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Understanding the barriers and myths limiting the use of intrauterine contraception in nulliparous women: results of a survey of European/Canadian healthcare providers

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ABSTRACT

Objectives: To evaluate healthcare providers' (HCPs') knowledge, attitudes and beliefs regarding intrauterine contraception (IUC).
Study design: HCPs in eight European countries and Canada who saw at least 20 women per month for contraception completed an online questionnaire. Responses were evaluated by country.
Results: In total, 1103 HCPs completed the survey: 633 obstetrician-gynecologists, 335 general practitioners and 135 family planning clinicians (physician, midwife or nurse). When respondents in different countries were asked to report their three main barriers to considering IUC, predominant concerns were nulliparity (34–69%) and pelvic inflammatory disease (PID; 14–83%) for women in general, and insertion difficulty (25–83%), PID (17–83%), insertion pain (7–60%) and infertility (6–55%) for nulliparous women. In addition, 4–59% of HCPs reported that they never proactively include IUC in contraceptive counseling for a nulliparous woman, regardless of her age. Furthermore, only 30–61% of respondents correctly identified that, in the World Health Organization medical eligibility criteria for IUC, nulliparity is category 2 (benefits outweigh risks).
Conclusions: HCPs in Europe and Canada have clear gaps in their knowledge regarding IUC and misplaced concerns persist, particularly regarding use of IUC in nulliparous women; the predominant misconceptions are about PID, insertion difficulty and insertion pain. Further education on the evidence is needed so that IUC is recognized as being suitable for young and nulliparous women and is included in contraceptive counseling.

Introduction

Unintended pregnancy remains a global public health problem. Worldwide, 41% of all pregnancies are unintended. However, the percentages of pregnancies that are unintended vary geographically; 38%, 39%, 44%, 48% and 58% in Asia, Africa, Europe and North America (US and Canada combined) and Latin America/Caribbean, respectively. Within Europe, the percentages of pregnancies that are unintended range from 39% in Southern Europe to 48% in Eastern Europe [1]. Up to 50% of unintended pregnancies can be attributed to contraceptive failure or non-compliance [2]. Non-compliance is one of the major reasons for contraceptive failure, particularly in adolescents. In addition, rates of unintended pregnancy are highest among younger women [2]. Long-acting reversible contraception (LARC), including intrauterine contraception (IUC), is highly effective and is not dependent on user compliance [3].

The more widespread use of LARC might therefore be expected to reduce unintended pregnancy rates. The Contraceptive CHOICE project in the US has shown that the use of LARC, including IUC, can be increased via good contraceptive counseling. When women were given structured counseling on the benefits and risks of all reversible methods, including LARC, and then given a choice of any method provided free of charge, 75% of women chose LARC (IUC or implant) and 58% chose IUC (levonorgestrel intrauterine system [LNG-IUS] or copper intrauterine device) [4]. Additionally, women

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who chose IUC had the highest 2-year continuation rates [5] and the highest user satisfaction [6]. Furthermore, the unintended pregnancy rate among LARC users was 10-fold lower than among women using short-acting hormonal methods [7] and the induced abortion rate in the CHOICE cohort (which included a high proportion of LARC users) was substantially lower than the regional (St. Louis) abortion rate [4].

Despite the fact that international and national guidelines support the use of IUC in a wide range of women, regardless of age and parity status [8–12], various barriers and misperceptions persist that limit its more widespread use [13]. For example, a cross sectional survey of obstetricians and gynecologists in the St. Louis region demonstrated that several misperceptions persist concerning the safety of IUC, particularly the misperception that IUC causes pelvic inflammatory disease [14]. The extent to which these barriers and misconceptions persist in different countries may explain the wide variation in utilization rates between countries [15]. The wider acceptance and use of the LNG-IUS in Scandinavia may be because the initial studies with the LNG-IUS were conducted in Finland.

We conducted an online survey to gain a greater understanding of the various barriers and misperceptions about IUC that persist among providers of contraception, especially regarding use in nulliparous women, and to identify initiatives to improve providers' knowledge of IUC and eliminate barriers to use so that IUC methods are included in contraceptive counseling. The results from the overall cohort (providers from 15 countries across 4 regions) have been published [16]. Here, we report a subgroup analysis of the responses from providers of contraception in Europe and Canada.

Materials and methods

An online survey of providers of contraception in Canada, France, Germany, Ireland, The Netherlands, Russia, Sweden, Turkey and the UK was conducted between February and March 2012. The questionnaire was developed by the INTRA (Intrauterine Contraception for Nulliparous Women: Translating Research into Action) group, an international advisory group of 10 physicians. The logistics of distributing and administering the survey were undertaken by GfK, a global market research organization, with funding from Bayer HealthCare. The questionnaire was translated into the languages of each of the countries by native speakers; each local language version was tested for comprehension before roll-out. In each country, HCPs were identified from existing nursing and medical market research panels of healthcare professionals who had expressed an interest in participating in research. These panels were created by the market research company 'World One'. Individuals were selected from these panels by random sampling; those selected were sent an email invite to participate. HCPs who were willing to participate answered screening questions, which sought to exclude individuals with a relationship to any pharmaceutical company and ensure that respondents who went on to complete the survey saw at least 20 women per month for contraceptive counseling. Additionally, screening ensured that respondents were one of the following types of HCP: an obstetrician–gynecologist (OB–GYN), a general practitioner (GP) or a family planning clinician (FPC; a physician, midwife or nurse with a specific women's health qualification).

