Journal of Midwifery & Reproductive Health

JMRH.mums.ac.ir

Male partners' knowledge and practices of antenatal care in district Swat, Khyber Pakhtunkhwa, Pakistan: A cross-sectional study

Muhammad Younas (MSc)[1]*, Yasmin Parpio (PhD)[2], Tazeen Saeed Ali (PhD)[3], Safia Awan (MSc)[4]

[1]Clinical Nurse Manager, Shaukat Khanum Memorial Cancer Hospital and Research Center Peshawar, Pakistan
[2]Assistant Professor, Aga Khan University School of Nursing and Midwifery Karachi, Pakistan
[3]Associate Professor, Aga Khan University School of Nursing and Midwifery Karachi, Pakistan
[4]Research associate, Aga Khan University Karachi, Pakistan

ARTICLE INFO

Article type:
Original article

Article History:
Received: 05-Aug-2018
Accepted: 08-Apr-2019

Key words:
Antenatal care
Men
Knowledge
Practices

ABSTRACT

Background & aim: Active participation of men in antenatal care and their considerable knowledge about this issue is resulted in favorable pregnancy outcomes. This study aimed to assess the knowledge and practices of male partners regarding antenatal care (ANC) and their associated factors in district Swat, Khyber Pakhtunkhwa, Pakistan (KPK).

Methods: This cross-sectional study was conducted on 200 married men residing in district Swat KPK, Pakistan in 2015 who were selected by convenience sampling. The data were collected by valid and reliable self-structured questionnaire and were completed by participants. The data were analyzed with STATA (version 11) using descriptive and inferential statistics.

Results: The findings of the study revealed that almost half of the participants (52%) demonstrated a good knowledge of ANC. Moreover, factors as the socio-demographic variables, men's level of education ($P < 0.01$), occupation ($P < 0.01$), number of family members ($P < 0.01$), and history of wife's premature delivery ($P< 0.01$) were found to be significantly associated with men's knowledge of ANC. With regard to practices of ANC, majority (84%) had good practices in terms of male involvement in ANC. Also 95/5% men allowed their wives to refer to ANC facilities and 85/5% accompanied them.

Conclusion: The present study concluded that men demonstrated a reasonable practice of ANC, as compared to their knowledge. This study paved the way for further research on men's involvement in ANC in Pakistan.

Please cite this paper as:
Younas M, Parpio Y, Tazeen SA, Awan S. Male partners' knowledge and practices of antenatal care in district Swat, Khyber Pakhtunkhwa, Pakistan: A cross-sectional study. Journal of Midwifery and Reproductive Health. 2020; 8(1): 2005-2015. DOI: 10.22038/jmrh.2019.33935.1369

Introduction

Antenatal care (ANC) is defined as the care given to an expectant mother during pregnancy from the confirmation of conception to the beginning of labor (1). ANC is one of the four pillars of safe motherhood (2) with the reduction of pregnancy-related morbidity and mortality as the primary aim (3).

It is important for both men and women to contribute to the growth, development, and sustainability of their families. In the male dominant society of Pakistan, most of the family-related decisions are made by males, and the gender roles are culturally predefined (4). Therefore, it becomes challenging to involve men in maternal health in such cultures since it is perceived as a female responsibility. In Pakistan where males are the main decision-makers, their knowledge, practices, behavior, attitude, and beliefs regarding ANC may also affect the outcome of maternal health concerning women and their babies.

Health indicators, such as Maternal Mortality Rate (MMR) and Neonate Mortality Rate (NMR), revealed a quite high rate of maternal and neonatal mortality in Pakistan. In this regard, the MMR in Pakistan was reported as 276 deaths per 100,000 live births suggesting the terrible conditions of reproductive health care in this

