Private providers' knowledge, attitudes, and misconceptions related to long-acting and permanent contraceptive methods: A case study in Bangladesh

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Abstract

Objective

In Bangladesh, use of long-acting and permanent methods of contraception (LAPM) remains stagnant. Providers' limited knowledge and biases may be a factor. We assessed private providers' knowledge, misconceptions, and general attitudes towards LAPM in two urban areas. The ultimate goal is to shape programs and interventions to overcome these obstacles and improve full method choice in Bangladesh.

Study design

Trained data collectors interviewed a convenience sample of 235 female doctors (ob-gyns and general practitioners) and 150 female nurses, from 194 commercial (for-profit) healthcare facilities in Chittagong City Corporation and Dhaka district. Data were collected on the nature of the practice, training received, knowledge about modern contraceptives, and attitudes towards LAPM (including IUDs, implants, female and male sterilization).

Results

All providers, and especially doctors, lacked adequate knowledge regarding side effects for all LAPM, particularly female and male sterilization. Providers had misconceptions about the effectiveness and convenience of LAPM compared to short-acting contraceptive methods. Implants and IUDs were generally perceived more negatively than other methods. The majority of providers believed that husbands favor short-acting methods rather than LAPM, and that women should not use a method that their husbands do not approve of.

Conclusions

Our findings document knowledge and attitudinal barriers among private for-profit providers in urban areas, affecting their provision of accurate information about LAPM choices. Practitioners should be offered the necessary tools to provide women full access to all modern methods, especially LAPM, in order to contribute to decreasing unmet need and improving full method choice in Bangladesh.

Implications (Not part of the abstract) – 50 words

Our study is the first, to our knowledge, to examine and provide evidence of private providers' lack of knowledge, negative attitudes, and misperceptions related to LAPM in Bangladesh. Unless this is carefully addressed, these barriers will stall progress in Bangladesh towards improving access to more modern methods of contraception.

Keywords:
Family planning; contraception use; long-acting methods; Bangladesh; private sector

1. Introduction

In 2012, almost 645 million women in the developing world used modern methods of contraception [1]; however, regional estimates show only very small increases or plateaus in modern contraception use from 2008 to 2014 [2]. For example, from 2008 to 2014, modern method use increased in Asia from 60.9 percent to 61.6 percent, in Latin America from 66.7 percent to 67.0 percent, and in Africa from 23.6 percent to 27.6 percent. Increased access to a wide range of modern methods of contraception (including oral contraceptive pills (OCs), implants, injectables, vaginal rings, intrauterine devices (IUDs), condoms, and sterilization, among others) is a critical component of strategies to improve maternal and child health and reduce unmet need for modern contraception [2]. Long-acting and permanent methods (LAPM), which comprise the long-acting and reversible methods of IUDs and implants as well as the permanent methods of female and male sterilization, are the most effective modern contraceptive methods and are safe and convenient to use [3,4]. LAPMs are also more reliable than short-acting contraceptive methods (such as condoms, OCs, and injectables) for delaying, spacing, and limiting births [5]. Yet, LAPM use is still low in many developing countries, and national family planning policies and contraceptive security strategies often overlook the potential role of these methods [4].

In Bangladesh, the use of modern contraceptive methods is high—but while 54.1 percent of married women of reproductive age report using a modern method, just 8.1 percent use LAPM while the other 46.0 percent use short-acting methods. LAPM use in Bangladesh is low compared to countries like India, Jordan, or Nepal where 34.1, 16.9, and 22.0 percent of married women of reproductive age report using LAPM, respectively [6]. Also, LAPM use in Bangladesh has decreased over the last two decades, accounting for 38.8 percent of all modern methods in 1991, to 20.5 percent in 2000, 15.4 percent in 2011, and 15.0 percent in 2014 [7]. Reasons for low LAPM uptake are unclear, but may include a variety of factors. On the demand side, barriers include stigmatization (viewing sterilization as a method for the poor), religious views that disfavor permanent methods, and concerns about side effects of the IUD and implants [8,9]. On the supply side, providers sometimes incorrectly apply policy-related eligibility criteria related to age and marital status, and other non-policy criteria related to

parity and a husband's consent [10], according to research in Tanzania [11], Ghana [12], and Senegal [13]. For Bangladesh, there are indications that inadequate coverage and low-quality services in the predominantly public-sector program also hinder LAPM uptake [8]. Providers' lack of knowledge, biases, and misconceptions may also play a role in some settings [14,15].

