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Pharmacy-based sexual health services: a systematic review of experiences and attitudes of pharmacy users and pharmacy staff

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ABSTRACT

BACKGROUND

Pharmacies are increasingly providing services related to contraception and sexually transmitted infections. Identifying pharmacy staff and users' experiences and attitudes relating to sexual health services is critical to understand users' needs and examining how pharmacy staff can most effectively contribute to patient-centred care. This systematic review aimed to examine pharmacy staff and pharmacy users' experiences and attitudes towards the delivery of a large range of sexual health services.

METHODS

Seven electronic databases and the reference lists of all included studies were searched in September 2018. Studies giving insight into pharmacy users' and pharmacy staff's experiences and attitudes towards the delivery of services related to contraception and sexually transmitted infections were included. The Mixed Methods Appraisal Tool was used to assess the quality of included studies and a narrative synthesis applied to analyse evidence.

RESULTS

Nineteen studies were included. Eleven studies looked at pharmacy staff, four at users and four at both groups. Users found services accessible and convenient and staff found service provision feasible. However, several barriers to service delivery were identified including lack of privacy for delivering services, lack of trained staff available to provide services, and subjective judgements being made on who should be provided or offered a service.

DISCUSSION

Barriers to service delivery need to be addressed to allow pharmacies to deliver their full potential. Future research on pharmacy-based gonorrhoea and syphilis screening, and hepatitis B vaccination is needed.

SYSTEMATIC REVIEW REGISTRATION NUMBER:

CRD42018106807

INTRODUCTION

Worldwide, more than a million people acquire a sexually transmitted infection (STI) daily (1) and around 44% (99.1 million) of all pregnancies in 2010 to 2014 were unintended (2). Unintended pregnancies can cause worse health, economic and social outcomes for women (3,4) and STIs can have severe reproductive, sexual and maternal-child health consequences (1). Hence, STIs and unintended pregnancies are major concerns (5,6) and the provision of sexual health services addressing STIs and unintended pregnancy are highly important.

Pharmacies have the potential to improve access to sexual health services by virtue of their numerous locations; and since industrialised countries face new challenges associated with rising costs and demand, limited financial resources, and a shortage of human resources (7,8), several countries have recently implemented policies to expand pharmacists' roles (9). For example, pharmacists in England are now providing a range of public health services such as smoking cessation and services for drug misusers (10,11). Further, they are increasingly providing services such as contraception and the screening and treatment of STIs.

As a consequence of pharmacies' service expansion, the role of pharmacy staff is changing from drug dispenser to patient-centred care provider (7,12). Examining pharmacy staff experiences and attitudes to sexual health services is critical to understand whether they deliver a consistent and high quality service (12). Further, exploring pharmacy users' experiences and attitudes may identify training needs and improve service delivery (7).

A recent systematic review focused on young people's experiences and found pharmacy-based sexual health services to be appealing to and used by this group, although some pharmacy staff created a barrier to service access or refused access (13). Another review has explored the acceptability of and barriers to chlamydia testing and included both user and staff perspectives (14). This review showed that chlamydia screening is feasible, accessible and convenient and that incentives can increase access to testing. Another review on pharmacy-based sexual health services looked at emergency contraception and found that women liked the service but had concerns about the advice provided on future contraception and STIs (15). Previous reviews have focused particularly on emergency contraception and chlamydia screening.

Therefore, our review aimed to systematically summarise and critically appraise pharmacy users' and staff experiences and attitudes towards the delivery of a large range of pharmacy-based sexual health services.

METHODS

This review is reported using the PRISMA reporting framework (16). The PRISMA checklist can be found attached (see research checklist). The protocol was published in August 2018 on PROSPERO (Registration number: CRD42018106807) and is available from: <https://bit.ly/2Qlegiv>.

Inclusion and exclusion criteria

The review included qualitative studies (interviews, focus groups, ethnography), quantitative studies (randomised controlled trials [RCTs], cross-sectional studies, cohort studies) and mixed method studies. The population of interest was users and providers of pharmacy-based sexual health services. Only studies based in countries within the Organisation for Economic Co-operation and Development (OECD) were included. This was to ensure that results could inform current practice in OECD member countries. A wide range of pharmacy services were included in this review as being relevant to the research question.(17) These were: condoms, emergency contraception (EC), Chlamydia, gonorrhoea, syphilis and HIV screening, Chlamydia treatment, oral contraceptive pill, contraceptive injection, hepatitis B vaccine and partner notification for chlamydia. Studies with and without a comparator group were eligible for inclusion. The outcome groupings of interest were broad to reflect the wide range of possible relevant outcomes for the review question.