* *Corresponding author:* Muhammad Younas, Clinical Nurse Manager, Shaukat Khanum Memorial Cancer Hospital and Research Center Peshawar, Pakistan. Tel: 923018537906; Email: mys.khan1@yahoo.com

country (5). On the same note, the NMR within 1990-1991 was reported as 51 deaths per 1,000 live births, and in 2012-13 it was estimated to be 55 deaths per 1,000 live births (6). This report again unveils a terrible state with an 8% increase in the NMR over the last 20 years indicating a high aggravation in NMR, compared to other neighboring countries (6). Accordingly, this high rate of MMR and NMR is suggestive of the poor antenatal care (ANC) status in Pakistan. In 2002, the government of Pakistan pledged the attainment of the millennium developmental goals (MDGs) by the year 2015 (7). The MDG 4 (reduce child mortality) and MDG 5 (improve maternal health) are among the key indicators; however, Pakistan failed to achieve any of the MDGs by 2015. This study aimed to assess the knowledge and practices of antenatal care (ANC) and its associated factors among men in Swat district, Khyber Pakhtunkhwa, Pakistan (KPK).

Materials and Methods

The current study was conducted in district Swat KP, Pakistan located in the north of KP and spread over an area of 5,337 square kilometers in the year 2015. The study population included married men living in district Swat KP who selected by convenience sampling. This study was approved by the ethical review committee of Aga Khan University Hospital Karachi Pakistan (3311-SON-ERC-14). Participants were informed about the purpose and details of the study and written consent was obtained from them prior to the commencement of the study.

The inclusion criteria included: 1) married men of all ages, 2) permanent residents of Swat, 3) ability to understand English, Urdu or Pashtu. On the other hand, the exclusion criterion entailed those who refused to sign the consent form.

The statistical method of Epi Info software (version 7) was applied to calculate the sample size. The proportion of men accompanying their wives to ANC was estimated at 18.33% based on the results of a study conducted in India (8). Accordingly, the total sample size was calculated as 200.

The data collection tools included a structured questionnaire consisting of three sections: socio-demographic, knowledge of men regarding ANC, and practices of men regarding ANC, respectively. Validity and reliability of this questionnaire were calculated. The content validity index of the tool for relevancy and clarity was calculated as 0.95 and 0.89, respectively. In addition, the reliability was measured as 0.83 using the Cronbach alpha coefficient.

The data were analyzed in STATA (version 11). Descriptive statistics were used for demographic data and the outcome variables. In the inferential analysis, logistic regression was used to identify the association between independent variables and outcome variables.

Results

The questionnaires were completed by 200 participants. The demographic profile of participants is demonstrated in table 1.

Table 1. Participants' Demographic and Socio-economic Status (n=200)

Socio-demographic Variables	Frequency (%)
Mean Age (±SD)	33.00 (±7.24)
Age (categorical)	
20-30 years	86 (43)
31-40 years	84 (42)
41-53 years	30 (15)
Level of education	
Primary, Middle & Matric	104 (52.0)
Intermediate	22 (11.0)
Bachelors and Masters	62 (32.5)
Madrasa	5 (2.5)
Illiterate	2 (2.0)
Occupation	
Government Job	41 (20.5)
Private Job	64 (32.0)
Selling/Trading	61 (30.5)

Socio-demographic Variables	Frequency (%)
Seasonal job	34 (17.0)
Type of family	
Nuclear	120 (60.0)
Extended	80 (40.0)
Number of family members living together	
2-6	51 (25.5)
7-10	62 (31)
11-15	46 (23)
16-50	41 (20.5)
Number of earning members in the family	
1-2	125 (62.5)
>2	75 (37.5)
Monthly household income from all sources	
25 thousand and less	70 (35)
26-45 thousand	60 (30)
46 thousand and above	70 (35)
House ownership	
Own house	175 (87.5)
Rented house	25 (12.5)
Any other property ownership/land/flat/house/shop	
Yes	118 (59.0)
No	82 (41.0)
Duration of marriage in years: Mean (±SD)	9.78 (7.66)
Duration of marriage (categorical)	
1-6 years	82 (41)
7-11 years	53 (26.5)
12-35 years	65 (32.5)
Number of marriages	
First marriage	194 (97.0)
Second marriage	5 (2.5)
Third marriage	1 (0.5)
Children	
Yes	194 (97)
No	6 (3)
Number of children (n=194)	
1-4	164 (84.5)
>4	30 (15.5)
Number of male children (n=170)	
0	30 (15)
1-2	138 (81.2)
3-6	32 (18.8)
Number of female children (n=130)	
0	70 (35)
1-2	106 (81.5)
3-6	24 (18.5)

