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## SUPPLEMENT ARTICLE

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# Factors influencing the likelihood of acceptance of postpartum intrauterine devices across four countries: India, Nepal, Sri Lanka, and Tanzania

Anita Makins<sup>1,2,\*</sup> | Neda Taghinejadi<sup>2</sup> | Maya Sethi<sup>1</sup> | Kazuyo Machiyama<sup>3</sup> | Kusum Thapa<sup>4</sup> | Gamini Perera<sup>5</sup> | Projestine S. Munganyizi<sup>6</sup> | Ajey Bhardwaj<sup>7</sup> | Sabaratnam Arulkumaran<sup>1,8</sup>

<sup>1</sup>International Federation of Gynecology and Obstetrics, London, UK

<sup>2</sup>Oxford University Hospitals NHS Foundation Trust, Oxford, UK

<sup>3</sup>London School of Hygiene and Tropical Medicine, London, UK

<sup>4</sup>Nepal Society of Obstetricians and Gynaecologists, Kathmandu, Nepal

<sup>5</sup>Sri Lanka College of Obstetricians and Gynaecologists, Colombo, Sri Lanka

<sup>6</sup>Association of Gynaecologists and Obstetricians of Tanzania, Dar es Salaam, Tanzania

<sup>7</sup>Avni Health Foundation, Mumbai, India

<sup>8</sup>St George's, University of London, London, UK

**\*Correspondence**

Anita Makins, International Federation of Gynecology and Obstetrics, London, UK.  
Email: [anita@figo.org](mailto:anita@figo.org)

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**Abstract**

**Objective:** To examine the factors that positively influenced the likelihood of accepting provision of postpartum intrauterine devices (PPIUDs) across four countries: Sri Lanka, Nepal, Tanzania, and India.

**Methods:** Healthcare providers were trained across 24 facilities in counselling and insertion of PPIUDs as part of a large multicountry study. Women delivered were asked to take part in a 15-minute face-to-face structured interview conducted by in-country data collection officers prior to discharge. Univariate analysis was performed to investigate factors associated with acceptance.

**Results:** From January 2016 to November 2017, 6477 health providers were trained, 239 033 deliveries occurred, and 219 242 interviews were conducted. Of those interviewed, 68% were counselled on family planning and 56% on PPIUD, with 20% consenting to PPIUD. Multiple counselling sessions was the only factor resulting in higher consent rates (OR 1.30–1.39) across all countries. Odds ratios for women's age, parity, and cadre of provider counselling varied between countries.

**Conclusion:** Consent for contraception, specifically PPIUD, is such a culturally specific topic and generalization across countries is not possible. When planning contraceptive policy changes, it is important to have an understanding of the sociocultural factors at play.

**KEYWORDS**

Counselling; Family planning; FIGO initiative; LMICs; Postpartum contraception; Postpartum intrauterine device; PPIUD

## 1 | INTRODUCTION

In recent years, there has been increasing international recognition of the importance of offering effective contraceptive services to women immediately after childbirth. The benefits for women and

their children are clear: contraceptive use has the potential to improve perinatal outcomes and child survival by widening the birth interval,<sup>1</sup> and reduce maternal morbidity and mortality associated with high parity and unintended pregnancies.<sup>2</sup> However, the ability of services to meet women's contraceptive needs postpartum has historically been

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problematic, with estimates that around two-thirds of women have an unmet need for contraception in the first year after birth.<sup>3</sup> The frequent tradition of deferring family planning services to the 6-week postpartum visit fails many women who may desire to postpone or limit childbearing but face barriers to accessing postnatal care<sup>4</sup> or prioritize services for their newborn over their own care.<sup>5</sup> Services are responding to these challenges at both a local and global level, with the development of initiatives offering contraceptive services immediately postpartum. These initiatives take advantage of prenatal care and delivery as opportunities to address the postpartum contraceptive needs of women.<sup>6</sup> Effective contraceptive counselling lies at the core of these initiatives, and is essential to enabling uptake of contraception among postpartum women prior to discharge.

