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

Jorge Ugaz[a,*,1], Kathryn Banke[a], Stephen Rahaim[a], Wahiduzzaman Chowdhury[b], Julie Williams[a]

[a]*Abt Associates Inc., 4550 Montgomery Avenue, Suite 800N, Bethesda, MD 20814, USA*
[b]*SHOPS Project, Dhaka, Bangladesh*

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Abstract

Objective: In Bangladesh, use of long-acting and permanent methods of contraception (LAPMs) 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 (obstetricians–gynecologists and general practitioners) and 150 female nurses from 194 commercial (for-profit) health care 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 intrauterine device (IUDs), implants, female and male sterilization].
Results: All providers, and especially doctors, lacked adequate knowledge regarding side effects for all LAPMs, particularly female and male sterilization. Providers had misconceptions about the effectiveness and convenience of LAPMs 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 LAPMs 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 LAPMs, in order to contribute to decreasing unmet need and improving full method choice in Bangladesh.

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% to 61.6%, in Latin America from 66.7% to 67.0% and in Africa from 23.6% to 27.6%. 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 (LAPMs), 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

* Corresponding author. Tel.:+1 202 838 3594.
E-mail addresses: jugazf@yahoo.com (J. Ugaz), Kathryn_Banke@abtassoc.com (K. Banke), rahaim.stephen@gmail.com (S. Rahaim), wahid.swapon@gmail.com (W. Chowdhury), Julie_Williams@abtassoc.com (J. Williams).
[1] Present address: Mathematica Policy Research. 1100 First Street, NE, DC 20004.

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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% of married women of reproductive age report using a modern method, just 8.1% use LAPMs, while the other 46.0% 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% 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% of all modern methods in 1991 to 20.5% in 2000, 15.4% in 2011 and 15.0% 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 nonpolicy 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% of all modern contraceptive methods, it provides only 18% of all LAPMs [7]. An assessment in Bangladesh found anecdotal evidence that some private providers did not have the knowledge and training to provide LAPMs effectively and that some providers were biased against LAPMs [16].

To better understand factors affecting LAPM uptake in Bangladesh, we assessed private providers' knowledge, misconceptions and general attitudes towards LAPMs 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 health care providers at commercial (for-profit) private health care 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: (a) obstetricians–gynecologists (ob-gyns); (b) general practitioners (GPs), including graduate doctors with an MBBS degree, who provide reproductive health services; and (c) 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 (10–49 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%) 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%) were considered large facilities, 48 (31%) were medium-sized facilities and 64 (41%) were small facilities. The data collection teams were instructed to interview a convenience sample of a maximum of three ob-gyns or GPs and three to four 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%) 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%) agreed to take the survey; all the nurses agreed to participate. Our final sample consisted of 155 ob-gyns, 80 GPs and 150 nurses.

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

	Total (N=385)		Doctors (n=235)		Nurses (n=150)		p value[a]
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)		<.001
Type of facility							
Private medical college	75	20%	40	17.0%	35	23.3%	<.001
Private hospital/clinic	188	49%	74	31.5%	114	76.0%	
Small private clinic	122	32%	121	51.5%	1	0.7%	
Years working as a health care provider							
<5 years	109	28%	53	22.6%	56	37.3%	<.001
6–10 years	108	28%	49	20.9%	59	39.3%	
11–15 years	66	17%	47	20.0%	19	12.7%	
16–20 years	33	9%	28	11.9%	5	3.3%	
>20 years	69	18%	58	24.7%	11	7.3%	
Mean years as health care provider	10.6		12.6		7.4		<.001
Practitioners offering family planning counseling	256	66%	206	87.7%	50	33.3%	<.001
Types of methods they provide counseling on:							
Only short-acting methods	24	9%	16	7.9%	8	16.0%	<.001
Only LAPMs	6	2%	4	2.0%	2	4.0%	
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%	<.001
No	266	69%	136	58%	130	87%	
Received formal training for female or male sterilization							
Yes			101	43%	–	–	
No			134	57%	–	–	

[a] p value of the difference (means or distribution) between doctors and 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 LAPMs 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 χ^2 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 IRB 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 health care providers by provider type. The majority worked in facilities in Dhaka district (82% of doctors and 83% 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 health care providers. Most nurses were working in private hospitals and private clinics. Almost all (87.7%) of the doctors and 33.3% of the nurses were offering family planning counseling at the time of the survey, typically on both short-acting methods and LAPMs. Finally, 42% of doctors and 13% of nurses had received formal training for IUDs and implants, and 43% 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% 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).

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=.003)		IUD (p value=.139)		Female sterilization (p value<.001)		Male sterilization (p value<.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.

To assess misconceptions and attitudes regarding both LAPMs and short-acting methods, providers were asked to agree or disagree with the following two statements for each method: (a) [Method X] is *effective at preventing pregnancy* and (b) [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% effectiveness), followed by male sterilization (97%–98%), injectables (97%), OCs (92%) and condoms (85%) [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% and 89%, respectively). Nurses were significantly more likely than doctors to agree or strongly agree that IUDs and injectables are effective at preventing pregnancy.

LAPMs were not generally considered convenient to use. For doctors, the percentage agreeing or strongly agreeing ranged from just 49.4% (IUD) to 66.5% (male sterilization); nurses were even less likely to consider each method convenient to use, ranging from 29.8% (IUD) to 49.5% (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 LAPMs; 81% of doctors and 88% of nurses agreed or strongly agreed with this statement (See Table 4). 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% of doctors and 75% of nurses felt that a woman should not use a method that her husband does not approve of. In addition, 84% of doctors and 71% of nurses believe that they should have a great deal of influence on their patients' choice of family planning method. Finally, while 36% of doctors and 30% 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 LAPMs, may contribute to suboptimal 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

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	.482	Male sterilization	66.5	49.5	.003
Female sterilization	94.5	94.4	.979	Female sterilization	55.1	43.1	.025
Pill	90.6	88.0	.408	Pill	89.8	87.8	.537
Implant	88.8	90.2	.707	Implant	58.8	40.9	.002
Injectable	88.5	94.5	.048	Injectable	94.5	93.1	.588
IUD	87.2	93.5	.063	IUD	49.4	29.8	<.001
Condom	76.6	78.7	.636	Condom	88.5	91.0	.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 LAPMs (%)

Statement		Strongly agree	Agree	Neutral	Disagree[a]	p value
Women prefer to use OCs or condoms over LAPMs.	Doctors	45	34	14	6	.226
	Nurses	52	36	7	5	
Husbands prefer women to use OCs or condoms over LAPMs.	Doctors	39	42	9	10	.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	.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	.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	.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	.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	<.001
	Nurses	4	5	19	67	
Health care providers should have a lot of influence on their patients' family planning method choice.	Doctors	52	32	6	10	.003
	Nurses	39	32	17	12	

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

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% 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% of health care providers considered the IUD a very effective family planning method, and even after training, only 71% 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%. 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 LAPMs 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 LAPMs. 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 of. Many doctors also believed that husbands prefer OCs or condoms to LAPMs. These attitudes may make many doctors reluctant to promote or provide LAPMs. 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 LAPMs 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, postpartum, etc.) Since health care providers believe that they should have a lot of influence over their clients' family planning method choice, it is critical to address their biases and misperceptions about LAPMs 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 posttraining supportive supervision [20]. A promising nontraining 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, 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 LAPMs 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 LAPMs 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.

Conflicts of interest

The authors have no conflicts of interest to declare.

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