The types of HCP who provide contraceptive services vary between countries. For example, in Germany, contraceptive services are provided exclusively by gynecologists, whereas in other countries, a wider range of HCPs are active in the provision of contraception. Therefore, it was important that, for each country, the respondent samples were representative of the types of HCP who provide contraception services. The relative percentages of different types of HCP who provide contraception in individual countries were determined through collaborative discussions between the INTRA group physicians, expert physicians from the relevant countries and representatives from Bayer HealthCare in individual countries. Accordingly, recruitment quotas for different HCP types were set for individual countries (Table 2 footnote). Respondents fulfilling the screening criteria progressed to a structured questionnaire (Table 1).

Results

Response rates

Response rates in individual countries were as follows: Canada, 15%; Germany, 19%; France, 21%; UK, 29%; Russia, 28%; Sweden, 15%; The Netherlands, 13%; Turkey, 20%; Ireland, 15%. These percentages reflect the number of HCPs who responded to the email invite, passed screening and then went on to complete the main questionnaire, with the total number of HCPs sent an email invite as the denominator.

Respondent characteristics

A total of 1103 respondents completed the survey, of which 633 were OB–GYNs, 335 were GPs and 135 were FPCs. Further details are shown in Tables 2 and 3. The mean number of devices inserted per month ranged from 7.7 for respondents in Russia to 23.4 for respondents in France.

Barriers to use of intrauterine contraception in general

Respondents were asked to report their three main barriers to considering IUC for women in general (i.e. respondents were asked to report their own barriers, not what they thought were the main barriers for other HCPs in their country) (Fig. 1). The two most frequently reported barriers, by country, were as follows: nulliparity and concerns about pelvic inflammatory disease (PID) in Canada, France, Russia and Turkey; disruption of normal menstruation and concerns about insertion-related pain in Sweden; nulliparity and financial cost in Germany; concerns about insertion difficulty and nulliparity in the UK and Ireland; concerns about insertion-related pain and nulliparity in The Netherlands (Fig. 1).

The impact of IUC on menstruation was frequently reported as a barrier by respondents in Turkey and Sweden, but was less frequently of concern in Canada, The Netherlands and Ireland (Fig. 1). In Russia, concerns about nulliparity and PID were particularly prevalent whereas concerns about insertion-related pain and insertion difficulty were less prevalent in Russia than in other countries. In addition, concern about non-monogamy was more prevalent in Russia than in other countries (Fig. 1).

Financial cost was reported as a barrier most frequently by respondents in Germany and Canada (35% and 32%, respectively); of the countries represented in the survey, these two have the lowest IUC utilization rates (Table 2).

The perception that 'women don't like it [IUC]' was reported most frequently by HCPs in Sweden, UK, Germany, Canada, Ireland and The Netherlands and least frequently by HCPs in France, Russia and Turkey (Fig. 1).

Barriers to use of intrauterine contraception in nulliparous women

Respondents were asked to report their three main barriers to considering IUC for a nulliparous woman requesting contraception (Fig. 2). Concerns about insertion difficulty and insertion-related pain were the two most frequent barriers in all countries except

Table 1
Survey questions.

Collection of demographic and clinical practice data on respondents	
Question	Multiple-choice response options
1. What type of healthcare professional are you?	Gynecologist; GP; family planning clinician
2. How many women do you see in a typical month about contraception?	20; 21–30; 31–40; 41–50; 51–100; 101–150; 151–200; >200
3. How many years is it since you began to provide independent, unsupervised contraception advice and services?	0–10 years; 11–20 years; >20 years
4. What role do you play in providing IUC?	None; I refer to a colleague for insertion; I train/supervise insertion only; I insert AND train/supervise; I insert myself
5. In a typical month, how many IUDs (copper IUD and LNG-IUS) do you personally insert?	1–5; 6–10; 11–15; 16–20; 21–30; 31–40; >40
Examining the barriers to considering IUC for a woman requesting contraception	
Question	Response
1. What are the three main barriers for you as a physician when considering IUC in general?	Respondents to select their top three options from a list
2. What are the three main barriers for you as a physician when considering IUC in nulliparous women?	Respondents to select their top three options from a list
Examining respondents' perceptions on the efficacy and risks of IUC	
Question	Multiple-choice response options
1. Thinking about the contraceptive efficacy of IUC: compared with parous women, the efficacy of IUC in nulliparous women is	Much less; a little less; the same; a little better; much better
2. What risk do you think a nulliparous woman with IUC has of PID and subsequent infertility compared with a woman NOT using IUC?	Much higher risk; a little higher risk; the same risk; a little lower risk; much lower risk
3. What risk do you think a nulliparous woman with IUC has compared to a parous woman with IUC with regard to uterine perforation?	Much higher risk; a little higher risk; the same risk; a little lower risk; much lower risk
4. What risk do you think a nulliparous woman with IUC has compared with a parous woman with IUC with regard to expulsion of the device/system?	Much higher risk; a little higher risk; the same risk; a little lower risk; much lower risk
Examining respondents' perceptions of the ease and pain of insertion	
Question	Multiple-choice response options
1. Thinking about the ease of placing/inserting IUC: how would you describe insertion in a nulliparous woman compared with a parous woman?	Much more difficult; a little more difficult; the same; a little easier; much easier
2. Thinking about the experience of the woman at insertion: when comparing the experience of a nulliparous woman with a parous woman do you believe the nulliparous woman will experience	Much more pain; a little more pain; the same amount of pain; a little less pain; much less pain
Examining respondents' attitudes toward proactive inclusion of IUC in contraceptive counseling	
Question	Response options (respondents could 'tick' as many options as they desired)
1. Please indicate with which of the following types and ages of women you would discuss IUC?	Nulliparous women: <18 years; 18–29 years; 30–39 years; ≥40 years; none of these women Parous women: <18 years; 18–29 years; 30–39 years; ≥40 years; none of these women
Examining respondents' knowledge of medical eligibility criteria	
Question	Multiple-choice response options
1. Off the top of your head, how do the WHO MEC categorize the use of IUC in nulliparous women?	Unrestricted (MEC 1); the benefits outweigh the risks (MEC 2); the risks outweigh the benefits (MEC 3); contraindicated (MEC 4); I don't know
Examining respondents' opinions on what would increase their knowledge and confidence in IUC for nulliparous women	
Question	Response
1. What would best increase your knowledge and confidence in using IUC in nulliparous women?	Respondents to select their top three options from a list
2. What type of information would you require the most to increase your knowledge and confidence in using IUC in nulliparous women?	Respondents to select their top three options from a list

