

Original Research Article

Knowledge and Involvement in Pregnancy-Related Care among Married Male Partners in a Rural Community in Bangladesh

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Article History

Received: 14.05.2026

Accepted: 02.07.2026

Published: 20.07.2026

Journal homepage:

<https://www.easpublisher.com>

Quick Response Code



Abstract: Background: Maternal mortality remains a major public health concern in developing countries, including Bangladesh, where preventable pregnancy-related complications continue to contribute significantly to maternal deaths.

Objective: This study aimed to assess the level of knowledge and involvement in pregnancy-related care and to examine the relationship between knowledge and involvement among married male partners in a rural community in Bangladesh.

Methods: A correlational cross-sectional study was conducted among 105 married men in Madhabpur, Bangladesh (July 2023–June 2024). Data were collected via face-to-face interviews using structured questionnaires on socio-demographics, knowledge, and involvement. Descriptive and inferential statistics (t-test, ANOVA, Pearson's correlation) were used with $p < .05$. **Results:** The mean age of participants was 32.24 years (SD = 5.53). Nearly half (46.7%) had poor knowledge, 33.3% had moderate knowledge, and 20.0% had high knowledge. More than half (55.2%) showed poor involvement in pregnancy-related care. The mean knowledge score was 7.78 (SD = 3.67), and the mean involvement score was 38.04 (SD = 15.19). Education, occupation, monthly income, duration of marriage, and number of children were significantly associated with knowledge and involvement ($p < .05$). A strong positive correlation was found between knowledge and involvement ($r = .797$, $p < .001$). **Conclusion:** Male partners demonstrated inadequate knowledge and low involvement in pregnancy-related care. Strengthening targeted health education and male-friendly maternal health interventions is essential to improve male participation and maternal health outcomes in rural Bangladesh.

Keywords: Pregnancy, Knowledge, Male Partner, Bangladesh, Maternal Health.

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INTRODUCTION

Pregnancy and childbirth are important life events that bring substantial physical, psychological, social, and emotional changes to women and their families. During this period, support from family members, particularly male partners, plays a crucial role in promoting maternal well-being and positive pregnancy outcomes (John & George, 2020; Pradhan *et al.*, 2022). Male partner involvement has increasingly been recognized as an essential component of maternal and reproductive health because men often influence household decision-making, resource allocation, and access to healthcare services, especially in low and middle-income countries (Ampt *et al.*, 2015; Jungari & Paswan, 2019). Male partner involvement in pregnancy-related care refers to men's active participation in

supporting their spouses during pregnancy through emotional, physical, financial, and informational assistance, accompanying them to antenatal care (ANC) visits, participating in decision-making, and preparing for childbirth and possible complications (Aarnio *et al.*, 2013; Tokhi *et al.*, 2018).

Evidence suggests that male involvement contributes to increased utilization of maternal health services, improved birth preparedness, better maternal mental health, and reduced maternal and neonatal morbidity and mortality (Abie *et al.*, 2023; Tokhi *et al.*, 2018; Yargawa & Leonardi-Bee, 2015). Women whose partners are actively involved are more likely to attend ANC services and seek skilled obstetric care when needed (Degefa *et al.*, 2024; Natai *et al.*, 2020). Despite its recognized benefits, male involvement in pregnancy-

related care remains suboptimal in many settings due to barriers such as inadequate knowledge, cultural norms that assign pregnancy care to women, poor spousal communication, occupational commitments, stigma, and limited service opportunities for male participation (Falade-Fatila & Adebayo, 2020; Fotso *et al.*, 2015; Ongolly & Bukachi, 2019).

Knowledge of pregnancy-related care and obstetric danger signs is particularly important because it enables timely recognition of complications and promotes prompt healthcare-seeking behavior. Well-informed male partners are more likely to support birth preparedness, complication readiness, and utilization of skilled maternal healthcare services (Gize *et al.*, 2019; Younas *et al.*, 2020). Increased male knowledge has been associated with greater involvement in antenatal care attendance, childbirth preparation, and maternal health decision-making (Falade-Fatila & Adebayo, 2020; Hanapi *et al.*, 2019). Delays in deciding to seek care and reaching appropriate health facilities further contribute to adverse outcomes, highlighting the importance of male partners' awareness and involvement in maternal healthcare (Merasha, 2018; Singh *et al.*, 2021).