Despite this increased focus on offering effective methods to women immediately postpartum, there has been little corresponding research into how best to counsel women to make choices.<sup>7</sup> Counselling factors such as timing and provider status have the potential to significantly impact on uptake of postpartum contraception<sup>8</sup>; however, there is a dearth of evidence exploring these associations. We were able to identify two studies that aimed to analyze the impact of timing on contraception uptake. One study, based in the USA, identified significantly increased rates of postpartum use of a more effective method of contraception among patients counselled in both the prenatal and postpartum period as opposed to one time period only; the authors did not however comment on the comparative impact of prenatal versus postnatal counselling.<sup>9</sup> Another study, based in Egypt, identified no significant difference in the effect of prepartum versus postpartum counselling on verbal acceptance of a receiving a postpartum intrauterine device (PPIUD).<sup>10</sup> Even less is known about the impact of the status of the counselling provider. Those providing counselling come from a wide variety of backgrounds,<sup>7</sup> and may operate in health systems where obstetrics and family planning services have traditionally been separate.<sup>6</sup> As part of their study, Mohamed et al.<sup>10</sup> commented that provider status had no impact on subsequent acceptance of PPIUD, but provided no data to support this claim, and no further detail on the backgrounds of the counselling providers included in their study. More research on the impact of the timing of counselling and provider status is needed to better understand how we can best assist women in making contraceptive choices postpartum.

The aim of the present study was to examine the factors that influenced the outcome of counselling for PPIUD, as part of a FIGO initiative, across four countries: India, Sri Lanka, Nepal, and Tanzania.

Although they are all low- or lower-middle-income countries, the profiles of the four countries selected in this study are different when contraceptive use is taken into account. This is likely to impact on the outcomes. Recent figures compiled by the UN on world contraceptive use, published in 2018,<sup>11</sup> are outlined in Table 1. IUDs relate mainly to interval IUDs as PPIUD was not significantly in practice in 2015–2016 when the surveys were collated. These figures show that IUDs are not popular, particularly in India, Nepal, and Tanzania, with contraceptive prevalence ranging from 0.9–1.5. If IUDs are not popular or common in the country, counselling will be

**TABLE 1** Contraceptive prevalence and unmet need for family planning in India, Nepal, Sri Lanka, and Tanzania.

	India	Nepal	Sri Lanka	Tanzania
Date of survey	2016	2016	2016	2015
Contraceptive prevalence				
Any method, %	53.5	52.6	61.7	38.4
Any modern method, %	47.8	42.8	51.3	32.0
Intrauterine device, %	1.5	1.4	10.1	0.9
Unmet need for family planning				
Total, %	12.9	23.7	7.5	22.1
Spacing, %	5.7	8.1	3.1	15.5
Limiting, %	7.2	15.6	4.4	6.6

Source: United Nations.<sup>13</sup>

a key element of the implementation process, hence the need for a deeper understanding of its effects.

## 2 | MATERIALS AND METHODS

The present study forms part of a larger multicountry PPIUD initiative by the International Federation of Gynecology and Obstetrics (FIGO) (See de Caestecker et al.<sup>12</sup> in this Supplement). The study initiative commenced in 2013 and is ongoing at publication. Following agreement from the governments and national obstetrics and gynecology societies, referral hospitals with over 5000 deliveries a year were selected in each country. Local healthcare professionals, managers, and policy makers were educated on the value of birth spacing to reduce maternal and under-five mortality rates as well as in the safety and effectiveness of PPIUD. Medical and nursing staff in each facility were then trained in counselling and insertion of PPIUD via a “training-the-trainer” model using standardized lectures and practical sessions across the four countries. This involved training a pool of master trainers in each facility that could then go on to train their own staff on a regular basis. Emphasis during the training was placed on balanced counselling, where all methods available in the country should be outlined and explained to the woman. PPIUD should then be addressed separately as it was a new method. In Sri Lanka and Tanzania, all counselling was provided by clinical staff (doctors, nurses, and midwives) working in the chosen facilities. In India and Nepal, counselling on family planning and PPIUD was conducted not only by medical and nursing staff already present but also by designated counsellors employed by the initiative. These counsellors received 2 days of training that included family planning methods, counselling techniques, and specific information on PPIUD.