Men's knowledge and practices of antenatal care

Men's knowledge and practices regarding ANC are provided in Tables 2 and 3, respectively. The knowledge of men was scored on a 29-item scale with a mean score of 18. 52% of participants scored 18≥ and were reported as knowledgeable. However, the remaining 48% scored 2-17 and were declared as having limited knowledge of ANC. On the same note, Men's practices were scored on a 6-item scale with a mean score of 5. In this regard, 84% of participants scored 5-6 and their practices were considered good. However, the remaining 16% scored 1-4 and were reported to have poor practices (Tables 2 and 3).

Table 2. Men's knowledge of antenatal care (n=200)

Variables	Frequency (%)
Have you ever heard about antenatal care?	
Yes	158 (79)
No	142 (21)
Do you think antenatal care is beneficial for a pregnant woman?	
Yes	172 (86)
No	28 (14)
When should a pregnant woman go for ANC?	
Only when she is sick	86 (43)
In each trimester	113 (56.5)
Do not know	1 (0.5)
How many times should a pregnant woman go for ANC?	
Once	56 (28)
Twice	45 (22.5)
Three times	98 (49)
Four times	1 (1)
Should the first antenatal visit be in the first three months?	
Yes	170 (85)
No	30 (15)
Is early morning nausea during pregnancy normal?	
Yes	131 (65.5)
No	69 (34.5)
Dangerous signs during pregnancy	
Per vaginal bleeding	
Yes	117 (58.5)
No	83 (41.5)
Blurred vision	
Yes	72 (36)
No	128 (64)
Fits	
Yes	91 (45.5)
No	109 (54.5)
Excessive nausea and vomiting	
Yes	85 (42.5)
No	115 (57.5)
High fever	
Yes	80 (40)
No	120 (60)
Immediate action in the presence of danger signs during pregnancy	
Keep monitoring at home	19 (9.5)
Rush to a hospital	181 (90.5)
Is it safe to have sexual intercourse during pregnancy?	
Yes	118 (59)
No	82 (41)
Need for vaccination during pregnancy?	
Yes	159 (79.5)
No	41 (20.5)
Is TT vaccine necessary for a pregnant woman?	
Yes	135 (67.5)
No	65 (32.5)
Benefits of TT vaccine	
Prevents from tetanus	133 (66.5)
No benefit	67 (33.5)
Need for blood screening tests during pregnancy?	
Yes	181 (90.0)
No	19 (9.5)
Necessary tests during pregnancy.	
Blood grouping	
Yes	115 (57.5)

Variables	Frequency (%)
No	85 (42.5)
Hemoglobin	
Yes	131 (65.5)
No	69 (34.5)
Sugar test	
Yes	75 (37.5)
No	125 (62.5)
Hepatitis B & C	
Yes	85 (42.5)
No	115 (57.5)
HIV	
Yes	79 (39.5)
No	121 (60.5)
Urine test	
Yes	104 (52)
No	96 (48)
Should a pregnant woman take extra food?	
Yes	157 (78.5)
No	43 (21.5)
Diet of a pregnant woman	
Meat and pulses	
Yes	101 (50.5)
No	99 (49.5)
Milk	
Yes	144 (72)
No	56 (28)
Fruit	
Yes	145 (72.5)
No	55 (27.5)
Vegetables	
Yes	85 (42.5)
No	115 (57.5)
Does a pregnant woman need rest during daytime?	
Yes	173 (86.5)
No	27 (13.5)

Table 3. Men's Practices of ANC (n=200)

