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Sexual and reproductive health (SRH) knowledge of women: a cross-sectional study among the women experienced abortion in urban slums, Dhaka, Bangladesh

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Abstract

Background Women in urban slums are particularly susceptible due to a lack of knowledge about sexual and reproductive health (SRH), and abortion is frequently performed. Our study investigates the level and predictors of SRH knowledge among the reproductive-aged women who have had abortions and lived in urban slums in Dhaka, Bangladesh.

Methods We adopted a cross-sectional survey among the reproductive-aged women who experienced any kind of abortion from July 2020 to January 2022 living in the UHDSS sites, applying a predefined interviewer-assisted survey questionnaire. Data were analyzed using descriptive statistics (i.e., mean, standard error, and 95% confidence interval (CI)) for continuous and percentage distribution for categorical variables. Bi-variate analysis was used to examine for associations. After checking the assumptions, multinomial regression analysis was used to confirm the determinants with 95% CIs.

Results A total of 338 women participated (221 spontaneous abortions and 117 induced abortions) with an average age of 26.59 ± 0.355, age at first marriage of 16.69 ± 0.173, and marital length of 9.45 ± 0.386. Except for the use of emergency contraceptives (32%), many women correctly identified condom effectiveness for preventing pregnancy (89%), STDs and HIV/AIDS prevention (79–80%), and abortion (98%). About 34 to 64% of them experienced stigmas attached to sexually explicit items. Few of them knew about abortion complications (9 to 57%), with the exception of bleeding associated with abortion (91.7%). Overall, 3 out of 4 women lacked sufficient SRH knowledge, with a mean score of 58.28 (95% CI: 56.70, 59.87), which was slightly higher for women who had spontaneous abortions 58.90 (95% CI: 57.02, 60.78) and lower for women who had induced abortions 57.69 (95% CI: 54.94, 60.45). Women aged 20–29 and 30 + years had high level of SRH knowledge than those of under 20 years. Women with higher education, longer marriages, and who availed post abortion care had high level of SRH knowledge than respective counterparts. However, employed slum women other than garment workers had lower levels of SRH knowledge than housewives.

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Conclusion Our findings can be used in the abortion policies and strategies for vulnerable women and we recommend an intervention to increase awareness and knowledge on SRH, which is essential for those women to achieve the maternal reproductive health parameters.

Keywords Sexual and reproductive health, Knowledge, Urban slum, Abortion, Women, Bangladesh

Background

Sexual and reproductive health (SRH) is currently one of the major public health concerns, especially for the maternal and adolescent health and wellbeing. It is used as an umbrella term for individuals to make their own free and informed choices, and have control over their sexual and reproductive health and lives so that they can become free from coercion, violence, discrimination, and abuse [1]. It also includes the availability, accessibility and quality of sexual and reproductive health care services that can contribute to their health and wellbeing [2, 3]. The global health and human rights communities have proactively worked for decades to define and advance SRH, encountering both advances and considerable setbacks [4]. Moreover, women's sexual and reproductive health rights is the obligation of a state to respect, protect and fulfill rights related to women's sexual and reproductive health.

Globally, 60% unintended pregnancies ended in abortion and 97% of them occurred in developing countries [5, 6]. Half of the abortion conducted in unsafe manner, that resulted in the maternal morbidity, and mortality associated with temporary or permanent reproductive disability [7]. A recent nationwide survey revealed that 29 per thousand women performed abortion in 2014, where most of them suffered complications and 33% of them required facility-based treatment and comprehensive post abortion care [8]. Most of the treated complications were hemorrhage, incomplete abortion, shock, sepsis and uterine perforation [8]. Moreover, abortion-related mortality increased by 7% in 2016 from 2010 [9].

In Bangladesh, providing quality reproductive health services and ensuring access to these services for people in lower socioeconomic tiers are major public health challenges. The scenario is comparatively worse for the urban poor women than the rural counterparts. These settings were characterized by a place that congested with overcrowded people, high fertility rates, unwanted pregnancies and unplanned births, limited access of healthcare services and many more health deprivations [10–12]. Moreover, apart from the adolescents living in poor settlements, significant gaps remain in obtaining SRH information from migrants and internally displaced persons [13], and nearly 52% of the migrated women living in the urban poor and marginalized settings [14]. For example, one out of ten married adolescent women living in those marginalized settings reported having heard about emergency contraception methods [15], but lacked awareness on family planning methods. Consequently, inconsistent use of family planning methods occurred and resulted in unintended pregnancies among adolescent women [16, 17]. Moreover, the patterns of discrimination and sexual violence, irregular contraceptive use and family planning access is higher in marginalized urban areas which resulted in an increasing risk of unintended pregnancies [18–20]. Besides, these settings suffered from a lack of SRH services and supplies due to overburden and disruption of healthcare provision [16, 21]. Hence, these settings increase the vulnerability of women and adolescent girls to incomplete and unsafe abortion. Therefore, the abortion rate is higher among the urban poor women in Bangladesh.