Women delivering in those facilities were asked for their consent to take part in a short 15-minute face-to-face structured interview. In those cases where consent was obtained, in-country data collection officers (DCOs) conducted the interview prior to discharge. All data were collected by the DCOs on tablets and stored using

CommCare software (Dimagi, Cambridge, MA, USA). Data were analyzed from the 24 facilities, six in each of the four participating countries: Nepal, Sri Lanka, and Tanzania and India. The timeframe analyzed was from January 2016 to November 2017 for India, and September 2016 to November 2017 for Nepal, Sri Lanka, and Tanzania. These dates were selected because more than 80% of all women delivering in the chosen facilities in each country had been interviewed by DCOs in these periods and data could then be considered representative. Although six countries participated in the initiative, Kenya and Bangladesh did not achieve high enough interview rates among delivered women to be included in this analysis. This was also the reason for not including the other 12 facilities in Sri Lanka, as interview rates in these units did not reach the required threshold. Factors analyzed included: age, parity, number of living children, number of episodes of counselling, and cadre of healthcare staff involved in the counselling. With cadre of healthcare staff, multiple answers were allowed as often women were counselled by various professionals. Factors excluded from the analysis were timing of counselling and involvement of the husband. Timing of counselling (prenatal, intrapartum, and postpartum) was not included in the analysis as very often women were counselled during all three periods of time and therefore it was difficult to establish any relationship with outcome. Discussion with the husband was also not analyzed as only one country had responses to this question. Counselling received across the countries was standardized. This was verified by including questions on knowledge of postpartum family planning, PPIUD, advantages and disadvantages, as well as satisfaction with the counselling they received.

Data were anonymized and appropriate ethics committee approvals were obtained from the respective country's institutions, as well as from the London School of Hygiene and Tropical Medicine for analysis and publication. Univariate analysis was performed using Stata

version 15.0 software (StataCorp LLC, College Station TX, USA) to investigate factors associated with acceptance of PPIUD.  $P < 0.05$  was considered significant.

### 3 | RESULTS

Table 2 presents a summary of activities in the four countries. From the start of the initiative to November 2017, 4295 healthcare providers were trained in counselling and 2182 in counselling and insertion of PPIUD. A total of 239 033 deliveries occurred across the 24 facilities. The median age of women was 25 years and median parity was 2. A total of 219 242 women were interviewed, which equated to 92% of all women delivering across the 24 facilities. Of those interviewed, 68% were counselled on family planning and 56% were also counselled on PPIUD. Of those counselled, a total of 20% consented to PPIUD.

Table 3 summarizes the univariate analysis of specific factors that may have influenced uptake of PPIUD. In India, older women were less likely to accept PPIUD (OR 0.97), whereas in the other three countries women were more likely to accept the older they were. This was a similar situation when looking at parity—the higher the parity, the less likely Indian and Sri Lankan women were to accept PPIUD (OR 0.91 and 0.94, respectively); whereas in Tanzania, they were more likely to accept PPIUD the higher the parity (OR 1.16). In India, Sri Lanka, and Tanzania, women were more likely to accept PPIUD if the child from the immediate delivery was alive at the time of interview (OR 3.49, 3.38, and 2.58, respectively). In all four countries, women were more likely to accept PPIUD if they had been counselled multiple times (ORs 1.30–1.39). An association between cadre of health provider and consent to PPIUD varied from country to country. In India, women who had been counselled by counsellors were 1.17

**TABLE 2** Key data on facilities, training, and counselling as part of the PPIUD initiative in India, Nepal, Sri Lanka, and Tanzania.

