent pregnancy were more likely to get incomplete immunization than the others. In a logistic regression analysis, however, an association was found only between mothers who had no ANC visit and incomplete of routine immunization of children under five (adjusted OR=1.9; $p<0.01$).

Conclusion/Observation

Discussion

We found that 23% of mothers received at least one ANC visit, which was consistent with the WHO report (23%) in 2003. This rate (23%) was much lower than in our previous study of semi-urban areas of Xiengkhuang province (63%), suggesting a gap in ANC utilization between women in urban and rural areas of Laos. Our study confirms the lowest rate of ANC visits rate in the Southeast Asia region. WHO recommended four ANC visits for each pregnancy to eliminate risks of pregnancy-related maternal death. Data of four ANC visits, however, had not been available in Laos. We showed that only 4.5% of at least four ANC visits among minor ethnic mothers.

Our study shows even with the low levels of education for both parents there is a positive association between education level among women and their husbands and ANC utilization for the most recent pregnancy. The association between ANC visits and education was much stronger in studies in Vietnam, India and Kenya. Simkhada et al. showed that findings from many studies in Asia and Africa supported this association.

The significant factor influencing ANC visits was ethnicity. Not surprisingly, ANC visits were less common among highland and midland mothers than lowland mothers. Among highland and midland people, utilization of MCH might stick to the belief, culture and lifestyle. Studies from Ethiopia, India, Nigeria and Viet Nam pointed out a consistent finding.

The availability of healthcare facility seems to be another determinant of ANC visits. Mothers needed to walk for one or two hours to reach the nearest healthcare facility, which would discourage them to attend an ANC. This finding is consistent with studies from Kenya and Tamil Nadu, South India.

Having received no ANC visits were directly associated with home delivery regardless of the socio-demographic characteristics of targeted people and availability of healthcare facility. Studies from Bangladesh and Cambodia consistently showed the direct association between regular ANC visits and delivery taking place at healthcare facility among mothers in rural community.

Children whose mothers had ANC visits were more likely to get fully immunized than children whose mothers had no ANC visit regardless of the socio-demography, ethnicity and availability of healthcare facility. Moreover, in the study area, vaccines are provided free of charge through outreach team at village four rounds a year; therefore, all children have an equal opportunity to receive full immunization. A study in North India showed that children were more likely to receive immunization if mothers received ANC. A study from Ghana showed that children whose mothers received ANC provided by doctors and/or nurses were more likely to receive full immunization than those whose mothers received ANC provided by traditional birth attendant and whose mothers received no ANC.

Conclusion

Notwithstanding the antenatal care was prioritized as one of strategies to tackle the high maternal death in Laos, this study revealed the low ANC utilization rate (23%) among ethnic minority mothers, who were less educated. Although the cause-effect relationship was not able to establish due to the nature of cross-sectional study design, we confidently demonstrate the possibility of ANC visits enhancing the decision-making of the mothers toward hospital delivery and immunization of their children.

The ministry of health in collaboration with the United Nations Children's Fund (UNICEF) has been implementing the community-based ANC aiming at increasing its utilization rate among women in remote, rural area. However, the quality and benefits of the community-based ANC on MCH services utilization remain questions. Further researches are needed to prove these issues.