

Social Factors Associated with Involvement of Husband in Birth Preparedness Plan and Complication Readiness in Dang District, Nepal

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Abstract

Background: Male involvement in birth preparedness plan and complication readiness is a care and support provided by men during pregnancy, child birth and postpartum period for safe delivery by reducing three delays. This study aimed to determine social factors associated with husband involvement in Birth Preparedness Plan and Complication Readiness in Dang district, Nepal.

Methods: Community based cross-sectional study among 125 husbands whose wives was delivered within last 12 months between May-November 2016 was conducted in Dang district Nepal. Randomly 3 wards were selected out of 11 existing wards from Tulsipur Municipality; records regarding child birth within last 12 months in selected wards were reviewed from Rapti Zonal Hospital and by using snowball sampling respondents were selected from 8, 9 and 11 wards.

Results: The mean age was 23.28 ± 0.63 . Among total, 57.6% respondents were involved in at least 5 components of Birth Preparedness. After adjustment couples who had love marriage were found 3.66 times more likely to involve (OR=3.66; CI=1.01-13.28, $p=0.048$). Husbands whose wives had formal education were more likely to involve (OR=11.92; CI=2.56-54.97, $p=0.001$). Similarly non-agricultural husbands were less likely to involve (OR=0.02, CI=0.01-0.44, $p=0.013$), likewise whose spouse were engaged in non-agriculture were 6.27 times more likely to involve (OR=6.27; CI=1.25-31.68, $p=0.026$). In addition who earned were more likely to involve (OR=140.78; CI=7.85-252.63, $p=0.001$).

Conclusion: Male Involvement was significantly higher among husbands having love marriage, non-agricultural work and who earned. It is also predisposed by spouse education and spouse occupation. This study concerns stakeholders should focus on strategic behavior communication program regarding reproductive health including birth preparedness plan.

Keywords: Husband; Birth; Pregnancy; Antenatal care; Postpartum; Women; Nepal

Abbreviations ANC: Antenatal Care; AOR: Adjusted Odds Ratio; BPP: Birth Preparedness Plan; CI: Confidence Interval; CR: Complication Readiness; FCHV: Female Community Health Volunteer; NDHS: Nepal Demographic and Health Survey; OR: Odds Ratio; SBA: Skilled Birth Attendant; SPSS: Statistical Package for the Social Sciences; VDC: Village Development Committee

Introduction

Globally, an approximately 303,000 women died during and following pregnancy and childbirth. Almost 99% of these deaths occur in developing countries, among which nearly one third occur in South Asia and most could have been prevented [1,2]. According to Nepal Demographic and Health Survey (NDHS) 2016, maternal mortality rate in Nepal is 239/1, 00,000 live births and still now 63% of birth occurs at home [3]. Key strategy that can reduce the number of women dying from such obstacle is to create a plan for birth which includes birth-preparedness plan and complication readiness procedures for

pregnant women [4]. Birth preparedness plan and complication readiness is a strategy that promotes pregnant women, their families, and communities to effectively plan for normal births and compact with emergencies, if they occur [5]. The birth plan is very important strategy in developing countries, where obstetric services are poor and thus contribute significantly in maternal and neonatal morbidity and mortality [6]. In 2005 Birth Preparedness and Complication Readiness was included in the World Health Organization antenatal care package [7] which highlighted many components such as deciding on desired place of birth; preferred birth attendant; location of nearest facility for birth and in case of complications: funds for expenses related to birth and/or complications; supplies necessary to bring to the facility; an recognized labour and birth companion; an identified assistant to look after home and other children while the woman is away; transport to a health facility for birth or when complications arise; and identification of compatible blood donors when needed. Male involvement in birth preparedness plan and complication refers to all care and support that men give to their wives who are pregnant or experiencing the outcome of pregnancy in order to avoid death or disability from complications of pregnancy and child birth [8]. Attendance of husband at antenatal clinic is rare in many communities and it is difficult to find men

accompanying with their partners during Antenatal Care (ANC) and delivery [9].