Variables	Frequency (%)
Do you take appointment for your wife for ANC checkup?	
Yes	173 (86.5)
No	27 (13.5)
Do you allow your wife to go for antenatal care visits?	
Yes	191 (95.5)
No	9 (4.5)
Do you accompany your wife during antenatal care visits?	
Yes	171 (85.5)
No	29 (14.5)
Do you purchase medicine prescribed during ANC in a timely manner?	
Yes	190 (95)
No	10 (5)
What is your preference for place of birth?	
Yes	179 (89.5)
No	21 (10.5)
Do you accompany your wife at the time of delivery?	
Yes	176 (88)
No	24 (12)

Univariate analysis

Table 4. Univariate analysis to identify the association between independent variables (Participants' Demographic and Socio-economic Status) and men's knowledge of antenatal care (n=200)

Variables	Odds Ratio	Confidence Interval	*p*-Value
Mean Age (±SD)	33.00 (±7.24)		
Age			
20-30 years	(Ref)		
31-40 years	0.56	(0.30 - 1.04)	0.06
41-53 years	0.50	(0.21 - 1.16)	0.10
Level of education			
Matric and below	0.53	(0.28 – 1.01)	0.05
Intermediate	0.20	(0.07 – 0.59)	<0.01
Bachelor and Masters	(Ref)		
Occupation			
Government job	8.08	(2.72 – 23.98)	<0.01
Private job	4.11	(1.50 – 11.29)	<0.01
Selling/Trading	10.3	(3.66 – 29.03)	<0.01
Seasonal work	(Ref)		
Number of family members living together			
2-6	0.87	(0.36 – 2.06)	0.75
7-10	0.30	(0.13 – 0.69)	<0.01
11-15	0.47	(0.19 – 1.13)	0.09
16-50	(Ref)		
Number of earning members in the family			
1-2	1.0	(0.56 - 1.77)	1.00
>2	(Ref)		
Monthly household income from all sources			
25 thousand and less	(Ref)		
26-45 thousand	1.91	(0.94 – 3.85)	0.07
46 thousand and above	1.18	(0.61 – 2.30)	0.61
House ownership			
Own house	(Ref)		
Rented house	0.57	(0.24 – 1.34)	0.20
Any other property ownership: land/flat/house/shop			
Yes	(Ref)		
No	1.32	(0.75 - 2.32)	0.33
Duration of marriage			
1-6 years	(Ref)		
7-11 years	0.37	(0.18 – 0.77)	<0.01
12-35 years	0.52	(0.27 – 1.02)	0.05
Number of children (n=194)			
1-4	(ref)		
>4	0.73	(0.33 - 1.60)	0.44
Number of male children (n=170)			
1-2	1.57	(0.72 - 3.42)	0.44
3-6	(Ref)		
Number of female children (n=130)			
1-2	1.34	(0.55 - 3.30)	0.51
3-6	(Ref)		

Table 4 depicts the univariate analysis, the association between the dependent variable (Men's knowledge) and independent variables "participants' socio-demographic characteristics". Those variables with a P-value less than 0.25 at 5% level of significance were added to the final multivariate model (Table 4).

Table 5. Univariate analysis of independent variables (participants' demographic and socio-economic status) and men's practices of antenatal care (n=200)

Variables	Odds Ratio	Confidence Interval	*p*-Value
Age (categorical)			
20-30 years	(Ref)		
31-40 years	0.46	(0.19 – 1.10)	0.08
41-53 years	0.46	(0.15 – 1.44)	0.18
Level of education			
Matric and below	0.40	(0.15 – 1.05)	0.06
Intermediate	1.01	(0.18 – 5.44)	0.98
Bachelors and Masters	(Ref)		
Type of family			
Nuclear	(Ref)		
Extended	1.33	(0.60 - 2.93)	0.47
Number of family members living together			
2-6	0.42	(0.10 – 1.71)	0.22
7-10	0.27	(0.07 – 1.01)	0.05
11-15	0.43	(0.10 – 1.82)	0.25
16-50	(Ref)		
Number of earning members in the family			
1-2	(Ref)		
>2	1.65	(0.72 – 3.79)	0.23
Monthly household income from all sources			
25 thousand and less	(Ref)		
26-45 thousand	2.08	(0.82 – 5.24)	0.11
46 thousand and above	2.88	(1.11 – 7.48)	0.02
House ownership			
Own house	2.96	(1.15 - 7.61)	0.02
Rented house	(Ref)		
Any other property ownership/land/flat/house/shop			
Yes	(Ref)		
No	0.55	(0.26 - 1.19)	0.13
Duration of marriage			
1-6 years	(Ref)		
7-11 years	0.69	(0.24 – 1.92)	0.48
12-35 years	0.41	(0.16 – 1.01)	0.05
Number of children (n=194)			
1-4	(Ref)		
>4	0.47	(0.18 - 1.18)	0.10
Number of male children (n=170)			
1-2	1.04	(0.38 - 2.80)	0.93
3-6	(Ref)		
Number of female children (n=130)			
1-2	2.81	(1.03 - 7.65)	0.04
3-6	(Ref)		