Although the private for-profit sector in Bangladesh (including private hospitals and clinics, doctors' clinics, and pharmacies) provides 43 percent of all modern contraceptive methods, it provides only 18 percent of all LAPM [7]. An assessment in Bangladesh found anecdotal evidence that some private providers did not have the knowledge and training to provide LAPM effectively, and that some providers were biased against LAPM [16].

To better understand factors affecting LAPM uptake in Bangladesh, we assessed private providers' knowledge, misconceptions, and general attitudes towards LAPM in two urban areas in Bangladesh. We explored differences by type of provider, with the goal of developing and implementing interventions to overcome these obstacles and contribute to decreased unmet need while improving full method choice in Bangladesh.

2. Materials and methods

Between March and June of 2013, we conducted a survey of 385 healthcare providers at commercial (for-profit) private healthcare facilities in two of the largest urban areas in Bangladesh: Chittagong City Corporation and Dhaka district. These are the major metropolitan areas of Chittagong and Dhaka divisions (two of eight total divisions in the country), located in southeastern and central Bangladesh, respectively. The Strengthening Health Outcomes through the Private Sector (SHOPS) Project funded this study as part of its exploration of potential program activities to be implemented in these two areas. The SHOPS Project focused its efforts primarily on Dhaka, but also planned a smaller set of activities in Chittagong, and thus conducted this study to gather information relevant to planning project interventions. The survey targeted three types of health professionals: (i) obstetricians-gynecologists (ob-gyns); (ii) general practitioners (GPs), including graduate doctors with an MBBS degree, who provide reproductive health services; and (iii) nurses.

For sampling purposes, we compiled lists of facilities in the two urban areas based on the most currently available information provided by the Directorate General of Health Services, the Obstetrical and Gynecological Society of Bangladesh, Nuvista Pharmaceutical Company, and Square Pharmaceuticals. These lists were not comprehensive, and contact information for providers was not always up-to-date or accurate. We included only facilities considered private practices. We divided private practices on the lists by size into large (50 or more beds), medium (10 to 49 beds), and small (fewer than 10 beds, including private clinics). We relied on number of beds because information on the number of providers at each facility was not available. Then we gave the data collection teams a list of facilities and a target number of interviews to complete for each specific geographic area. The data collectors were instructed to select all of the large facilities on their lists and then a mixture of medium and smaller facilities, with the objective of having a final sample in which large, medium, and small facilities were approximately equally represented (i.e. approximately one-third of the sample for each of the three sizes of facilities). Random sampling was not feasible due to budgetary restrictions, considering the spread of practices in such large urban areas.

The data collection teams approached a total of 202 private practices, and 194 (96 percent) agreed to allow their health personnel to participate in the survey. No incentive or reimbursement for participation was offered. Our final sample consisted of providers from 157 facilities, of which 45 (29 percent) were considered large facilities, 48 (31 percent) were medium-sized facilities, and 64 (41 percent) were small facilities. The data collection teams were instructed to interview a convenience sample of a maximum of 3 ob-gyns or GPs and 3-4 nurses per facility. Since we did not have a full list of all doctors and nurses for each facility, randomly choosing interviewees was not possible; we directed the surveyors to interview the first doctors and nurses who were available and who agreed to take the survey. We limited the sample to female providers because the vast majority (estimated >95 percent) of ob-gyns and nurses in Bangladesh are women, and because among the small number of male ob-gyns and nurses, very few focused exclusively on family planning services and counseling. Out of 280 ob-gyns and GPs that were approached, 235 (84 percent) agreed to take the survey; all the nurses agreed to participate. Our final sample consisted of 155 ob-gyns, 80 GPs, and 150 nurses.

