Patient knowledge about and intention to use the intrauterine contraceptive device (IUCD) at a tertiary-level hospital

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Background. The intrauterine contraceptive device (IUCD) is a highly effective and safe method of contraception. Prevention of unwanted pregnancies has made its use a matter of national priority in certain countries. Despite numerous advantages and suitability, the uptake of the IUCD is poor. Patients in South Africa (SA) seem to lack knowledge regarding this contraceptive.
Objectives. To determine the quantity and quality of knowledge about the IUCD, and to evaluate its acceptability for future use.
Methods. A prospective cross-sectional study was conducted at Pelonomi Tertiary Hospital. A total of 201 consecutive patients were interviewed using structured questionnaires: of these, 193 formed the final study group.
Results. Almost half (49.2%, *n*=95) of our patients were aware of the existence of the IUCD. Its use was very low, with only one patient having used it before. Overall qualitative knowledge was poor, even among those aware of the existence of the IUCD. There was a significant association between level of education and knowledge, with patients having passed grade 12 or higher significantly more likely to have knowledge of the IUCD than those at lower levels (relative risk 1.57, 95% confidence interval 1.18 - 2.08). Forty-five percent (*n*=86) of patients indicated a desire for future IUCD use.
Conclusion. Despite the availability of the IUCD in SA clinics and hospitals, its uptake is poor. Awareness of this method seems to have improved over the past few years, but the qualitative knowledge is still considerably lacking. Education plays a major role in the knowledge of contraception. Better educational aids at all facilities will increase its use and reduce unwanted pregnancies.

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The intrauterine contraceptive device (IUCD), a long-acting reversible contraceptive (LARC), has been shown to be one of the most reliable contraceptive methods, which can be considered as effective as tubal ligation.[1] Advantages of the IUCD include reversibility, long-term efficacy and confidentiality.[2] It is also considered safe and effective for use in selected HIV-infected patients.[3]

Worldwide there is a high prevalence of teenage and unwanted pregnancies with an increasing incidence every year,[4] and abortion rates in SA remaining virtually unchanged.[5] In a study performed in the USA, 42% of adolescents reported having been sexually active at least once in their lives. The methods of contraception used by this group, however, were mostly those with a relatively high failure rate with typical use, such as withdrawal, oral contraception or condom use.[6]

Unintended pregnancies have been reported as being a result of low use of LARCs. These methods have been suggested to lower the rate of unwanted pregnancies, and the use of the IUCD has been made a national priority in the USA since 2009.[7] Currently the IUCD is the best method of contraception for high-risk obstetric patients. This group includes patients with previous venous thrombo-embolism, ovarian cancer, valvular heart disease, and those with chronic diseases like rheumatoid arthritis, as well as any other autoimmune disease.[3] It can also be offered as emergency contraception and is suitable for postpartum insertion, 10 minutes after delivery or even during a caesarean section, eliminating the risk to loss of follow-up for contraception compliance.[2]

A survey done in primary-care family-planning clinics in Cape Town[8] concluded that the knowledge of the IUCD as a contraceptive method was very poor. Despite its availability, it was underused and not a preferred method to prevent pregnancy. It was shown that 41% of patients had heard about this method, but that only 4% had ever used it.[8]

A national survey[9] in SA concluded that 66% of young women fell pregnant unintentionally as a result of not using any contraception. This was proposed to be due to gaps in the knowledge of how to use contraception correctly rather than a total absence of knowledge. School-based sex education in SA plays a significant role in the comprehensive strategy to influence adolescents toward positive sexual behaviour with regard to sexually transmitted diseases, HIV and pregnancy.[9]

The primary objective of the study was to determine the knowledge, in terms of quantity and quality, about the IUCD as a method of contraception among pregnant patients attending the High Risk Obstetric Clinic at Pelonomi Tertiary Hospital in Bloemfontein, SA. The secondary objective was also to determine how many of these patients would be interested in using this device in future, after being given a short description of the advantages as well as disadvantages of the IUCD.

Methods

This was a prospective cross-sectional study performed on patients attending the High Risk Obstetric Clinic at Pelonomi Tertiary Hospital for the first time. Data were collected from January 2014 to

November 2014 by interviewing consecutive patients. The only two inclusion criteria were that patients had to be pregnant and attending the clinic for the first time. Only patients refusing to be interviewed were excluded. Ethical approval for this study was obtained from the Ethics Committee of the Faculty of Health Sciences of the University of the Free State (ECUFS 207/2013).

Investigators conducted interviews with patients by means of a structured questionnaire in the language of their choice, English, Afrikaans or Sesotho. A pilot study including 20 patients was used to finalise the questionnaire. The interviews were done daily on patients attending the clinic for the first time. These patients were referred from local clinics, as well as district hospitals for secondary level antenatal care.