Major barriers to accessing safe abortion include lack of knowledge about reproductive health, contraception, and available abortion services [22–25]. Bangladesh Demographic and Health Survey 2018 reported that about 70% ever-married women heard about menstrual regulations [26]. Women in urban slums often have very low levels of SRH education, which is influenced by the sociocultural factors, familial settings, and past reproductive experiences [27, 28]. Furthermore, cultural taboos hold them back from discussing sexual issues explicitly with their parents and partners [21]. However, the main sources of these information were parents, in-laws, husband, health personnel and teachers [29]. Study also suggests that poor level of SRH knowledge increase the risky sexual behavior, less use of family planning methods, and increased risk of abortion [22, 23, 29, 30]. Due to these low access to health facilities and cultural rigidness, many urban abortions conducted in unsafe manner [24, 25, 31, 32]. Moreover, national policy and health entitlements often reflects the low access to SRH services and information, such as lack of comprehensive sexual education or contraception for adolescents; in addition, particular SRH services for abortion are criminalized [8, 25]. Therefore, the lack of sexual education translates into lack of contraceptive use and will be subject to unplanned pregnancies resulted in unsafe abortions and sexually transmitted infections [33, 34].

There is a dearth of studies focusing the knowledge and awareness regarding the slum population, especially women. However, some studies have been indicated a

lack of awareness on sexual health of slum population-including women [11–15]. Particularly, the study gaps were limited to the coverage of inclusive, vulnerable and lower communities and abortion-related knowledge and awareness [13]. Besides, women who experienced abortion should be aware of the SRH rights and services irrespective of sociodemographic clusters [35]. These rights have not been recognized to their maximum potential in aborted women living in the urban poor and slum area. Therefore, this study aimed to determine the magnitude and predictors of SRH knowledge among the slum women who had any abortion.

Methods and materials

Study setting, design and period

For this study, a cross-sectional survey was designed to assess the SRH knowledge among the married women aged < 49 years living in slum areas. This study was conducted in five slum areas of Dhaka (North & South) and Gazipur City Corporations which was under the Urban Health and Demographic Surveillance System (UHDSS). Dhaka North City Corporation includes the largest slum area- Mirpur and Korail, while Dhaka South City Corporation includes- Dhalpur and Shaympur, and Gazipur City Corporation includes- Tongi and Ershadnagar slums. Since 2016, International Centre for Diarrhoeal Disease Research, Bangladesh is running the HDSS to collect and monitor the demographic and health related parameters in the selected area. This survey was conducted in November 07–December 26, 2021.

Study population and sampling

Since the UHDSS started, a total of 18,174 birth events were recorded, among them 82.2% were live births, 3.4% still births and 14.4% were aborted (spontaneous: 9.4% and induced: 5%). Participants of this study were selected by following criteria: (a) any married women entered at reproductive age (≤ 49 years) listed in the UHDSS; (b) participated in any birth events; and (c) had undergone any sorts of abortion between July 2020 to December 2021. Therefore, 530 married women were included for the survey. Following the sensitivity of the study contexts, currently married women (age ≤ 49 years) who were consented to participate, communicated and not migrated (both in- and out-migration) during the study period were interviewed. Total of 338 women were interviewed successfully and they were included in the study (see Fig. 1). Due to sensitivity of the study context and high migration rate in the urban slums, the response rate (63.77%) was low.

Study tools and questionnaire

Participants were interviewed using the predefined semi-structured survey questionnaire. The focus of the questionnaire was understanding the SRH perspectives of married women with experience of abortion living in

