

Full Length Research Paper

The effect of community based safe motherhood pictorial handbook health education intervention in Pa-Oh ethnic group, Myanmar

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A community based safe motherhood pictorial handbook health education intervention was conducted in three Pa-Oh villages located in Shan State, Myanmar during 2010, aiming to promote knowledge, attitude, practice and intention to practice of maternal health care in antenatal, delivery and postnatal period including breastfeeding and family planning. The purpose of this study was to evaluate the effect of safe motherhood health education intervention which used pictorial handbook developed in Pa-Oh's social and cultural context. A mixed methodology, quantitative and qualitative methods were adopted in this study. Pre-test post-test comparison of same group design was used for quantitative part and a total of 257 reproductive age women participated. Five focus group discussions and informal interview with eleven women who had child birth during project time was done for qualitative part. The result showed that the effect of health education and communications was significantly increased with the introduction of pictures in the design of new health education materials. There were also positive changes of knowledge, attitude, practice and intention to practice of maternal health care during antenatal, delivery and postnatal period including early initiation and exclusive breastfeeding and family planning from baseline to 6 months follow up.

Keywords: Safe motherhood, pictorial handbook, health education, Pa-Oh, ethnic group, Myanmar, community based intervention.

INTRODUCTION

Myanmar had decided to prioritize achievement of the Millennium Development Goals (MDGs) in the area of maternal, newborn and child health especially Goal 5, and five-year strategic plan for reproductive health was successfully developed in 2009 aiming to reduce maternal mortality and morbidity (Ministry of Health Myanmar, 2010).

Approximately 1.3 million women give birth each year in Myanmar (WHO, 2005) and according to the "Nationwide Cause-specific Maternal Mortality Survey", carried out by Department of Health in 2004-2005, maternal mortality ratio was estimated at 316 per 100,000 live births at the national level. The complications during antenatal and delivery periods were the main causes of maternal mortality and morbidity; and 80% of maternal deaths were occurred mostly at home (Ministry of Health and Ministry of Social Welfare, Relief and Resettlement, 2008). In Myanmar, more than 70% of the total population resides in rural areas (WHO, 2005) where

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89% of all maternal deaths were reported (Ministry of Health and Ministry of Social Welfare, Relief and Resettlement, 2008).

Health education to mothers is one of the strategies which many countries have adopted to improve maternal health (Annet N, 2004)), as the women's empowerment factors such as education and exposure to mass media play a major role in the utilization of maternal health care (Yesdian PP, 2005). Health education influences one's nutrition and health care knowledge, behavior and attitude toward maternal health care practices (Liu N et al, 2006).

Numerous health education interventions had been carried out for preventing major prenatal, intrapartum and postpartum complications which in turns enhancing maternal health (Bolan A et al, 1998; Ickovics JR et al, 2007; Liu N et al, 2009; Turan JM and Say L, 2003). Health education intervention enables the women to take away some of the unhealthy traditional practices and decrease the prevalence of health problems even among lower educated, rural women (Liu N et al, 2009). Moreover, one strategy for increasing the use of reproductive health services in developing countries is the establishment of voucher programmes and it was appeared to have positive effect on utilization of reproductive health services (Bellows NM et al, 2011).

Safe motherhood pictorial handbook health education project was implemented in three Pa-Oh villages in Shan State during 2010 and this project emphasized promoting knowledge, attitude, practice and intention to practice maternal health care in antenatal, delivery and postnatal periods including breastfeeding and family planning. The objective of this study was to evaluate the effect of a community based safe motherhood health education project which used pictorial handbook developed in Pa-Oh's social and cultural context. As the community participation is seen as central to public health arena and closed collaboration with existing community structures was essential for all community level intervention, the project also focused on enhancing community participation in the understanding of health problems, design and implementation, monitoring and evaluation of intervention.

MATERIALS AND METHODS

Study setting, study design, sample and procedure

Pa-Oh is the second largest ethnic group residing in Shan State, eastern part of Myanmar. This study was carried out in three Pa-Oh villages and total population was estimated at 1100 in which most of the habitats were

farmers and gardeners, had little education and most were illiterate. As they spoke in Pa-Oh language, there was language barrier which made them less accessible to health facilities.

This study was community based intervention study which employed a mixed methodology using quantitative and qualitative methods in order to address the research objective.