GP, general practitioner; IUC, intrauterine contraception; IUD, intrauterine device; LNG-IUS, levonorgestrel intrauterine system; MEC, Medical Eligibility Criteria; PID, pelvic inflammatory disease; WHO, World Health Organization.

Canada, France, Russia and Turkey. In Canada and France, the two most frequent barriers were concerns about insertion difficulty and PID, whereas in Russia and Turkey, the two most frequent barriers were concerns about PID and concerns about infertility.

In Sweden, disruption of menstruation was a more frequent barrier and concern about PID was a less frequent barrier, compared with in other countries. The age of the woman was a more frequent barrier in The Netherlands than in the other countries. Concern about non-monogamy was a more frequent barrier in Russia than in other countries. Concern about ectopic pregnancy was a more frequent barrier in France, Russia and Turkey than in other countries.

Perceptions of intrauterine contraception in nulliparous women: Efficacy, safety, ease of insertion and insertion-related pain

The percentage of respondents who believed that IUC is equally effective in nulliparous and parous women ranged from 83% in The Netherlands to 95% in Sweden.

Table 2
Sample size and composition.

Country	Respondents by medical specialty			Total (*n*)	Proportion of women aged 15–49 years who use IUC (%) [15]
	General practitioners (GPs) (*n*)	Family planning clinicians* (FPCs) (*n*)	Obstetrician–gynecologists (OB–GYNs) (*n*)		
Canada	75	–	25	100	1.0
Germany	–	–	150	150	5.9
France	–	25	125	150	18.9
UK	110	40	–	150	10.0
Russia	–	–	150	150	20.4
Sweden	–	70	30	100	16.2
The Netherlands	70	–	30	100	8.0
Turkey	–	–	100	100	16.9
Ireland	80	–	23	103	8.4
Total	335	135	633	1103	

Recruitment quotas for different HCP types were set for individual countries as follows: Canada, 75% GPs, 25% OB-GYNs; Germany, 100% OB–GYNs; France, 15% FPCs, 85% OB–GYNs; UK, 75% GPs, 25% FPCs; Russia, 100% OB–GYNs; Sweden, 70% FPCs, 30% OB–GYNs; The Netherlands, 70% GPs, 30% OB–GYNs; Turkey, 100% OB–GYNs; Ireland, 80% GPs, 20% OB–GYNs.
Canadian and European healthcare providers (HCPs) were surveyed together because the Canadian healthcare system is similar to the healthcare systems in European countries.
* The type of healthcare provider classed as a 'family planning clinician' varied between countries as follows: France, physician working in family planning; UK, family planning nurse; Sweden, midwife. IUC, intrauterine contraception; UK, United Kingdom.

Table 3
Respondents' professional characteristics.

	Canada (*n* = 100)	Germany (*n* = 150)	France (*n* = 150)	UK (*n* = 150)	Russia (*n* = 150)	Sweden (*n* = 100)	The Netherlands (*n* = 100)	Turkey (*n* = 100)	Ireland (*n* = 103)
Median number of patients/month seen for contraception	50	200	120	50	48	40	30	50	30
Mean years of experience in contraception	18.9	14.5	22.7	15.3	13.1	16.3	18.5	13.4	15.8
Role in provision of IUC (%)									
Insert IUC themselves	46	95	83	33	87	62	77	80	43
Insert + train/supervise	9	3	11	1	7	23	8	9	7
Train/supervise only	0	1	1	1	1	0	0	4	0
Refer to colleague for insertion	45	1	4	64	4	14	14	6	50
None	0	0	1	1	1	1	1	1	0
Mean number of devices inserted/month*	9.2	8.1	23.4	9.3	7.7	9.3	8.8	18.0	10.7

HCP, healthcare provider; IUC, intrauterine contraception.
* Sub-sample of HCPs who reported that they insert IUC themselves: Canada, *n* = 55; Germany, *n* = 147; France, *n* = 141; UK, *n* = 52; Russia, *n* = 141; Sweden, *n* = 85; The Netherlands, *n* = 85; Turkey, *n* = 89; Ireland, *n* = 51.

The belief that the risk of PID/infertility is higher ('much higher' or 'a little higher') in nulliparous IUC users than in women not using IUC was most prevalent in Russia (88%) and France (73%) and least prevalent in Sweden (38%) (Table 4). The perception that nulliparous women using IUC are at 'much higher' risk of PID/infertility than women not using IUC was most prevalent in Russia (44%) and France (13%) and was least prevalent in Sweden (0%) and The Netherlands (1%).

