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Title: Perceived barriers and facilitators to female condoms among UK based healthcare professionals

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Abstract

Objectives: The female condom (FC) is an effective strategy against sexually transmitted infections (STIs) in susceptible women and men who have sex with men. FCs are the only female-initiated dual protection method that protects against both STIs and unintended pregnancy. As healthcare professionals (HCPs) are a key element in the promotion of contraceptive use, it is important to examine attitudes toward FCs among this group. **Study participants:** 15 male and female HCPs aged between 22-57 years recruited from sexual and reproductive health settings located in Brighton, London, and Glasgow. **Sampling method:** purposive sampling with targeted advertisements (newsletters and bulletins). **Study design:** face-to-face and telephone interviews with sexual health HCPs. **Main outcome measure:** potential barriers and facilitators to FCs in the UK. Data were analysed thematically to identify common views and perspectives. **Results:** FCs were thought to be unacceptable to most women due to stigma, design, negative visual appeal, insertion difficulties and lack of familiarity. The perceived unavailability and higher cost of FCs, in comparison to male condoms, are major barriers to their use. **Conclusions:** HCPs are reluctant to promote FCs, often due to the perceived social stigma surrounding FCs. Further education and promotion are needed to increase acceptability and correct usage. Future research needs to explore strategies to increase the acceptability of FCs among women, men who have sex with men and HCPs.

Keywords: Female condom, healthcare professionals, barriers, facilitators, qualitative.

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Introduction

In the UK, both sexually transmitted infection (STI) and unintended pregnancy rates remain relatively high. In 2017, there were 422,147 diagnoses of STIs made in England (1) and an estimated 862,785 conceptions, of which one-third were reported as unintended (2). Unintended pregnancies and STIs represent an estimated economic burden on the UK's National Health Service (NHS) in excess of £620 million per year (3). Heterosexual women remain at a higher risk than men of acquiring an STI (4) and by nature assume the sole physical burden of pregnancy (5).

Sexual health promotion is largely focused on the male condom (MC) for STI prevention in both men (6) and women (7), and long-acting reversible contraception (LARC) methods in preventing unintended pregnancy for women (8). However, LARC methods do not protect against STIs (9) and the MC relies on women negotiating correct use with their male partners (10). There is therefore a need for a female-initiated dual protection method.

The female condom (FC), also known as an 'internal condom' or 'femidom', is currently the sole female-initiated dual protection method for STI prevention and contraception (11). This barrier device is fitted inside the vagina (12) and can be inserted up to eight hours before intercourse using one of two flexible rings and covers both internal and external genitalia, proving useful for preventing STIs that are spread primarily via skin contact (e.g. human papillomavirus) (11). FCs have a lower rate of leakage than MCs (13) and can be used both vaginally and anally, broadening their acceptability, in particular for the LGBTQ+ community.

However, the FC remains underutilised (14) and has faced "formidable hurdles owing to significant structural and social barriers" (15). These include a lack of FC production and supply, higher cost compared to the MC, resistance from male partners, negative press, and minimal promotional efforts (11). A descriptive cross-sectional study (16) assessing Ghanaian women aged 15-49 years demonstrated low FC use, with only 48.4% of the 380 participants aware of FCs. This

underutilisation may be explained by low FC accessibility and partner resistance, highlighting a gender power imbalance.

Possible advantages of the FC over the MC include comfort, enhanced sexual pleasure, lack of male responsibility, and the promotion of women's sexual agency. (17) For example, in a sample of urban Indian women, the FC was attributed with increased pleasure, the alleviation of stress associated with STI transmission and pregnancy, especially as some male partners were resistant to MC use. (17) However, other women disliked FCs due to decreased pleasure. FCs therefore have potential, but design modifications may be required to improve the women's experience with them.