Multivariate Analysis of Men's Knowledge of antenatal care

This section entails the multivariate analysis of men's knowledge regarding ANC. Variables with a P-value less than 0.25 were included in the final regression model. Men's level of education remained significant in the final model (Table 6).

Table 6. Multivariate analysis of men's knowledge of antenatal care (n=200)

Variables	Odds Ratio	95% CI (Lower-Upper)	*p*-Value
Men's level of education			
Matric and below	0.63	(0.30 – 1.30)	0.21
Intermediate	0.19	(0.05 – 0.62)	<0.01
Bachelor and Masters	(Ref)		
Occupation			
Government job	9.17	(2.79 – 30.1)	<0.01
Private job	5.33	(1.80 – 15.81)	<0.01
Selling/Trading	11.8	(3.89 – 36.23)	<0.01
Seasonal work	(Ref)		
Number of family members living together			
2-6	0.95	(0.34 – 2.63)	0.93
7-10	0.26	(0.10 – 0.68)	<0.01
11-15	0.53	(0.19 – 1.45)	0.21
16-50	(Ref)		
History of premature delivery			
Yes	(Ref)		
No	2.80	(1.25 – 6.27)	<0.01

Discussion

Based on the results of the present study, a considerable proportion of men (84%) were involved in practices related to ANC, while just a small number of them (52%) were knowledgeable about ANC.

Men's Knowledge of antenatal care

The finding that 52% of the men were knowledgeable about ANC is in line with the result of a study conducted in Bangladesh where 51% of the participants demonstrated a good knowledge of ANC (9). However, this value was reported as 26.1% in a study carried out in Japan (10). Although Japan is a developed country and serves as a standard in many health indicators, the findings of the current study indicated a deeper knowledge base in Pakistani men regarding ANC, as compared to the results of the studies performed in Japan.

In the present study, 65.5% of the participants reported that Tetanus Toxoid (TT) vaccine is necessary for pregnant women. In the same vein, in a study conducted in Bangladesh more than half of the study participants knew about TT vaccination during pregnancy (11). This similarity may be due to the fact that both countries are located in the same region.

Furthermore, the findings of the current study revealed that more than half of the participants had good knowledge about dietary patterns and daytime naps during pregnancy which is consistent with the findings of a study performed on the same subject in Bangladesh (11). A pregnant woman needs a balanced diet and proper rest during the daytime to meet such requirements as extra calories in pregnancy.

This study further revealed that less than half of the participants knew about danger signs during pregnancy, which is consistent with the study findings of Bhatta (2013), who identified that 26.9% of the participants were aware of the danger signs during pregnancy in Nepal. Theearly detection of danger signs will lead to early treatment and prevent further complications.

This study further revealed that less than half of the participants knew about danger signs during pregnancy, which is consistent with the study findings of Bhatta (2013), who identified that 26.9% of the participants were aware of the danger signs during pregnancy in Nepal. Theearly detection of danger signs will lead to early treatment and prevent further complications.

Moreover, the present study revealed that less than half of the participants had knowledge of danger signs during pregnancy which is consistent with the result of research conducted in Nepal where 26.9% of the participants were aware of the danger signs that occur during pregnancy (12). In this regard, the early detection of danger signs

results in the early treatment and prevents further complications.