The belief that the risk of uterine perforation is higher ('much higher' or 'a little higher') in nulliparous than parous women was most prevalent in Germany (50%) and least prevalent in Sweden (33%) (Table 4).

Perceptions of expulsion risk in nulliparous women compared with parous women were mixed. The belief that the risk of expulsion is higher ('much higher' or 'a little higher') in nulliparous women than parous women was most prevalent in France (48%) and least prevalent in Turkey (16%). Conversely, the belief that the risk of expulsion is lower ('much lower' or 'a little lower') in nulliparous than parous women was most prevalent in Turkey (56%) and least prevalent in Sweden (18%) and France (18%) (Table 4).

The perception that intrauterine contraceptives are 'much more difficult' to insert in nulliparous than parous women was most and least prevalent in Ireland (43%) and Sweden (2%), respectively (Table 5). The perception that the insertion of intrauterine contraceptives is 'much more painful' in nulliparous than parous women was most and least prevalent in Russia (35%) and Sweden (10%), respectively.

Contraceptive counseling

In most of the countries, respondents were much more likely to proactively include IUC in contraceptive counseling for a parous woman than for a nulliparous woman. The percentage of respondents who reported that they never proactively include IUC in contraceptive counseling for nulliparous women ranged from 4% in The Netherlands to 59% in Russia (Table 6).

Respondents' knowledge of the World Health Organization Medical Eligibility Criteria for intrauterine contraception

The percentages of respondents who correctly identified nulliparity as category 2 (benefits outweigh the risks) were highest in The Netherlands (61%) and France (59%) and lowest in Russia (30%) (Fig. 3). Nulliparity was incorrectly identified as category 3 (risks outweigh the benefits) or category 4 (contra-indicated) more frequently by respondents in Russia than by respondents in other countries.

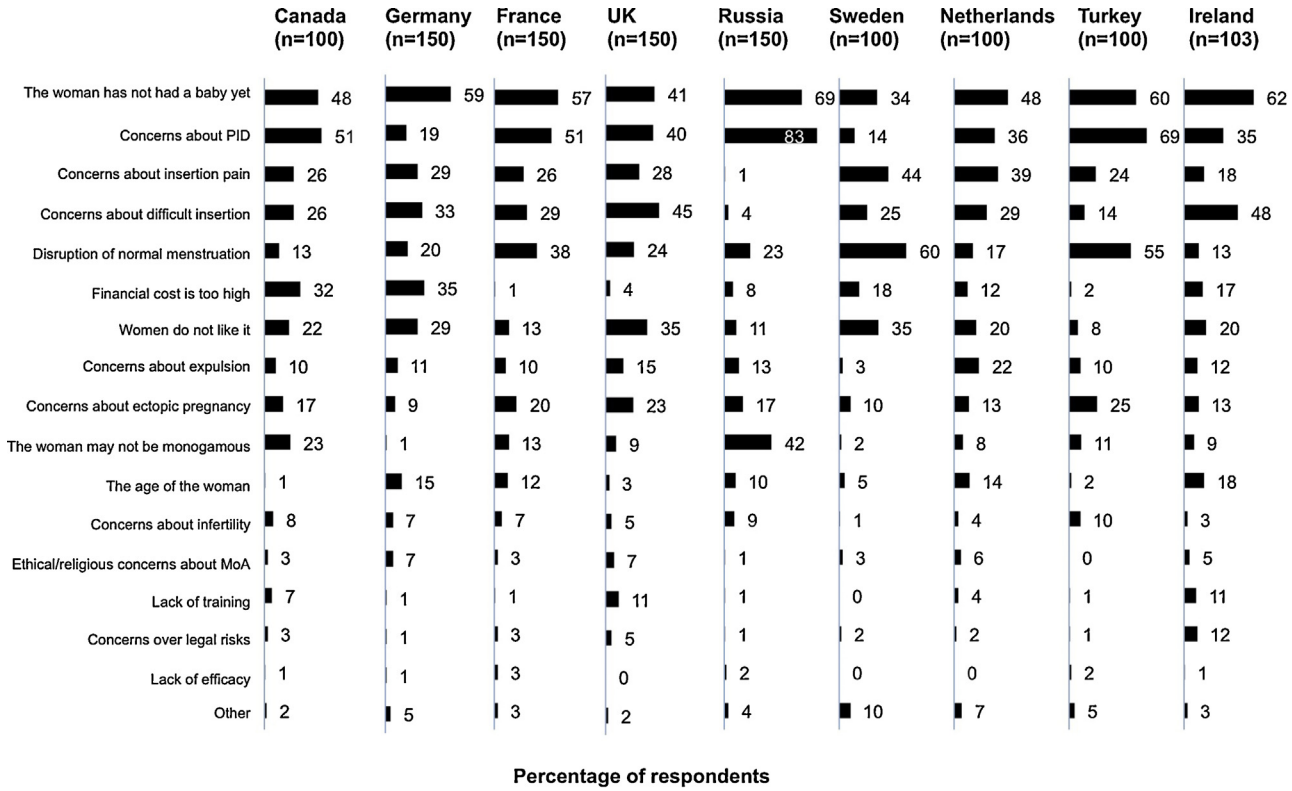

Fig. 1. Barriers to considering intrauterine contraception for women in general. The bars show the percentage of respondents that reported each barrier as one of their top three barriers to considering intrauterine contraception for women in general. Respondents were asked to report their barriers to considering intrauterine contraception for women in general without differentiating between the type of device. This included reporting of 'disruption of normal menstruation' as a barrier, even though hormonal and copper devices are associated with different bleeding profiles. MoA, mode of action; PID, pelvic inflammatory disease.