Male involvement enables men to support their spouses to utilize obstetric services and couple would adequately prepare for birth complications. This would lead to a reduction in all three phases of delay: delay in decision to seek care; delay in reaching care; and delay in receiving care. The male partner can play a crucial role especially in the first and second phases of delay in developing countries which ultimately have positive impact on impact birth outcomes [8]. A husband's support during childbirth is imperative to a full term pregnant woman's emotional well-being [10]. In many developing countries men are the key decision makers and chief providers, often determining women's access to economic resources. This practice has implications for maternal health as it determines the nutritional status of women during pregnancy [11]. A woman in developing countries are either under collective decision making with their partners or completely depends on male partner's decision on issues of reproductive period [12].

Participation of men in reproductive health leads to better understanding between husband and wife, it reduces not only unwanted pregnancies but also reduces maternal and child mortality in connection with pregnancy and labor by being prepared in obstetric emergencies [9]. Husband's support for women during pregnancy, which is a critical time for them have not yet been promoted effectively in Nepal. Existing Nepalese literatures document a little information about husband participation in pregnancy care [13]. Husband's involvement in such context plays an important role. In order to make the male involvement in birth preparedness plan and complication readiness, it is crucial to first identify the causes and underlying factors of their involvement in birth preparedness and complication readiness. Although there have been a burgeoning literature on various aspects of maternal and child health, there have been very few studies carried out to investigate the factors associated with involvement of male/husband in birth preparedness and complication readiness in Nepal and very few representing the district. Thus this study aims to provide fundamental data to stakeholders and program managers necessary for intervention which will ultimately improve the husband involvement in birth preparedness plan and complication readiness in Dang district, Nepal.

Materials and Methods

Study design and source of population

Community based cross-sectional study was conducted in existing Tulsipur Municipality of Dang district Nepal among husbands/male whose wives was delivered within last 12 months between May-November 2016. All husbands whose wives were delivered within last 12 months in selected wards were included in the study while husband with severe mental problem were excluded in the study.

Sample size determination and sampling technique

Sample size was 125 husbands whose wives were delivered within last 12 months which was determined by using formula $N = Z^2pq/L^2$ [14] with 95% level of confidence interval, critical value $Z=1.96$, 9% margin of error, 10% non-response rate and 60.4% husbands had participated on birth preparedness [15]. Hence, $N=Z^2pq/L^2=(1.96)^2*(0.6)*(0.4)/(0.09)^2=114$, by adding 10% non-response rate, the final sample size of the study was 125. Tulsipur municipality out of 4

existing municipalities in previous administrative structure of Nepal (Recently Tulsipur Municipality had been upgraded to Tulsipur sub metropolitan city) was selected purposively. Among 11 total wards of the Municipality each wards were consider as separate cluster and 3 wards were selected randomly by using Cluster Random sampling which met the require sample size as 125. Then, in order to trace out the respondents of selected wards, before entering the field records regarding child birth within last 12 months were reviewed from Rapti Zonal Hospital located at Tulsipur city of Tulsipur Sub metropolitan city and by using snowball sampling respondents were selected from 8, 9 and 11 wards. Considering the nature of study and respondents, this technique has been preferred (Figure 1).