The interviewers conducted the surveys face-to-face in Bengali. They collected data on the nature of the practice (size of practice, length of time in private practice), training received, provider knowledge about LAPM and other modern contraceptives and their side effects, and attitudes towards LAPM provision (agreement/disagreement with statements on effectiveness, side effects, and convenience). We performed all analyses using Stata version 14. In all analyses, we grouped together ob-gyns and GPs (referred to collectively as "doctors" throughout this paper). We tested for statistical significance for selected variables using regular t-tests or Chi-square tests.

This study received Institutional Review Board (IRB) approval by Research Training and Management (RTM) International, a local research firm based in Bangladesh that helped with the data collection. The Institutional Review Board of Abt Associates reviewed the study protocol and found it to be exempt from federal human subjects' protection regulation. All survey respondents provided oral informed consent.

3. Results

Table 1 presents the characteristics of the final sample of healthcare providers, by provider type. The majority worked in facilities in Dhaka district (82 percent of doctors and 83 percent of nurses), which reflects the proportion of the overall population in those two areas. Compared to the nurses, doctors were on average older, more concentrated in private clinics, and had more years working as healthcare providers. Most nurses were working in private hospitals and private clinics. Almost all (87.7 percent) of all doctors and 33.3 percent of the nurses were offering family planning counseling at the time of the survey, typically on both short-acting methods and LAPM. Finally, 42 percent of doctors and 13 percent of nurses had received formal training for IUDs and implants, and 43 percent of the doctors had been trained in female sterilization (tubal ligation) or male sterilization (training that was not then available to nurses).

All the doctors reported having heard about each of the modern methods of contraception. All of the nurses reported having heard about OCs, female sterilization, injectables, and condoms. However, 3, 4, and 7 percent of nurses had never heard of male sterilization, IUDs, and implants, respectively.

We asked those providers who had heard of a specific LAPM to state its potential side effects. Correct and incorrect side effects were identified based on WHO's "Family Planning: A Global Handbook for Providers" [17]. For each method, we tabulated the number of *incorrect* side effects reported, by type of provider; percentages are shown in Table 2. Both doctors and nurses provided incorrect answers for female and male sterilization more often than for IUDs and implants. Nurses on average reported *fewer* incorrect answers than doctors, for each method. The most common side effects mistakenly reported were mood swings (for both male and female sterilization) and palpitations and hypertension (for implants and IUDs).

To assess misconceptions and attitudes regarding both LAPM and short-acting methods, providers were asked to agree or disagree with the following two statements, for each method: (i) [Method X] is *effective at preventing pregnancy*; and (ii) [Method X] is *convenient to use*. Table 3 shows the proportion that agreed or strongly agreed with each statement, by method and type of provider.

As typically used, the most effective methods for preventing pregnancy are female sterilization (tubal ligation), implants, and IUDs (all with greater than 99 percent effectiveness), followed by male sterilization (97–98 percent), injectables (97 percent), OCs (92 percent), and condoms (85 percent) [17]. A large majority of doctors agreed or strongly agreed that male sterilization and female sterilization were effective, while smaller majorities considered IUDs and implants effective (87 percent and 89 percent, respectively). Nurses were significantly more likely than doctors to agree or strongly agree that IUDs and injectables are effective at preventing pregnancy.

LAPM were not generally considered convenient to use. For doctors, the percentage agreeing or strongly agreeing ranged from just 49.4 percent (IUD) to 66.5 percent (male sterilization); nurses were even less likely to consider each method convenient to use, ranging from 29.8 percent (IUD) to 49.5 percent (male sterilization).