In Bangladesh, men often play a key role in decisions related to healthcare utilization, place of delivery, and access to emergency obstetric care (Kamal *et al.*, 2013; Rahman *et al.*, 2018). Previous studies have reported varying levels of male knowledge and involvement in maternal and newborn health and emphasized the need for greater male engagement to improve maternal outcomes (Bishwajit *et al.*, 2017; Nasreen *et al.*, n.d.; Rahman *et al.*, 2018). Therefore, this study aims to assess the level of knowledge and involvement in pregnancy-related care and to examine the relationship between knowledge and involvement among married male partners in a rural community in Bangladesh.

METHODS

Study Design

A correlational cross-sectional study was conducted to assess the levels of knowledge and involvement in pregnancy-related care and to examine the relationship between these variables among married male partners in a rural community in Bangladesh. Data were collected between July 2023 and June 2024.

Participants

The study population comprised married men residing in rural areas of Bangladesh. The target population consisted of married men living in Madhabpur Upazila of Habiganj District. A multistage sampling technique was employed to select the study area. Sample size was calculated using G*Power version 3.1.9.7 for Pearson's correlation analysis (bivariate normal model). Assuming a medium effect size ($r = .25$), significance level (α) of .05, and statistical power ($1-\beta$) of .80, the minimum required sample size was 95

participants. To compensate for possible non-response, 10% was added, resulting in a final sample size of 105 participants. Inclusion criteria were married men whose wives had given birth within the previous three years and who agreed to participate in the study. Men who were separated, divorced, or unable to communicate effectively were excluded.

Instrument

Data were collected through face-to-face interviews using a structured questionnaire developed by the researchers based on an extensive literature review. The questionnaire consisted of three parts.

Part I: Socio-Demographic Questionnaire (SDQ)

The SDQ contained eight items on age, religion, educational level, occupation, duration of marriage, family type, monthly family income, and number of children.

Part II: Knowledge on Pregnancy-Related Care Questionnaire (KPRCQ)

The KPRCQ was developed to assess married male partners' knowledge regarding pregnancy-related care (Bhatta, 2013; Falade-Fatila & Adebayo, 2020; Gize *et al.*, 2019; Merasha, 2018). It consisted of 14 dichotomous (Yes/No) items. Correct responses were scored as 1 and incorrect responses as 0, yielding a total score ranging from 0 to 14. Based on Bloom's cut-off criteria, knowledge was categorized as good (12–14), moderate (8–11), and poor (<8) (Alzahrani *et al.*, 2022). The Cronbach's alpha coefficient for the KPRCQ was .86.

Part III: Involvement in Pregnancy-Related Care Questionnaire (IPRCQ)

The IPRCQ was developed from the literature to assess male partners' involvement in pregnancy-related care (Bhatta, 2013; Falade-Fatila & Adebayo, 2020; Gize *et al.*, 2019; Merasha, 2018). It comprised 14 items measured on a five-point Likert scale ranging from 1 (Never) to 5 (Always). Total scores ranged from 14 to 70, with higher scores indicating greater involvement. The Cronbach's alpha coefficient for the IPRCQ was .95.

Validity of the Instrument

Content validity was assessed by three expert faculty members from the National Institute of Advanced Nursing Education and Research (NIANER). The instruments were evaluated for relevance, clarity, and comprehensiveness. Based on their recommendations, necessary revisions were made. The Content Validity Index (CVI) was 97.62% for the KPRCQ and 98.21% for the IPRCQ.

Translation of the Instruments

The questionnaire was translated from English to Bengali using the forward-backward translation method. Independent bilingual translators completed the translation and back-translation, and discrepancies were

reviewed to ensure semantic and conceptual equivalence between both versions.