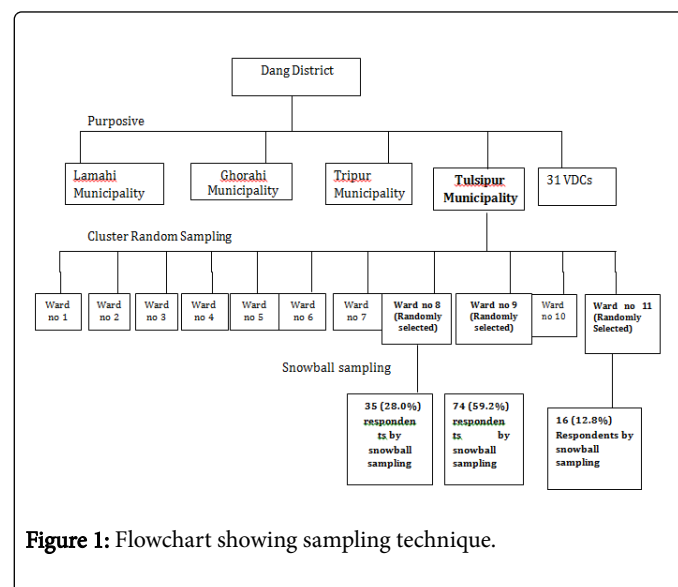


Figure 1: Flowchart showing sampling technique.

Data collection procedures, validity and reliability

By using pretested semi structure interview schedule, face to face interview was performed for collecting data. Questionnaire was translated into Nepali and then retranslated into english language to find misinterpretation and then correction was made in order to maintain validity of Questionnaire. Three data collectors including one principal investigator with qualification of Master in Public Health as well as Master in Sociology and two trained enumerators with qualification of Master in Nursing and Master in Information Communication Technology were involved in data collection. In order to maintain the reliability of Questionnaire, researcher used reliability analysis test through Cronbach's Alpha by taking 10% of total sample during pre-testing of Questionnaire which found 0.84 as Cronbach's Alpha value. Hence it proved that Questionnaire was reliable.

Data processing and analysis

Manually data checking, compiling and editing was performed by the researcher. Collected data were coded, entered into Microsoft excel, cleaned than further analysis was done by SPSS version 17 software package. Simple descriptive statistics such as frequencies, means and standard deviations were calculated, and associated factors between different variables in relation to the outcome variable was measured by chi-square test having odds ratio with 95% confidence interval. Bivariate analysis was used primarily to check whether variables has association with the dependent variable individually and multivariate logistic regression (stepwise backward likelihood ratio method) was

conducted to analyze factors which were associated with husband involvement in Birth Preparedness Plan and Complication Readiness, while assessing for multi-collinearity. All variables, found to be associated with the main outcome variables by having odds ratio which reach statistical significance in the bi-variate model ($p < 0.05$) were nominee for the multivariable model at 95% CI ($p < 0.05$). The data were summarized, adjusted odds ratios (AORs) were estimated and their corresponding value at 95% confidence intervals (95% CI) was computed.

Setting

Dang district is located in the inner Terai and mid hills of Rapti zone in the mid-western development region of Nepal. Salyan and Rolpa are adjacent in the North, India in the south, Kapilvastu, Argakhachi and Pyuthan in the east, Surkhet and Bankae in the west. During study time, there were 4 municipalities, 5 electoral consistencies and 31 VDCs out of which 5 VDCs lies in hilly region [16]. According to Central Beuro of Statistics 2011 total population of Dang district was 552,583 among which 291,524 (52.76%) were female and 261,051 (47.24%) were male. Annual population growth rate of Dang district was 1.78 [17].

Measurements of male Involvement in birth preparedness plan and complication readiness

Involvement of male in birth preparedness plan and complication readiness refers to male/husband who involved in at least five and above [15] of the following listed birth preparedness components: plan for preparedness of birth (mentally prepared for obeying extra responsibility), preplan (awareness) on an emergency and its immediate action, plan place for delivery, arrangement for skilled birth assistance, identifying a mode of transportation, identifying decision maker for emergency, arranging blood donors for emergency, arranging for postpartum cultural food expenses, arranging money for complication, accompanying wife to ANC visit, helping wives in household chores, cleaning clothes and other materials. This was identified by asking if male partners were involved in the given activities or not. Score 'one' was given when response was 'yes' for those involved in the activity and zero for 'no' when not involved in the activity and finally the sum of each response was used to classify husband involvement in birth preparedness plan and complication readiness.