The Cochrane Effective Practice and Organisation of Care outcome framework was used to categorise the outcomes of interest (18): Service user outcomes (e.g. experience, barriers and enablers), Provider outcomes (e.g. experience; workload; work morale), Social outcomes (e.g. empowerment), Attitudes (e.g. service users', providers'), Satisfaction (e.g. service users', providers').

Search Strategy

Cochrane, Embase, Medline, Popline, PsycINFO, Scopus and Web of Science, and the reference lists of all included studies were searched without language restrictions on the 17th September 2018. Only literature from the past ten years was included (10) to ensure findings would inform current practice, which is consistent with previous reviews in the same field. (10) (14).

The search strategy was informed by previous reviews in the field (13–15) and compiled by JG in collaboration with HA, JR and a librarian. The search was adapted for each database by mapping the keywords “pharmacy/pharmacies” with terms associated with contraception and STIs. The search strategy utilised for Medline is presented in Appendix 1.

Selection of studies

All articles initially identified were deduplicated and the remaining titles and abstracts screened against the inclusion criteria by two researchers independently. Disagreements were resolved through discussion with another researcher. The full texts of potentially relevant articles were retrieved and dual screened against pre-defined criteria. If an article was excluded at this stage, the reason was recorded. Discrepancies between the reviewers were resolved by another researcher.

Data extraction

A data extraction sheet was developed and piloted. Data was extracted by two researchers independently, with agreement reached through discussion with a third reviewer if required. Outcomes were extracted according to our pre-specified framework.

Quality assessment

The methodological quality of included studies was assessed using the Mixed Methods Appraisal Tool (MMAT) – Version 2018 (19) which is designed for reviews where study designs are mixed and individual studies use mixed methods. The assessment was completed independently by two researchers and disagreements were resolved with another researcher. Studies were categorised as high, medium or low quality, dependent on how many MMAT-criteria were met. Quality assessment was used to provide context for the study findings.

Data Synthesis

A narrative synthesis was conducted by JG in collaboration with HA and JR. Due to the methodological heterogeneity of included studies, conducting a statistical meta-analysis was not possible. Narrative synthesis allowed for the combination of qualitative and quantitative evidence through the comparison of similarities and differences between studies and is a method commonly used to synthesise data in systematic reviews (20–23). Elements of Popay et al.'s (2006) guidance on the conduct of narrative synthesis were followed (24). The characteristics and key findings of studies were summarised and patterns across studies presented according to the population type. Next, factors offering explanations for relationships within and between studies were sought.

RESULTS

Literature Search

Of 4778 articles identified in the literature database search, 110 were identified at title and abstract stage and the full text was screened. Of these, 16 studies met the inclusion criteria. A further three studies were identified through the screening of the reference lists of included studies. A total of 19 studies were included Figure 1.