The survey also confirmed the existence of a widespread perception among private providers that husbands generally favor the use of short-acting methods (OCs and condoms) rather than

LAPM; 81 percent of doctors and 88 percent of nurses agreed or strongly agreed with this statement. In addition, the survey showed that most providers—particularly nurses who often provide family planning counseling—also believe that women should consider their husband's preferences when choosing a family planning method. Fully 66 percent of doctors and 75 percent of nurses felt that a woman should not use a method that her husband does not approve of. In addition, 84 percent of doctors and 71 percent of nurses believe that they should have a great deal of influence on their patients' choice of family planning method. Finally, while 36 percent of doctors and 30 percent of nurses noted that their own religious beliefs affect the types of methods they recommend, it is worth acknowledging that the majority of providers disagreed, especially doctors.

4. Discussion

Our findings indicate that inadequate provider knowledge, combined with misconceptions and negative opinions about LAPM, may contribute to sub-optimal LAPM uptake in Bangladesh. The following areas could be targeted in future interventions to increase the role of private sector providers in LAPM provision.

First, providers reported inaccurate information regarding the side effects of each LAPM, particularly for female and male sterilization. Other researchers have found similar results. A survey in Nepal, for example, found that nurses and auxiliary nurse midwives incorrectly associated the use of IUDs with side effects such as ectopic pregnancies, HIV acquisition and sexually transmitted infection acquisition [18]. Incorrect beliefs about serious side effects can interfere with unbiased, accurate counseling. Programs should consider developing and integrating training on LAPM clinical and counseling skills into both public and private medical college coursework and clinical internships, and ensuring that health providers have accurate information about LAPM side effects so that they can provide effective counseling.

Second, providers had misconceptions about the effectiveness and convenience of LAPM. Notably, 13 percent of the doctors in our survey did not consider IUDs effective at preventing pregnancy—a significantly higher percentage than for nurses. In India, Khan et al. [19] found

that, initially, just 48 percent of healthcare providers considered the IUD a very effective family planning method, and even after training, only 71 percent agreed with this statement. In Pakistan, however, Agha et al. [20] found that, among providers who had performed more than 45 IUD insertions, knowledge of its effectiveness reached 82 percent. In Bangladesh, in 2011, it was shown that none of the 18 public schools and none of the 45 private medical schools were teaching about insertion and removal of IUDs or implants as a clinical skill, and some private initiatives were being planned and developed to address that gap [16]. Future training initiatives should carefully consider the specific training needs of private providers, including the need for training to take place in short sessions and often after work hours, and consider training on insertion and removal of IUDs at high-volume service sites or in private providers' own practices to shorten the time required for competency. Such training initiatives should also explore working with professional associations and should use peer-to-peer approaches to supplement providers' exposure to updated technical information and publications. It would be fruitful to further interview providers who question LAPMs' effectiveness to learn more about their reasons, and to develop messages and activities to overcome this barrier. Interpersonal behavior change initiatives with private health providers may be one approach to improve their perceptions of LAPM and dispel biases based on incorrect or outdated information.

Regarding convenience, both doctors and nurses were much less likely to consider a LAPM convenient to use, as compared to short-acting methods. It is possible that, because LAPM must be provided by trained clinical providers, the up-front costs of commodities and supplies, along with the time required for the procedure, may be perceived as a barrier. Programs should work with providers to emphasize the longer-term convenience for LAPM clients, in addition to very high effectiveness for pregnancy prevention. It is also possible that some providers in our survey misunderstood that convenience was meant to refer to convenience from the clients', not the providers', point of view; such misunderstanding would inflate these estimates.

Third, most providers felt that women and their husbands prefer short-acting methods over LAPM. The survey results also showed that private providers may weigh the husband's opinions regarding family planning more heavily than the woman's opinion, health, or desired family

size; many believe that a woman should only use methods her husband approves. Many doctors also believed that husbands prefer OCs or condoms to LAPM. These attitudes may make many doctors reluctant to promote or provide LAPM. Research has shown that a woman is more likely to be a sustained contraceptive user if she is prescribed her preferred method [21]; however, doctors have cited lack of husband's approval as a reason for denying a woman access to her preferred method [12]. Our study found that, when suggesting a contraceptive method, providers more often reported considering a woman's marital status and the method's ease of use rather than its contraindications; they considered the woman's number of children more often than the cost of the method to her. These findings suggest that provider training on LAPM should include not only technical information, but also training in effective counseling methods and in ethical considerations of patients' needs and preferences.