Informed consent was obtained, and the interview was conducted in a confidential consulting room. The data collection tool gathered demographic information, basic obstetric and gynaecological history and also established the baseline knowledge of different contraception methods. At this point in the interview an IUCD was shown to the patient without any description or explanation. The patient was only informed that this was an IUCD or 'loop', as it is known colloquially. The interview then continued, focusing on collecting information about their general knowledge of the IUCD. After these questions all patients were given the same basic information about the IUCD, including some advantages and disadvantages. A different interviewer conducted the final part of the interview regarding the acceptability of the IUCD for future use. This was done to exclude bias in the form of false favourable responses to impress the original interviewer.

Sociodemographic and reproductive characteristics, and knowledge about and acceptability of the IUCD were described by frequencies and percentages. Bivariate analysis of specific variables of interest (e.g. education and knowledge of the IUCD), and associations between sociodemographic and reproductive characteristics were performed using SAS version 9.3 (SAS Institute, USA) (by the Department of Biostatistics, University of the Free State) and VassarStats (www.vassarastats.net) (by the researchers). Relative risks (RR) with 95% confidence intervals (CI) and χ^2 or Fisher's exact tests were performed as appropriate. P-values <0.05 were considered statistically significant.

Table 1. Sociodemographic characteristics (*n*=193)

Characteristics	*n* (%)
Age (years)	
<20	6 (3.1)
20 - 29	76 (39.4)
30 - 39	99 (51.3)
40 - 49	12 (6.2)
Marital status	
Single (includes divorced, widow, lives with partner)	122 (63.2)
Married	71 (36.8)
Education	
No education	8 (4.1)
Primary	22 (11.4)
Secondary school	83 (43.0)
Grade 12 passed	60 (31.0)
Tertiary	20 (10.4)
Occupation	
Employed	60 (31.1)
Unemployed	133 (68.9)

Results

A total of 201 women were interviewed, of whom 8 were excluded because of consent issues. Data from 193 interviews were thus included and analysed.

Table 1 shows the sociodemographic characteristics of the participants. Their ages ranged from 18 to 49, with the majority between 20 and 39 (91.6%, *n*=175), and a mean of 31 years. Just under two-thirds (63.2%, *n*=122) of the women were unmarried; including those divorced and cohabiting. With regard to education only 4.1% (*n*=8) had no schooling, with almost a third (31.1%, *n*=60) having completed grade 12, and 20 patients (10.4%) having some form of tertiary education. The majority (68.9%, *n*=133) of patients were unemployed at the time of the interview.

The general gynaecological profile of the participants is illustrated in Table 2. About 86% (*n*=165) of patients reported having a regular menstrual cycle in the 6 months prior to their pregnancy, and 3.1%

Table 2. General gynaecological profile

Characteristics	*n* (%)
Frequency of menstruation (*n*=193)	
Amenorrhoea (contraception-induced or other)	6 (3.1)
Regular monthly cycle	165 (85.5)
Irregular/unexpected vaginal bleeding	22 (11.4)
Nature of menstruation (*n*=187)	
Heavy	33 (17.6)
Normal	132 (70.6)
Light	22 (11.4)
Problems with menstruation (*n*=190)	
No	160 (84.2)
Yes (irregular, heavy, painful, long)	30 (15.8)
Pregnancies (*n*=193)	
1	33 (17.1)
2	54 (28.0)
3	51 (26.4)
4	26 (13.5)
≥5	29 (15.0)
Miscarriages (*n*=193)	
Yes	50 (26.0)
Number (*n*=50)	
1 - 2	48 (96.0)
>2	2 (4.0)
Termination of pregnancy (*n*=193)	
Yes	4 (2.1)
No	189 (97.9)
Intends to have future pregnancies (*n*=193)	
Yes	37 (19.2)
No	134 (69.4)
Don't know	22 (11.4)

(*n*=6) had amenorrhoea. Eighty-two percent (*n*=154) had normal to light menstrual flow, with 15.8% regarding their menstrual pattern as problematic, citing heavy, irregular, painful or long cycles as their concern. Twenty-eight percent (*n*=54) of patients were pregnant with their second child, while 26% (*n*=51) were in their third pregnancy. Fifteen percent (*n*=29) were in their fifth pregnancy or higher. Previous spontaneous miscarriages were reported by a quarter (25.9%, *n*=50) of patients, and only four patients admitted to having had a previous termination of pregnancy. Future pregnancies were mostly not wanted (69.4%, *n*=134), but 19.2% (*n*=37) of patients desired more children.