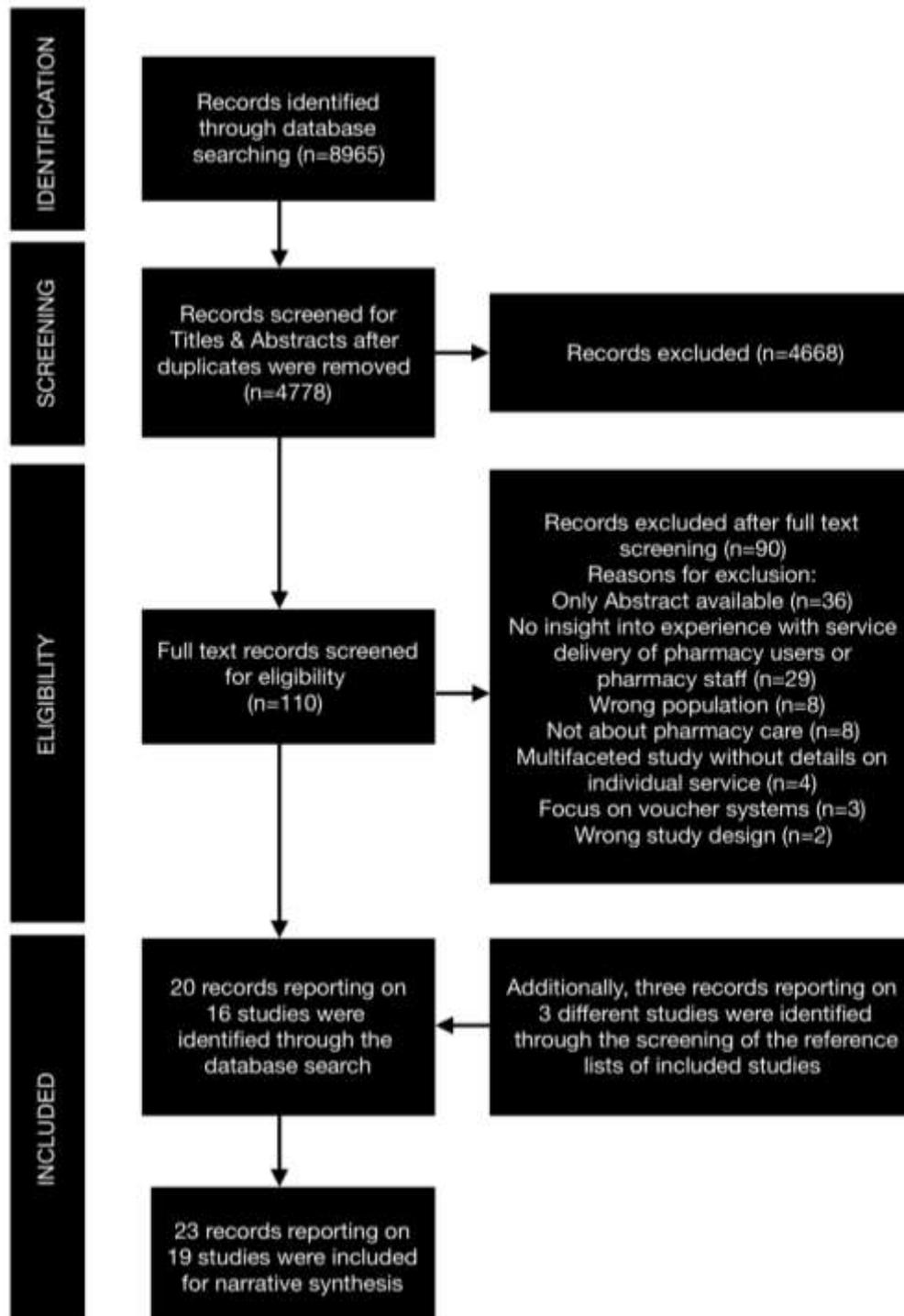


Figure 1 PRISMA Flow Diagram

Description of Included studies

Quantitative (n=7), qualitative (n=5) and mixed methods (n=7) studies looking at pharmacy staff (n=11), users (n=4) and both users and staff (n=4) were included. Interviews (n=11), surveys (n=12) and focus groups (n=2) gave insight into users' and staff' experiences and attitudes. The characteristics of included studies are presented in Table 1. Studies reported on at least one of the following services: EC, Oral contraception, Contraceptive injection, Chlamydia screening, HIV screening and Condom distribution.

Two qualitative and two quantitative studies included a comparator group.

Quality of included studies

Ten studies were of high, five of low and four of medium quality. Most studies (n=18) had clear research questions and appropriate data collection methods (n=16). While most qualitative studies were of high quality, most quantitative studies had a high risk of nonresponse bias and most mixed methods studies failed to adequately integrate results. The detailed quality assessment is attached as Supplementary File 1.

Experiences and attitudes of pharmacy users and staff

Pharmacy users

Three key areas of importance to pharmacy users were identified: suitability, privacy and counselling. The main findings are summarised in Table 2.

Suitability

Users found pharmacies convenient, easy and quick to access and use. They liked that compared to other providers, no appointments needed to be organised (25–33). However, a barrier to service delivery experienced by some users was that trained staff were not always available to provide the service (32).