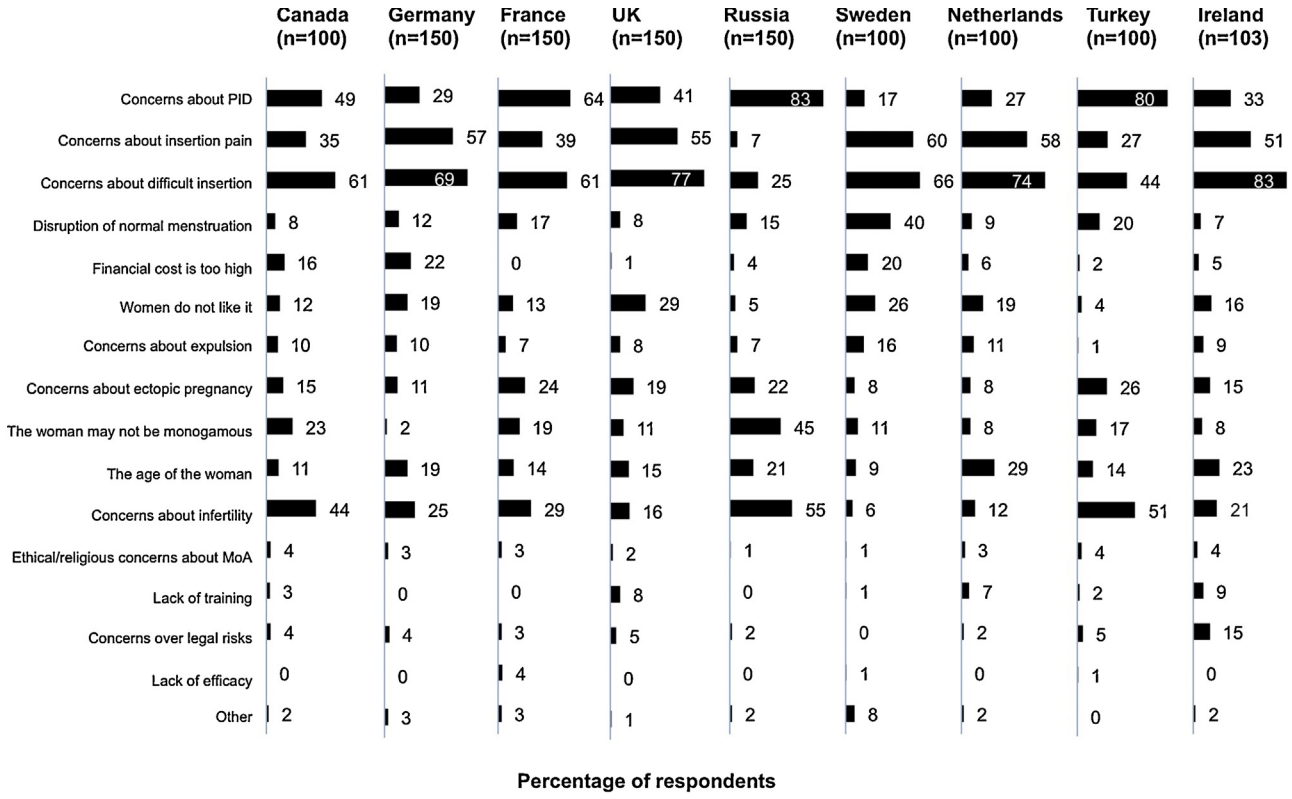

Fig. 2. Barriers to considering intrauterine contraception for nulliparous women. The bars show the percentage of respondents that reported each barrier as one of their top three barriers to considering intrauterine contraception for nulliparous women. Respondents were asked to report their barriers to considering intrauterine contraception for nulliparous women without differentiating between the type of device. This included reporting of 'disruption of normal menstruation' as a barrier, even though hormonal and copper devices are associated with different bleeding profiles. MoA, mode of action; PID, pelvic inflammatory disease.

Table 4
Respondents' perceptions of the risks of PID/infertility, uterine perforation and expulsion associated with use of IUC in nulliparous women. IUC, intrauterine contraception; PID, pelvic inflammatory disease.

Country	Respondents (%)			
	Risk of PID/infertility is higher than in non-IUC users	Higher risk of uterine perforation vs parous women	Higher risk of expulsion vs parous women	Lower risk of expulsion vs parous women
Canada (n = 100)	61	38	34	30
Germany (n = 150)	61	50	34	28
France (n = 150)	73	44	48	18
United Kingdom (n = 150)	53	44	29	25
Russia (n = 150)	88	46	31	42
Sweden (n = 100)	38	33	40	18
The Netherlands (n = 100)	57	45	35	23
Turkey (n = 100)	67	42	16	56
Ireland (n = 103)	58	42	37	35

Higher risk = a little higher or much higher risk; lower risk = a little lower or much lower risk.
IUC, intrauterine contraception; PID, pelvic inflammatory disease.

Table 5
Respondents' perceptions of the ease and pain of intrauterine contraceptive insertion in nulliparous women compared with parous women.

	Ease of placement			Pain associated with placement		
	Number of respondents*	A little more difficult (%)	Much more difficult (%)	Number of respondents	A little more painful (%)	Much more painful (%)
Canada	94	62	27	100	68	19
Germany	148	63	29	150	64	25
France	143	69	19	150	53	26
United Kingdom	134	60	30	150	70	11
Russia	88	66	24	150	47	35
Sweden	92	83	2	100	67	10
The Netherlands	98	76	15	100	58	22
Turkey	92	75	20	100	69	20
Ireland	83	51	43	103	58	32

* Excluded respondents who reported that they do not insert intrauterine contraceptives in nulliparous women.