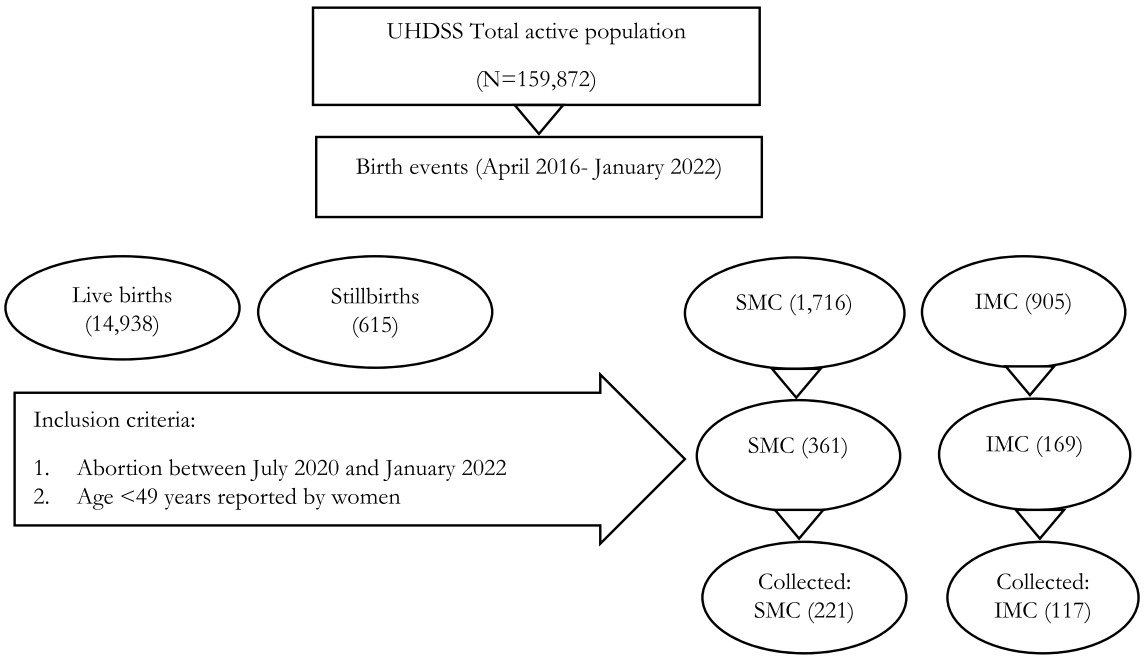

Fig. 1 Participant selection process and sample of the study. UHDSS: Urban Health and Demographic Surveillance System, SMC: Spontaneous miscarriage, IMC: Induced miscarriage

the urban slums, existing accessible services to address sexual and reproductive concern for promoting SRH in urban health- especially for those poor women. The questionnaire was organized by literature searches [22] and adjusted on the context of Bangladeshi urban slums in following order- a) Socio-demographic information, b) Reproductive health and history, c) Knowledge on sexual and reproductive health [36], d) History of menstrual regulations (MR) and post abortion counselling/care (PAC), e) Barriers to access MR and PAC. The original survey questionnaire was first prepared in English. The questionnaire then reviewed by the externals (experts from icddr,b team and RHSTEP) and icddr,b's ethical and research review committees.

Data collection procedures and quality assurance

An interviewer-assisted semi-structured questionnaire was administered to gather the data through face-toface interviews. The English questionnaire and study tools were translated into Bangla by language experts for data collection. Consent were taken from individuals with age greater than or equal to 18 while for under-aged women, assent were taken from legal guardians including their husband, mother (or in-laws). As the respondents were urban poor, considering their low level of education, the interviewer assisted to read-out the questionnaire for her with possible options and record the answers provided by the respondents. Any discrepancy was probed and re-read for case specific respondents for record the actual scenario. Interviewers were trained for these settings and any conflicts were addressed discussion with the project member.

Data were collected in tablet-based application (SQLITE) in pre-coded format of the semi-structured questionnaire. Collected data from the field were checked by the field research supervisor incorporated with two data management team. Later, with the help of main investigator, and analyst rechecked the consistency across the variables. Any anomalies were reported to the field research supervisor, and the data were verified from the field level.

Study variables

Dependent variables We considered sexual and reproductive health (SRH) knowledge as the main dependent variable that was assessed by 14 items adopted from World Health Organization [37] for evaluating 1. sexual conduct (3 items), 2. condom use and attitude (1 item), 3. STDs and HIV/AIDS (2 items), 4. emergency contraception (1 item), 5. safe abortion and care (1 item), and 6. complications of unsafe abortion (6 items). Respondents answered in "*true*", "*false*" and "*do not know*". For each item 1 point was given to correct responses and 0 to incorrect or "*do not know*" responses. Aggregated scores were converted into percentage and categorized into poor (< 50%), intermediate (51–70%) and good/high (> 70%) [38].

Independent variables We considered the socio-economic, reproductive health and abortion related information as the independent variables that were found in the previous studies [23, 39–45]. Age of the women (< 20 years, 20–29 years and 30 + years), educational status (no education, primary, secondary and higher), occupation (housewives, garment worker, other workers), wealth index (poorest, poorer, middle, richer, richest), duration of marriage (0–5 years, 6–10 years and 10 + years), age at marriage (< 18 years, 18 + years), experience of stillbirths (yes, no), experience/utilization of post abortion family planning (FP) counseling (yes, no), use of FP methods (yes, no), consult with partner about FP (yes, no), exposed to violence (yes, no). The wealth index was scored based on the dichotomously coded dwelling items (e.g., presence of chair, dining table, khat/bed, chowki, almirah, sofa set) and owner's assets and durable goods (e.g., having radio, television, refrigerator, mobile phone, electric fan, watch, rickshaw, computer, sewing machine, cycle and motorcycle). The principal component analysis was used to calculate the factor score of each variable and the index is constructed as a weighted sum of these items. The index scores were ordered ascendingly and classified into five quintiles as poorest, poorer, middle, richer, richest [46].