Providers' knowledge level and biases likely affect potential users, who may not be presented with all LAPM options due to providers' false concerns about side effects, or who may be reluctant to try certain LAPM based on inaccurate information. In some cases, providers may also be internalizing their clients' concerns or perceived social norms about methods for women in different stages of their reproductive life cycle (e.g., newly-married, post-partum, etc.) Since healthcare providers believe they should have a lot of influence over their clients' family planning method choice, it is critical to address their biases and misperceptions about LAPM in order to increase uptake. However, as shown in Pakistan, training alone may not change provider attitudes and perceptions, and programs should consider other types of supplemental interventions such as ongoing post-training supportive supervision [20]. A promising non-training intervention is the use of evidence-based medicine disseminated through educational outreach visits, workshops, and professional courses.

A few limitations should be noted. First, responses were self-reported, which may introduce bias if practitioners provided some responses that are socially acceptable or considered 'best practices'. If that were the case, then our results would underestimate the true magnitude of lack of knowledge and extent of biases and misconceptions regarding LAPM. Second, the sample is not nationally representative: the results do not reflect the knowledge and attitudes

of male providers, or providers in rural areas, or public sector providers. Furthermore, since our final sample was based on convenience sampling, our findings do not represent the entire urban areas of Dhaka District and Chittagong City, so the interpretation of our findings and recommendations should take that into consideration. Third, our study does not examine how the results might differ between providers with and without recent training; we did not have sufficiently reliable data to assess that specific distinction. Future studies should collect information about training history on LAPM from providers so that analyses can explore to what extent providers with recent training have greater knowledge, fewer misconceptions, and improved attitudes and behaviors towards LAPM.

As emphasized in the Bangladesh National Strategy 2011–2016 [22], private providers represent a cadre with significant potential to help reduce unintended pregnancies and maternal mortality rates. Private providers are widely cited as important sources for short-acting methods; leveraging this source for LAPM is essential to increasing contraceptive prevalence and reducing total fertility rates to more advantageous levels for overall development. Our study is the first, to our knowledge, to examine private providers' knowledge, attitudes, and perceptions related to LAPM in Bangladesh. The findings reveal significant knowledge and attitudinal barriers among private providers in urban areas, which may influence their ability or willingness to provide clients with accurate information about LAPM choices. Private sector programs designed to increase LAPM provision should work to address these barriers and to provide practitioners with tools to provide women full access to all modern methods, helping to address unmet need and improve full method choice in Bangladesh.

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259 **Conflicts of Interest**

260 The authors have no conflicts of interest to declare.

References

[1] Singh S, Darroch JE. Adding it ip: costs and benefits of contraceptive services - estimates for 2012. New York: 2012.

[2] World Health Organization (WHO). Family planning / Contraception Fact Sheet number 351 2015.

[3] Joshi R, Khadilkar S, Patel M. Global trends in use of long-acting reversible and permanent methods of contraception: Seeking a balance. Int J Gynecol Obstet 2015. doi:10.1016/j.ijgo.2015.04.024.

[4] Wickstrom J, Jacobstein R. Commentary Contraceptive Security : Incomplete Without Long-Acting and Permanent Methods of Family Planning 2011;42:291–9.

[5] Trussell J. Contraceptive failure in the United States. Contraception 2011;83:397–404. doi:10.1016/j.contraception.2011.01.021.

[6] Ugaz JI, Chatterji M, Gribble JN, Mitchell S. Regional Trends in the Use of Short- and Long-Acting Contraception Accessed through the Private and Public Sectors. Int J Gynecol Obstet 2015.

[7] National Institute of Population Research and Training (NIPORT), Mitra and Associates, ICF International. Bangladesh Demographic and Health Survey 2014. Dhaka, Bangladesh and Rockville, MD [USA]: 2016.

[8] MEASURE Evaluation. The future of long-acting and permanent methods of contraception in Bangladesh. Chapel Hill, NC: 2014.