Privacy

All five studies evaluating 'privacy' did so in relation to EC or chlamydia screening. Users perceptions of experience conflicted within and between studies: While some were not concerned and stated that privacy was something they liked about pharmacies, others had privacy concerns and were worried about being overheard at the counter (25–31). In one study 98.9% of users of clinical services such as family planning services and General practices (82/83) were satisfied with the level of privacy provided, a significantly lower percentage ($p \leq .001$) of pharmacy users (44%; 22/50) were satisfied (25).

Counselling

With the exception of some younger individuals, pharmacy users generally had a positive counselling experience, felt comfortable discussing sexual health (26–35) and found that appropriate advice was provided (26–28,30,31,33–35). However, in two quantitative studies, pharmacy users found counselling on EC less informative and satisfactory compared to users of other sexual health providers (25,34,35): Whereas 95% of users of clinical services (78/83) agreed that adequate advice on EC was provided, fewer pharmacy users (82%; 41/50) did so (25). While both clinic users (86.6%; 100/116) and pharmacy users (81.4%; 71/87) were generally satisfied with the counselling, pharmacy users were slightly less satisfied than users of clinical services (34,35).

Table 1 Characteristics and Quality of Included Studies.

First Author (Year)	Study Component(s) of interest	Setting	Type of Intervention	Comparator	Relevant Pharmacy Population Type	Quality
Black (2008)	Survey	England	Emergency Contraception	Yes (Family Planning Clinic; GP)	Pharmacy Users (n=50)	Low
Chaumont (2017)	Interviews and Survey	Canada	Emergency Contraception	No	Pharmacists (Survey: n=198; Interviews: n=17)	High
Cooper (2008)	Interviews	England	Emergency Contraception	No	Pharmacists (n=23)	High
Dabrera (2011)	Interviews	England	Chlamydia screening	No	Pharmacists (n=10)	Medium
Darin (2015)	Survey	United States	HIV screening	No	Pharmacy Users (n=69)	Low
Debattista / Emmerton (2017/ 2011)	Interviews	Australia	Chlamydia Screening	No	Pharmacists (not reported)	Low
Deeks / Parker (2014/2013)	Interviews, Focus Groups and Survey	Australia	Chlamydia Screening	No	Pharmacy Users (Survey: n=945; Interviews: n=18) and Pharmacy Healthcare Assistants (Survey: 20; Focus group =10)	Medium
Downing (2011)	Interviews and Survey	Australia	Emergency Contraception	No	Pharmacists (Survey: n=34; Interviews: not reported), non-pharmacists such as pharmacy healthcare assistants and pharmacy managers (Survey: n=111; Interview: not reported)	Low
Gudka (2013/2009)	Survey and Focus Groups	Australia	Chlamydia Screening after Emergency Contraception	No	Pharmacy Users (Survey: n=91; Focus Group: n=5) and Pharmacists (Focus Group: n=6)	High
Gudka (2014)	Survey	Australia	Emergency Contraception	No	Pharmacy Users (n=113)	Medium
Heller (2017)	Survey and Interviews	Australia	Contraceptive Injection	No	Pharmacy Users (Survey: n=50) and Pharmacists (Interviews: not reported)	Low

Hussainy (2011)	Survey	Australia	Emergency Contraception	No	Pharmacists (n=427)	High
Michie (2016)	Interviews	Scotland	Oral Contraception after Emergency Contraception	Yes (Two types of pharmacy care; Family Planning Clinic)	Pharmacy Users (n=12) and Pharmacists (n=10)	High
Ragland/Ragland (2015)	Survey	United States	Emergency Contraception	Yes (Women's Clinic)	Pharmacy Users (n=87)	High
Rodriguez (2018)	Survey	United States	Hormonal Contraception		Pharmacists (n=121)	Medium
Ryder (2015)	Interviews	United States	Condoms	No	Pharmacists (n=5) and Pharmacy Healthcare Assistants (n=4)	High
Thomas (2009)	Interviews	New Zealand	Chlamydia Screening after Emergency Contraception	Yes (Schools; Health & Youth Centres)	Pharmacists (n=12)	High
Whelan (2013)	Survey	England	Emergency Contraception	No	Pharmacists (n=422)	High
Wong (2017)	Interviews	Canada	Copper IUD consultation as part of Emergency Contraception counselling	No	Pharmacists (n=20)	High

