

INFLUENCE OF HUSBAND DOMESTIC SUPPORT ON MATERNAL MORBIDITY IN RURAL NEPAL

Dipa Wasti¹, Apiradee Lim² and Ram Sharan Pathak¹

¹Central Department of Population Studies, Faculty of Humanities and Social Sciences, Tribhuvan University, Kirtipur, Kathmandu, Nepal;

²Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Thailand

Abstract. This study aimed to determine the associations between socio-demographic factors, maternal health knowledge and husband domestic support and last pregnancy problems among reproductive age women (aged 15-49 years) in Bahuni, Morang, Nepal. Data were collected during February and March 2010 from 144 women who had at least one child <5 years old. The women completed a questionnaire designed to elicit socio-demographic status, maternal health care knowledge and recent delivery experience. The results were used to construct two indices, the first encapsulating the woman's knowledge of maternal health care and the second summarizing problems experienced during and after her last pregnancy; these indices were found to be negatively associated. The method used in this study may be applied more widely for health planning to reduce maternal morbidity in Nepal.

Keywords: maternal health, husband's education, husband help, age of women, knowledge about maternal health

INTRODUCTION

Maternal health has a pronounced impact on human resources and is a key indicator of socio-economic development in a country. Maternal health problems are a serious issue in developing countries, especially in Asia and Africa where the risk of maternal death is nearly one hundred times higher than that in developed countries (UNFPA, 2003). The lifetime

risk of dying from maternal causes in South Central Asia is 1 in 61, but ranges from 1 in 8 in Afghanistan to 1 in 850 in Sri Lanka. Other lifetime risks include 1 in 51 in Bangladesh, 1 in 55 in Bhutan, 1 in 70 in India, 1 in 300 in Iran, 1 in 200 in Maldives, 1 in 31 in Nepal and 1 in 74 in Pakistan (PRB, 2008).

In the early 1990's Nepal had 539 maternal deaths per 100,000 live births (Pradhan, 1997) compared with just 8 deaths per 100,000 in the United States (Hill *et al*, 2001). Despite a substantial reduction to 281 per 100,000 live births by the end of the following decade (MOPH *et al*, 2007), this maternal mortality rate needs to be halved again if Nepal is to achieve the current World Health Organization Millennium Development Goal

Correspondence: Apiradee Lim, Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani 94000, Thailand.

Tel: +66 (0) 74 312 179; Fax: +66 (0) 74 312 179
E-mail: lapirade@bunga.pn.psu.ac.th, api_45@hotmail.com

of reducing maternal mortality by three quarters between 1990 and 2015 (WHO, 2003).

A review study revealed socio-economic and cultural factors and gender discrimination are strong predictors of maternal morbidity and mortality in rural Nigeria (Chukuezi, 2010). Maternal health knowledge is another factor that contributes to maternal morbidity and mortality (Smith *et al*, 2004). This factor is influenced by maternal education (Kistiana, 2009; Zhao *et al*, 2009; Butawa, 2010). In Nepal, the husband also plays an important role in family decision-making, including using reproductive health services (Manandhar, 2000), similar to India (Sharma, 2003; Barua *et al*, 2004). Moreover, the availability, accessibility, adequacy and quality of health care services are limited in Nepal (Dhakal *et al*, 2007). Domestic support from husbands and gender equality benefits women in reducing workload during pregnancy and this contributes to prevention of maternal ill health (Horstman *et al*, 2004). In order to increase husband domestic support, new perspectives on encouraging the balance of power between men and women to improve health behavior should be considered (Drennan, 1998). This study aimed to identify the association between socio-demographic factors, maternal health knowledge and to identify their effects and husband domestic support on last pregnancy problems among reproductive age women at their last delivery.

MATERIALS AND METHODS

This study was given ethical approval by the Ethics Committee of the Central Department of Population Studies (CDPS), Faculty of Humanities and Social Sciences, Tribhuvan University, Nepal.