Data Collection Methods

Data were collected after obtaining ethical approval from the Institutional Review Board (IRB) of the National Institute of Advanced Nursing Education and Research (NIANER), Bangladesh (IRB No. Exp.NIA-S-2024/307). Permission was obtained from the relevant authority of Madhabpur Upazila, Habiganj District. Data were collected through house-to-house visits using face-to-face interviews with a structured questionnaire. Written informed consent was obtained from all participants before data collection.

Data Analysis

Data were checked, cleaned, coded, and analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics and Inferential statistics were done. Statistical significance was set at $p < .05$.

RESULTS

1. Socio-Demographic Characteristics of the Participants

Table 1 presents the socio-demographic characteristics of the participants. The mean age was 32.24 years (SD = 5.53). Slightly more than half of the participants were Muslim (51.4%), while 48.6% were Hindu. Regarding education, the largest proportion had primary education (38.1%), followed by no formal education (21.9%), graduation and above (17.1%), secondary education (12.4%), and higher secondary education (10.5%). The mean duration of marriage was 8.28 years (SD = 4.61).

In terms of occupation, 31.4% were service holders, 27.6% were farmers, 21.0% were businessmen, and 20.0% were day laborers. The mean monthly family income was 19,619.05 BDT (SD = 5,741.85), ranging from 9,000 to 35,000 BDT. Most participants lived in joint families (66.7%), while 33.3% were from nuclear families. The number of children ranged from 1 to 5 (see Table 1).

Table 1: Distribution of Socio-Demographic Characteristics of the Participants (N=105)

Variables	Categories	Frequency (n)	Percentage (%)	M ±SD
Age in Years (Min=21; Max=45) years 32.24±5.53				
Religion				
	Muslim	54	51.4	
	Hindu	51	48.6	
Educational level				
No formal education		23	21.9	
Primary		40	38.1	
Secondary		13	12.4	
Higher Secondary		11	10.5	
Graduation and above		18	17.1	
Duration of Marriage (Min=2; Max=20) years 8.28± 4.61				
Occupation				
Farmer		29	27.6	
Service Holder		33	31.4	
Day Labour		21	20.0	
Business		22	21.0	
Monthly family income (BDT) (Min=9000; Max=35000) 19619.05±5741.85				
Type of Family				
Nuclear family		35	33.3	
Joint family		70	66.7	
Number of Children (Min=1; Max=5)				

2. Distribution of Knowledge on Pregnancy Related Care of the Participants

Table 2 shows the mean knowledge score on pregnancy-related care among married male partners was 7.78 ± 3.67 (out of 14). Most participants had good knowledge regarding maternal nutrition (81.9%), shared decision-making during pregnancy (87.6%), and supporting maternal health before and during pregnancy

(81.9%). However, knowledge was limited regarding routine screening tests (19.0%), arranging blood donors (61.9% knew), the recommended number of antenatal visits (39.0%), and transportation planning for safe delivery (41.9%). Overall, knowledge was adequate in some areas but insufficient in several important aspects of pregnancy-related care.

Table 2: Distribution of Knowledge on Pregnancy Related Care of the Participants (N=105)

Variables	Yes n(%)	No n(%)	M±SD
A pregnant woman should have at least four antenatal check-ups during her pregnancy.	41 (39)	64 (61)	0.39±0.49
High-grade fever, severe headache, severe abdominal pain, blurred vision, excessive vaginal bleeding, swollen leg and face are considered danger signs during pregnancy.	69 (65.7)	36 (34.3)	0.66±0.48
Good nutrition is needed for maintaining a healthy status of the mother and the child.	86 (81.9)	19 (18.1)	0.82±0.39
Rest and exercise are essential during pregnancy.	49 (46.7)	56 (53.3)	0.47±0.50
Routine screening tests, such as HIV, Venereal Disease, is require during pregnancy.	20 (19.0)	85 (81)	0.19±0.40
T.T vaccine is needed to prevent Tetanus disease.	57 (54.3)	48 (45.7)	0.54±0.50
Skilled birth assistance is necessary for safe delivery.	55 (52.4)	50 (47.6)	0.52±0.50
Need to select appropriate transportation management for safe delivery.	44 (41.9)	61 (58.1)	0.42±0.50
Need to select appropriate place for safer delivery.	47 (44.8)	58 (55.2)	0.45±0.50
Need to arrange blood donors.	40 (38.1)	65 (61.9)	0.38±0.49
Need to save money for any emergency.	45 (42.9)	60 (57.1)	0.63±0.49
Men can help take care of women both during and after pregnancy.	72 (68.6)	33 (31.4)	0.69±0.48
Men need to know how to help women maintain their health both before and throughout pregnancy.	86 (81.9)	19 (18.1)	0.82±0.39
The man needs to join with his wife in taking decisions that concerns pregnancy.	92 (87.6)	13 (12.4)	0.89±0.33
Total mean			7.78±3.67
Total mean of mean			0.56±0.26