Table 2 Key Findings of included studies

First Author(s) (Year)	Key Findings
Qualitative Studies	
Cooper (2008)	<ul style="list-style-type: none"> Some pharmacy staff were more likely give out EC to older users and were not willing to give EC to under 25s
Dabrera (2011)	<ul style="list-style-type: none"> Pharmacists were supportive of pharmacy-based chlamydia screening and found service provision feasible Some pharmacists were concerned about privacy outside of a consultation room Pharmacists were concerned about approaching young people (under 16 years) and found it more challenging to offer STI screening to users attending for non-sexual health complaints
Michie (2016)	<ul style="list-style-type: none"> Women used the pharmacy because they had difficulties accessing contraception elsewhere and did not want to plan an appointment ahead Women felt that the information given to them about contraception was clear
Ryder (2015)	<ul style="list-style-type: none"> According to pharmacists, young users were uncomfortable when requesting condoms Pharmacy staff felt that dealing with groups of people together is problematic Some pharmacy staff felt that young males do not use the pharmacy for condoms as the pharmacy might be seen as an intimidating environment due to having to talk to female staff
Wong (2017)	<ul style="list-style-type: none"> Some pharmacists felt conflicted in their roles as a health care professional and a drug dispenser (pharmacists felt pressured by users to provide fast services rather than detailed counselling) Most pharmacists were comfortable during counselling and believed that users were also comfortable Some pharmacists felt that women might feel uncomfortable being counselled by male pharmacists if there is not enough privacy provided; Pharmacists felt that it is difficult to ask users sensitive questions
Quantitative Studies	
Black (2008)	<ul style="list-style-type: none"> 74% (37/50) pharmacy users and 83.1% (69/83) of users of clinical services found it easy to obtain EHC from the pharmacy ($p=.163$) 98.9% (82/83) of clinic users compared with only 44% (22/50) of pharmacy users agreed that adequate privacy had been provided ($p\leq.001$) 95% (78/83) compared to 82% (41/50) of pharmacy users felt that adequate advice was provided ($p=.015$) Only 28% (14/50) of pharmacy users compared to 90.4% (75/83) of clinic users reported that future contraception was discussed after accessing EC ($p\leq.001$)
Darin (2015)	<ul style="list-style-type: none"> Speed (22/52) and convenience (16/52) were the most favourable features of pharmacy users experience Lack of privacy at check-in was something users (3 out of 15) did not like about the pharmacy, 'Private' and 'confidential' was something that users (7 out of 52) liked about the pharmacy
Gudka (2014)	<ul style="list-style-type: none"> Most women (69%; 73/113) found it very easy/ easy to get to the pharmacy and felt very comfortable/comfortable discussing EC with the pharmacist 48% (54/113) of women were unconcerned/very unconcerned about privacy in the pharmacy; 29% (33/113) were unconcerned/very unconcerned about privacy
Hussainy (2011)	<ul style="list-style-type: none"> 59.7% (256/427) of pharmacists refused EC when the person presenting was not the person needing EC 59.5% of pharmacists preferred to counsel on EC in an area of pharmacy where confidentiality could be assured or in a separate area away from other pharmacy users Most pharmacists counselled on EC side effects (90.2%), dosage (91.8%), efficacy in relation to time since unprotected sexual intercourse (88.8%); 81.9% (345/421) of pharmacists felt that it is their role to counsel on regular contraception but only 54.5% (229/420) felt that pharmacists should counsel on STI
Ragland (2015)/ Ragland (2015)	<ul style="list-style-type: none"> The majority of both clinic users (86.6%; 100/116) and pharmacy users (81.4%; 71/87) rated 'strongly agree' on being satisfied with counselling ($p=0.523$)