Men's practice regarding antenatal care

The findings showed that 84% of participants demonstrated good practices of ANC. To the best of knowledge, men's overall practice of ANC have not been reported by any of the studies reviewed; however, different variables indicating men's practices have been reported by several studies. For instance, some studies in Pakistan have identified that the majority of men allow their wives to have ANC visits (13-14).This result is line with those of the national studies mentioned above.

Despite the conservative mentality prevailing in Khyber Pakhtunkhwa, the findings of the current study suggested that more than three quarters of men allowed their wives to refer to ANC facilities and accompanied them. This is indicative of a drastic change emerging in the cultural trends and norms of the patriarchal society of Pakistan where most women are dependent on their husbands for financial support. Moreover, the results of the present research indicated that the vast majority of participants accompanied their wives at the time of delivery. These results are consistent with the studies conducted in India, Salvador, and Nepal (8, 15, 16, 17).

However, research carried out in Pakistan has identified that those men who were involved in physical or psychological intimate partner violence were found to be non-cooperative in maternal health and prenatal care (18). Additionally, other studies performed in India, Nepal, and Bangladesh found that less than half of the participants accompanied their wives to ANC facilities (8, 9, 12, 17). The inconsistency in these results can be attributed to cultural differences.

In addition, the findings of the study revealed some factors affecting men's knowledge of ANC, including men's level of education, occupation, number of family members, and history of premature delivery. However, no study has investigated the effects of these factors on men's knowledge of ANC; therefore, the current study is seemingly the first study conducted to identify factors affecting men's knowledge of ANC.

It is worthy to mention that one of the remarkable findings of this study was that educated men demonstrated a considerable knowledge of ANC since the level of education increases men's knowledge of ANC. Moreover, the men with a seasonal occupation demonstrated a low knowledge of ANC, as compared to men who were government employees, private employees, and traders. One of the rationales could be that men with a seasonal job may be less educated, as compared to men with other occupations. Men with a formal level of education have better employment status empowering them to afford the expenses of maternal care and also make them more involved in ANC (19).

Another influential factor was the number of family members. Men with seven to ten family members were found to have limited knowledge of ANC, as compared to men with 16-50 members in their families. This can be due to the fact that increase in family size improves men's knowledge of ANC. The researcher is of the opinion that in larger families, different members of the family may be involved in different professions/occupations that bring diverse knowledge and somehow contribute to ANC related exposure.

History of premature delivery was also found to be associated with men's knowledge regarding ANC. Those men whose wives did not have a history of premature delivery were moreknowledgeable as compared to men whose wives had a history of premature delivery. This implies that when men have a good level of knowledge regarding ANC, their wives have good pregnancy outcomes.

History of premature delivery was also found to be associated with men's knowledge of ANC. Those men whose wives did not have a history of premature delivery were more knowledgeable, as compared to men whose wives did. Moreover, the pregnant women whose husbands were knowledgeable about ANC had good pregnancy outcomes.

The current study has some limitations.
Since the study was conducted in a conservative area the practices section of the questionnaire included very few questions. For this reason, the adjusted odds ratio was not

calculated for men's practices of ANC.

Due to constraints on time and resources, the study population included only 200 participants which could limit the generalizability of the study.

Moreover, the generalizability of the study was also limited due to the purposive sampling applied.

Another point worth mentioning is the effect of response bias meaning that the participants could have hidden the truth and the information they provided may not have been factual.

Conclusion

Maternal mortality is highly prevalent in Pakistan. In this regard, men's involvement in ANC is one of the interventions that can reduce MMR in the country. The current study identified men's knowledge and practices of ANC and the factors associated with them. Men demonstrated a good practice of ANC, as compared to their knowledge in this field. The findings of the current study indicated that such socio-demographic variables as men's level of education, occupation, number of family members, and history of premature delivery were positively associated with men's knowledge of ANC.Acknowledgements.

Acknowledgement

I would like to acknowledge my thesis supervisor Dr. Yasmin Parpio, Co-supervisor Dr. Tazeen Saeed Ali and thesis committee member Ms. Safia Awan for their continuous support and guidance. I would also like to acknowledge the study participants for their time.