3. Level of Knowledge on Pregnancy Related Care of the Participants

Table 3 illustrates the distribution of participants according to their knowledge level. Participants' knowledge was categorized into three

levels: poor/low, moderate, and high. The study results found that 46.7 percent of the participants had a poor level of knowledge, 33.3 percent had a moderate level of knowledge, and only 20.0 percent had a high level of knowledge on pregnancy-related care (see Table 3).

Table 3: Level of Knowledge on Pregnancy Related Care of the Participants (N=105)

Level of Knowledge	Scores	Frequency	Percentage
Poor level of knowledge	<8 (<60%)	49	46.7
Moderate level of knowledge	8-11 (60% to 79%)	35	33.3
High level of knowledge	11-14 (80% to 100%)	21	20.0
Total		105	100

4. Distribution of Involvement on Pregnancy Related Care of the Participants

Table 4 shows the mean involvement score in pregnancy-related care was 38.04 ± 15.19 (out of 70), indicating a poor level of involvement among married male partners. While some participants reported involvement in healthcare decision-making (41.0%),

accompanying antenatal visits (34.3%), and arranging institutional delivery (30.5%), very few attended counselling sessions (5.7%), provided adequate food (3.8%), or assisted with food preparation (3.8%). Additionally, 42.9% never ensured continuation of routine antenatal medications, reflecting generally low participation in pregnancy-related care.

Table 4: Distribution of Involvement on Pregnancy Related Care of the Participants (N=105)

Variables	Never n(%)	Somewhat n(%)	Sometimes n(%)	Often n(%)	Always n(%)	M±SD n(%)
Agree to attend with her during antenatal checkup visit.	20 (19)	17 (16.2)	19 (18.1)	13 (12.4)	36 (34.3)	3.27±1.54
Arrange to accompanied during her for antenatal checkup visit.	22 (21)	17 (16.2)	35 (33.3)	8 (7.6)	23 (21.9)	2.93±1.40
Attended counseling sessions with your wife.	50 (47.6)	16 (15.2)	29 (27.6)	4 (3.8)	6 (5.7)	2.05±1.20
Provided good and adequate food.	35 (33.3)	32 (30.5)	26 (24.8)	8 (7.6)	4 (3.8)	2.18±1.10
Help to wife in domestic chores.	8 (7.6)	32 (30.5)	34 (32.4)	16 (15.2)	15 (14.3)	2.98±1.16

Variables	Never n(%)	Somewhat n(%)	Sometimes n(%)	Often n(%)	Always n(%)	M±SD n(%)
Communicate with Health care provider in case of emergencies (e.g. buy her a phone).	37 (35.2)	12 (11.4)	19 (18.1)	6 (5.7)	31 (29.5)	2.83±1.67
Gave emotional support during times of discomfort and tiredness.	22 (21)	38 (36.2)	16 (15.2)	6 (5.7)	22 (21.0)	2.68±1.43
Saved money towards her delivery in case of emergency and referral.	31 (29.5)	41 (39.0)	10 (9.5)	8 (7.6)	15 (14.3)	2.38±1.36
Reminded her to go for her clinic visits when she is pregnant.	45 (42.9)	15 (14.3)	20 (19.0)	10 (9.5)	15 (14.3)	2.39±1.47
Arranged institutional delivery.	26 (24.8)	25 (23.8)	15 (14.3)	7 (6.7)	32 (30.5)	2.94±1.59
Remained her to take routine antenatal checkup drugs.	45 (42.9)	17 (16.2)	17 (16.2)	8 (7.6)	18 (17.1)	2.40±1.52
Assisted in the kitchen to prepare food.	57 (54.3)	20 (19)	20 (19)	4 (3.8)	4 (3.8)	1.84±1.10
Shared decision-making regarding antenatal and delivery care	7 (6.7)	20 (19)	25 (23.8)	20 (19.0)	33 (31.4)	3.50±1.29
Shared decision regarding selection of health care provider.	12 (11.4)	8(7.6)	24 (22.9)	18 (17.1)	43 (41.0)	3.69±1.38
Total mean						38.04±15.19
Total mean of mean						2.72±1.09

