

**Patient knowledge and acceptability of the Intra-uterine contraceptive device (IUCD) at a tertiary level hospital.**

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**Background:** The intrauterine 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 seem to lack knowledge regarding this contraceptive.

**Objectives:** The aim of this study was to determine the quantity and quality of knowledge of the IUCD, and to evaluate its acceptability for future use.

**Methods:** A prospective cross-sectional study was conducted at Pelonomi Tertiary Hospital. 201 Patients were interviewed using semi-structured questionnaires.

**Results:** Awareness of the IUCD was found in almost half (49%, n=95) of our patients. Its use was very low, with only one patient having used it before. Overall qualitative knowledge was poor, even among those that were aware 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 (RR 1.57, 95% CI 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 South African clinics and hospitals, its uptake is still poor. Awareness of this method seemed to have improved over the past few years, but the qualitative knowledge still lacks considerably. Education plays a major role in the knowledge of contraception and better educational aids in all facilities will increase its use and reduce unwanted pregnancies.

## Introduction

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

Worldwide there is a high prevalence of teenage and unwanted pregnancies with an increasing incidence every year,<sup>[4]</sup> with abortion rates remaining virtually unchanged.<sup>[5]</sup> In a study performed in the United States of America (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.<sup>[6]</sup>

Unintended pregnancies have been reported as being a result of low use of LARC. These methods has 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.<sup>[7]</sup> Currently the IUCD is the best method of contraception for high-risk women. 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.<sup>[3]</sup> 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.<sup>[2]</sup>

A survey that was done in primary care family planning clinics in Cape Town concluded that the knowledge of the IUCD as contraceptive method was very poor. Despite the availability thereof 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.<sup>[8]</sup>

A national survey in South Africa concluded that 66% of young women fell pregnant unintentionally due to a lack of using any contraception. This was proposed to be due to gaps that exist in the knowledge of how to use contraception correctly rather than a total absence of knowledge. School-based sex education in South Africa plays a significant role in the

comprehensive strategy to influence adolescents toward positive sexual behaviour with regard to sexually transmitted diseases, HIV and pregnancy.<sup>[9]</sup>

## **Objective**

The primary objective of the study was to determine the knowledge, in terms of quantity and quality, of the IUCD as a method of contraception among pregnant patients attending the High Risk Obstetric Clinic at Pelonomi Tertiary Hospital in Bloemfontein, South Africa. 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 was collected from January 2014 to November 2014 using collective sampling techniques. 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 (NR207/2013).

Investigators conducted interviews with patients by means of a semi-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, focussing on collecting information

about their general knowledge of the IUCD. After these questions all the 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, reproductive characteristics, knowledge and acceptability of the IUCD were described by calculating proportions. Bivariate analysis of specific variables of interests (eg education and knowledge of the IUCD), and associations between sociodemographic and reproductive characteristics were performed using the Chi-square tests using SAS version 9.3 and Vassarstats.

## Results

A total of 201 women were interviewed of which 8 were excluded due to insufficient consent. Those excluded were all below the age of 18 and unable to consent to participate in the study. Data from 193 interviews were thus included and analysed.

Table 1 shows the socio-demographic characteristics of the participants. Their ages ranged from 18 to 49, with the majority between 20 and 39 (91%, n=175), and a mean of 31 years. Just under two-thirds (63%, n=122) of the women were unmarried; including those divorced and co-habiting. With regard to education only 4% (n=8) had no schooling, with almost a third (31%, n=60) having completed Grade 12, and 20 patients (10%) having some form of tertiary education. The majority (69%, n=133) of patients were unemployed at the time of the interview.

The general gynaecological profile of the participants is illustrated in Table 2. Eighty-six percent (n=165) of patients reported having a regular menstrual cycle in the 6 months prior to their pregnancy, and only three percent (n=6) had amenorrhoea. Eighty-two percent (n=154) had normal to light menstrual flow, and only sixteen percent regarded their menstrual pattern as problematic, citing heavy, irregular, painful or long cycles as their concern. Most patients were pregnant with their 2<sup>nd</sup> child (28%, n=54), followed by those in their 3<sup>rd</sup> pregnancy (26%, n=51). Fifteen percent (n=29) were pregnant with their 5<sup>th</sup> pregnancy or higher. Previous spontaneous miscarriages were reported by a quarter (26%, n=50) of patients, and

only four patients admitted to having had a previous termination of pregnancy. Future pregnancies were mostly unwanted (70%, n= 134), and only 19% (n=37) of patients desired more children.