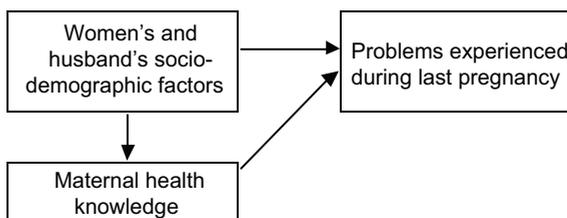


Fig 1—Conceptual framework.

Verbal informed consent was obtained from each subject before enrollment in the study.

We assumed maternal health care in rural Nepal was directly related to socio-economic and demographic factors. These include the woman's education, occupation, age, as well as relevant characteristics of her husband, including his concern for her maternal health. It is reasonable to assume the maternal health of a woman is directly related to her knowledge of maternal health care; this knowledge may be determined to some extent by demographic, socio-economic and other factors, such as accessibility to mass media.

In this study the maternal health status of the woman was taken as the outcome variable; this was measured in terms of the problems she experienced during and after her most recent pregnancy as shown in Fig 1.

Data source and samples

Morang District has a higher socio-economic standard than much of Nepal. Of the 75 districts of Nepal, it ranks 11 on the Composite Development Indicator, 13 on the Population Deprivation Index and 29 on the Women Empowerment Index (ICIMOD/SNV-Nepal, 1997). It borders India in the south and is located in the Tarai region.

This study was conducted in the village of Bahuni, Morang District, in the

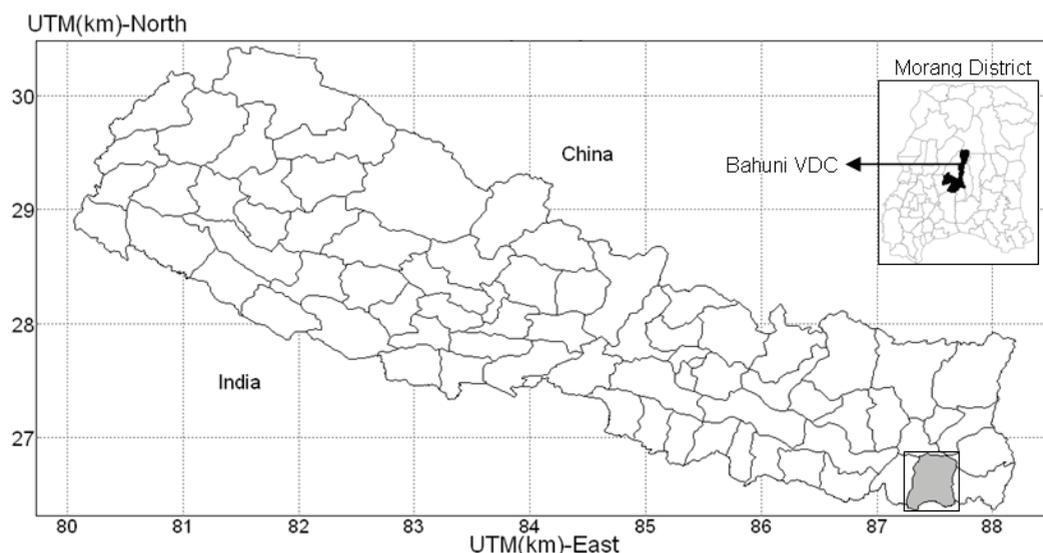


Fig 2–Map of Nepal showing Morang District, Bahuni VDC (study area).

Tarai (lowland) region of the southeastern corner of Nepal (Fig 2). According to the Village Development Committee Profile of Nepal (Joshi, 2008) this village contained 335 households; all were visited as part of a preliminary enquiry to identify eligible respondents (women who had given birth at least once during the preceding five years). These women were interviewed individually between February and March 2010. Altogether 144 respondents were interviewed using a semi-structured questionnaire based on relevant literature regarding maternal health; the questionnaire also contained relevant questions from the 2006 Nepal Demographic and Health Survey.