Healthcare professionals' perceptions of ICs

Healthcare professionals (HCPs) treat and prevent illness, injury, and physical and mental health problems. The term HCP covers a myriad of job roles, including doctors, nurses, sexual health advisors, social workers, and psychologists. Their role has been posited as a "major missing link" in the body of FC research. (15) HCP's acceptance and endorsement of particular contraceptive methods may be key in service users' uptake of the method, as demonstrated by Steiner et al., who found that having contact with a health professional was the only factor attributed to consistency of birth control usage and the reason for starting contraception (18).

Only a handful of studies have investigated HCP's perceptions of FCs (15). In a qualitative study of 69 semi-structured interviews with HCPs across 5 HIV/STI and pregnancy prevention agencies in New York, sites had zero or a very limited supply of FCs and little knowledge of device insertion. Several HCPs regarded FCs as aesthetically unappealing and structurally problematic (e.g. the inner ring being too hard). HCPs were also unsure as to whether FCs should be targeted for young people or more "high risk" groups such as sex workers. Generalising this study to the wider population of HCPs and their clients may, however, be problematic as only one US city was sampled, with predominantly young low-income black or Hispanic clients at a high risk of HIV/STIs.

The present study sought to add to the limited evidence on the topic by exploring UK HCP's perceptions of the FC. Studies have suggested that HCP's acceptance and endorsement of particular contraceptive methods may be key in service users' uptake of a method. (18) Study aims included identifying UK HCP's perceptions of the FC and their perceived barriers and facilitators to FC uptake. To the best of our knowledge, the present study was the first to investigate the perceptions of the FC among HCPs in the UK.

Methods

Design

A qualitative approach using semi-structured interviews, conducted between March to July 2018, and thematic analysis was used to explore the attitudes of HCPs toward FCs. Ethical approval for this study was obtained by the the University of Southampton Ethics committee (ref: 31205).

Recruitment and participants

Purposive sampling was used to recruit participants. Snowball sampling, a type of purposive sampling, is a non-probability sampling method whereby existing participants recruit future participants from amongst their social or professional networks (19). Snowball sampling has the advantage of creating "dynamic moments where unique social knowledge of an interactional quality can be fruitfully generated" (20). Inclusion criteria included: UK-based HCPs practising in either a sexual or reproductive health setting (e.g. Genitourinary medicine (GUM) clinics, family planning clinics etc.) or general practice (e.g. GP surgery). HCPs were excluded if they were not actively practising, worked in settings other than sexual and reproductive health or general practice, or were based outside of the UK.

Advertisements were distributed via newsletters and bulletins through three UK based sexual health services (Brighton, London, and Glasgow). These advertisements invited potential participants to contribute to a 30-minute interview exploring the attitudes and perspectives of HCPs from GUM clinics, general practitioners and related sexual health settings towards the FC in order to greater

understand potential barriers and facilitators to FC uptake, and the promotion of the FC to service users. Potential participants were asked to contact the first author directly via email and forward the advert to colleagues working in sexual health. The study advertisement contained an information sheet and online link where participants could record their email address to allow for a telephone interview to be arranged. Both face-to-face and telephone interviews were used for data collection. Telephone interviews were done with participants who were unable to meet in person.

All participants provided informed consent; verbal consent was also obtained prior to interview commencement. The semi-structured interview topic guide (see Table 1) consisted of open-ended questions to allow for participants' expression of their attitudes and experiences. Questions were based around topics such as the efficacy of the FC, distribution challenges, and HCP FC recommendations. Interviews were audio-recorded and the audio files were stored on a password-protected computer. Recordings were transcribed verbatim by the first author and analysed consecutively. Interviews lasted between 10 to 27 minutes.

Data analysis

The first author (a male postgraduate Health Psychology student) collected and analysed the data, using Braun and Clarke's method of thematic analysis. (21) Each transcript was read and re-read, coded, and grouped into themes (based on the conceptual similarity of the codes). For example, the theme 'Perceived barriers to FC uptake' (see Table 2) included the codes 'availability', 'acceptability' and 'cost' of the FC. Collecting and analysing data continued until theoretical saturation was reached, in this case when coding of the fifteenth participant had been completed. To ensure consistency of analysis, the themes were discussed with the co-authors, who also reviewed the original transcripts.