Data analysis

Descriptive data were presented in frequencies and percentage distribution for categorical variables, and mean, standard error, range and 95% confidence interval were reported for continuous variables. Participants sociodemographic information were assessed by the major geographic locations (City Corporations). A bivariate analysis was conducted using chi-square to assess the sociodemographic and reproductive health-related factors of SRH knowledge. Factors with p-value < 0.25 were considered as candidate variables for the multivariable analysis. Similar process of selecting candidate variables for identifying suitable determinants can also be found elsewhere [47–49]. Finally, the multinomial logistic regression model was conducted with available candidate variables to identify the predictors by controlling confounding variables. We also consider two variables from the expert view point. Determinants with 5% level of significance in the model were reported as risk ratio (RR) and standard error (SE) with 95% confidence interval (CI). All the analyses were performed in STATA windows version 15.0 (Stata.corp, TX).

Results

Participant's characteristics

Majority of the women belongs to age 20–29 years 179 (52.96%), followed by ≥ 30 years 105 (31.07%) and < 20 years 54 (15.98%) (See Table 1). Average age was estimated 26.59 (SE: ± 0.355). Most of them completed primary education 120 (35.50%), followed by secondary 77 (22.78%), higher 72 (21.30%) and 20.41% of respondents had no education. Participants were mostly housewives 233 (68.93%), married before 18 years of age 215 (63.61%), and spent 0–5 years of married life 136 (40.24%). About 22.19% women were belong to poorest wealth status, followed by richer, richest, middle and poorer wealth status of 20.12%, 19.82%, 19.53% and 18.34%, respectively. The mean age of marriage was 16.69 years (SE: ± 0.173) and duration of marriage was 9.45 (SE: ± 0.386).

Prevalence of SRH knowledge

SRH knowledge items were represented by its component (See Table 2). About 64.50% women believed that they will stop growing after first intercourse whereas 34.62% thought they can be pregnant while first intercourse. Around 131 (38.76%) women thought that they can be pregnant after sex during their periods. In case of condom use attitude, around 85.80% women positive to the condom effectiveness for preventing pregnancy. Regarding the STDs and HIV/AIDS, women were highly aware about the STDs transmitted by unprotected sex (78.99%), and condom use can reduce the risk of STIs and HIV/AIDS (80.18%). Significant number of women (31.95%) were not agreed that emergency pill should take within 72 h after unprotected intercourse. Most of them (98.22%) agreed that abortion is unsafe without medical supervision. Regarding the unsafe abortion complications, most of them did not think that unsafe abortion can cause infertility (90.83%), infection/sepsis (86.09%), shock (80.18%), incomplete abortion (42.90%)

Table 1 Sample characteristics of the study population (N = 338)

Socio demographic characteristics	Geographic locations				Descriptive statistics Mean (Standard error)
	Dhaka South	Dhaka North	Gazipur	Total	
Age group					26.59 (0.355)
< 20 year	3 (0.89%)	38 (11.24%)	13 (3.85%)	54 (15.98%)	
20–29 year	10 (2.96%)	121 (35.80%)	48 (14.20%)	179 (52.96%)	
30 & above	5 (1.48%)	73 (21.60%)	27 (7.99%)	105 (31.07%)	
Education					
None	6 (1.78%)	52 (15.38%)	11 (3.25%)	69 (20.41%)	
Primary	5 (1.48%)	90 (26.63%)	25 (7.40%)	120 (35.50%)	
Secondary	6 (1.78%)	43 (12.72%)	28 (8.28%)	77 (22.78%)	
Higher	1 (0.30%)	47 (13.91%)	24 (7.10%)	72 (21.30%)	
Occupation					
Housewife	16 (4.73%)	148 (43.79%)	69 (20.41%)	233 (68.93%)	
Garments worker	0 (0.00%)	30 (8.88%)	13 (3.85%)	43 (12.72%)	
Others	2 (0.00%)	54 (15.98%)	6 (1.78%)	34 (10.06%)	
Wealth index					
Poorest	3 (0.89%)	59 (17.46%)	13 (3.85%)	75 (22.19%)	
Poorer	1 (0.30%)	52 (15.38%)	9 (2.66%)	62 (18.34%)	
Middle	2 (0.59%)	53 (15.68%)	11 (3.25%)	66 (19.53%)	
Richer	4 (1.18%)	43 (12.72%)	21 (6.21%)	68 (20.12%)	
Richest	8 (2.37%)	25 (7.40%)	34 (10.06%)	67 (19.82%)	
Duration of marriage					9.45 (0.386)
0–5 years	8 (2.37%)	92 (27.22%)	36 (10.65%)	136 (40.24%)	
6–10 years	3 (0.89%)	49 (14.50%)	22 (6.51%)	74 (21.89%)	
10 + years	7 (2.07%)	91 (26.92%)	30 (8.88%)	128 (37.87%)	
Age at marriage					16.69 (0.173)
< 18 years	13 (3.85%)	157 (46.45%)	45 (13.31%)	215 (63.61%)	
18 & above	5 (1.48%)	75 (22.19%)	43 (12.72%)	123 (36.39%)	