Table 6
Percentage of respondents who reported never including IUC in contraceptive counseling for nulliparous women and for parous women, by country.

Country	Respondents (%)	
	Never proactively include IUC in counseling for a nulliparous woman, regardless of her age	Never proactively include IUC in counseling for a parous woman, regardless of her age
Canada (n = 100)	13	0
Germany (n = 150)	9	0
France (n = 150)	19	0
United Kingdom (n = 150)	15	1
Russia (n = 150)	59	1
Sweden (n = 100)	6	0
The Netherlands (n = 100)	4	0
Turkey (n = 100)	37	0
Ireland (n = 103)	27	1

IUC, intrauterine contraception.

Initiatives for increasing healthcare providers' knowledge and confidence in intrauterine contraception for nulliparous women

Respondents were asked to select three initiatives that would increase their knowledge and confidence in IUC for nulliparous women. The most frequent answers, by country, are summarized in Table 7.

Respondents were asked to select three types of information they would require to increase their knowledge and confidence in using IUC in nulliparous women. The results are summarized in Fig. 4.

Comment

This survey confirms that various barriers and misperceptions persist among HCPs across Europe and Canada, which may explain the low IUC utilization rates in some countries. Overall, the main barriers to HCPs considering IUC for women in general were 'nulliparity' and 'concerns about PID', whereas the main barriers when considering IUC specifically for nulliparous women were concerns about PID and concerns about difficulty and pain associated with insertion.

Many of the barriers to use of IUC and many of the perceptions of IUC reported by the HCPs surveyed, particularly those pertaining to use in nulliparous women, are not evidence-based. Perhaps of greatest concern is that the misperception that IUC causes PID and infertility persists among many of the HCPs surveyed, despite strong evidence that PID is caused by sexually transmitted infections (STIs), particularly chlamydia, not the devices themselves [11,13,17]. Young women and non-monogamous women generally have a higher STI risk [18,19]. However, this should not be a reason to withhold IUC as an option from these women; instead HCPs should counsel them to use condoms in addition to IUC.

HCPs' concerns that IUC is 'much more difficult' and 'much more painful' to insert in nulliparous women than parous women

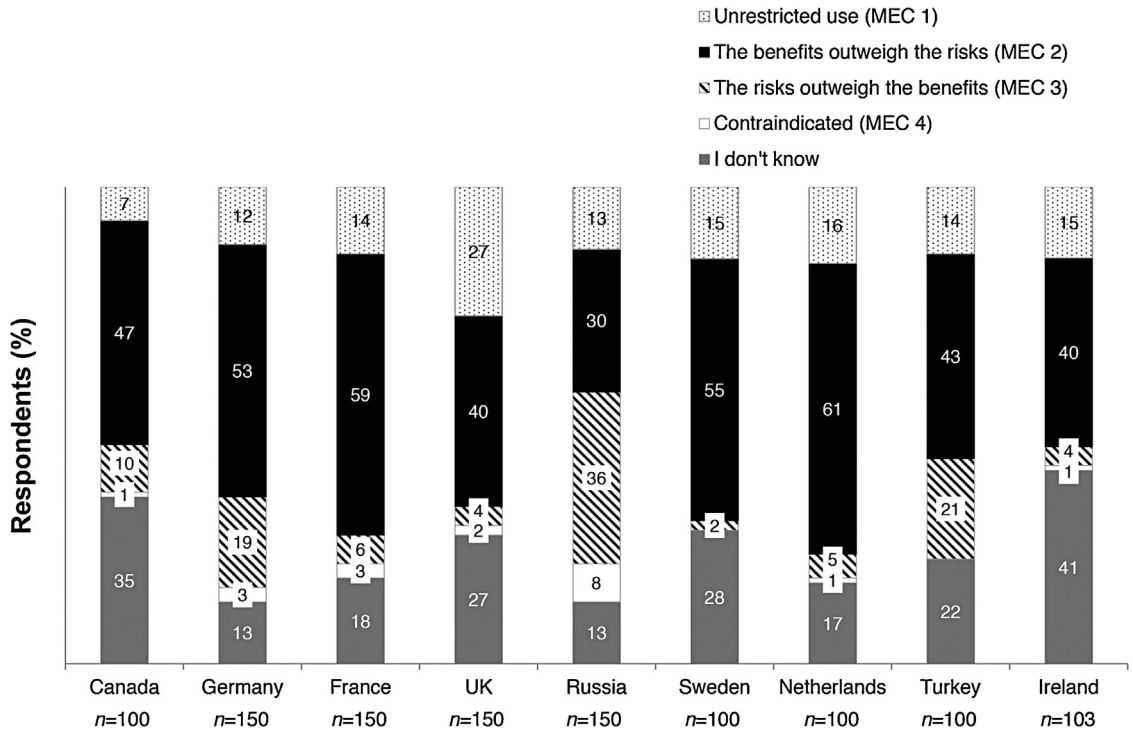

Fig. 3. Respondents' knowledge of the WHO MEC for IUC. The bars respondents' answers to the following question: *How do the WHO MEC categorize the use of IUC in nulliparous women?*. The bar for Ireland does not add up to 100% because of rounding. IUC, intrauterine contraception; MEC, Medical Eligibility Criteria; UK, United Kingdom; WHO, World Health Organization.

are misplaced. Although the insertion procedure may be a little more difficult and a little more painful in nulliparous than parous women, IUC is inserted with ease in most nulliparous women [20–22] and with no more than 'moderate' pain' [20].