Results

The mean age and mean age at marriage was 23.28 ± 0.63 and 16.90 ± 0.47 respectively. About 5% of the husbands and 13% of their wives were below 18 years. Slightly more than two-third 36.8% of respondents was Chhetris. Near about one-third 31.2% of couples had their marriage below age 18 years. Almost 10% of respondents and their wives were found still unable to read or write and 6.4% of husbands and 13.6% of their wives had their informal classes. More than one-fourth 28.8% of husbands were engaged in agricultural work (Table 1).

General Characteristics	Frequency (n=125)	Percent
Age of husband in years		
Below 18	6	4.8

18-29	77	61.6
30-39	37	29.6
40 and above	5	4
Mean age \pm SD	23.28 ± 0.63	
Ethnicity/Caste		
Brahmin	32	25.6
Chhetri	46	36.8
Dalit	14	11.2
Janjati	33	26.4
Age of husband at marriage		
Below 18	39	31.2
18 and above	86	68.8
Mean age \pm SD	16.90 ± 0.47	
Educational status of husband		
Illiterate	12	9.6
Literate	8	6.4
Primary	13	10.4
Secondary	33	26.4
SLC	33	26.4
Intermediate+bachelor and above	26	20.8
Husband's occupation		
Agriculture	36	28.8
Business	32	25.6
Service	26	20.8
Labour	20	16
Students	11	8.8
Women's educational status		
Illiterate	13	10.4
Literate	17	13.6
Primary	14	11.2
Secondary	55	44
SLC	16	12.8
Intermediate+bachelor and above	10	8

Table 1: Distribution of background related characteristics of study population.

Regarding the knowledge of husbands about Birth preparedness plan and complication readiness, 80.0% had heard, of which 41.6% heard from health workers and FCHVs. Slightly more than half 51.2%, stated advance planning as birth preparedness and complication

readiness. Nearly half 48% were known about danger sign and symptoms during pregnancy whereas slightly less than one third 64.0% had known about danger sign and symptoms during childbirth. More than half 51.6% stated hyper emesis i.e. excessive nausea and vomiting is the danger sign and symptoms during pregnancy and slightly more 56.0% mentioned postpartum hemorrhage is the danger sign and symptoms during childbirth.

Table 2 represents the husbands' involvement in birth preparedness and complication readiness. Nearly one-third 64% planned place for delivery, 56.8% planned for visiting to SBAs, less than half planned for transportation, 44% of husbands identified decision makers for the emergency, about one-fourth 26.4% identified blood donors to their wives. Slightly more than half arranged money for postpartum cultural food, majority arranged money for complication, more than one-third 68.8% accompany wife to ANC visit. Among total 78.4% helped their wives in household chores and 45.6% cleaned clothes and other materials during their wives pregnancy for safe delivery (Table 2).

In this study husbands practiced at least five components among twelve components for birth preparedness were considered as involvement in birth preparedness [15]. Accordingly less than three fifth 57.6% of male were involved in birth preparedness and complication readiness in the study area (Table 3).

Table 4 represents logistic regression analysis of socio-demographic and socio-economic variables and its relation with involvement of husbands in birth preparedness plan and complication readiness. Bivariate analysis showed that dalit and janjati were 0.17 times less likely to involve (OR=0.17; CI=0.06-0.47, p=<0.001). Compared to Hindu, Christian husbands were less likely to involve (OR=0.08; CI=0.02-0.37, p=<0.001). Husbands who married at 18 or above were 9.13 times more likely to involve (OR=9.13; CI=3.77-22.12, p=<0.001). Husbands who had greater than five members in the family were less likely to involve (OR=0.39; CI=0.19-0.82, p=0.018). Husbands who had their love marriage were 3 times more likely to involve than that of arranged marriage couples (OR=3.06; CI=1.46-6.40, p=<0.001) which all were significantly associated with husbands' involvement in birth preparedness and complication readiness. Despite of that some variables such as age of husbands, types of family, recent number of

children, sex of youngest child were not found significant with involvement of husbands involvement of male in birth preparedness plan and complication readiness (Table 4).