Quantitative component involved pre-test post-test comparison of the same group. All reproductive age women residing in study area were eligible for study and a total of 257 reproductive age women participated. The women were interviewed by trained facilitators using face to face interviews and structured questionnaires in Pa-Oh language at pre-intervention and 6 months follow up. The questionnaire included socio-economic characteristics of the respondents, knowledge, attitude and intention to practice concerning maternal health care in antenatal, delivery and postnatal period, breastfeeding, and family planning. Cronbach's alpha coefficient was 0.7 and the content validity and face validity was checked by experts.

In qualitative component, five focus group discussions were conducted with reproductive age women by using guideline. In each focus group discussion, eight women participated and they were purposively selected, however, there are some inclusion criteria stating women who were residing in the study area and participated in safe motherhood pictorial handbook health education project. In addition to focus group discussions, informal interviews with 11 women who delivered a baby during project time were done to determine the practice of maternal health care and health related behaviors.

Intervention

The intervention was conceived as a safe motherhood pictorial handbook health education project emphasizing on health education by village health volunteers using pictorial handbook specifically on antenatal, delivery and postnatal care in regards to danger signs, diet, hygiene, antenatal check up and tetanus immunization, safe and clean delivery, postnatal check up, breastfeeding and family planning. All the activities were carried out through participatory approach started from the understanding of health problems, design and implementation, resource mobilization until monitoring and evaluation of intervention.

The intervention package comprised of three components, (1) development of safe motherhood pictorial handbook, (2) training of village health volunteers and (3) women's group health education sessions with the reproductive age women in the villages.

(1) Development of safe motherhood pictorial handbook

A safe motherhood pictorial handbook was developed based on the discussion with reproductive age women in the community for culturally acceptable and locally appropriateness. Moreover, informal interviews with health committee, traditional birth attendants, auxiliary midwife, midwife and doctors working in the non-government organization (NGO) were conducted to get full picture of folk knowledge, traditional beliefs and practices among Pa-Oh women. Then, the pictorial handbook was developed in culturally and locally appropriate terms with illustrations which was suitable for Pa-Oh ethnic group and illiterate women. The handbook was also pretested with village women and other key informants for the clarity, cultural appropriateness, language used, and reading level of the printed materials.

(2) Training of village health volunteers

A total of seventeen village health volunteers were give full day training for 3 days and they were responsible for not only to provide information on maternal health care but also to encourage women to ask questions and raise personal concerns about their health.

(3) Women's group health education sessions

All reproductive age women were invited to attend one hour group education sessions for 3 days which were held in women's homes, village leaders' homes or village health volunteers' homes every week. Safe motherhood pictorial handbooks were given to women and a short presentation was conducted by village health volunteer.

Outcome measures

In quantitative component, outcome measures were knowledge and attitude towards maternal health care, breastfeeding and family planning. Binary outcome measures of intention to practice of maternal health care in terms of early antenatal visit with health professional within first three months of pregnancy, at least three antenatal visits with health personnel, skilled birth assistants, postnatal check up with health professional, early initiation and exclusive breastfeeding in terms of breastfeeding to newborn within 30 minutes after delivery and intend to feed water to baby within first four months, and practice of contraception were also assessed.

Data Analysis

Quantitative data was analyzed by using SPSS software. After checking and coding questionnaires, data were entered by two persons separately and crosschecked again to assure the accuracy of the data. Then the fixed data was analyzed. Paired T-test was used to compare the difference of knowledge and attitude of the participants in pre and post intervention. McNemar Chi-square test was used to compare the difference of categorical variables. The level of significance was set at 0.05.

The scripts obtained from focus group discussions and informal interviews were transcribed, crosschecked with the respondents and translated into English. Then the data were coded and qualitative data were subjected to content analysis.

Ethical approval

Information sheet and informed consent form were translated into Pa-Oh language and explained prior recruiting. Both oral and written informed consents were taken from each participant at the start of the study. All focus group discussions and informal interview were tape recorded on respondent's consent. All the study procedures were approved by Ethical Review committee for Research Involving Human Research Subjects, Health Sciences, Chulalongkorn University, Bangkok, Thailand.