The contraceptive most patients were acquainted with was the male condom (99%, n=192) followed by injectable contraception (98%, n=189), with eighty-four and eighty-one percent respectively, having used it before. The knowledge of the more uncommon contraceptive methods like vasectomy, progesterone only pill, spermicides, diaphragm cap, hormonal implant and natural methods ranged between 2-23%. (Table 3)

With regard to the IUCD ninety-five patients (49%) 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 twenty-three percent (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. Dividing the patients into those with Grade 12 or a higher level of education and those without, a statistically significant increase in the number of patients with knowledge was observed with a higher level of education (62% vs. 39% p=0.003). Patients with Grade 12 or a tertiary qualification were more likely to have knowledge regarding the IUCD compared to patients with lower level or even no education (RR 1.57, 95% CI 1.18-2.08). Higher gravidity, 3 or more, was associated with more patients having knowledge of the IUCD (56% vs. 40% p=0.034). Patients with gravidity of 2 or less were thus statistically less likely to have knowledge regarding the IUCD compared to 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 that claimed to be familiar with the IUCD (n=95) revealed that their overall knowledge of the IUCD was poor. Significant findings include that more than a third of participants (36%, n=34) felt that unmarried women may not use, or was unsure if they could use this method for contraception. More than half of the patients (59%, n=56) was of the opinion that women without any 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 for contraception. Two thirds (66%, 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 that 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%, n=64) of participants believed the IUCD causes cancer and thirty-eight percent (n=74) that it moves around in the body. Forty-one percent of patients were unaware of its duration of action.

At conclusion of the interview 45% (n=86) of the patients were keen on using the IUCD in future with fifty-one percent (n=99) not interested. Main reasons for disinterest were cited as a desire to be sterilized 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 South Africa evaluating the knowledge, attitudes and acceptability of the IUCD. To our knowledge none of these studies were done in the Free State, nor have any of these investigated high-risk pregnant women.

According to the Sexual and Reproductive Health report of October 2014, free contraception should be available to all public health care users. Unplanned and unwanted pregnancies are still very high due to the lack of easy access to and knowledge of contraception, especially among the youth. Currently the IUCD is not provided in many health facilities due to insufficient training of health care providers.<sup>[10]</sup> This could explain the very low usage rate of 0.5% in our study population, even though according to the World Health Organization (WHO) contraception eligibility criteria, most of our high risk obstetric patients qualify for its use.<sup>[3]</sup>

Understandably our study population fit the age group of sexually reproductive women. The majority were unmarried and their level of education was similar to that of the general population of South Africa. Comparing our findings to that of the 2011 census, 4% in the

study group vs. 8.6% in the general population had no formal education, while 31% compared to 28.5% had passed Grade 12 whereas 10 % compared to 12.1% had tertiary education.<sup>[11]</sup> As school education plays a major role in sexual development and reproductive health, one would expect the participants to have more knowledge of contraception. This 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 participant could be explained by their low level of education.

The general gynaecologic 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%) compared to the 9.9% of the provincial statistics for the Free State of 2010.<sup>[12]</sup> This could possibly indicate selection bias as our study population was pregnant, and mostly wanted to have children, and thus possibly less likely to have had a previous termination.

The overall awareness of contraception appears to be acceptable. As expected injectable contraception was well known and most commonly used, followed by the male condom. Awareness of the IUCD however was less impressive with less than half (49%) 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.<sup>[13]</sup> A possible explanation for this would be the timeframe of data collection. This study was conducted in 2006, which indicate 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 of the IUCD.

Qualitative knowledge however was poor and the majority of patients were ignorant of contraceptive methods as well as the eligibility criteria for its use. The existence of various myths surrounding IUCD use was evident and significantly higher compared to studies conducted in the Western and Eastern Cape. 9% of the 53 clients that had heard about the IUCD in the above mentioned study had misconceptions or incorrect information that influenced them on IUCD use, compared to our high percentages that were convinced of IUCD causing cancer or moving around in the body.<sup>[13]</sup> 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 to 74% in a Cape Town survey.<sup>[13]</sup> This suggests that with more education and especially focussing on finer details, starting at school level, the use of this method will definitely increase and help decrease our numbers of unwanted as well as adolescent pregnancies.