Table 2 Distribution of sexual and reproductive knowledge scale

Knowledge components and items	Correct		Incorrect	
	N	%	N	%
Sexual conduct				
A woman can get pregnant on the very first time of sexual intercourse	221	65.38%	117	34.62%
A woman stops growing after she has had sexual intercourse for the first time	120	35.50%	218	64.50%
A woman can get pregnant if she has sexual intercourse during her periods	207	61.24%	131	38.76%
Condom use attitude				
Condoms are an effective method of preventing pregnancy	290	85.80%	48	14.20%
STDs and HIV/AIDS				
Condoms reduce risk of STIs and HIV/AIDS	271	80.18%	67	19.82%
STDs transmit through unprotected sex	267	78.99%	71	21.01%
Emergency contraceptive				
Emergency pill should be taken within 72 h of unprotected sex	230	68.05%	108	31.95%
Safe abortion and care				
Abortion is unsafe when performed without medical supervision	332	98.22%	6	1.78%
Abortion complications				
Complication can be arisen from unsafe abortion				
Bleeding/hemorrhage	310	91.72%	28	8.28%
Infection/sepsis	47	13.91%	291	86.09%
Shock	67	19.82%	271	80.18%
Incomplete abortion	193	57.10%	145	42.90%
Death	172	50.89%	166	49.11%
Infertility	31	9.17%	307	90.83%

Descriptive statistics	N	Mean	SD	SE	95% CI
Knowledge score	338	58.28	14.813	0.806	56.70, 59.87
Knowledge score for IMC	117	57.69	15.040	1.391	54.94, 60.45
Knowledge score for SMC	221	58.90	14.760	0.953	57.02, 60.78

SD: standard deviation; SE: standard error; CI: confidence interval; IMC: induced miscarriage; SMC: spontaneous miscarriage

and maternal death (49.11%). While, around 92% of them were agreed that the bleeding/hemorrhage is one of the complications of unsafe abortion.

Overall, three out of four women had not sufficient level of sexual and reproductive health knowledge, which was a bit lower for women with spontaneous abortion (71.67%) and higher in induced aborted women (76.07%). Distribution of level of knowledge by type of abortion was presented in Fig. 2. Average mean of the aggregated SRH knowledge score 58.28 (SE: ± 0.806) for all women, 57.69 (SE: ± 1.391) for women who experienced induced miscarriage, and 58.90 (SE: ± 0.953) for women who experienced spontaneous abortion.

Factors affecting the level of SRH knowledge

In bivariate analysis, women's age, wealth index, age at marriage and exposed to post abortion care were significantly associated at 5% level of significance (See Table 3). In the multinomial logistic analysis, we included the occupation, education and duration of marriage alongside with the significantly associated factors in bivariate analysis as candidate explanatories.

Compared to women age < 20 years, women at age 20–29 years had 2.9 (95% CI: 1.051, 8.131, $p < 0.05$), and at age 30 and above years had 4.5 (95% CI: 1.168, 17.405, $p < 0.05$) times more likely to have good/high level of knowledge. Higher educated women had 2.9 times (95% CI: 1.174, 7.080, $p < 0.05$) more likely to have intermediate level of SRH knowledge than women who had no education. Women with secondary and higher education had 4.3 (95% CI: 1.638, 11.455, $p < 0.01$) and 4.2 (95% CI: 1.494, 11.764, $p < 0.01$) times more likely to have good/high level of knowledge, respectively, compared to the women with no education. Employed women, except garment workers had 67% less likely to have intermediate level of SRH knowledge and 61% less likely had good/