RESULTS

Quantitative Results

257 women participated in the study and the number of participants from two villages was almost equal (34.1% and 39.7%) with 26.1% from the last village. Table 1 shows socio-economic characteristics of the participants. All the women were of reproductive age ranged from 15-49 years and the proportion of the women was fairly distributed across all age groups. 80.2% of the women were married, nearly two-third of the women had education lower than a primary education and more than half had an average family income less than 15 US\$ per month. Almost half of the women (45.9%) could not speak, read or write Burmese language, one-fourth could speak Burmese while the other one-fourth was fluent in all three skills. Regarding fertility related characteristics, three-fourths of the married women were getting married before age 20. Among the women who ever had

Table 1. Socio-economic characteristics of participants (n=257)

Variables	Frequency	Percentage
Age		
15 – 24	74	28.8%
25 – 34	91	35.4%
35 – 49	92	35.8%
Marital status		
Married	206	80.2%
Never married	42	3.5%
Divorced, Widowed	9	16.3%
Education		
Never go to school	38	14.8%
Primary education	135	52.5%
Secondary education	70	27.2%
High school	11	4.3%
Higher education (Diploma, University)	3	1.2%
Average family income per month (US\$)		
≤15 US\$	134	52.1%
16-25 US\$	46	17.9%
26-35 US\$	36	14.0%
>35 US\$	41	16.0%
Burmese language skill		
Cannot speak, read and write	118	45.9%
Can speak Burmese language but cannot read and write	68	26.5%
Fluent in Burmese language (speaking, writing, reading)	71	27.6%
Age at first marriage (n = 215)		
14 – 20	162	75.3%
21 – 25	38	17.7%
>25	15	7.0%
Number of pregnancy (n = 207)		
1 or 2	86	41.5%
≥ 3	121	48.5%
Number of child alive (n = 197)		
1 or 2	105	53.3%
≥ 3	92	46.7%

pregnancy, 48.5% of the women experienced 3 or more times of pregnancy and similar proportion of them had three or more children.

All variables were significantly improved from baseline

to 6 months follow-up with the exception of the practice of contraception among married women. Specifically, knowledge and attitude were significantly increased post intervention. Intention to practice antenatal care in terms

of antenatal visit with health professional within first 3 months of pregnancy and having at least three antenatal visits during pregnancy were significantly increased post intervention. Likewise, intention to have skilled birth assistants such as doctors, midwife, auxiliary midwife and trained traditional birth attendants for delivery and postnatal checkup with health professional were also significantly increased at post intervention (Table 2).

Intention to practice of early initiation of breastfeeding (within 30 minutes after delivery) and feeding colostrums to baby were significantly increased. Although feeding water to baby during first 4 months was very common in Pa-Oh ethnic group, significantly more women gave up the intention to feed water to the baby during first 4 months in post intervention. In regards to contraceptive used, usage of contraception was not significantly different among married women pre and post intervention, however, in post intervention, intention to use of contraception was significantly increased among the women who are not currently married. (Table 2)

Qualitative Results

(a) Focus Group Discussions

Satisfaction to safe motherhood pictorial handbook health education project

All of the women expressed satisfaction to safe motherhood pictorial handbook and women's group health education sessions. They described the pictorial handbook as simple, easy to understand the pictures and health messages written in Pa-Oh and Myanmar languages. One said *"The book was really good because all the health messages were written in Pa-Oh language and I could read it. There were pictures so it is easy to understand for me. I should have that book when I had only three children"*. Another also stated *"If I had this kind of health education handbook and health education sessions before, I would not have many children like now"*. They also liked women's group health education sessions because of getting chance to gather village women and share their knowledge and experience, having knowledge about maternal health care and family

planning that the women did not know before.

Knowledge of maternal health care and danger signs

Importance of maternal health care

All of them said that antenatal and postnatal care was important. The most commonly answered reason was notice of danger signs because it could harm both mother's and baby's life. The other reasons included getting tetanus immunization, abdominal examination by health personnel, getting multivitamins, for easy and safe delivery, having STD test in antenatal care, could do child spacing, and immunization to newborn in postnatal period. One woman expressed her decision as *"Pa-Oh women never consulted health personnel in postnatal period. Now I know it's important for both mother and baby's health, so I will go and see midwife in next pregnancy"*.

Danger signs in antenatal, delivery and postnatal period

The women mostly stated danger signs during antenatal, delivery and postnatal period as bleeding, headache, swollen foot, swollen face and hands, fits and loss of consciousness, foul smelling discharge within 45 days after childbirth, severe abdominal pain before term, blurred vision, prolonged labour, tiredness, yellow coloration of skin and fever.