	<ul style="list-style-type: none"> Pharmacy users (mean \pm SD: 3.6\pm0.6) rated significantly lower ($p=0.034$) the statement that the counselling helped them understand EC use better than clinic users (mean \pm SD: 3.8\pm0.4)
Rodriguez (2018)	<ul style="list-style-type: none"> 87.6% of (106/121) pharmacists felt comfortable during counselling
Whelan (2013)	<ul style="list-style-type: none"> The factors interfering most with pharmacists' ability to provide EC were lack of privacy (46.1%; 195/422) and lack of staff (50.9%; 219/422)
Mixed Methods Studies	
Chaumont (2017)	<ul style="list-style-type: none"> 70.9% (134/189) of pharmacists were comfortable providing EC For 23.3% (10/43) of pharmacists the primary reason to refuse EC was that the person presenting was not the patient
Debattista (2017) / Emmerton (2011)	<ul style="list-style-type: none"> While pharmacy staff were supportive of pharmacy-based chlamydia screening, some were concerned about the workload
Deeks (2014)/ Parker (2013)	<ul style="list-style-type: none"> Pharmacy users were highly satisfied with chlamydia screening service and liked the accessibility, convenience, and that there was no need to book an appointment or travel a long distance A lack of privacy in the pharmacy was stated as a barrier by some participants Some users were concerned about confidentiality and privacy (because of other people around; fear of being overheard) Most pharmacy users felt that appropriate advice was provided While most users felt comfortable discussing chlamydia with pharmacy staff, a few young people felt uncomfortable Pharmacy assistants felt that offering sexual health services increased their job satisfaction Pharmacy assistants were anxious about longer waiting times for users due to offering chlamydia screening Users presenting in groups were concerning to pharmacy staff
Downing (2011)	<ul style="list-style-type: none"> Pharmacy staff were aware of the importance of privacy and tried to seek a quiet consultation area away from the counter/other customers if no consultation room was available Young age (65%; 28/43) and person presenting not being the patient needing EC (32%/ 14/43) were reasons for staff refusing EC provision 85% of pharmacists (109/128) and 72% of non-pharmacist staff (271/295) agreed that advice on STI and future contraception should be provided after EC
Gudka (2013)/ Gudka (2009)	<ul style="list-style-type: none"> 87% (79/91) of pharmacy users stated in a survey that they were not concerned about privacy; however, in a later survey, almost half of the same participants stated that they experienced a lack of privacy and in a focus group, users said that they would not feel comfortable discussing sexual health at the counter and preferred a private consultation area Pharmacy users liked that the service was convenient to use, and no appointments needed to be booked Pharmacy users felt that pharmacists handled consultations professionally and provided clear and concise information Pharmacists were supportive of service provision but found that paperwork and documenting of services was time consuming
Heller (2017)	<ul style="list-style-type: none"> Although most pharmacy users had a positive experience with the service delivery, some experienced difficulties (no trained staff available in chain pharmacies) Pharmacy users found it easy to use the service and were supportive of pharmacy-based contraceptive injection Pharmacists acknowledged that features of the pharmacy were appealing for users when compared to other providers and felt that the pharmacy was an appropriate place for contraceptive services
Thomas (2009)	<ul style="list-style-type: none"> Pharmacists are concerned to offer screening to 'older' individuals because they might be in a long-term relationship and might feel offended by being offered the service No pharmacists wanted to approach clients in long-term relationships, married people or people with children (pharmacists perceived ethnic minorities to be more likely to be married and faithful) Most pharmacists believed that pharmacies are well placed to deliver chlamydia screening because of their large clientele and felt that it was feasible within their practice; some pharmacists were concerned that increasing the use of locums could hinder service expansion since locums are often untrained

Pharmacy Staff

Five key areas were identified as being of importance in relation to pharmacy staff and three of these were the same as those important to pharmacy users: Suitability, Privacy and Counselling. The two further areas identified were workload and impact. The main findings are summarised in Table 2.

Suitability

Staff believed that pharmacies were well suited for the provision of sexual health services because of their large clientele, accessibility and convenience (32,36–39). However, some staff thought that pharmacies might not be ideal for condom distribution (40) as they were not frequently used by young men, and that young men may be hesitant in approaching female pharmacy staff to request sexual health services (40).

Privacy

While some pharmacy healthcare assistants generally thought that users appeared unconcerned about their privacy, most pharmacy staff felt that privacy was highly important to users requesting sexual health services (30,31,37,38,41). Thus, staff preferred to discuss sexual health in private consultation rooms (27,28); where none were available, they tried to counsel in private areas away from other users (37,38,42).