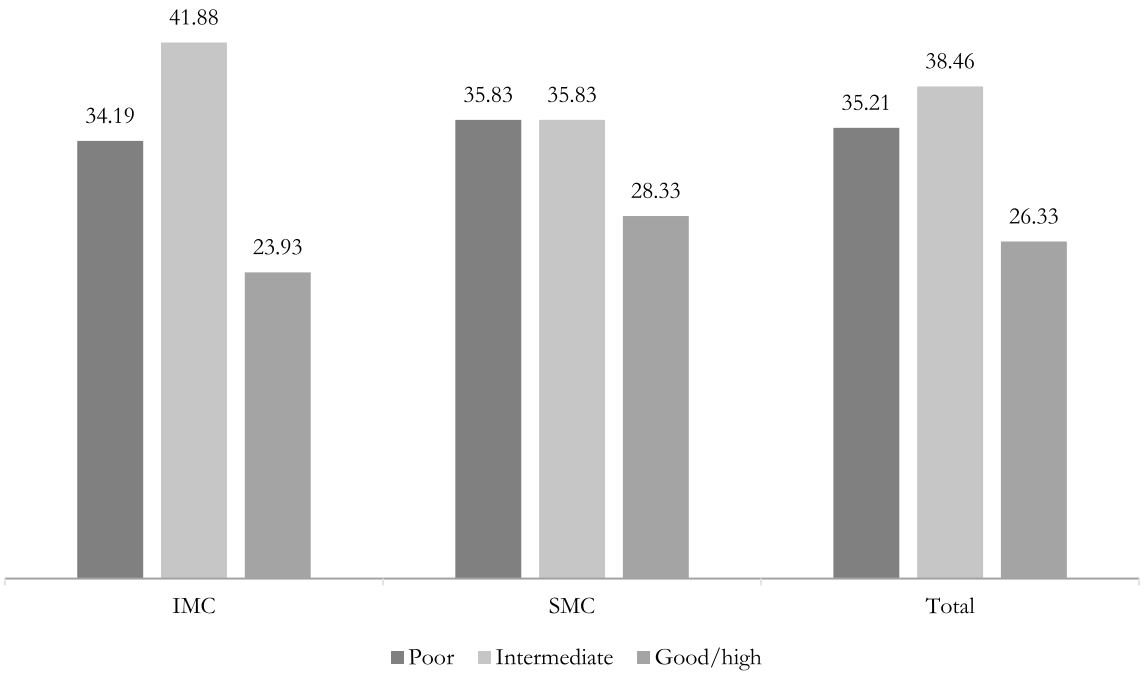

Fig. 2 *Level* of Sexual and Reproductive Health knowledge among the young women and adolescent girls of reproductive age in slum area. SMC: Spontaneous miscarriage, IMC: Induced miscarriage

high level of knowledge compared with the housewives. Women who reported more than 10 years of marriage had 3.24 times (95% CI: 1.257, 8.353, $p < 0.05$) more likely to have intermediate level of SRH knowledge than women with 0–5 years of marital duration. Post abortion family planning counselling taking women had 3.26 (95% CI: 1.485, 7.169, $p < 0.01$) times higher odds of having good/high level of SRH knowledge compared with the women who took no counselling (See Table 4).

Discussion

This study demonstrates that women in urban slums had insufficient knowledge and awareness of their sexual and reproductive health and rights. Most of the women had no knowledge on sexual conduct- specially about the retrained physical growths due to sexual intercourse, emergency contraceptives, and complications of unsafe abortions. While many women correctly responded to condom effectiveness, STDs and HIV/AIDS prevention, and abortion, except for knowledge about the use of emergency contraceptive pills. For the abortion-related complications, most of them were familiarized about the bleeding/hemorrhage. Women of higher ages, higher education and receiving post abortion family planning counselling had sufficient level of knowledge on SRH while higher education and greater marital duration of women can influence on their moderate level of knowledge [4].

Our results demonstrated the SRH awareness level of slum women and the associated factors. In slum area, women were married comparatively earlier and their reproductive contribution started mostly during adolescent age [50]. As their age increases, they went through the reproductive experiences- including the adverse ones. The latest Demographic and Health Survey report indicates a comparatively slight but higher rate of unmet need for family planning in urban areas, while, the Urban Health Survey indicates their higher contraceptive use [50, 51]. However, women's higher unmet need for family planning and unregulated contraception use can increase the chance of abortion [52, 53]. Those women, having several adverse reproductive experiences, including sexual violence, often become parents and, repeated the same cycle of stigmatization and negative narratives surrounding SRH. However, many government and non-government organization are working on the safe motherhood and promote safe abortion practices in the urban slums to prioritize the importance of securing mother and young/adolescent females [21]. But, these service delivery models to improve the uptake of family planning remain limited in slum areas [54].

Due to a lack of knowledge and awareness on abortion and its side effects, women in urban slums were often posed with the dangerous procedure without second thought [55, 56]. Our study demonstrates that educated women had more SRH knowledge. Similar findings