	India	Nepal	Sri Lanka	Tanzania	Overall
	Jan 2016 to Nov 2017	Sept 2016 to Nov 2017	Sept 2016 to Nov 2017	Sep 2016 to Nov 2017	
Number of facilities	6	6	6	6	24
Total number trained in counselling only	12	1178	1758	1347	4295
Total number trained in counselling and insertion	914	246	134	888	2182
Deliveries	76 381	70 098	36 367	56 187	239 033
Median age	25	24	28	26	25
Median parity	1	1	2	2	2
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Interviewed	73 830 (97)	65 256 (93)	33 536 (92)	46 620 (83)	219 242 (92)
Counselled on family planning	63 807 (86)	23 531 (36)	31 736 (95)	30 925 (66)	149 999 (68)
Counselled on PPIUD	63 782 (86)	20 679 (32)	18 100 (54)	19 575 (42)	122 136 (56)
Consented to PPIUD	21 934 (34)	2408 (10)	2043 (6)	3520 (11)	29 905 (20)

Abbreviation: PPIUD, postpartum intrauterine device.

**TABLE 3** Factors influencing consent for insertion of postpartum intrauterine device.

	India (N = 56 021)			Nepal (N = 23 433) <sup>a</sup>			Sri Lanka (N = 31 607)			Tanzania (N = 27 274)		
	Crude OR	P>z	95% CI	Crude OR	P>z	95% CI	Crude OR	P>z	95% CI	Crude OR	P>z	95% CI
<b>Demographics</b>												
Age	0.97	<0.001	0.961–0.969	1.05	<0.001	1.033–1.060	0.99	0.056	0.984–1.000	1.03	<0.001	1.027–1.040
Parity	0.91	<0.001	0.894–0.934	na	na	na	0.94	0.017	0.895–0.989	1.16	<0.001	1.134–1.186
<b>Survival of recent birth</b>												
No living child	1.00						1.00			1.00		
≥1 child alive from this delivery	3.49	<0.001	2.378–5.112	na	na	na	3.38	0.227	0.468–24.513	2.58	<0.001	1.647–4.040
<b>No. counselling episodes</b>												
Once	1.00			1.00			1.00			1.00		
Multiple times	1.30	0.000	1.235–1.365	1.39	0.000	1.232–1.559	1.31	0.008	1.072–1.599	1.39	0.000	1.228–1.578
<b>Counselling by differing cadres<sup>b</sup></b>												
<b>Counselled by doctor</b>												
Yes	0.83	<0.001	0.804–0.865	1.48	0.003	1.147–1.906	1.01	0.884	0.907–1.120	1.39	0.000	1.172–1.638
No	1.00			1.00			1.00			1.00		
<b>Counselled by nurse/midwife</b>												
Yes	0.71	<0.001	0.684–0.747	0.67	<0.001	0.552–0.823	0.21	<0.001	0.174–0.262	0.57	<0.001	0.433–0.750
No	1.00			1.00			1.00			1.00		
<b>Counselled by counsellor</b>												
Yes	1.17	<0.001	1.091–1.265	na	na	na	na	na	na	na	na	na
No	1.00											

<sup>a</sup>Information was not available on parity, survival of recent birth, and counsellors for Nepal because this information was not collected on their interview form.

<sup>b</sup>Information was not available on Counsellors for Sri Lanka and Tanzania as they did not employ this strategy for counselling women.

times more likely to say yes to PPIUD, whereas in Nepal and Tanzania those counselled by doctors were more likely to respond positively (OR 1.48 and 1.39, respectively). In Nepal and Sri Lanka, women who were seen by nurses/midwives were less likely to consent to PPIUD as a contraceptive option.