Ninety-six percent of participants (133/144) were Hindu and 64 (44%) belonged to the Brahmin-Chhetri (highest) caste. The averages for the Nepali population reported by the Central Bureau of Statistics (2003) were 80.6% and 30.9%, respectively. The study sample contained few members of minority religions and

fewer lower caste members than the overall population.

Statistical methods

After checking questionnaire responses for consistency, the frequencies of responses in the various categories for each item were cross-tabulated in preliminary analysis to assess associations between demographic and socio-economic determinants.

A maternal health knowledge index for each subject was defined as the sum of three binary response items: knowledge of ante-natal care, delivery care, and post-natal care. A multiple linear regression model was then used to develop a simple additive model for predicting this index using the selected woman and her husband's socio-demographic variables as predictors.

An additional index encapsulating problems experienced by the mother during and after her most recent pregnancy was also created, by ranking these

Table 1
Frequencies of selected variables used for analysis.

Age group of respondent	15-24	25-29	30-44	Total	Percent
Women's education (years of study)					
Illiterate	8	8	12	28	19.5
No schooling	4	3	5	12	8.3
Up to 5 years	11	11	3	25	17.4
6-10 years	21	18	8	47	32.6
> 10 years	16	11	5	32	22.2
Women's occupational status					
Housewife	15	13	4	32	22.2
Worker (owned land)	21	13	10	44	30.6
Worker (paid laborer)	20	21	15	56	38.9
Other	4	4	4	12	8.3
Husband's education (years of study)					
Illiterate	1	3	5	9	6.2
No schooling	9	7	6	22	15.3
Up to 5 years	11	9	4	24	16.7
6-8 years	9	8	6	23	16.0
9-10 years	15	12	7	34	23.6
> 10 years	15	12	5	32	22.2
Husband's occupational status					
Worker (owned land)	12	14	9	35	24.3
Worker (paid laborer)	16	13	9	38	26.4
Foreign employee	22	15	6	43	29.9
Other	10	9	9	28	19.4
Husband's assistance during pregnancy					
Helped	47	34	20	101	70.1
Did not help	13	17	13	43	29.9
Type of husband's assistance during pregnancy					
Help with wife's work (yes)	41	32	19	92	63.9
Help with cooking (yes)	31	27	17	75	52.1
Help with wife's health (yes)	35	23	13	71	49.3
Women's knowledge of maternal health					
Knew about ante-natal care (yes)	59	46	27	132	97.8
Knew about delivery care (yes)	47	35	16	98	72.6
Knew about post-natal care (yes)	43	25	11	79	58.5
Maternal health problems: score					
Bleeding at delivery (yes): 2	4	7	2	13	26.5
Retained placenta (yes): 3	11	5	4	20	40.8
Long labor (yes): 2	1	1	0	2	4.1
Other problems during delivery (yes): 1	2	7	14	14	28.6
Severe bleeding after delivery (yes): 3	4	14	23	23	52.3
Lack of milk (yes): 2	5	6	15	15	34.1
Pain after delivery (yes): 1	5	5	15	15	34.1
Vomiting after delivery (yes): 1	3	13	20	20	45.5
Total number of respondents	60	51	33	144	100.0

Table 2
Regression model for predicting women's knowledge index.

Predictors	Coefficients	SE	<i>p</i> -value	<i>p</i> -value ^a
Intercept	1.626	0.332	<0.0001	
Husband's education				
Illiterate	0	-	-	0.085
No schooling	0.366	0.360	0.311	
Up to 5 years	0.672	0.359	0.063	
6-8 years	0.904	0.358	0.013	
9-10 years	1.209	0.354	0.001	
> 10 years	0.970	0.348	0.006	
Women's age group (years)				
15-24	0	-	-	0.001
25-29	-0.370	0.172	0.033	
30-44	-0.705	0.200	0.001	

^a*p*-value from ANOVA test.

problems as minor, moderate or severe with scores of 1, 2 or 3, respectively; then these scores were summed. Finally, a multiple linear regression model was used to predict this index based on both the knowledge score and the selected woman and her husband's socio-demographic predictors.

All data analysis was carried out using R (R Development Core Team, 2011).