Results

Participants were aged between 22-57 years (mean=38, median=37). Fifteen participants took part in the study; 73% of the sample (11) were women and 27% of the sample (4) were men. All

participants held professional roles in sexual health or general practice settings including: sexual health nurse (4), sexual health advisor (3), speciality doctor in sexual health (3), consultant doctor in sexual health (2), trainee GP (2), and sexual health technician (1). Six interviews were conducted face-to-face, with the remaining nine conducted via telephone. Years of professional sexual health experience ranged from 1-22 years (mean=8.8, median=10). Participants were based in sexual and reproductive health settings in Brighton, London, and Glasgow.

In total, six themes were identified reflecting barriers and facilitators to FCs: 'Acceptability', 'Device limitations and insertion difficulties', 'Availability', 'Cost', 'Education and Promotion', and 'HCP Training'.

Acceptability

Participants were in agreement that FCs are regarded as an unacceptable barrier method for STI prevention and contraception and there was general disinterest in FCs: "*...the user is just not that interested in them...*" (age 40, a specialist doctor in sexual health). Some mentioned possible social stigma surrounding FCs, where FCs are 'frowned upon', making them a less acceptable barrier method:

"...it's not exactly the coolest method of contraception, it's kind of like, frowned upon if you're using a female condom..." (age 22, sexual health technician).

One participant suggested that the stigma surrounding FCs may be due to women not wanting "*to look like they're 'up for it'*" (age 42, sexual health advisor), adding that women in the UK find carrying MCs far more acceptable than carrying FCs. Overall, FCs were perceived as being unacceptable to women.

Device limitations and insertion difficulties

Comments suggested that the FC design restricted uptake, with FC likened to a "rustling plastic bag" or a "crisp packet". They were viewed as aesthetically and audibly unpleasant, and perceived as potentially "ruining the mood" during a sexual encounter:

“I suppose they’re [FCs] not very attractive to look at and they’re quite noisy so, you know, getting one of those condoms out in the middle of having sex can be a bit of an off-putting experience I suppose.” (age 46, assistant sexual health advisor).

Some considered the FC’s external packaging to be larger than the MC, making the product less discreet: *“...the packets of the female condoms are much larger so you can’t really take them out discreetly...”* (age 37, clinical nurse specialist).

Ease of device insertion was also considered a barrier to FC uptake. For example, when compared to MCs, the FC was regarded as “fiddlier” and impractical *“...asking women halfway during a sexual act to open a packet and then sort of, fiddle around putting it inside her, they just look at you as if you’re completely crazy...”* (age 40, a specialist doctor in sexual health). This may reduce device effectiveness. If not inserted correctly, the penis could “miss” the FC during intercourse and make the device redundant. Additionally, for some populations, such as those lacking dexterity, or those intoxicated, difficulty in FC insertion may be too great to warrant it as a viable option.

Availability

All participants believed the FC to be far less available than the MC, often remarking having rarely seen the device in either commercial or healthcare settings. Three participants stated they had never seen an FC in a clinical environment: *“...I’ve never seen anyone using one [FC] in a clinical setting.”* (age 26, trainee GP). FC availability was perceived to be poor and this was positioned as a barrier to uptake.

Cost

Most HCPs perceived FCs to be significantly more expensive to manufacture than MCs: *“They’re [FCs] more expensive to produce too aren’t they, so that’s probably a factor [in FC uptake]”* (age 40, speciality doctor in sexual health). Compared to MCs, FCs were thought to be more expensive for both consumer and company: *“They’re [FCs] just more expensive than male*

condoms...” (age 57, speciality doctor in sexual health). National MC distribution schemes were mentioned as hindering FC uptake; some participants believed that users would prefer to use freely available MCs than to buy FCs. Whilst some participants perceived price to hinder FC uptake, this was disputed by three participants who argued FC cost was irrelevant to their position as an underutilized method and instead suggested that the issue was more related to product demand: “*Well...no. I don't think it's a cost issue, it's a demand issue.*” (age 33, sexual health advisor).