Variable	Yes (%)	No (%)
Plan for preparedness of birth	85 (68.0)	40 (32)
Preplan for emergency during pregnancy and child birth	96 (76.8)	29 (23.2)
Plan place for delivery	80 (64.0)	45 (36.0)
Plan for Visiting SBA	71 (56.8)	54 (43.2)
Plan for transportation during complication	57 (45.6)	68 (54.4)
Identified decision maker for emergency	55 (44.0)	70 (56.0)
Identification of Blood donors in emergency	33 (26.4)	92 (73.6)
Arrangement of money for postpartum cultural food	64 (51.2)	61 (48.8)
Arrange money for Compilation	111 (88.8)	14 (11.2)
Accompany wife to ANC visit	86 (68.8)	39 (31.2)
Helping Wife in Household Work	98 (78.4)	27 (21.6)
Cleaning clothes and other materials	57 (45.6)	68 (54.4)

Table 2: Husband involvement in birth preparedness and complication readiness (N=125).

General Characteristics	Frequency	Percent
Male involvement		
Involved	72	57.6
Not Involved	53	42.4

Table 3: Husband involvement in birth preparedness and complication readiness (N=125).

Characteristics	Birth Preparedness		Total	p-value	OR (95% CI)
	Not Involved n (%)	Involved n (%)			
Ethnicity/caste					
Brahmin	8 (15.1%)	24 (33.3%)	32 (25.6%)	<0.001*	1
Chhetri	14 (26.4%)	32 (44.4%)	46 (36.8%)		0.76 (0.28-2.10)
Dalit and Janjati	31 (58.5%)	16 (22.2%)	47 (37.6%)		0.17 (0.06-0.47)
Total	53 (100.0%)	72 (100.0%)	125 (100.0%)		
Religion					
Hindu	39 (73.6%)	70 (97.2%)	109 (87.2%)	<0.001*	1
Christian	14 (26.4%)	2 (2.8%)	16 (12.8%)		0.08 (0.02-0.37)
Total	53 (100.0%)	72 (100.0%)	125 (100.0%)		
Age of Husband					
<30 years	38 (71.7%)	45 (62.5%)	83 (66.4%)	0.34	1

≥ 30 years	15 (28.3%)	27 (37.5%)	42 (33.6%)		1.52 (0.71-3.27)
Total	53 (100.0%)	72 (100.0%)	125 (100.0%)		
Type of Family					
Nuclear family	23 (43.4%)	44 (61.1%)	67 (53.6%)	0.069	1
Joint family	30 (56.6%)	28 (38.9%)	58 (46.4%)		0.49 (0.24-1.00)
Total	53 (100.0%)	72 (100.0%)	125 (100.0%)		
Marriage Age					
Below 18	30 (56.6%)	9 (12.5%)	39 (31.2%)	<0.001*	1
18 and above	23 (43.4%)	63 (87.5%)	86 (68.8%)		9.13 (3.77-22.12)
Total	53 (100.0%)	72 (100.0%)	125 (100.0%)		
Size of Family					
Lesser than equal to 5	21 (39.6%)	45 (62.5%)	66 (52.8%)	0.018*	1
Greater than 5	32 (60.4%)	27 (37.5%)	59 (47.2%)		0.39 (0.19-0.82)
Total	53 (100.0%)	72 (100.0%)	125 (100.0%)		
Type of Marriage					
Arranged	35 (66.0%)	28 (38.9%)	63 (50.4%)	<0.001*	1
Love marriage	18 (34.0%)	44 (61.1%)	62 (49.6%)		3.06 (1.46-6.40)
Total	53 (100.0%)	72 (100.0%)	125 (100.0%)		
Recent no of children					
One	18 (34.0%)	22 (30.6%)	40 (32.0%)	0.687	1
More than one	35 (66.0%)	50 (69.4%)	85 (68.0%)		1.17 (0.55-2.49)
Total	53 (100.0%)	72 (100.0%)	125 (100.0%)		
Sex of youngest child					
Male	27 (50.9%)	43 (59.7%)	70 (56.0%)	0.365	1
Female	26 (49.1%)	29 (40.3%)	55 (44.0%)		0.70 (0.34-1.43)
Total	53 (100.0%)	72 (100.0%)	125 (100.0%)		
*Significant (p <0.05) OR in bold denotes significant					