Feeding of colostrums

Most of the women stated that colostrums should be fed to newborn because colostrums have nutrients and baby can get resistance. They also expressed breastfeeding soon after delivery could promote expulsion of placenta. One admitted, *"We usually wiped colostrums with clothes and never fed to newborn because of its yellow color, but after we received health education handbook and attended women's group health education sessions, we knew it's important and needed for baby. I will encourage*

Table 2. Changes in knowledge, attitude and intention to practice regarding maternal health care in pre and post intervention (n = 257)

Variables	Pre-intervention	Post intervention	p-value
Knowledge ^a	Mean = 13.9 (SD = 4.18)	Mean = 16.5 (SD = 2.27)	< 0.001
Attitude ^a	Mean = 28.4 (SD = 3.64)	Mean = 32.1 (SD = 4.67)	< 0.001
Intend to have antenatal visit with health professional within first 3 months of pregnancy ^b			
Yes	193 (75.1%)	252 (98.1%)	<0.001
No	64 (24.9%)	5 (1.9%)	
Intend to have at least 3 antenatal visits with health professional ^b			
Yes	216 (84.0%)	250 (97.3%)	<0.001
No	41 (16.0%)	7 (2.7%)	
Intend to have skilled birth assistants (doctor/midwife/auxiliary midwife/trained traditional birth attendant) ^b			
Yes	104 (40.5%)	168 (65.4%)	<0.001
No	153 (59.5%)	89 (34.6%)	
Intend to have postnatal check up with health professional ^b			
Yes	139 (54.1%)	241 (93.8%)	<0.001
No	118 (45.9%)	16 (6.2%)	
Intend to breastfeed within 30 minutes after delivery ^b			
Yes	156 (60.7%)	248 (96.5%)	<0.001
No	101 (39.3%)	9 (3.5%)	
Intend to feed colostrums to baby ^b			
Yes	121 (47.1%)	250 (97.3%)	<0.001
No	136 (52.9%)	7 (2.7%)	
Intend to feed water to baby during first 4 months ^b			
Yes	186 (72.4%)	52 (20.2%)	<0.001
No	71 (27.6%)	205 (79.8%)	
Practice of contraception among married women (n = 206) ^b			
Using contraception	145 (70.4%)	156 (75.7%)	0.082
Not using contraception	61 (29.6%)	50 (24.3%)	
Intend to practice of contraception among currently not married women (n = 51) ^b			
Yes	16 (31.3%)	26 (50.9%)	0.021
No	35 (68.7%)	25 (49.1%)	

^a Paired T-test^b Mc-Nemar Chi-square test

other women to feed the baby with colostrums”.

Knowledge of contraception

The women mostly stated the methods for child spacing as 3 months Depo injection, oral pills, condom, intrauterine contraceptive device (IUCD) and female sterilization. They also mentioned irregular bleeding, heavy menstruation, headache, weight gain, vomiting as disadvantages of using contraception. One of them acknowledged, *“I never knew that I had to feel the thread of IUD before. Now I knew and I felt it. I still have IUCD and I’m safe now”.*

(b) Informal Interviews

Majority of the women in the interview expressed that they had antenatal visits within first 3 months, 3 antenatal visits, and tetanus immunization before delivery and complied with other health related behaviors such as having nutritious food, caring personal hygiene, not doing hard work. However, one woman said *“I did not have antenatal care and tetanus immunization during pregnancy because I had baby with my boyfriend and it was not acceptable in our culture. So I had to keep it as a secret”.*

Regarding place of delivery, three women delivered baby at hospital or rural health centre while the rest delivered at their home and they said *“It’s more convenient to have child birth at home because it is far to reach to township hospital”.* Two women were assisted by auxiliary midwife, one woman was assisted by neighbor and the rest of them were assisted by trained traditional birth attendants. Even though most of the women practiced safe and clean delivery such as cleaning the floor for delivery, preparing clean clothes ready to wrap the newborn and keeping soap and water ready, one said *“I did not prepare clean clothes ready for wrapping baby as I had baby before marriage. When I had labour pain, my mother called the neighbor and she assisted my child birth”.*

Majority of the women had postnatal checkup with health personnel such as midwife, auxiliary midwife and doctors during 6 weeks postpartum. All of them complied with healthy dietary and hygiene practices in postnatal period. Concerning breastfeeding practice, majority of the women initiated breastfeeding within 1 hour after delivery, and all of them fed newborn with colostrums.

DISCUSSION

Our results show that the community based safe motherhood health education intervention using pictorial handbook and group education was associated with positive changes of knowledge, attitude, practice and intention to practice of maternal health care in antenatal, delivery and postnatal period including breastfeeding and family planning.