Education and Promotion

Participants believed that educating the public (particularly young people) about FCs would act as a stepping stone to greater use of the device: “*...one of the main things [to increase FC uptake] would be, shorter-term education targeted campaigns towards young people would be quite useful*”. (age 37, sexual health consultant). Participants highlighted a need to educate women on correct FC application: “*...actually having somebody demonstrate it, exactly how to put it on and everything...*” (age 27, trainee GP). A change in healthcare education policy toward the FC was also mentioned, such as including the method in Family Planning Association (FPA) leaflets: “*...using the FPA leaflet that's got every single type [of contraception] so that you can unpack what's acceptable for them.*” (age 33, sexual health advisor), and including FC education in sex and relationships education for young people: “*...they need to have a sex and relationships education policy, and... include erm, more information about female condoms...*” (age 42, sexual health advisor). Participants mentioned that FCs should be promoted as equal to MCs: “*...you've got to talk about a female condom with as much enthusiasm and as much know-how...*” (age 37, clinical nurse specialist). FC promotional methods mentioned included sexual health campaigns, school sex education interventions, charities and commercial retailers (such as high street brands), “*...in conjunction with somebody like Ann Summers, erm, as an adjunct to their parties, and get people on board like that*” (age 33, sexual health advisor).

Targeted FC promotion towards specific populations was perceived to facilitate increased uptake. Some argued that targeting young people (16-25) would be best as they represent a group at risk of STIs. A couple of participants expressed the importance of familiarizing young people with the FC towards the beginning of their sexual history and believed that doing so would normalize FCs to young people: “...if they know that their friends are using it, ..., then they would know “*ah other people at my age are using it as well*” (age 42, sexual health advisor). However, some questioned whether young people would want to use the device or be committed to learning correct device insertion. Instead, these HCPs suggested that FC promotion would better serve older women with more sexual and reproductive experience or women who experience difficulty in condom negotiation with male partners.

HCP training

In general, the FC was perceived to be a somewhat “forgotten method” and participants spoke about the importance of “getting the professionals talking about it [FC]”. Some participants thought that “training the trainers” was important to allow HCPs to become comfortable and confident in promoting the FC to service users: “*I think maybe re-training staff is key so that they’re comfortable and confident to give them [FCs] out.*” (age 33, sexual health advisor). Two participants suggested that the most efficient way to train HCPs on the FC would be to have either ‘education days’ or ‘refresher sessions’ which involve all staff present on a given day: “...*the way to go about that is through education days, if you’re going to do it in-service, because you should have all the clinicians there at that point.*” (age 29, sexual health nurse).

Not everyone agreed HCP training would increase FC uptake, however. Two participants believed HCP FC training to be unnecessary and ineffective at increasing FC promotion to service users; “*I doubt you’ll get much interest in them even though if I’m honest.*” (age 48, speciality doctor in sexual health). Thus, the perception that HCP training would increase FC uptake was not unanimous.

Discussion

The present study used qualitative interview methods to investigate what HCPs perceived to be barriers and facilitators to FC uptake in the UK. Barriers to FC uptake included acceptability, device limitations and insertion difficulties, lack of education and public awareness, cost, and availability. Facilitators to FC uptake included education, promotion, and HCP training. Overall, there were no specific differences in the responses when comparing HCP role, gender, or age. Nevertheless, the authors believe that future quantitative studies would be able to explore these patterns.

Participants in the present study believed FC acceptability amongst the general population to be low, with women not perceiving the FC as a viable barrier method. Early studies of worldwide FC acceptability reported high rates of acceptability ranging from 37% to 96% (22), with later research demonstrating the highest acceptability rates in African settings (23, 24) and Asian settings. (25) Studies investigating FC acceptability rates in Western populations have been scarce, with the majority of evidence coming from FC intervention trials that have found higher post-intervention levels of acceptability and actual FC use in heterosexual couples in the United States (26, 27), and Spain. (28) However, a large number of HCPs in our study still believed that the FC would be unacceptable to women, a factor that might prevent HCPs from even broaching the topic in consultations.