Table 3 Distribution of SRH knowledge level

Variables	Knowledge level			p-value
	Poor	Intermediate	Good/high	
Age groups				**0.013**
< 20	30 (55.56%)	15 (27.78%)	9 (16.67%)	
20–29	58 (32.40%)	74 (41.34%)	47 (26.26%)	
30 and above	31 (29.52%)	41 (39.05%)	33 (31.435)	
Education				**0.118**
None	30 (43.48%)	27 (39.13%)	12 (17.39%)	
Primary	44 (36.67%)	45 (37.50%)	31 (25.83%)	
Secondary	28 (36.36%)	24 (31.17%)	25 (32.47%)	
Higher	17 (23.21%)	34 (47.22%)	21 (29.17%)	
Occupation				**0.067**
Housewife	76 (32.62%)	91 (39.06%)	66 (28.33%)	
Garment worker	12 (27.91%)	21 (48.84%)	10 (23.26%)	
Others	31 (50.00%)	18 (29.03%)	13 (20.97%)	
Wealth index				**0.017**
Poorest	27 (36.00%)	33 (44.00%)	15 (20.00%)	
Poorer	25 (40.32%)	21 (33.87%)	16 (25.81%)	
Middle	34 (51.52%)	16 (24.24%)	16 (24.24%)	
Rich	18 (26.47%)	28 (41.18%)	22 (32.35%)	
Richest	15 (22.39%)	32 (47.76%)	20 (29.85%)	
Duration of marriage				**0.218**
0–5 years	57 (41.91%)	48 (35.29%)	31 (22.79%)	
6–10 years	26 (35.14%)	27 (36.49%)	21 (28.38%)	
10 + years	36 (28.13%)	55 (42.97%)	37 (28.91%)	
Age at marriage				**0.057**
< 18 years	84 (39.07%)	73 (33.95%)	58 (26.98%)	
18 and above	35 (28.46%)	57 (46.34%)	31 (25.20%)	
Experience of stillbirth				**0.341**
No stillbirth	108 (36.49%)	110 (37.16%)	78 (26.35%)	
Stillbirth	11 (26.19%)	20 (47.62%)	11 (26.19%)	
Post abortion family planning counselling				**0.006**
No	37 (50.00%)	25 (33.78%)	12 (16.22%)	
Yes	82 (31.06%)	105 (39.77%)	77 (29.17%)	
Consult FP with husband				**0.314**
No	13 (41.94%)	8 (25.81%)	10 (32.26%)	
Yes	106 (34.53%)	122 (39.74%)	79 (25.73%)	
Use FP method				**0.579**
No method	70 (37.43%)	71 (37.97%)	46 (24.60%)	
Yes	49 (32.45%)	59 (39.07%)	43 (28.48%)	
Exposed to abuse				**0.433**
Yes	28 (41.79%)	24 (35.82%)	15 (22.39%)	
No	91 (33.58%)	106 (39.11%)	74 (27.31%)	
Total	119 (35.21%)	130 (38.46%)	89 (26.33%)	

were also found in other studies conducted in poorly resourced context in Sub-Saharan Africa [57–59] and Bangladesh [60]. Generally, slum women's educational level is low, as their high poverty level, and culturally being deprived. Besides, due to early engagement in the workforce and marital/family life, they silently drop out from the school. They mostly acquire the sexual and reproductive knowledge from marital life experiences as well as from home, rather any educational intervention [61, 62]. Moreover, due to adverse pregnancy outcomes, their understandings and realization of sexual and reproductive health remain incomplete. We also found that employed women had lower knowledge and the possible reasons underlies the classes of their employments. Most of those employed women were engaged in laborious activities- such as housemaids, and few were affiliated lower tier of government and non-government institutions. These job-posts were also not required very high level of education, very primary and literate women can be engaged in these occupations [63].

Our study found that women who to post abortion family planning counselling/care had significantly higher knowledge than the women who had not. It also identifies the gaps of relevant service providers in those areas under the new reproductive health and abortion policy adopted in Bangladesh in 2017 and 2021 [64, 65]. Post abortion counselling/care was designed for the incomplete abortion or miscarriage, provided by the trained physicians under the provision of Directorate General of Health Services (DGHS) and Directorate General of Family Planning (DGFP) at bifurcated health systems with several gaps [66]. In the urban poor community, Surjer Hashi, Nari Maitree, Reproductive Health Services Training and Education Program (RHSTEP), Bangladesh Rural Advancement Cooperatives (BRAC) and other local government and non-government facilities provided abortion care services. These service users were less likely to get information on family planning and other reproductive counselling because of Ministerial policies. In Jessore, one study found very few post abortionpatients get the post abortion counselling than the menstrual regulation patients [17]. Recently, Ministry of Family Planning (MoFP) and Ministry of Health of Child and Women (MoHCW) adopted the safe motherhood practices and propagate a complete abortion strategy into the primary health care facilities.

Previous study suggested that almost all the health facilities provided post abortion family planning counselling [8]. But in our study, 74 out of 338 women reported that they had no post abortion family planning counselling from the where the abortion took place. This lacks of accelerate the unsafe abortion as well as inadequate knowledge flow among those vulnerable women. Women with induced abortion were comparatively more vulnerable from the familial, cultural and societal support. Therefore, post abortion

Table 4 Multinomial logistic regression of SRH knowledge (Base: poor level, N = 338)