5. Level of Involvement on Pregnancy Related Care of the Participants

Table 5 illustrates the distribution of participants according to their involvement level. Participants' involvement was categorized into two

levels: poor and good. The study result found that more than half (55.2%) of the participants had a poor level of involvement, and less than half (44.8%) had a good level of involvement in pregnancy-related care (see Table 5).

Table 5: Level of Involvement on Pregnancy Related Care of the Participants (N=105)

Level of Involvement	Scores	Frequency	Percentage
Poor level of involvement	14-38	58	55.2
Good level of involvement	39-70	47	44.8
Total		105	100

6. Relationship among Socio-demographic Characteristics, Knowledge and Involvement on Pregnancy Related Care of the Participants

Table 6 shows the relationship among socio demographic characteristics, knowledge, and involvement. Education, occupation, monthly family income, duration of marriage, and number of children were significantly associated with both knowledge and

involvement in pregnancy-related care. Knowledge and involvement showed a strong positive correlation ($r = .797$, $p < .001$), indicating that participants with higher knowledge were more likely to be actively involved in pregnancy-related care. Age, religion, and family type were not significantly associated with either knowledge or involvement.

Table 6: Relationship among socio-demographic characteristics, knowledge and involvement on pregnancy related care of the Participants (N=105)

Variables	Knowledge			Involvement		
	M±SD	r/t/F	p	M±SD	r/t/F	p
Age		.132	.179		.141	.152
Religion						
Muslim	7.46±3.44	.940	.350	35.72±14.82	1.620	.108
Hindu	8.14±3.91			40.49±15.35		
Educational level						
No formal education ^a	4.17±2.80	28.001 ($e > c > d > b > a$)	.000	25.22±8.49	34.382	.000 ($e > d > c > b > a$)
Primary ^b	6.85±2.88			31.15±11.90		
Secondary ^c	10.77±2.20			47.62±11.64		
Higher	8.82±2.23			50.27±6.29		
Secondary ^d	11.72±1.87			55.33±7.60		
Graduation and above ^e						
Duration of Marriage		-.323	.001		-.358	.000

Variables	Knowledge			Involvement		
	M±SD	r/t/F	p	M±SD	r/t/F	p
Occupation						
Farmer ^a	5.76±3.21	17.370	.000 (b>d>a>c)	27.72±9.05	33.881	.000 (b>d>a>c)
Service Holder ^b	10.55±2.54			51.67±9.27		
Day Labourer ^c	5.62±3.60			27.05±12.68		
Business ^d	8.41±2.86			41.68±13.27		
Monthly family income (BDT)		.573	.000		.674	.000
Type of Family						
Nuclear family	7.60±3.48	.374	.709	37.63±15.35	.194	.846
Joint family	7.89±3.80			38.24±15.23		
Number of Children		-.265	.006		-.306	.001
Knowledge					.797	.000

DISCUSSION

Socio-Demographic Characteristics of the Participants

The mean age of participants was 32.24 years, indicating that most were in the active reproductive and economically productive age group. This finding aligns with studies from Myanmar, (Wai *et al.*, 2015) West Bengal (Chakrabarti & Sarkar, 2017) and Kenya (Nyamai *et al.*, 2022) where similar age groups showed higher engagement in reproductive health. However, studies from Nigeria and Ethiopia reported older age groups as more involved, which contrasts with the present study (Erhabor *et al.*, 2021; Gize *et al.*, 2019). Most participants had primary or no formal education, which is consistent with findings from Bangladesh, India, and Tanzania (Bishwajit *et al.*, 2017; Gibore *et al.*, 2019; Jungari & Paswan, 2019). This suggests that low educational attainment remains a common barrier in rural settings. In contrast, higher education levels among male partners were reported in Pakistan and Iran, (Soltani *et al.*, 2017; Younas *et al.*, 2020) showing regional variation. Occupational patterns and income levels reflect the rural Bangladeshi context, where service holders, farmers, and day laborers are common. Similar findings were reported in Ethiopia and Bangladesh (Kamal *et al.*, 2013; Pradhan *et al.*, 2022).