Issues with the FC as a physical device and insertion practices were thought to be another major barrier to FC uptake in the UK. Many HCPs expressed the view that the device was visually unaesthetic and audibly off-putting, attitudes that have been reported by participants in actual-use randomized trials (29). The FC was also thought to be more difficult to apply than a MC due to issues with inserting the device internally. Indeed, some studies have found that the proportion of users experiencing FC insertion difficulty is as large as 30-55% (30), leading to inconsistent use (31). However, HCPs in the present study suggested that education interventions which include

demonstrations might facilitate FC uptake by improving insertion skill. Artz et al., for example, in a study that evaluated a STI clinic-based intervention, found that with practice and repeated use, difficulty with FC insertion dropped from 25% to 3%. (32) Findings from the present study combined with the existing evidence suggest the importance of skills training in overcoming insertion barriers.

Furthermore, FC availability in the UK remains low, and no widespread distribution schemes currently exist. This is in stark contrast to sustained MC distribution schemes, such as the C-Card, in which holders are entitled to a range of free MCs from most pharmacies and healthcare clinics (33). Researchers have suggested that availability could increase demand considerably (32), yet there have been no attempts to increase the supply of the product in the UK.

Cost and affordability of the FC were also perceived as barriers to FC uptake. Price as a barrier to sustained FC use has been cited in almost every article on the FC from a public health perspective (14), and the higher price of the FC (compared to the MC) “continues to plague large-scale national female condom programs” (26, p.123). Even when publicly funded healthcare agencies such as the NHS provide free FCs, they are often in much shorter supply than MCs, as was noted by HCPs in the present study. Without a regular supply of free FCs, there is unlikely to be a change in FC uptake; price and affordability represent enduring issues that threaten the FC as a viable method.

Despite identifying barriers to FC uptake, HCPs in the present study believed steps can be taken to facilitate improved FC attitude and uptake. These included healthcare (e.g. national sexual health schemes) and commercial campaigns (e.g. with high street chains such as Ann Summers). Sexual health promotion campaigns in Africa have been successful at improving attitudes towards FCs. (34)

Simply calling for the promotion of FCs is not enough, however, and it is important to consider exactly *what* is being promoted and *who* is being targeted. In our study, promotion of the FC was often mentioned alongside condom use negotiation as a tool that allows women to assume control over their sexual and reproductive health. The FC has been touted as an object of women’s

empowerment by many in the field, but this has yet to translate into FC promotional or marketing campaigns. (26) Increasing the image of the FC as an important tool for women's sexual and reproductive health could encourage HCPs to promote it as much as it may encourage new users to try the device.

Limitations

There are several limitations to the present study. Firstly, due to high workloads, HCPs represent a population that is generally more difficult to recruit and so snowball sampling was used to enhance recruitment. Oversampling of a particular network of HCPs may lead to bias based on extraneous factors (e.g., local campaigns, political views) and as such we cannot generalize the findings from our sample to all HCPs in the UK.

Another limitation is that telephone interviews also omit some information that adds to the contextual detail of an interview, such as participant body language. Finally, female HCPs made up the majority of the sample, with a resultant lack of a male HCP perspective on the FC, a research gap that has been highlighted as problematic in other studies (35).

Implications

The present study is the first to explore barriers and facilitators to FC use in the UK from an HCP perspective and the findings have several implications for future efforts to improve FC uptake. Firstly, findings suggest a need for increased FC education and training interventions for both potential users and HCPs. For the user, educational interventions could take place in school/healthcare settings that would include applying FCs on anatomical models to allow users to gain confidence in fitting and using the device. For the HCP, education consisting of in-clinic workshops and seminars should be implemented to encourage FC promotion behaviour. This may allow HCPs to become more confident in promoting the device to service users.