The contraceptive most patients were familiar with was the male condom (99.5%, *n*=192) followed by injectable contraception (97.9%, *n*=189), with 83.9% and 80.8%, respectively, having used these methods before. Knowledge about less common contraceptive methods like vasectomy, progesterone-only pill, spermicides, diaphragm cap, hormonal implant and natural methods ranged between 2% and 23% (Table 3).

Table 3. Knowledge about and use of contraception (*n*=193)

Type of contraception	Heard about, *n* (%)	Used before, *n* (%)
Female sterilisation (tubal ligation)	142 (73.5)	0 (0)
Male sterilisation (vasectomy)	45 (23.3)	0 (0)
IUCD (loop)	95 (49.2)	1 (0.5)
Oral contraceptive	177 (91.7)	71 (36.8)
Progesterone-only pill	3 (1.6)	1 (0.5)
Emergency contraception	92 (47.7)	31 (16.1)
Injection (Depo Provera/Nur-Isterate)	189 (97.9)	156 (80.8)
Male condom	192 (99.5)	162 (83.9)
Female condom	148 (76.7)	20 (10.4)
Spermicides/jelly	3 (1.6)	0 (0)
Diaphragm/cap	2 (1.0)	0 (0)
Hormone implants	21 (10.9)	0 (0)
Natural methods	12 (6.2)	3 (1.6)

Table 4. Quantitative knowledge of the IUCD related to level of education and gravidity

	Patients, *n* (%)	Heard about IUCD, *n* (% in that group)
Level of education		
No education + primary school	30 (15.5)	8 (26.7)
Secondary school	83 (43.0)	37 (44.6)
Grade 12 passed	60 (31.1)	37 (61.7)
Tertiary education	20 (10.4)	13 (65.0)
Total	193	95 (49.2)
Gravidity		
1	33 (17.1)	12 (36.4)
2	54 (28.0)	23 (42.6)
3	51 (26.4)	29 (56.9)
≥4	55 (28.5)	31 (56.4)
Total	193	95 (49.2)

With regard to the IUCD, 95 patients (49.2%) reported having heard about it, but only a single patient (0.5%) was found to have used it before. Twenty-five percent (*n*=49) of patients claimed to know how the IUCD works, and 23.3% (*n*=45) could give an explanation. Qualitative data analysis revealed that most patients knew it was a device that prevents pregnancy, but overall the correct method could not be explained.

Table 4 illustrates the association between the number of patients having knowledge of the IUCD and their level of education and gravidity, respectively. When the patients were divided into those with grade 12 or a higher level of education and those without, a statistically significantly higher percentage of patients with knowledge were observed with a higher level of education (63% v. 40%, $p<0.01$). Patients with grade 12 or a tertiary qualification were more likely to have knowledge regarding the IUCD compared with patients with a lower level or no education (RR 1.57, 95% CI 1.18 - 2.08). Higher gravidity, 3 or more, was associated with more knowledge about the IUCD (57% v. 40%, $p=0.02$). Patients with gravidity of 2 or less were statistically less likely to have knowledge about the IUCD compared with those with a gravidity of 3 or more (RR 0.71, 95% CI 0.52 - 0.96).

The qualitative assessment of knowledge among those participants who claimed to be familiar with the IUCD (*n*=95) revealed that their overall knowledge of the IUCD was poor. Noteworthy findings include that more than a third of participants (35.7%, *n*=34) felt that unmarried women may not use, or were unsure if they could use, this method of contraception. More than half of the patients (58.9%, *n*=56) were of the opinion that women without children cannot use the IUCD. Seventy-three percent (*n*=69) were confident that it is safe to use the IUCD while having many sexual partners. Five patients were convinced that pregnant women can also use this method of contraception. Two-thirds (66,3%, *n*=63) were aware that it is possible for HIV-positive women use the IUCD. As mentioned, the results listed above indicated the quality of knowledge of patients who claimed to be familiar with the IUCD. Interpreting these findings as part of the whole study group shows an even poorer overall knowledge.

Multiple true or false questions revealed poor understanding, as well as the myths surrounding the IUCD. A third (33.1%, *n*=64) of participants believed the IUCD causes cancer and 38.3% (*n*=74) that it moves around in the body. Forty-one percent of patients were unaware of its duration of action.

At the conclusion of the interview 44.6% (*n*=86) of the patients were keen on using the IUCD in future with 51.3% (*n*=99) not interested. Main reasons for lack of interest were cited as a desire to be sterilised after delivery or wanting more information to make an informed decision. The most appealing factors of the IUCD mentioned were its efficacy, duration of action and convenience (Table 5).

Discussion

Numerous surveys and cross-sectional studies have been done in SA evaluating the knowledge about, attitudes to and acceptability of the IUCD. To our knowledge none of these studies was done in the Free State, nor have any of these investigated high-risk pregnant women.