Knowledge on Pregnancy-Related Care

The present study revealed that 46.7% of participants had poor knowledge of pregnancy-related care, indicating a substantial knowledge gap among rural male partners. This finding is consistent with studies conducted in Bangladesh and Iran (Bishwajit *et al.*, 2017; Soltani *et al.*, 2017). However, it contrasts with findings from Nigeria and Pakistan, where male partners demonstrated relatively higher knowledge levels (Falade-Fatila & Adebayo, 2020; Younas *et al.*, 2020). Knowledge regarding antenatal care (ANC) visits (39%) was low and comparable to findings from India, (Singh *et al.*, 2021) although higher than earlier studies in Bangladesh, (Rahman *et al.*, 2018) suggesting gradual improvement in awareness over time. Knowledge of obstetric danger signs (65.7%) was comparatively better and consistent with findings from Ethiopia, (Mersha, 2018) but higher than reports from India. (Singh *et al.*,

2021) In contrast, knowledge of routine screening tests (19%) and preparation for blood donation (38.1%) remained very low, consistent with studies from Bangladesh and Nigeria (Falade-Fatila & Adebayo, 2020; Rahman *et al.*, 2018).

Level of Knowledge

The present study found that only 20% of participants had a high level of knowledge, while 46.7% had poor knowledge. These findings are consistent with studies conducted in Bangladesh and Ethiopia, (Bishwajit *et al.*, 2017; Mersha, 2018b) but lower than studies in Malaysia and Nigeria where higher knowledge levels were reported (Falade-Fatila & Adebayo, 2020; Hanapi *et al.*, 2019).

Involvement in Pregnancy-Related Care

The present study revealed that 55.2% of participants had poor involvement in pregnancy-related care, indicating low male participation in maternal health services. This finding is consistent with studies conducted in Ghana and Bangladesh, (Bishwajit *et al.*, 2017; Craymah *et al.*, 2017) but lower than findings from Nigeria and Tanzania where higher involvement was reported (Falade-Fatila & Adebayo, 2020; Gibore *et al.*, 2019).

Specific involvement behaviors such as accompanying wives to ANC (34.3%) were comparable with studies from Nepal and Ghana, (Bhatta, 2013; Craymah *et al.*, 2017) but higher than reports from Nigeria (Falade-Fatila & Adebayo, 2020). Very low involvement in saving money for emergencies (15.3%) and assisting in household work (3.8%) reflects strong gender-role norms in South Asian societies. Similar patterns were reported in Ethiopia and Nigeria, where cultural expectations limit male domestic participation (Davis *et al.*, 2016; Erhabor *et al.*, 2021).

Level of Involvement

Overall, 55.2% of participants had poor involvement, while 44.8% demonstrated good involvement. This is consistent with findings from Ghana, (Craymah *et al.*, 2017) but lower than studies in Ethiopia and Nigeria (Falade-Fatila & Adebayo, 2020; Gize *et al.*, 2019). These differences suggest that male

involvement in Bangladesh remains relatively limited compared to some African contexts.

Relationship between Socio-demographic Characteristics and Knowledge

A statistically significant association was found between education and knowledge ($F = 28.001$, $p < 0.001$), which is consistent with studies from Nepal, India, Nigeria, and Iran (Pradhan *et al.*, 2022; Singh *et al.*, 2021; Soltani *et al.*, 2017; Younas *et al.*, 2020). This confirms that higher education improves maternal health knowledge. Occupation was also significantly associated with knowledge ($F = 17.370$, $p < 0.001$), consistent with findings from Nepal, (Pradhan *et al.*, 2022) where service holders demonstrated higher awareness due to better education and exposure. Monthly income showed a significant positive relationship with knowledge ($r = 0.573$, $p < 0.001$), consistent with findings from Iran, (Soltani *et al.*, 2017) indicating that higher socioeconomic status enhances access to health information.

