TITLE

Investigating community pharmacists' perceptions of delivering chlamydia screening to young people: A qualitative study using Normalisation Process Theory to understand professional practice.

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ABSTRACT

Objectives

Some community pharmacies in England provide free chlamydia testing to young people, yet testing activity in the setting is low. This paper aims to increase understanding of why that is, by investigating community pharmacists' perceptions of barriers to delivering the service, and the reasons why some do not offer testing.

Methods

Semi-structured interviews were conducted with 22 community pharmacists in North East England between November 2018 and May 2019. The sample comprised both those who provided and did not provide chlamydia testing at the time of interview. Data were subjected to thematic analysis, utilising the constructs of the Normalisation Process Theory.

Key findings

Pharmacists found it challenging to sustain delivery of chlamydia testing, as very few young people either requested the test or accepted it when it was offered during consultations on or interactions around other sexual health services. Pharmacists were cautious about offering the test, having concerns about making clients feel uncomfortable. They identified the value of training to enable them to communicate confidently with clients about testing. Pharmacists supported the suggestion that treatment for chlamydia be offered as part of a 'test and treat' package, as they felt that it aligned to their role in provision of medicines advice.

Conclusions

Community pharmacies are well-placed to deliver chlamydia testing but are not operating as effectively as they might do. The provision of training on communicating with young people, integrating testing with more sexual health services, and providing 'test and treatment' for chlamydia could contribute to greater testing activity.

KEYWORDS

Chlamydia Screening, Sexual Health, Young People, Community Pharmacy, Normalisation Process Theory.

INTRODUCTION

Worldwide, chlamydia is the most common bacterial sexually transmitted infection (STI) [1]. In 2019, Public Health England's (PHE) report stated that young people aged 15-24 yrs old are at greatest risk of contracting the STI [2]. If not treated, it can lead to serious health complications including pelvic inflammatory disease, ectopic pregnancy, and infertility [3,4]. In England, the National Health Service's (NHS) Chlamydia Screening Programme aims to reach as many of the high-risk group of young people as possible, to detect and treat this largely asymptomatic infection, and reduce onward transmission [5]. The programme recommends screening for the STI annually and also on change of sexual partner.

Free screening is available in a range of settings, including sexual health services, community pharmacies, youth centres, educational settings and general practices, and tests can also be obtained via web-based services [5]. Settings such as specialist sexual health services and some general practices screen and treat patients with or without STI symptoms, whilst others, including pharmacies, screen uncomplicated, asymptomatic patients [6]. Sampling is by self taken urogenital swab or first catch urine, and laboratory testing [5]. The client is notified directly of the result within ten days of testing. Since 2008, pharmacies in England have participated in delivering chlamydia screening in which a young person can request a test kit [7,8]. Participating pharmacies also offer the test during consultations on sexual and reproductive health. For instance, when delivering the emergency contraceptive pill (ECP) to women, and the condom-card (C-card) scheme which provides free condoms with safe sex advice to young people [8]. Depending on the service specification set under local agreement, treatment for chlamydia can also be provided by pharmacies for free following a positive test

result, as part of a ‘test and treat’ package. This helps to prevent onward transmission of the STI and serious health complications [8].

Despite the widespread accessibility in England, uptake of testing from pharmacies has been low [8,9]. This may be in part because pharmacists did not consistently offer chlamydia testing to clients attending for ECP and, when clients were offered, many declined the test [10,11]. Pharmacists interviewed on their experience of delivering testing reported that they felt it was a challenge to offer it to young women in case they were offended [12,13], not interested, or were limited for time [11]. Furthermore, despite effective training, pharmacy assistants did not feel they had the necessary sexual health knowledge to offer testing [14]. Clients of pharmacy chlamydia testing, including young people, reported that the service was convenient and accessible, and that they felt comfortable discussing the test with the pharmacist who was non-judgemental [11,15,16,17]. However, clients in other research perceived that they would feel embarrassed to request the test [18].