[9] Mahbub-E-Alam. Overwhelming reasons for high IUD discontinuation in Bangladesh. Jahangirnagar Univ J Sci 2009;32:123–35.

[10] Tumlinson K, Okigbo CC, Speizer IS. Provider barriers to family planning access in urban Kenya. Contraception 2015;92:143–51. doi:10.1016/j.contraception.2015.04.002.

[11] Speizer IS, Hotchkiss DR, Magnani RJ, Hubbard B, Nelson K. Do service providers in Tanzania unnecessarily restrict clients' access to contraceptive methods? Int Fam Plan Perspect 2000;26:13–21. doi:10.2307/2648285.

[12] Stanback J, Twum-Baah KA. Why do family planning providers restrict access to services? An examination in Ghana. Int Fam Plan Perspect 2001;27:37–41.

[13] Sidze EM, Lardoux S, Speizer IS, Faye CM, Mutua MM, Badji F. Young women's access to and use of contraceptives: the role of providers' restrictions in urban Senegal. Int Perspect Sex Reprod Health 2014;40:176–83. doi:10.1363/4017614.

[14] Gutin SA, Mlobeli R, Moss M, Buga G, Morroni C. Survey of knowledge, attitudes and practices surrounding the intrauterine device in South Africa. Contraception 2011;83:145–50. doi:10.1016/j.contraception.2010.07.009.

[15] Hohmann HL, Cremer ML, Gonzalez E, M. Knowledge and attitudes about intrauterine devices among women's health care providers in El Salvador. Rev Panam Salud Publica 2011;29:198–

296 202.

297 [16] Rahaim S, Ahmed J, Smith M, Li H. Bangladesh Private Sector Assessment of Long Acting and
298 Permanent Family Plannin Methods and Injectable Contraceptives. Bethesda, MD: 2011.

299 [17] Johns Hopkins Bloomberg School of Public Health, World Health Organization. Family Planning:
300 A Global Handbook for Providers n.d.

301 [18] Chakraborty NM, Murphy C, Paudel M, Sharma S. Knowledge and perceptions of the intrauterine
302 device among family planning providers in Nepal: a cross-sectional analysis by cadre and sector.
303 BMC Health Serv Res 2015;15:39. doi:10.1186/s12913-015-0701-y.

304 [19] Khan M, Sekhar Kar S, Desai VK, Patel P, Itare BP. Increasing the Accessibility , Acceptability
305 and Use of the IUD in Gujarat, India Vikas Kishor Desai Pratibha Patel. Washington, D.C.: 2008.

306 [20] Agha S, Fareed A, Keating J. Clinical training alone is not sufficient for reducing barriers to IUD
307 provision among private providers in Pakistan. Reprod Health 2011;8:40. doi:10.1186/1742-4755-
308 8-40.

309 [21] Pariani S, Heer DM, Van Arsdol MDJ. Does choice make a difference to contraceptive use?
310 Evidence from east Java. Stud Fam Plann 1991;22:384–90.

311 [22] Directorate General of Family Planning (DGFP), Ministry of Health and Family Welfare,
312 Government of Bangladesh. National strategy for improving the uptake of long-acting and
313 permanent methods in the family planning program. Dhaka, Bangladesh: 2011.

Table 1. Background characteristics of final sample: 385 female healthcare providers from private facilities in selected urban areas in Bangladesh