Table 4: Association between socio-demographic and socio-cultural characteristics with birth preparedness and complication readiness.

Regarding the education, the husbands who had formal education were 5.29 times more likely to involve in BP and CR (OR=5.29; CI=1.78-15.69, p=0.002) and husbands' whose wives had formal education were more likely to involve (OR=11.96; CI=4.16-34.42, p<0.001). Those husband's who were occupied with other than agriculture work were 3.48 times more likely (OR= 3.48; CI=1.55-7.82, p=0.003) and husbands whose wives were occupied with other than

agriculture were 2.30 times more likely (OR=2.30; CI=1.10-4.76, p=0.030) to involve than those with agriculture. Husbands who earned money were 5.84 times more likely (OR=5.84; CI=2.62-12.99, p<0.001) to involve. Earning status of women was not found significant with husbands' involvement in birth preparedness plan and complication readiness (Table 5).

Characteristics Birth	Preparedness		Total	p-value	OR (95% CI)
	Not Involved n (%)	Involved n (%)			

Husband's education					
Illiterate and informal	15 (28.3%)	5 (6.9%)	20 (16.0%)	0.002*	1
Formal education	38 (71.7%)	67 (93.1%)	105 (84.0%)		5.29 (1.78-15.69)
Total	53 (100.0%)	72 (100.0%)	125 (100%)		
Women's education					
Illiterate and informal	25 (47.25)	5 (6.9%)	30 (24.0%)	<0.001*	1
Formal education	28 (52.8%)	67 (93.1%)	95 (76.0%)		11.96 (4.16-34.42)
Total	53 (100.0%)	72 (100.0%)	125 (100%)		
Husband's occupation					
Agriculture	23 (43.4%)	13 (18.1%)	36 (28.8%)	0.003*	1
Non agricultural	30 (56.6%)	59 (81.9%)	89 (71.2%)		3.48 (1.55-7.82)
Total	53 (100.0%)	72 (100.0%)	125 (100%)		
Women's occupation					
Agriculture	35 (66.0%)	33 (45.8%)	68 (54.4%)	0.030*	1
Non agricultural	18 (34.0%)	39 (54.2%)	57 (45.6%)		2.30 (1.10-4.76)
Total	53 (100.0%)	72 (100.0%)	125 (100%)		
Earning status of husband					
Not earned	31 (58.5%)	14 (19.4%)	45 (36.0%)	<0.001*	1
Earned	22 (41.5%)	58 (80.6%)	80 (64.0%)		5.84 (2.62-12.99)
Total	53 (100.0%)	72 (100.0%)	125 (100%)		
Earning status of wife					
Not earned	47 (88.7%)	55 (76.4%)	102 (81.6%)	0.103	1
Earned	6 (11.3%)	17 (23.6%)	23 (18.4%)		2.42 (0.88-6.64)
Total	53 (100.0%)	72 (100.0%)	125 (100%)		

*Significant (p<0.05) OR in bold denotes significant

Table 5: Association between socio-economic characteristics with involvement of husband in Birth Preparedness and Complication Readiness.