In North East England, most community pharmacies provide free chlamydia screening to young people aged 15-24 years old, yet testing activity is low [9,19,20]. The aim of this study was to offer further contributory evidence on why that is the case, by investigating the perceptions about and experiences of pharmacists delivering the service in the region. Furthermore, the reasons why some pharmacists do not provide testing has not previously been published. Therefore, their views were gathered, to identify how to expand testing. At the time of the study, under local agreements, treatment for chlamydia was not incorporated within the testing service [20]. Views on how its addition might impact the service were also gathered. This paper is part of a wider study in the region which also investigated and published findings on the perceptions of young people, the target users of chlamydia testing, about the pharmacy service [21], supporting the development of robust recommendations.

MATERIAL AND METHODS

Sampling and recruitment

Between Novermber 2018 and May 2019, pharmacists were purposively recruited from community pharmacies across North East England. Prior to recruitment, contact details of pharmacies that did and did not deliver chlamydia testing were obtained from NHS's online "Find a Pharmacy" search tool, which lists the services provided at each pharmacy [19]. Participant information leaflets and consent forms were posted to 105 pharmacies across the region who had displayed up-to-date information online, at least one month prior to recuitment. Pharmacies were then contacted by telephone by the first author inviting participation in the study. Those who agreed confirmed whether they currently provided chlamydia testing or not, the number of years experience they had delivered the service, and whether a face-to-face or telephone interview was more suitable depending on their work schedule. The location of each participating pharmacy was mapped to Indices of Multiple Deprivation (IMD) 2015 [22], to obtain a representative sample of pharmacies from areas of different deprivation level, including those of high deprivation which previous research found were associated with greater chlamydia prevalence [2,23]. Then, a deprivation quintile was calculated. The pharmacies represented areas in the most deprived 20% of England (quintile 1) through to the least deprived 20% (quintile 5).

Data collection

Before each interview, the information leaflet and then the consent form was summarised. Participants were reminded of their entitlement to withdraw from the study, their confidentiality and anonymity of personal information. Then, the researcher asked if participants had any questions and if they confirmed that they consent to taking part in the interview. With participants' permission, most interviews were audio-recorded, and notes were taken on further three where background noise precluded recording.

Development of the interview schedule with application of the Normalisation Process Theory

The interview schedule (see **supplementary material 1**) was developed on the basis of a review of the literature on pharmacist delivery of chlamydia testing [10-13,15]. It covered the following: experience and current provision of testing; purpose of the service; and perceived barriers and benefits to service delivery. The interviews also comprised a vignette which explored providers' perceptions' of offering testing to a young woman attending for regular contraception. Interviews with pharmacists who did not provide testing, non-providers, covered why they did not currently offer testing, and asked about any signposting activity (see **supplementary material 2**).

The interview schedules were broadly framed by the constructs of the Normalisation Process Theory (NPT). This model reports the various work processes implemented by individuals and groups to develop and to sustain a practice [24]. The NPT comprises four constructs representing these work processes which, when applied together, facilitate integration of the practice. The NPT constructs and their definitions, placed in context of pharmacy chlamydia testing, are illustrated in **Figure 1.**

[FIGURE 1 TO BE PLACED HERE]

Figure 1 The Normalisation Process Theory and its constructs with their definitions placed in context of community pharmacy chlamydia testing.

The NPT and its constructs are based on reference 24 [24].

Data management and analysis

Each interview that was audio recorded was transcribed verbatim by the first author and quality checked for accuracy. Then, the audio recording was destroyed. Scripts written during interviews that were not audio-recorded were checked and further field notes added immediately after the interviews, to ensure responses were accurately captured. During the preliminary analysis of the data, key thoughts and ideas were gathered from each transcript. The process continued until no new insights were found, and the data analysis began to saturate [25]. All transcripts and notes were analysed using a computer-assisted analysis software NVivo 11 Pro; QSR International Pty Ltd., 2015. Data from responses to closed questions in the topic guide asked about chlamydia testing (see **supplementary material 1 and 2**) were inputted into a table on NVivo and analysed, whilst the remaining data was analysed thematically [26]. Firstly, through an abductive approach, open ended coding was used to identify new and surprising results in the data. In this approach, an in-depth knowledge of existing theories derived from the literature review, for instance surrounding the motivation and skill to deliver testing, helped the analyst to recognise unanticipated results, with such knowledge not determining the scope of the findings, encouraging theoretical breadth to the analysis [27]. Then, the codes were compared with one another, and organised to form overarching themes [26]. Once the themes were generated, they were located and explored within the constructs of the NPT to structure the emerging interpretations and provide a conceptually robust support to the generation of recommendations for service development.