Relationship between Socio-demographic Characteristics and Involvement

Education was significantly associated with involvement ($F = 34.382$, $p < 0.001$), consistent with studies from India, Ethiopia, and Bangladesh (Gize *et al.*, 2019; Kamal *et al.*, 2013; Singh *et al.*, 2021). Income also showed a strong positive relationship with involvement ($r = 0.674$, $p < 0.001$), consistent with findings from Ethiopia and Bangladesh, (Gize *et al.*, 2019) indicating that financial stability enhances participation in maternal care. Occupation was significantly associated with involvement ($F = 33.881$, $p < 0.001$), consistent with Kamal *et al.*, (2013), where service holders demonstrated greater participation than other occupational groups. Number of children and duration of marriage were negatively associated with involvement, consistent with findings from Kenya and Ghana, (Craymah *et al.*, 2017; Nyamai *et al.*, 2022) suggesting that larger families may reduce male engagement due to increased responsibilities.

Relationship between Knowledge and Involvement

A strong positive correlation was found between knowledge and involvement ($r = 0.797$, $p < 0.001$). This is consistent with studies conducted in Nigeria and Malaysia, (Falade-Fatila & Adebayo, 2020; Hanapi *et al.*, 2019) confirming that higher knowledge significantly enhances male involvement in pregnancy-related care.

Limitations

The study was limited by its cross-sectional design, self-reported data, small convenience sample ($N=105$), and restriction to two villages in Habiganj district, which may reduce generalizability and introduce recall or social desirability bias. Additionally, reported involvement may not fully reflect actual practices.

Strengths

The study provides important evidence on male partners' knowledge and involvement in pregnancy-related care in rural Bangladesh, an under-researched area. It used a structured questionnaire and face-to-face interviews, improving data completeness and reliability. It also examined both knowledge and involvement along with their socio-demographic correlates, offering a comprehensive analysis.

Recommendation

Community-based education programs, male-friendly maternal health services, and awareness campaigns should be strengthened to improve male partners' knowledge and involvement, particularly among low-income and low-education groups. Further large-scale studies are recommended.

CONCLUSION

Most male partners had poor knowledge and involvement in pregnancy-related care. Knowledge and involvement were significantly associated with education, occupation, and income, and were strongly positively correlated. Targeted interventions are needed to enhance male participation and improve maternal health outcomes in rural Bangladesh.

Acknowledgements

The authors sincerely thank the IRB of NIANER, Mugda, Dhaka, and the authorities of Madabpur Upazila for their support. Special thanks to all participants for their cooperation and time. Gratitude is also extended to everyone who contributed directly or indirectly to this study.

Ethical Considerations: Ethical approval was obtained from the IRB of NIANER, Bangladesh.

Informed Consent: Written informed consent was obtained from all participants.

Conflict of Interest: The authors declared no conflicts of interest.

Funding: No financial support was received for this study.

Author Contributions:

Concept – M.D., R.M., F.J., M.K.A.; Design – M.D., R.M., F.J., M.K.A.; Supervision – R.M., F.J., M.K.A.; Resource – R.M., F.J., M.K.A.; Materials – M.D., R.M., F.J., M.K.A.; Data Collection and/or Processing – M.D.; Analysis and/or Interpretation – M.D., R.M., F.J., M.K.A.; Literature Review – M.D., R.M., F.J., M.K.A.; Writing – M.D., R.M., F.J., M.K.A.; Critical Review – R.M., F.J., M.K.A.

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Cite This Article: Mitali Das, Reva Mondal, Ferdous Jahan, Mosammet Khaleda Akter (2026). Knowledge and Involvement in Pregnancy-Related Care among Married Male Partners in a Rural Community in Bangladesh. *EAS J Nurs Midwifery*, 8(4), 120-128.