After subjected to multivariate model, couples who had their love marriage (with or without consent of parents) were 3.66 times more likely to involve in BP and CR (OR= 3.66, CI=1.01- 13.28, p=0.048) than who had arranged marriage. Husbands whose spouse had formal education were 11.92 times more likely (OR=11.92, CI=2.56-54.97, p=0.001) to involve in BP and CR. Similarly non-agricultural husbands were 0.02 times less likely to involve (OR=0.02, CI=0.01-0.44, p=0.013) likewise whose spouse were engaged in non-agriculture work were 6.27

times more likely to involve (OR=6.27; CI=1.25-31.68, p=0.026). In addition husbands who earned were more likely (OR=140.78; CI=7.85-252.63, p=0.001) to involve in birth preparedness and complication readiness. However after multivariate analysis, variables such as caste/ethnicity, religion, age of husbands at marriage, family size and husband education were not associated with male involvement in Birth Preparedness and Complication Readiness which were seen significant in bivariate analysis (Table 6).

Characteristics	Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	P-value
Ethnicity/caste				
Brahmin	1	<0.001*	1	0.149
Chhetri	0.76 (0.28-2.10)		3.24 (0.66-15.96)	

Dalit and Janjati	0.17 (0.06-0.47)		1.05 (0.19-5.88)	0.959
Religion				
Hindu	1		1	
Below 18 Christian	0.08 (0.02- 0.37)	<0.001*	0.22 (0.03-1.91)	0.171
Marriage age				
Below 18	1		1	
18 and above	9.13 (3.77-22.12)	<0.001*	2.03 (0.47-8.74)	0.341
Size of family				
Lesser than equal to 5	1		1	
Greater than 5	0.39 (0.19-0.82)	0.018*	1.86(0.44-7.88)	0.4
Types of marriage				
Arranged	1		1	
Love marriage	3.06 (1.46-6.40)	<0.001*	3.66 (1.01-13.28)	0.048
Husband's education				
Illiterate and informal	1		1	
Formal education	5.29 (1.78-15.69)	0.002*	4.45 (0.53-37.61)	0.17
Women's education				
Illiterate and informal	1		1	
Formal education	11.96 (4.16-34.42)	<0.001	11.92 (2.56-54.97)	0.001
Husband's occupation				
Agriculture	1		1	
Non agricultural	3.48 (1.55-7.82)	0.003*	0.02 (0.01-0.44)	0.013
Women's occupation				
Agriculture	1			
Non agricultural	2.30 (1.10-4.76)	0.030*	6.27 (1.25-31.68)	0.026
Earning status of husband				
Not earned	1		1	
Earned	5.84 (2.62-12.99)	<0.001	140.78 (7.85-252.63)	0.001
*Significant (p<0.05) AOR in bold denotes significant				

Table 6: Social Factors associated with Involvement of male in birth preparedness and complication readiness in using bivariate and multivariate analysis.

Discussion

The finding of this study revealed that slightly less than three fifth 57.6% of male were involved in birth preparedness and complication readiness in the study area. This interpretation found similarity with study conducted by Weldearegay HG in Mekelle town Ethiopia, further analysis of NDHS 2006 in Nepal which showed 60.4% and 55% of husbands were participated in birth preparedness plan [15,18]. However study conducted by Demissie et al. in Ambo Town, Ethiopia

found about half of male involvement in birth preparedness and complication readiness [19].

The present study explains that more than half of the respondents had planned for visiting SBA which is accordance with the study done in 2015 in Ambo Town, Ethiopia [19]. Similarly most of the studies conducted in Nepal showed that about half of the husbands arranged SBA for delivery and several men actively involved in birth plans and complication readiness when their spouses were pregnant or in labour [20,21], however study conducted in Enderta Woreda, Tigray Region,

Ethiopia found less than half 46% of the husband identified SBA for the complication [22]. This difference may be due to the variation in time and place. This study showed that less than half 45.6% of the husbands had planned for transportation facility which may be due to the accessibility of transportation facility at any time and seems they are not very worried for transportation however hospital based cross sectional study conducted in July to October 2010 at rural Uganda found similar result [23], similarly several studies such as study of Gebrehiwot et al. in Ethiopia, Bhatta ND in Nepal, found almost one third of husbands identify a mode of transportation which is lower than the current study [15,21]. However studies conducted by Kalisa and Malande in Musanze district, Rwanda, found greater 69.1% of the husband arranged transport or gave money for transport [24].