Variables	Intermediate		Good/high	
	RR (SE)	95% CI	RR (SE)	95% CI
Age				
< 20	1.00		1.00	
20–29	1.71 (0.783)	0.698, 4.193	2.92 (1.526)*	1.051, 8.131
30 and above	1.47 (0.888)	0.447, 4.804	4.51 (3.107)*	1.168, 17.405
Education				
None	1.00		1.00	
Primary	1.03 (0.383)	0.497, 2.133	1.78 (0.786)	0.751, 4.232
Secondary	1.49 (0.658)	0.624, 3.541	4.33 (2.149)**	1.638, 11.455
Higher	2.88 (1.322)*	1.174, 7.080	4.19 (2.207)**	1.494, 11.764
Occupation				
Housewife	1.00		1.00	
Garment worker	1.61 (0.701)	0.683, 3.778	0.90 (0.451)	0.340, 2.403
Others	0.37 (0.146)*	0.169, 0.803	0.39 (0.170)*	0.169, 0.917
Wealth index				
Poorest	1.00		1.00	
Poorer	0.62 (0.261)	0.272, 1.417	1.16 (0.561)	0.449, 2.993
Middle	0.25 (0.110)**	0.102, 0.588	0.59 (0.288)	0.227, 1.535
Rich	0.87 (0.375)	0.370, 2.025	1.66 (0.811)	0.637, 4.327
Richest	1.15 (0.517)	0.474, 2.774	1.66 (0.852)	0.608, 4.538
Duration of marriage				
0–5 years	1.00			
6–10 years	1.59 (0.670)	0.694, 3.628	1.60 (0.728)	0.659, 3.906
10 + years	3.24 (1.565)*	1.257, 8.353	1.74 (0.945)	0.601, 5.046
Age at marriage				
< 18 years	1.00			
18 and above	1.80 (0.574)	0.966, 3.367	1.09 (0.386)	0.542, 2.179
Post abortion family planning counselling				
No	1.00		1.00	
Yes	1.81 (0.603)	0.941, 3.476	3.26 (1.310)**	1.485, 7.169
Constant	0.27 (0.166)*	0.083, 0.896	0.04 (0.026)***	0.008, 0.152
Summary statistics				
Observation				338
Log likelihood (null)				− 367.2057
Log likelihood (model)				− 330.10189
χ^2 (30)				74.21
Degrees of freedom				32
p-value				0.0000
Variance explained (R^2)				10.10%
Akaike information criteria				724.2038
Bayesian information criteria				846.5412

* indicates $p < 0.05$

** indicates $p < 0.01$

*** indicates $p < 0.001$

RR: risk ratio; SE: standard error; CI: confidence interval

counselling/care is important for them, and suggested in the abortion related services. This study also recommend an integrated and inclusive strategies and guidelines for post abortion counselling and care services and than should be delivered at the priority basis, specially focusing on women's socio-economic and cultural vulnerabilities [65].

Strengths and limitation

This study for the first time assessed the SRH knowledge of the women experienced any sorts of abortion living in the urban slums which can be derived for all the lower-tier and vulnerable urban women in Bangladesh. Besides, this study initiates and provide insights for the policy makers and policy implementers to design the interventions for the urban catchment area where the services are urgently needed. It can also help to design an intervention for need-based vulnerable population [67] and also indicate a major revision is needed in the abortion and post abortion services for the socio-economically most vulnerable women. Overall, this study can also help to mitigate the intertwined situation of SRH knowledge among the urban poor women.

Main limitation of this study is its parameter which is not compared and validated with the national estimates. Besides, more insights and male-oriented factors, detailed reproductive history and obstetric complications, STDs, and family planning knowledge were also need to be assessed, which we recommend for further investigation.

Abbreviations

BRAC	Bangladesh Rural Advancement Cooperatives
CI	Confidence Interval
DGFP	Directorate General of Family Planning
DGHS	Directorate General of Health Services
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IMC	Induced Miscarriage
MoFP	Ministry of Family Planning
MoHCW	Ministry of Health of Child and Women
MR	Menstrual Regulations
NGOs	Non-Government Organizations
PAC	Post abortion counselling/care
RHSTEP	Reproductive Health Services Training and Education Program
RR	Risk Ratio
SD	Standard Deviation
SE	Standard Error
SMC	Spontaneous Miscarriage
SRH	Sexual and Reproductive Health
STDs	Sexually Transmitted Diseases
UHDSS	Urban Health and Demographic Surveillance System

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Author contributions

Conceptualization: FB, DR, MAB, KNK; Data management: MAB, SN; Draft preparation: FB, KNK, MAB; Review: SMAH, QSS, TRS, EM, MH, DR.

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Availability of data and materials

Data used in the analyses for this study are available on request, subject to completion of a data sharing agreement. For additional information http://www.icddrb.org/policies.

Declarations

Ethics approval and consent to participate

All the methods were carried out in accordance with the guidelines and regulations of declaration of Helsinki. The study protocol (PR-15045) was reviewed and approved by the Research and Ethical Review Committee of International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b). Participant's written informed consent was obtained before the data collection.

Consent for publication

Participant's written consent was taken before the data collection.

Competing interests

The authors declare no competing interests.

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