RESULTS

Preliminary analysis

Mothers were divided into 3 5-year age groups: 15-24 (41.7%), 25-29(35.4%) and 30-44 years (22.9%) (Table 1). Nearly one-third of women and one-fifth of husbands had no education. Seventy percent of women were land-owning workers or paid-job workers, while 51% of their husbands had these same occupations. Approximately 30% of husbands did not help their wife during pregnancy. For those who helped their wives, 64% helped

with their wife's work. Most women (98%) had a knowledge of ante-natal care and 59% had a knowledge of post-natal care. Fifty-two percent of women had severe bleeding after delivery. A retained placenta accounted for 41%. Vomiting after delivery was a common minor symptom and was found in 46%.

Regression analysis

The knowledge index was created by summing the binary (0,1) variables specifying whether or not the subject had knowledge of each of the three (ante-natal, delivery and post-natal) care components, with the result that the percentages of subjects scoring 0, 1, 2, and 3 were 6.9, 22.2, 20.1 and 50.7%, respectively. We then used linear regression to fit a model with this knowledge score as the response variable and two predictors comprising the women's age group and the husband's educational status. Women's education and women's and husband's occupation were not significantly associated with knowledge index and were omitted from

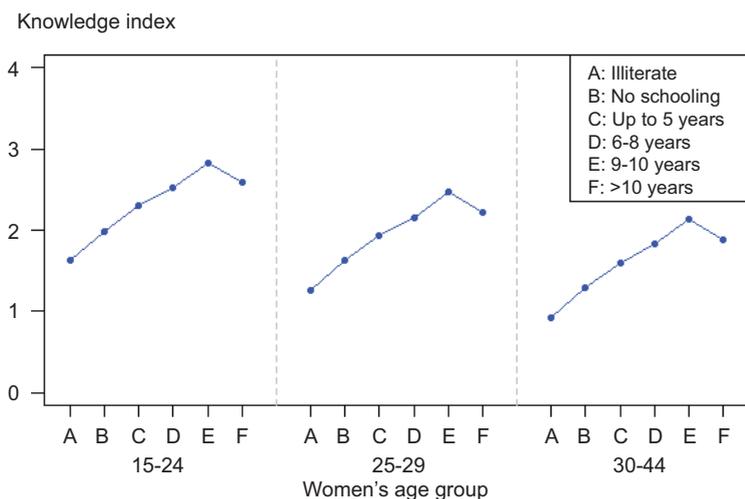


Fig 3—Woman's knowledge index by husband's educational level and woman's age group.

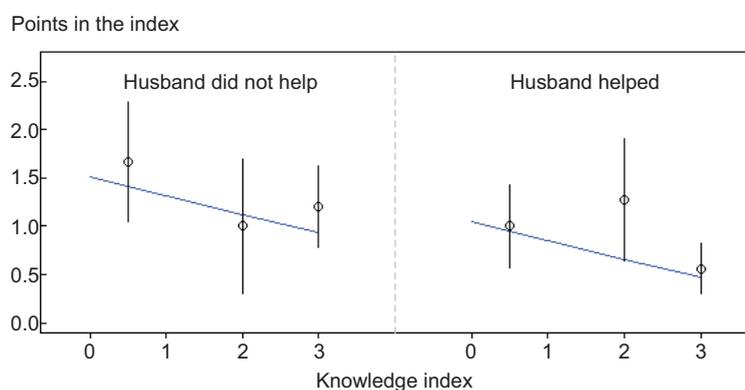


Fig 4—Maternal health problem index.

the reduced model. The results are shown in Table 2.

The Table 2 regression model for predicting the knowledge index show husband's education and age were significant factors affecting the maternal health knowledge index.

Fig 3 shows the highest level of knowledge was among women in the 15-24 year old age group. The husband's

education level was found to be directly beneficial to the woman's knowledge.

The maternal health index was a sum of the components corresponding to the eight problems listed in Table 1, using a weight of 3 for relatively severe problems (retained placenta, severe bleeding after delivery), a weight of 2 for moderate problems (bleeding at delivery, long labor, lack of milk) and a weight of 1 for relatively minor problems (other problems at delivery, pain after delivery, vomiting after delivery). The total scores obtained for the mothers ranged from 0 to 7.