## 4 | DISCUSSION

Counselling had a much greater impact in some countries than in others and it is interesting to elucidate why that was the case. Across the six facilities in India, 86% of women were counselled and the proportion of women consenting to PPIUD was the highest at 34%. In 2016, the documented background interval IUD prevalence was reported as 1.5% at national level.<sup>11</sup> Which factors may have influenced this success?

Odds ratios for women's age and parity in India suggest that women who had fewer children and were younger were more likely to agree to PPIUD. In the six Indian facilities included in the initiative, the only long-acting immediate postpartum contraceptive methods available are PPIUD and bilateral tubal ligation (BTL). The only other alternative is the progestogen-only pill and condoms. The government has been providing small financial incentives for providers, women, and their community health workers to take up contraception for many years.<sup>13</sup> Given that most women are encouraged to leave hospital with some form of long-acting contraception and there are limited choices, PPIUD becomes an attractive option for young women of low parity owing to its reversibility. Older women who are seeking birth-limiting options would be more likely to choose BTL.

Although this is not captured by the monitoring data, another factor that may have contributed to the success of the initiative in India is that counselling occurred a number of times throughout pregnancy. Due to the structure of the government health system, women typically attend for their minimum of four prenatal appointments in the same facility. With counselling set up in these facilities, multiple discussions with healthcare professionals about contraception were possible with each woman. Across all four countries, multiple counselling sessions were more likely to result in uptake of PPIUD than single encounters. Many of the other countries struggled to consistently achieve multiple counselling episodes at the same participating facility, especially owing to the nature of their population and the health services provided in government institutions. In Tanzania, women often had prenatal care in different units from where they would eventually deliver, making multiple counselling encounters at one of the participating facilities difficult. In Nepal, the migrant nature of the population and the fact that many women go to back to their family homes made multiple counselling encounters difficult.

The value of multiple encounters was clear, particularly in countries where the IUD is not popular. Multiple encounters also allowed for relatives to become involved in the counselling sessions, which is key in communities where family and relatives play a significant role in decision making around family planning. In India in particular, women were encouraged to come back with their husbands and mother-in-laws

at subsequent appointments so that they could also hear about the benefits of family planning, but particularly the value of PPIUD as an effective nonhormonal long-acting reversible contraceptive.

The value of the counsellor was also evident in India where the ORs of accepting PPIUD was 1.17 times greater among women who were counselled by a counsellor compared with those who were not. Reproductive Child Health (RCH) counsellors are part of the existing government healthcare system in Indian hospitals. They counsel not only on family planning but also other reproductive and child health topics. The value that counsellors add to clinical consultations is clearly evident when it comes to contraception—a topic requiring in-depth, private conversations with every woman.

The initiative in Nepal saw smaller proportions of women receiving counselling in family planning and PPIUD (36% and 32% of those interviewed, respectively), and therefore the PPIUD consent rate was also lower (10%). The method mix was different in Nepal, where hormonal implants are on offer but only after 6 weeks. Fewer practitioners were trained in counselling and insertion and although counsellors were employed, this analysis could not demonstrate their impact on acceptance of PPIUD because the interview forms did not collect the relevant information.

Family planning counsellors in Nepal were employed directly by the initiative and so their sustainability remains in question. They were also a new cadre of health staff in the health system, and during monitoring visits it was evident that in some facilities they were not well accepted and sometimes viewed with suspicion. Nepali women tend to have more trust in medical staff, in particular doctors, and it was mentioned by providers that without the doctor's ratification women would be less likely to accept a new concept such as PPIUD. Further qualitative research into this aspect is currently underway.