The effectiveness of health communications can be significantly increased by including pictures in the design of new health education materials. Pictures closely linked to written or spoken text can, when compared to text alone, markedly increase attention to and recall of health education information. Spoken information with the help of pictures will benefit all, but people with low literacy skills are especially likely to benefit (Houts PS et al, 2005). In the safe motherhood pictorial handbook, pictures were closely linked to written text and developed culturally and locally appropriate. Due to the reason of pronounced language barrier among reproductive age Pa-Oh women, all of the health messages were written in Pa-Oh and Myanmar language as well. The awareness of the women was raised by using pictorial health education materials which in turns empowered them to seek the health care services (MacGillivray I et al, 2004).

The women in this study exhibited significantly greater improvement in overall knowledge and attitude concerning maternal health care in antenatal, delivery and postnatal period including breastfeeding and family planning after attending women’s group health education sessions. Health education helps increasing knowledge and to reinforce desired behavior patterns which in turns brings about changes in health behaviors and lifestyles (Tones K and Green J, 2004). Health education influences one’s health care knowledge, behavior and attitude toward maternal health care practices (Liu N et al, 2006).

Health knowledge is considered one of the key factors that enable women to be aware of their rights and health status in order to seek appropriate health services. Raising the awareness of women about reproductive health may improve the women’s understanding of their own reproductive health and contribute to their acceptance and utilization of available reproductive health services (Zhao Q et al, 2009).

Significantly more women intended to utilize maternal health care services, engaged healthy behaviors and gave up unhealthy traditional taboos and practices in post intervention. Health education interventions for

preventing major prenatal, obstetric and postnatal complications enable the women to utilize antenatal care (Ickovics JR et al, 2007; Babalola S and Futusi A, 2009; Yesdian PP, 2009), skilled personnel for delivery (Babalola S and Futusi A, 2009; Baker EJ et al, 2006; Fosto JC et al, 2008) and postnatal care (Dhakai S et al, 2007), practice early initiation and exclusive breastfeeding (Baker EJ et al, 2006; Chapman DJ et al, 2004) and take away some of the unhealthy traditional practices and decrease the prevalence of health problems even among lower educated, rural women (Liu Nu et al, 2006; Liu N et al, 2009).

This study found the difference of contraceptives used among married women in pre and 6 months post intervention was non-significant, though there was a trend in desired direction. The prevalence of contraceptives used in the study villages was higher compared to national contraceptive prevalence rate which was 37% (United Nations, 2005). This could be explained as the study villages have already had a mobile clinic run by non-government organization (NGO) since 2009 and some methods of contraception such as oral pills and 3 month injectables are provided in cost sharing system. However, among women who were not currently married, intention to use any contraceptive method was significantly increased post intervention.

Health education by health workers is still seen as integral part of primary health care and the investment for training of health workers to disseminate health messages and development of health education materials consume considerable amount of health budgets. However, all of these might be ineffective and no significant impact on promoting health services utilization and enhancing awareness (Bolan A et al, 1998; Turan JM and Say L, 2003; Kitzman HR et al, 2000; McInnes RJ et al, 2000; Qian X et al, 2007).

This study had some limitations. The fact was that the study was only a 6 month follow-up, the number of pregnancies and deliveries were not large enough to evaluate the changes in practice of maternal health care statistically. Therefore, actual practice of maternal health care services could not be the main outcome measure in quantitative part of the study. The further limitation was that there was difficulty in transportation to travel to remote, hard to reach study areas, therefore one group pre-test post-test design was used. The absence of an appropriate control limited the ability to quantify the effectiveness of the intervention. Nonetheless, there were no parallel health education activities over the study period. There was no electricity in the study villages during implementation of the project nor could the villages access to mass media. Thus, we considered that changes in intention to practice could be due to the effects of this safe motherhood pictorial handbook health

education project.

CONCLUSION

The community based safe motherhood health education intervention using pictorial handbook and group education had positive impact on women's knowledge, attitude and their practice or intention to practice of maternal health care in antenatal, delivery and postnatal period including breastfeeding and family planning. Project sustainability is one of the top concerns in development efforts; therefore, capacity building to village leaders and village development committees and refreshment training of village health volunteers should be done from time to time. This study focused on many aspects of maternal health care, so the emphasis on specific area of maternal health care would be recommended to give a more detailed picture of the effect of intervention. We suggest that further research should be carried out in a larger population in order to get the sufficient number of pregnancies and deliveries to determine the changes in utilization of maternal health care services and also a comparison group should be introduced.

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