We also created a binary indicator of 1 if the husband helped and 0 if he did not help in the following categories: 1) helping with housework only; 2) checking the wife's health only; 3) helping with both housework and cooking; 4) helping with housework and checking the wife's health; 5) helping with

housework and cooking and checking the wife's health.

Finally, we created a linear regression model using the maternal health problem index score as the response variable and two predictors comprising the mother's knowledge index (as a scaled variable) and the husband's assistance indicator. Education and occupation of both the women and their husbands were not

Table 3
Regression model for predicting the maternal health problem index.

Predictors	Coefficients	SE	p-value
Intercept	1.710	0.253	<0.0001
Knowledge index	-0.195	0.093	0.0387
Husband help indicator	-0.464	0.194	0.0181

significantly associated with the health problem index. These variables were not included in the final model (Table 3).

Maternal health was related to the husband's help during pregnancy (Fig 4). If the husband did not help (left panel), the maternal health index increased and the woman had more problems. If the husband did help (right panel), the maternal health index decreased and the material health improved.

DISCUSSION

Women aged 15-24 years had the highest maternal health knowledge index. Younger women may have greater access to education and more opportunities for learning than those in older age groups. The maternal health knowledge index was positively associated with a higher husband education level but was not associated with the women's education level. This may be due to men being the primary decision makers for health service access (Sharma, 2003). Kistiana (2009) found a women's autonomy and decision making power had only a weak relationship with maternal health care utilization. A women's health seeking behavior is more likely to depend on her husband's knowledge.

Three factors were significantly related to lower pregnancy complications in our study: the woman's age, the hus-

band's education level and the husband's help. Kistiana (2009) also found the husband's educational level was associated with maternal health.

Our findings do not support the idea that an educated husband is less important for a pregnant woman than the help he can provide her. In Thailand, the husband's education was an important factor in maternal health (Raghupathy, 1996). Bloom *et al* (2000) found men knew little about maternal health complications. However, if a man is aware of problems that may occur during pregnancy, pregnancy complications may be reduced (Wadenya, 1999; Manandhar, 2000). Even if a husband has a high education level his unwillingness to care about maternal health remains a major problem for maternal health in Nepal (CREHPA, 2007). Domestic support for woman in Morang District also depended on the availability of the husband being at home during the pregnancy (Horstman *et al*, 2004). Since a woman needs physical and psychological support during pregnancy her husband is important in achieving a successful pregnancy. A woman's ability to access health care during pregnancy is dependent on her husband's education level. Interestingly, migrant husbands who are migrants from the hill country of Tarai region have been found to have a greater knowledge of maternal health than other Tarai populations (Morgan and Niruala, 1995; Niraula and Morgan, 1996).

Neither the woman's nor her husband's occupation were significantly associated with health problems during the last pregnancy. This finding is consistent with one study from Indonesia (Kistiana, 2009) but in contrast to the findings of other studies from Indonesia, China and Nigeria (Kistiana, 2009; Zhao *et al*, 2009; Butawa *et al*, 2010). A possible explanation for this is women may have had a lower status in their husband's family. Even though women may have had a high education level, most health care decisions are made by their husbands.

Our study was carried out in one village of eastern Terai District and may not be applicable to other areas. Bias may have occurred because our subjects came from Morang District, which has a higher socio-economic standard than the rest of Nepal, from a primarily (44%) Brahmin-Chhetri (the highest) caste. Maternal morbidity problems may vary in other poorer parts of the country.

This gap in maternal health cannot be ignored in Nepal. Although the sample size in this study was small, the results were statistically significant.

In conclusion, our findings suggest a husband's participation is important for successful motherhood. An educated husband is associated with a lower maternal morbidity rate, especially if he understands the maternal risks. The government can assist by providing more and better community health facilities and by encouraging husbands to be more supportive through educational programs.

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