### **Limitations of study**

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 health care providers more often than those at lower risk. Therefore they could have better knowledge about contraception compared to the rest, indicating potential sampling bias.

### **Conclusion**

Even though the IUCD is seen as an excellent method of contraception, the overall usage in our setting is very low. This is most certainly due to a lack of education and more importantly the 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 and be trained in this method to ensure its up-take. This will most certainly decrease the rate of unwanted as well as adolescent pregnancies.

**Table 1** Sociodemographic characteristics

Characteristics	
Age (years)	
< 20	6 (3)
20-29	76 (40)
30-39	99 (51)
40-49	12 (6)
Marital status	
Single (includes divorced, widow, lives with partner)	122 (63)
Married	71 (37)
Education	
No education	8 (4)
Primary	22 (11)
Secondary school	83 (44)
Grade 12 passed	60 (31)
Tertiary	20 (10)
Occupation	
Employed	60 (31)
Unemployed	133 (69)

**Table 2** General gynaecologic profile

Characteristics	
Frequency of menstruation	
Amenorrhoea (Contraception induced or other)	6 (3)
Regular monthly cycle	165 (86)
Irregular/Unexpected vaginal bleeding	22 (11)
Nature of Menstruation	
Heavy	33 (18)
Normal	132 (70)
Light	22 (12)
Problems with menstruation	
No	160 (84)
Yes (Irregular, heavy, painful, long)	30 (16)
Pregnancies (n)	
1	33 (17)
2	54 (28)
3	51 (26)
4	26 (14)
≥5	29 (15)
Miscarriages	
Yes	50 (26)
Number	
1-2	48 (96)
>2	2 (4)
Termination of Pregnancy	
Yes	4 (2)

No	189 (98)
Intends to have future pregnancies	
Yes	37 (19)
No	134 (70)
Don't know	22 (11)

**Table 3** Knowledge and use of contraception

Type of contraception	Patients (n, %)	Control group (n, %)
Female Sterilization (Tubal ligation)	142 (74)	0 (0)
Male Sterilization (Vasectomy)	45 (23)	0 (0)
Intrauterine contraceptive device (Loop)	95 (49)	1 (0.5)
Oral contraceptive	177 (92)	71 (37)
Progesterone only pill	3 (2)	1 (0.5)
Emergency contraception	92 (48)	31 (16)
Injection (Depo Provera/Nur-Isterate)	189 (98)	156 (81)
Male condom	192 (99)	162 (84)
Female condom	148 (77)	20 (10)
Spermicides/Jelly	3 (2)	0 (0)
Diaphragm/Cap	2 (1)	0 (0)
Hormone implants	21 (11)	0 (0)
Natural methods	12 (6)	3 (2)

**Table 4:** Quantitative knowledge of the IUCD compared to level of education and gravidity

	Patients (n, %)	Control group (n, %)
Level of Education		
No Education + Primary school	30 (16)	8 (27)
Secondary school	83 (43)	37 (45)
Grade 12 passed	60 (31)	37 (62)
Tertiary education	20 (10)	13 (65)
Gravidity		
1	33 (17)	12 (36)
2	54 (28)	23 (43)
3	51 (26)	29 (57)
≥4	55 (29)	31 (56)

**Table 5** Interest in future IUCD use

IUCD in future?	Patients (n, %)
Yes	86 (45)
No	99 (51)

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Don't know	8 (4)
Appealing factors	
Efficacy	74 (86)
Duration of efficacy	71 (83)
Convenience	60 (70)
Not permanent	20 (23)
Confidentiality	12 (14)
Minimal effect on hormones	12 (14)
Other	10 (12)
Unappealing factors	
Not permanent	70 (68)
Unfavourable side-effects	35 (34)
No protection to STD's and HIV	22 (21)
Wants another child soon	7 (7)
Wants monthly cycles	6 (6)
Other	43 (42)

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