Counselling

Staff were generally comfortable counselling users and tried to be youth-friendly and non-judgemental. Dealing with groups and asking sensitive questions were perceived as difficult (27,28,30,31,36,38,40,43,44). According to staff, pharmacy users with the exception of young users and women counselled by male staff, felt comfortable during counselling (40,44). While staff agreed that side effects, dosages, efficacy and future contraception should be included in EC counselling, they had mixed views on the provision of counselling for STIs (38,42). According to one study, fewer pharmacy users (28%; 14/50) than users of clinical services (90.4%; 75/83) reported receiving counselling for contraception after receiving EC (25). Furthermore, staff tended not to dispense EC to a person requesting the service on behalf of someone else (38,42,43) and made subjective judgments on whom to provide or offer services such as EC and chlamydia screening. For example, some were likely to refuse EC to young people (38,39,42). With regards to chlamydia screening, staff were sometimes hesitant to offer it to young users, those presenting for a non-sexual health services, and users thought to be married or in a long-term relationship (36,37).

Workload

Although staff found the provision of sexual health services feasible overall (36,37,45), they admitted that the counselling and paperwork added to workload (27,28,30,31,41,42). Some staff were concerned about long waiting times and that trained staff were not always available to provide services (30,31,36,41).

Impact

Staff felt that the provision of sexual health services benefitted their profession and improved their job satisfaction (30–32,39,40,45). However, some staff felt conflicted in their roles as a healthcare professional and drug dispenser, feeling pressured to provide services quickly rather than thoroughly (44).

DISCUSSION

Main Findings

We aimed to examine pharmacy staff and pharmacy users' attitudes and experiences of pharmacy-based sexual health services. The studies we identified indicate that pharmacy-based sexual health services are perceived as accessible and convenient to use by both pharmacy users and pharmacy staff. However, lack of availability of trained staff was perceived to be a barrier for some pharmacy users. Furthermore, some pharmacy users and staff had privacy concerns. With the exception of young users and women counselled by male staff, pharmacy users and staff were generally comfortable with the counselling offered. However, two quantitative studies comparing the satisfaction on EC counselling of pharmacy users and users of other service providers showed that pharmacy users were less satisfied with EC counselling than users of other service providers. Most staff found the provision of sexual health services practically feasible, although some felt under time pressure, and questioned the suitability of pharmacies for condom distribution to young males.

Strengths and limitations

This review provides a timely overview of the literature relating to experiences of pharmacy based sexual health services using a systematic and robust approach. One potential limitation is that only studies published after 2007 and conducted in OECD member countries were included. Removing these restrictions might have revealed a different picture; however, they ensured that our findings can inform current pharmacy practice in economically developed countries. The included studies were of variable quality and were not always reported in line with study reporting frameworks, having missing data and risk of bias. This limited the conclusions that could be drawn from these studies within this review. Mystery shopper studies were excluded from this systematic review to capture experiences from 'real' pharmacy users only. Mystery shoppers who are not in need for the service arguably experience the delivery of services differently from people who are in real need of the sexual health service. However, these studies may have added more detail to the review.

Comparisons with existing literature

As identified in another recent review, we found that there is insufficient evidence on pharmacy-based syphilis screening (46), and also on gonorrhoea screening and Hepatitis B vaccination, as no study on these services met our inclusion criteria. Furthermore, our review included studies which reported on one or more sexual health services. However, since only three studies reported on two sexual health services which were offered as a package, research evaluating several pharmacy services being delivered as part of an integrated sexual health service is required.

In line with the existing literature, pharmacy-based sexual health services were perceived as acceptable, convenient and accessible, compared to other health providers (13–15,46). However, staff sometimes created barriers to access through refusing EC to young users or not offering chlamydia screening. Several mystery shopper studies confirm that young users may be refused access to EC (47–50). Young people are at particularly high risk for sexual ill-health and denying EC or not offering screening for STIs can have severe consequences, such as unwanted pregnancy and the spread of STIs.

Pharmacy users in two studies perceived EC counselling as less informative or satisfactory than users of other providers and one of the included studies showed that few pharmacy users were counselled on future contraception. Several mystery shopper studies have showed that counselling on side effects of EC, STIs and future contraception is often not provided (47,51). Findings in this review suggest that time pressure and mixed views on the appropriateness of counselling in relation to STIs contributes to this and highlights the need for high quality training which is reviewed regularly.