The six Nepali facilities involved are large institutions with a relatively low staff to patient ratio. This meant that doctors simply did not have the time to spend counselling women at length. Interestingly, the odds ratio of consenting for PPIUD was 0.67 when women were counselled by nurses. On monitoring visits it was noticed that many nurse/midwives were not motivated to counsel or insert PPIUD. Often it was seen as an extra burden that had previously been undertaken by the family planning department and not maternity staff. In an already stretched and busy environment, these nurses were often not willing to take on an extra task. In many instances they were the gateway to knowledge and information for the patient and without their support, it is not surprising that counselling and consent rates were low. However, it should be reiterated that the national IUD prevalence in Nepal was 1.4% in 2016,<sup>11</sup> and therefore that a consent rate of 10% is still quite an achievement. Initiating new practices in an environment where the system is already under strain is not an easy task and is likely to take considerable time.

Sri Lanka is a country with much lower unmet need for contraception in comparison with the other three countries. Contraceptive prevalence for any method was 61.7% in 2016,<sup>11</sup> and unmet need for spacing (which is where PPIUD is particularly relevant) was relatively low at 3.1%. Method choice immediately postpartum is greater with hormonal implants being widely available for insertion prior to

discharge. There was some suggestion that this is a popular option for Sri Lankan women, with the prevalence of implants increasing over time.<sup>11</sup> According to the same data, the prevalence of IUDs in 2016 was 10.1%. This would suggest that the method is popular and it is surprising to see consent rates as low as 6%. Either way, many countries reported that the initiative resulted in collateral beneficial effects such as increases in use of other methods of contraception as well as increase in the use of interval IUDs. The odds ratio suggests that counselling by nurses resulted in less likely acceptance of the method (OR 0.21).

There was some adverse publicity generated during implementation of the initiative in Sri Lanka over the period of time that these results were collected. The initiative became embroiled in the known ethnic tension issues in country where some believe that contraception is used as a political tool. This may have resulted in lack of support by some professionals and may explain the overall low consent rates. An article in this Supplement outlines the details of the initiative in Sri Lanka.<sup>14</sup>

Tanzania's profile is very different from that of Sri Lanka's, with contraceptive prevalence virtually static since 1991 at 38.4% and the highest unmet need for spacing at 15.5%.<sup>11</sup> Tanzania has the highest infant and under-five mortality rates and a pronatalist culture, therefore persuading women to have fewer children can be difficult to justify. It is therefore not surprising that women are less likely to accept contraception the lower their age and parity, and survival of the last birth was found to be strongly associated with PPIUD acceptance (OR 2.58). Being counselled by a doctor was clearly associated with acceptance of PPIUD (OR 1.39). The national prevalence of interval IUDs was low in 2016 at 0.9%. Considering this prevalence, the proportion of women consenting to PPIUD in the six facilities was high at 11%. In Tanzania, counsellors were not employed by the initiative, and counselling and insertion were primarily conducted by midwives. The results suggest that despite the overall low modern contraceptive prevalence, there is demand for long-acting methods, such as PPIUD, in Tanzania. This study suggests that nationalization of PPIUD services predominantly through midwives has the potential to be a highly successful intervention in Tanzania.

The present study adopted a quantitative approach when looking at different factors influencing consent for provision of PPIUD. Clearly there are multiple variables: family structures and who is the decision maker, organization of health care in the country, alternative methods and adverse effects, as well as a woman's perceptions of her need for family planning. It is likely that further studies using a qualitative methodology in each country would help to better understand how these factors interact and hence help inform policy makers.

## 5 | CONCLUSION

It is not possible to generalize the results across all four countries with regard to factors that influence women to consent to provision of PPIUD. These appear to be very much context specific. The only consistent factor across all countries that resulted in a greater likelihood

of acceptance of PPIUD was having multiple counselling episodes. This should be taken into account by policy makers when designing implementation programs.

## AUTHOR CONTRIBUTIONS

AM wrote the manuscript with help from NT. Data cleaning, analysis, and tables were prepared by MS and KM. SA planned the initiative and directed implementation together with AM. PM, AB, KT, and GP coordinated activities in their respective countries. All authors reviewed the final version of the paper. MS worked on the project while employed by FIGO.

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## CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

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