Table 5. Interest in future IUCD use

	n (%)
IUCD in future? (*n*=193)	
Yes	86 (44.6)
No	99 (51.3)
Don't know	8 (4.1)
Appealing factors (*n*=86)	
Efficacy	74 (86.0)
Duration of efficacy	71 (82.6)
Convenience	60 (69.8)
Not permanent	20 (23.3)
Confidentiality	12 (14.0)
Minimal effect on hormones	12 (14.0)
Other	10 (11.6)
Unappealing factors (*n*=99)	
Not permanent	70 (70.7)
Unfavourable side-effects	35 (35.4)
No protection against STDs and HIV	22 (22.2)
Wants another child soon	7 (7.1)
Wants monthly cycles	6 (6.1)
Other	43 (43.4)

According to the Sexual and Reproductive Health report[10] of October 2014, free contraception should be available to all public healthcare users. Rates of unplanned and unwanted pregnancies are still very high and associated with limited access to and lack of knowledge about contraception among the youth. Currently the IUCD is not provided at many health facilities because of insufficient training of healthcare providers.[10] This could explain the very low rate of use (0.5%) in our study population, even though according to the World Health Organization contraception eligibility criteria, most of our high-risk obstetric patients qualify for its use.[3]

Understandably, our study population fits the age group of reproductive women. The majority were unmarried and their level of education was similar to that of the general population of SA. When we compared our findings with those of the 2011 census, 4.1% in the study group v. 8.6% in the general population had no formal education, while 31.0% compared with 28.5% had passed grade 12, whereas 10.4% v. 12.1% had tertiary education.[11] As school education plays a major role in sexual development and reproductive health, one would expect the participants to have more knowledge about contraception. Lack of knowledge was clearly identified in our study, highlighting the vital role of reproductive health education in our schools. The high unemployment rate among study participants could be explained by their low level of education.

The general gynaecological profile of our participants was normal. This finding is expected in a pregnant study population, indicating previous normal ovulatory cycles and an absence of gross reproductive and gynaecological pathology. The rate of termination of pregnancy was unexpectedly low (2.1%) compared with the 9.9% of the provincial statistics for the Free State of 2010.[12] This could possibly indicate selection bias as our study population was pregnant, and most participants wanted to have children, and were possibly less likely to have had a previous termination.

The overall awareness about contraception appears to be acceptable. As expected, the male condom was well known and most commonly used, followed by injectable contraception. Awareness of the IUCD, however, was less impressive, with less than half (49.2%) of the study population having heard about this method. This is higher than a similar study done in the Western and Eastern Cape, with awareness only 26% combined.[13] A possible explanation for this is the timeframe of data collection of the latter study. The study was conducted in 2006, which indicates that awareness of the IUCD could possibly have increased in the past 6 - 7 years, with better school education and overall awareness in our public service. This supports the finding of our study that a higher level of education is associated with better knowledge about the IUCD.

Qualitative knowledge, however, was poor, and the majority of patients were ignorant of contraceptive methods, as well as the eligibility criteria for their use. The existence of various myths surrounding IUCD use was evident and significantly higher compared with studies conducted in the Western and Eastern Cape. Nine percent of the 53 women who had heard about the IUCD in the above-mentioned study had misconceptions or incorrect information that influenced them regarding IUCD use, compared with our high percentages that were convinced that IUCDs caused cancer or moved around in the body.[13] This indicates that even if women are aware of the method of contraception, the quality of knowledge is poor and is a matter of concern.

Forty-five percent (*n*=86) of patients expressed an interest in using the IUCD in future following minimal education during the interview, compared with 74% in a Cape Town survey.[13] This suggests that with more education, especially focusing on finer details and starting at school level, the use of this method might increase and help decrease the number of unwanted as well as adolescent pregnancies.

Study limitations

The study was performed in a tertiary hospital on high-risk obstetric patients and thus cannot be regarded as representative of the general female public. These patients had high-risk pregnancies and came into contact with healthcare providers more often than those at lower risk. Therefore they might have better knowledge about contraception compared with other women, indicating potential sampling bias.

Conclusion

Even though the IUCD is clinically regarded as an excellent method of contraception, the overall use in our setting is very low. One of the many problems is certainly a lack of education and, more importantly, lack of detailed knowledge among our patients. This demonstrates significant shortcomings in the reproductive health education of our population. Possible solutions could include establishing proper guidelines and women's health information aids for schools, clinics, hospitals and reproductive health centres. Healthcare providers need to familiarise themselves with and be trained in this method to ensure its uptake. This will certainly decrease the rate of unwanted as well as adolescent pregnancies.

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