	Total (n=385)		Doctors (n=235)		Nurses (n=150)		p-value[+]
Location							
Dhaka district	318	83%	193	82.0%	125	83.3%	
Chittagong City	67	17%	42	17.8%	25	16.7%	
Mean age in years (range)	35.1 (21-71)		39 (24-71)		29 (21-68)		<0.001
Type of facility							
Private medical college	75	20%	40	17.0%	35	23.3%	
Private hospital/clinic	188	49%	74	31.5%	114	76.0%	<0.001
Small private clinic	122	32%	121	51.5%	1	0.7%	
Years working as a healthcare provider							
Less than 5 years	109	28%	53	22.6%	56	37.3%	
6-10 years	108	28%	49	20.9%	59	39.3%	
11-15 years	66	17%	47	20.0%	19	12.7%	<0.001
16-20 years	33	9%	28	11.9%	5	3.3%	
20 or more years	69	18%	58	24.7%	11	7.3%	
Mean years as healthcare provider	10.6		12.6		7.4		<0.001
Practitioners offering family planning counseling	256	66%	206	87.7%	50	33.3%	<0.001
Types of methods they provide counseling on:							
Only short-acting methods	24	9%	16	7.9%	8	16.0%	
Only LAPM	6	2%	4	2.0%	2	4.0%	<0.001
Both types of methods	226	88%	186	90.1%	40	80.0%	
Received formal training for IUDs and implants							
Yes	119	31%	99	42%	20	13%	<0.001
No	266	69%	136	58%	130	87%	
Received formal training for female or male sterilization							
Yes			101	43%	-	-	
No			134	57%	-	-	

[+] p-value of the difference (means or distribution) between doctors and nurses.

Table 2. Knowledge about LAPM side effects: number of incorrect side effects reported by type of provider and method (%)

Number of incorrect answers	Implant (p-value=0.003)		IUD (p-value=0.139)		Female sterilization (p-value<0.001)		Male sterilization (p-value<0.001)	
	Doctors	Nurses	Doctors	Nurses	Doctors	Nurses	Doctors	Nurses
None	54	71	67	76	23	44	38	66
One	32	21	21	15	26	20	26	14
Two or more	14	8	12	8	51	36	36	20

Note: p-values of the difference between doctors (n=235) and nurses (n=150) in the distribution of number of incorrect answers for each method.

Table 3. Proportion of providers agreeing with specific statements regarding each method (%)

	Effective at preventing pregnancy				Convenient to use		
	Doctors	Nurses	p-value		Doctors	Nurses	p-value
Male sterilization	96.0	94.4	0.482	Male sterilization	66.5	49.5	0.003
Female sterilization	94.5	94.4	0.979	Female sterilization	55.1	43.1	0.025
Pill	90.6	88.0	0.408	Pill	89.8	87.8	0.537
Implant	88.8	90.2	0.707	Implant	58.8	40.9	0.002
Injectable	88.5	94.5	0.048	Injectable	94.5	93.1	0.588
IUD	87.2	93.5	0.063	IUD	49.4	29.8	<0.001
Condom	76.6	78.7	0.636	Condom	88.5	91.0	0.436

Note: p-value of the difference of means between doctors (n=235) and nurses (n=150).

Table 4. Doctors' (ob-gyns and GPs) and nurses' opinions regarding family planning and LAPM (%)

Statement		Strongly agree	Agree	Neutral	Disagree[a]	p-value
Women prefer to use OCs or condoms over LAPM.	Doctors	45	34	14	6	0.226
	Nurses	52	36	7	5	
Husbands prefer women to use OCs or condoms over LAPM.	Doctors	39	42	9	10	0.192
	Nurses	48	40	6	5	
Women consider the opinions of female relatives and friends when choosing a family planning method.	Doctors	26	21	40	13	0.268
	Nurses	30	22	32	15	
Women take into consideration the opinion of their husband in choosing a family planning method.	Doctors	44	43	12	1	0.109
	Nurses	52	41	5	1	
If the husband does not approve of a family planning method, then the woman should not use it.	Doctors	31	35	23	10	0.286
	Nurses	34	41	14	9	
Religious beliefs affect the types of family planning methods that I recommend to my patients.	Doctors	16	20	14	49	0.005
	Nurses	15	15	23	41	
Doctors/nurses who offer LAPM services have a negative image in the medical community in Bangladesh.	Doctors	3	3	8	85	<0.001
	Nurses	4	5	19	67	
Healthcare providers should have a lot of influence on their patients' family planning method choice.	Doctors	52	32	6	10	0.003
	Nurses	39	32	17	12	

[a] Combines the proportion of respondents who chose either "Strongly disagree" or "Disagree".
Note: p-value of the difference of means between doctors (n=235) and nurses (n=150).