HCP's concerns regarding risks of uterine perforation, device expulsion and ectopic pregnancy are also misplaced; the risks of perforation and expulsion are low in both nulliparous and parous women [11,20,23]. The absolute incidence of ectopic pregnancy in IUC users is also very low and similar to the background ectopic pregnancy rate [24,25]. Furthermore, there is no evidence that risk of ectopic pregnancy is influenced by parity [26,27].

The survey revealed that HCPs across Europe and Canada are less likely to proactively include IUC in contraceptive counseling for a nulliparous woman than for a parous woman, regardless of her age. This is despite MEC and guidelines that support use of IUC in a wide range of women, regardless of parity or age [8–12]. This could reflect lack of awareness and understanding of MEC and guidelines; indeed our results indicated that HCPs' knowledge of the WHO MEC for IUC is consistently poor across Europe and Canada.

Table 7
The most frequently reported initiatives when respondents were asked to select three initiatives that would increase their knowledge and confidence in IUC for nulliparous women, by country.

Country	Most frequently reported initiatives (respondents, %)
Canada (n = 100)	More presentations at local meetings (44%)
Germany (n = 150)	More articles in professional magazines/ newspapers (non-peer reviewed periodicals) (41%)
France (n = 150)	More social acceptance of IUC (30%) More presentations at national conferences (29%) Articles in professional magazines/ newspapers (non-peer reviewed periodicals) (29%)
United Kingdom (n = 150)	More presentations at local meetings (49%) Specific practical training on insertion (47%)
Russia (n = 150)	More articles in professional magazines/ newspapers (non-peer reviewed periodicals) (52%)
Sweden (n = 100)	More presentations at local meetings (36%) Easily accessible data (36%)
The Netherlands (n = 100)	More articles in professional magazines/ newspapers (non-peer reviewed periodicals) (40%)
Turkey (n = 100)	More presentations at national conferences (37%) More presentations at international conferences (38%)
Ireland (n = 103)	More presentations at local meetings (58%)

Study limitations

The following limitations of the survey are acknowledged. First, respondents completed the survey online and unassisted, therefore some respondents may not have fully understood certain questions, for example, respondents were asked to answer questions on barriers to IUC use from their *own* perspective, but may have answered based on what they perceive other HCPs' barriers to be or what they perceive women's barriers to be. Second, many of the questions required respondents to select their answers from a list (albeit an extensive one), which, may have influenced the results. Third, when respondents reported their three main barriers to considering contraception for women in general and specifically for nulliparous women, 'concern about PID' and 'concern about infertility' were included separately in the list of options; because PID and infertility are related, it is possible that these two options split the vote: some respondents may have chosen either PID or infertility, but not both. Fourth, when respondents reported 'disruption of normal menstruation' as a barrier to considering IUC, it is impossible to know whether their concern was about the bleeding associated with copper IUDs or the bleeding associated with the LNG-IUS. Fifth, data on the number of distinct work places were not collected, therefore we do not know whether multiple respondents were from the same institution and