Pharmacy staff were concerned that men may be less comfortable when counselled by women. Also that women prefer to be counselled by female staff is supported by one study in which almost half of all women wanted to be counselled by a woman (52). Furthermore, staff believed that young males

were not frequently using a pharmacy to obtain condoms, because they did not want to approach female staff.

This belief is in line with a study which found that young males between 16 and 17 years are less likely to access retail settings including pharmacies for condoms than older men between 18 and 34 to (53).

In contrast to our review and another review on STI testing (46), two previous reviews on pharmacy-based sexual health services did not identify privacy as being of concern to patients. (14,15). However, we found that privacy concerns were raised in several of our included studies both in relation to EC and STIs, whereas this was not the case for ongoing contraception. Similarly, one previous study on EC found that privacy was a concern (54) whereas a study on regular oral contraception did not (55). It is likely that the stigma around EC and STIs may cause users to be more sensitive about privacy (56).

Implications for service delivery and future research

Our findings suggest that to further improve pharmacy-based sexual health services, more transparency is required on whether appropriate trained staff are available, and if female or male pharmacists are present in the pharmacy. This could help users to find a pharmacy that provides appropriate services where they can feel comfortable attending. Improvements to pharmacist training would help to increase pharmacy users' counselling satisfaction on EC. Finally, ensuring more privacy within a pharmacy setting might make people feel more comfortable and facilitate condom uptake in young men.

Consequently, areas that would benefit from future research include clarifying appropriate privacy requirements and counselling preferences for pharmacy users. These factors may influence uptake and use of sexual health services. Other areas for exploration are how to increase pharmacies' appeal for young users' needs to be explored.

As only three studies identified included pharmacy healthcare assistants, who are the first contact to users, future research should evaluate their experiences. There is also an evidence gap relating to syphilis and gonorrhoea screening and hepatitis B vaccination, and research on pharmacy-based provision of these services is needed.

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Key Messages

- This systematic review is the first to examine pharmacy staff and users' experiences and attitudes of a large range of pharmacy-based sexual health services.
- Users find pharmacies accessible and convenient to use, and staff find delivering sexual health services to be feasible within their practice.
- Barriers to service delivery include lack of privacy, limited availability of trained staff, and subjective judgements being made on who should be offered specific services.

APPENDIX

Appendix 1 Search Strategy (Medline)

Database: Ovid MEDLINE(R) <1946 to September Week 1 2018>	
Search Strategy:	

1	pharmacy.mp. or exp PHARMACY/ (51805)
2	pharmacies.mp. or exp PHARMACIES/ (13208)
3	1 or 2 (56571)
4	Contraception.mp. or exp CONTRACEPTION, BARRIER/ or exp CONTRACEPTION/ or exp CONTRACEPTION BEHAVIOR/ or exp LONG-ACTING REVERSIBLE CONTRACEPTION/ (49292)
5	Contraceptive.mp. or exp Contraceptive Agents/ (90752)
6	Sexually Transmitted infection.mp. or exp Sexually Transmitted Diseases/ (321054)
7	STI.mp. (6936)
8	STD.mp. (8706)
9	Chlamydia.mp. or exp CHLAMYDIA INFECTIONS/ or exp CHLAMYDIA/ or exp CHLAMYDIA TRACHOMATIS/ (30567)
10	exp Gonorrhoea/ or Gonorrhoea.mp. (14740)
11	Syphilis.mp. or exp SYPHILIS/ (32561)
12	Human Immunodeficiency Virus.mp. or exp HIV/ (139482)
13	rapid test.mp. (2579)
14	(self-sampling test* or self-sampling kit*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (41)
15	Hepatitis B vaccine.mp. or exp Hepatitis B Vaccines/ (9808)
16	(Hepatitis B vaccination or Hepatitis B).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (85547)
17	Emergency Hormonal Contraception.mp. (56)
18	Emergency Contraception.mp. or exp Contraception, Postcoital/ (2092)
19	(Morning after Pill or EHC).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (581)
20	exp CONDOMS/ or Condom*.mp. (19649)
21	(sexual health service or sexual health).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (6907)
22	Partner notification.mp. or exp Contact Tracing/ (4209)
23	4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 (585340)
24	3 and 23 (1908)

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