Lastly, there is a need for quantitative data regarding FC user acceptability in the UK. Data on FC acceptability and uptake in the UK are sparse and largely outdated, with the new designs and FC

types available. New UK FC data would serve to reignite the conversation surrounding FCs and also serve as an evidence base to be included in HCP FC training programmes.

Conclusion

The FC is an important yet underused and under-promoted product in the field of sexual health. HCPs are well-positioned to advocate the FC as service users often turn to them for advice on contraception and STI prevention decision making. HCP's knowledge and perceptions of FCs may therefore have a significant effect on overall FC uptake. Interventions to improve FC uptake should consider the knowledge and skills of the user but prioritise the influence of the HCP; HCPs are likely the catalysts to successful FC efforts.

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Table 1: Interview Topic Guide.

No.	Telephone Interview questions
1	What is your age, gender, and professional role?
2	Can you tell me about your professional background and work history?
3	Can you tell me what you know about the female condom?
4	To what extent do you think that female condoms are effective?
5	Who do you believe the female condom should be targeted towards?
6	What are the main challenges to the national distribution of female condoms?
7	What would facilitate a change in policy to offer female condoms to protect women against STIs?
8	Would you recommend the female condom to a client, and can you explain the reason for your answer?

Table 2: Coding Manual for Thematic Analysis.

Major theme	Sub-theme	Description	Illustrative Quote
HCP knowledge and attitudes	Personal knowledge and attitudes	General knowledge possessed about the FC and attitudes, beliefs, and perceptions towards the FC	<p>“I don’t know an awful lot…”</p> <p>“Erm, I think it’s quite old fashioned and it’s just quite, I don’t know, it’s quite a bit of a fad compared to like a male condom.”</p>
	Perceived effectiveness of the FC	Specific knowledge possessed by the HCP regarding the effectiveness of the FC as a medical device	“I think they’re of similar efficacy as the male condom…”
Perceived barriers to FC uptake	Acceptability	The belief that low user acceptability acts as a barrier to FC uptake	<p>“...the user is not that interested in them”</p> <p>“...I'll only offer it to people who I think would benefit from it, but most are like "yeah, no, don't want it ”</p>
	Device limitations and insertion difficulties	The beliefs that the FC product itself and issues applying the product for use act as barriers to FC uptake	<p>“the feedback I’ve got off patients is that it's like having sex with a crisp packet...”</p> <p>“I think they find it a lot more fiddly than a [male] condom to put on...”</p>
	Lack of public awareness and education	The beliefs that a lack of public awareness of the FC and a lack of FC education programmes act as barriers to FC uptake	<p>“I’m not sure, I think a lot of women have no idea about them, I think that there's probably a lack of education about them...”</p> <p>“...in fact I don't think a lot of people are aware of them actually.”</p>
	Availability	The belief that a lack of availability acts as a barrier to FC uptake	“they're not very readily available and never in my practice have I given them to any patient.”
	Cost	The belief that pricing of the FC acts as a barrier to uptake	“...they are more expensive to produce too.”
Perceived facilitators to FC uptake	Education	The perception that FC education programmes could facilitate an increase in FC uptake	<p>“I think erm, from a healthcare awareness point of view education would be really useful, and actually somebody demonstrating it, exactly how to put it on and everything like that...”</p> <p>“...so I think they would need, they would need education on how to use</p>

			them and you know, like a, like a male condom really...”
	Promotion	The perception that increased FC promotion could facilitate uptake	“...so yeah, maybe just more promotion in general, yeah, make people a bit more aware and then it's their choice at the end of the day if they want to use them or not isn't it.”
	HCP training	The perception that specific FC training programmes for active HCPs could facilitate uptake	<p>“...maybe re-training staff, so they are comfortable and confident to give them out.”</p> <p>“Erm, I think, to start off with you need to train the trainers, so getting the staff onboard, umm, and then I would say, umm, that's something, they can they be talking to patients about using them more.”</p>