Conflicts of interest

The authors declare no conflicts of interest.

References

1. Jacob A. A comprehensive text book of midwifery. 2nd ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2008.
2. Mehta S. The mother-baby package an approach to implementing safe motherhood. International Journal of Gynecology & Obstetrics. 1995; 50(2):S113-S120.
3. Brugha R, Pritze-Aliassime S. Promoting safe motherhood through the private sector in low-and middle-income countries. Bulletin of The World Health Organization. 2003; 81(8):616-623.
4. Iqbal Z. Male dominance over female in Pakistan. Journal of Pioneering Medical Sciences Blogs. 2017; 17:25.
5. National Institute of Population Studies (NIPS) (Pakistan) and Macro International Inc. Pakistan demographic and health survey 2006-07. Islamabad, Pakistan: National Institute of Population Studies and Macro International Inc; 2008.
6. National Institute of Population Studies (NIPS) (Pakistan) and ICF International. Pakistan Demographic and Health Survey 2012-13. Islamabad, Pakistan, and Calverton, Maryland, USA: NIPS and ICF International; 2013.
7. UNDP Pakistan millennium development goals fund. United Nations Foundation. Available at: URL: http://www.unfoundation.org/how-to-help/donate/undp-pakistan-mdgs.html; 2012.
8. Awasthi S, Nandan D, Mehrotra AK, Shankar R. Male participation in maternal care in urban slums of district Agra. Indian Journal of Preventive & Social Medicine. 2008; 39(3-4):181-183.
9. Rahman M, Islam MT, Mostofa MG, Reza MS. Men's role in women's antenatal health status: evidence from rural Rajshahi, Bangladesh. Asia Pacific Journal of Public Health. 2015; 27(2):NP1182-NP1192.
10. Ye Y, Yoshida Y, Harun-Or-Rashid MD, Sakamoto J. Factors affecting the utilization of antenatal care services among women in Kham district, Xiengkhouang province, Lao PDR. Nagoya Journal of Medical Science. 2010; 72(1-2):23-33.
11. Nasreen HE, Leppard M, Al Mamun M, Billah M, Mistry SK, Rahman M, Nicholls P. Men's knowledge and awareness of maternal, neonatal and child health care in rural Bangladesh: a comparative cross sectional study. Reproductive Health. 2012; 9(1):18.
12. Bhatta DN. Involvement of males in antenatal care, birth preparedness, exclusive breast feeding and immunizations for children in Kathmandu, Nepal. BMC Pregnancy and Childbirth. 2013; 13(1):14.

13. Yousuf F, Haider G, Shaikh RB. Factors for inaccessibility of inaccessibility of antenatal care by women in Sindh. Journal of Ayub Medical College Abbottabad. 2010; 22(4):187-189.
14. Sadiq N, Waheed Q, Hussain M, Rana AT, Yousaf Z, Chaudry Z, et al. Students' Corner Short Communication Factors affecting the utilization of antenatal care among women of reproductive age in Nurpur Shahan. The Journal of the Pakistan Medical Association. 2011; 61(6):616-618.
15. Reddamma GG. Knowledge of husbands of primigravidae regarding antenatal care. The Nursing Journal of India. 2010; 101(11):262-264.
16. Carter MW, Speizer I. Salvadoran fathers' attendance at prenatal care, delivery, and postpartum care. Revista Panamericana de Salud Pública. 2005; 18(3):149-156.
17. Thapa DK, Niehof A. Women's autonomy and husbands' involvement in maternal health care in Nepal. Social Science & Medicine. 2013; 93:1-10.
18. Zakar R, Zakar MZ, Mikolajczyk R, Krämer A. Intimate partner violence and its association with women's reproductive health in Pakistan. International Journal of Gynecology & Obstetrics. 2012; 117(1):10-14.
19. Nanjala M, Wamalwa D. Determinants of male partner involvement in promoting deliveries by skilled attendants in Busia, Kenya. Global Journal of Health Science. 2012; 4(2):60.