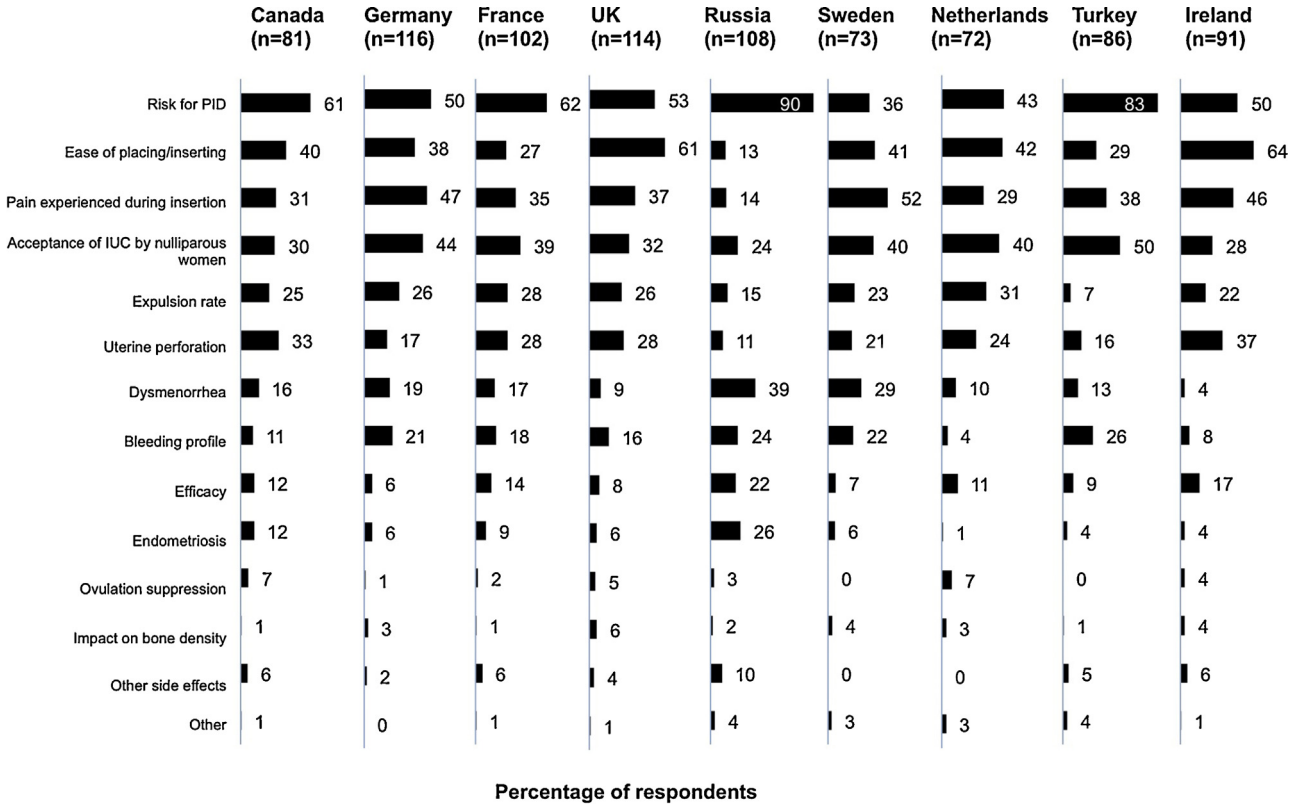

Fig. 4. Information required for increasing knowledge and confidence in use of IUC in nulliparous women. The bars show the percentage of respondents that reported each type of information as one of their top three information requirements. IUC, intrauterine contraception; PID, pelvic inflammatory disease.

likely to share the same institutional attitudes and beliefs. However, owing to random sampling, it is unlikely that this was the case.

In addition, the recruitment of relatively small samples (between 100 and 150 respondents per country), and sampling from panels of healthcare providers who had elected to participate in a medical research surveys carries a risk of selection bias. To minimize this risk, quotas for different HCP types were set in each country to ensure recruitment of representative samples.

Study strengths

The strengths of this survey included the following: it was designed for simultaneous administration in different countries; the questionnaire was translated into local languages and tested locally for comprehension before roll out; only healthcare providers who were active in the provision of contraceptive counseling were surveyed; and in each country different types of healthcare provider were recruited in ratios that reflected the types of provider who provide contraceptive counseling.

Other surveys of European providers

The methods of contraception that HCPs and their partners use themselves and the methods of contraception that they recommend to their patients has been studied in a multinational online survey [28]. Among 1001 male and female HCPs involved in

Table 8
Intrauterine contraception: misperceptions vs scientific evidence.

Misperception	Scientific evidence
IUC is not suitable for nulliparous women	The evidence-based WHO MEC for contraceptive use support use of IUC in a wide range of women regardless of age or parity. For both the LNG-IUS and the copper IUD nulliparity is category 2 (the benefits outweigh the risks) [8]
IUC causes pelvic inflammatory disease	PID is caused by sexually transmitted infections (STIs), mainly chlamydia and gonorrhea. There is a slightly increased incidence of PID in the first 3 weeks after placement of IUC. This is related to the insertion procedure, during which a *pre-existing* infection, including STI, is transferred into the uterus when the sterile device may become a vehicle for microbial transport in the upper genital tract. To avoid transferring pre-existing infections during the insertion procedure, consider screening women considered to be at high risk of STIs [11,17,29]
IUC increases the risk of ectopic pregnancy	The overall pregnancy rate among IUC users in very low [3], therefore the absolute incidence of ectopic pregnancy is also low and similar to the background ectopic pregnancy rate [25]
It is difficult to insert IUC in a nulliparous woman	In studies, 72–85% of IUC insertions in nulliparous women were considered to be 'easy' by investigators [20–22]
Insertion of IUC is too painful for a nulliparous woman	In studies, 79–85% of nulliparous women rated their insertion-related pain as no more than 'moderate' [20,21,30]
The risk of uterine perforation is high in nulliparous women	The incidence of uterine perforation is low regardless of parity [20,31–34]
Nulliparous women are likely to expel their device	The incidence of expulsion is low regardless of parity [11,20,23]

IUC, intrauterine contraception.

contraceptive counseling, the method they/their partner most commonly used personally was the LNG-IUS. Regarding the methods that HCPs recommended to their patients, the LNG-IUS was the second most frequently recommended method for spacers and the most frequently recommended method for women who have completed their family. The HCP being female, aged 36–45 years of age and being an OB–GYN were factors associated with a higher likelihood of recommending the LNG-IUS as second choice for spacers. The HCP being female, aged 46–55 years, an OB–GYN, and an LNG-IUS user were factors associated with a higher likelihood of recommending the LNG-IUS as first choice for women who have completed their family.

Conclusion

IUC needs to be recognized as a suitable option for nulliparous women and be proactively included as an option in their contraceptive counseling. Further education on the scientific evidence regarding IUC is needed, especially regarding pelvic inflammatory disease. Knowledge of the WHO MEC also needs to be improved. In addition, HCPs' perceptions of the insertion procedure highlight the need (a) for practical insertion training to be more widely available and (b) for further studies on pain management to be conducted to increase HCPs' comfort in performing IUC insertions. Education on the evidence presented in Table 8 may help to overcome HCPs misperceptions so that they more frequently include IUC as an option during contraceptive counseling, which in turn may lead to more widespread use of IUC and a reduction in unintended pregnancy rates.

Condensation

This article emphasizes on Healthcare providers' gaps in their knowledge regarding intrauterine contraception by presenting the results of a huge survey in Europe and Canada.

Conflict of interest statement

All authors are members of the INTRA group, an independent panel of physicians with expert interest in intrauterine contraception, the formation of which was facilitated by Bayer HealthCare. This publication and its content was solely the responsibility of the authors. They received editorial support which was paid for by Bayer HealthCare. In addition, all authors had acted as consultants to Bayer HealthCare and received consultancy honoraria.

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