The present study reported that slightly more than two-third 68.8% of the husbands are accompanying their wife for ANC visit, however other previous study conducted at Ethiopia found lower 59.9% male involvement [19], likewise other study conducted at Nepal showed about half of the husband were accompanying their wife ANC visit [25]. The other cross sectional study done in Nepal in 2013 and rural Uganda in 2011 showed that less than half 39.3% and 42.9% of male's involvement on accompanied their partners for ANC respectively [21,23]. The present study revealed that slightly less than two-third 64.0% of the respondents had planned the place for delivery. This interpretation found similarity with the community based cross sectional study conducted in Tigray Region of Ethiopia in 2012 where 62.20 % of husbands identified place of delivery [15], similarly rural Uganda in 2011 where 65.7% husbands made a plan of where to deliver [19]. However study conducted by Tadesse M, Boltana AT and Asamoah BO in Southern Ethiopia found slightly less than one fourth of husbands identified health facility for the place of delivery [25]. This study found that 26.4% of husband's identified blood donors for the emergencies which is concordance with the descriptive cross-sectional study conducted at Nairobi, Kenya [26]. In this study majority of the husband 88.8% arrange money for preparedness of birth however it is inconsistent with several studies conducted in rural communities, such as study of Gebrehiwot et al. in Ethiopia, Demissie DB et al. in Ambo Town, Ethiopia, Gebre M et al. in Ethiopia and August F et al. in Rural Tanzania which shows lower percentage of husband saved money for birth preparedness and complication readiness [15,19,27,28]. This might be due to husband in the study area have good level of education 84% have their formal classes and they might realize the importance of saving money at that critical moment. Forty four percent of the husbands identified decision maker in case of emergency which is accordance with the study of Mekelle town of Ethiopia [15].

In current study statistical association was established between types of marriage and involvement of husbands in Birth Preparedness and Complication Readiness which is also supported by the study done in Northern Nigeria [29]. This study found husbands whose wives had formal education were more likely to involve in BPP and CR. This observation is in agreement with other study done in peri-urban region of Myanmar [30]. The present study revealed that occupation of husbands other than agriculture such as business, services, students and wage labors was 3.48 times more likely to be involved in BPP and CR in bivariate analysis which is in concordance with the study done in rural Uganda [21,23], however after adjustment for the confounders, result was contradicts with them. Regarding the occupation of spouse, non-agricultural partner was more likely to be involved in comparison to wives who were involved in agriculture work. Similar pattern follows in study conducted in rural Rwanda [23,24]. In current study husband who earned for their livelihood were found more likely to be involve

which is supported by the study conducted in Nepal where husbands who had wealth index (rich) have a strong association with birth preparedness and complication readiness [18].

Conclusion

More than three-fourth 80% of the husband heard about birth preparedness and complication readiness, however similar was not practice resulting that more than 2 in 5 (42.4%) among those husband who had heard were not involved and slightly less than three fifth of male were involved in birth preparedness and complication readiness in the study area. The gap between knowledge and practice among husbands needs serious concentration from the concerned authority to be addressed. In this context, this study apprehensions the need of policy makers, government administrators, program managers and political leaders to focus on strategic behavior communication program regarding reproductive health including birth preparedness plan and complication readiness in the community level.

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Authors' Contributions

Chet Kant Bhusal; Principal Investigator, conceived the study, designed the protocol and instrument, collected, analyzed and interpreted data along with report and manuscript preparation and finalization. Sigma Bhattarai assisted in data collection, report writing and manuscript editing.

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