Ethical issues and permissions

Ethics approval to conduct the study was received by the Faculty of Medical Sciences Ethics Committee, Newcastle University on 10/09/2018 (approval reference number 1603/6935/2018). This paper followed the Standards for Reporting Qualitative Research guidelines in the reporting of the study [28].

Reflexivity

It should be noted that the first author is a practising pharmacist. Therefore, to identify and to help minimise any influence of pre-existing views on the findings, all authors individually coded a selection of transcripts bringing rigour to the analysis. The authorial team also discussed the alignment of the themes to the NPT constructs for refinement and articulation of the results under the model. To further minimise risk of researcher bias, the first author highlighted her role as a researcher and thus outsider to the study participants.

RESULTS

Twenty-two pharmacists from individual community pharmacies agreed to participate in the study, stating as reasons that the testing service or chlamydia detection was important, or that testing could be maximised. Fourty-one pharmacists could not be reached on first calling, and 42 declined stating as reasons that they were too busy, they did not provide sexual health services, they would not like to participate, or that they did not have a consultation room to discuss sexual health matters with clients. Ten interviews were conducted face-to-face and 12 by telephone. On average, interviews with pharmacist providers of chlamydia testing lasted 19 min (range 15-27 min), and with pharmacist non-providers, 10 min (range 8-16 min).**Table 1** lists the demographic details of the pharmacists interviewed.

Table 1 Demographic details of participants interviewed

[TABLE 1 TO BE PLACED HERE]

The table lists the demographic details of the 22 participants interviewed in the study. From these participants, 16 were providers of chlamydia testing and 6 were non-providers, with an equal ratio of male to female participants. Under column *Deprivation area*, quintiles 1-5 indicate the locations of the recruitment sites within areas in the most to least deprived in England.

* Area demographic data was not gathered from two participants as they were relief pharmacists working across multiple community pharmacies.

Five key themes were synthesized from the interviews: Accessibility of pharmacies; The opportunity to offer testing to young people; Information about chlamydia testing for young people; Attributes of a pharmacist; and, Evaluation and feedback on testing delivery. The themes are located and reported under each construct of the NPT.

Coherence – professionals' sense-making work to promote delivery of chlamydia testing

Accessibility of pharmacies

Many participants felt that community pharmacies were geographically accessible for young people seeking sexual health advice and chlamydia testing, and also with a pharmacist always available to speak to for a consultation.

Despite the accessibility of pharmacies, some providers and also non-providers reported that only a few young people visited their pharmacy and therefore that they had little opportunity to provide the chlamydia test. A few added that it was mainly elderly customers who attended for services, a demographic they thought was representative of the local population.

The opportunity to offer testing to young people

All providers reported that they routinely offered chlamydia testing to young people during a consultation on ECP and some during a supply of condoms under the C-Card scheme as well. In their responses, some said that the test kit was offered *'at the back of,' 'at the end of'* and *'as part of'* other sexual health consultations. One provider felt that the kit seemed '*to be put on the back burner I think… It's tagged on the end of everything. Erm, it does get missed'* (P18). Most non-providers reported that they charged clients for the ECP. A few of these pharmacists explained that they often referred the young person to another pharmacy or to a sexual health clinic where they could receive the ECP free-of-charge. As a result of a focus on signposting, one non-provider said that there was little opportunity to discuss testing.

During the patient scenario (see **supplementary material 1**), some providers said that they would be hesitant to offer the testing kit with a prescription for regular hormonal contraception, in case the client felt that the pharmacist was making prejudicial judgements about them based on perceived sexual risk.

Cognitive participation - the enrolment work to engage in delivering chlamydia testing

Information about chlamydia testing for young people

Several providers reported that chlamydia testing was advertised on cards and leaflets in their pharmacy and also listed under testing sites on the sexual health provider website. Despite advertising, some providers and non-providers perceived that awareness about pharmacy testing was low among young people, making it difficult to promote and sustain the service. One provider suggested that a brand name for the test kit would be helpful '*because [emergency contraception] has got people noticing [emergency contraception], and it's a lot easier to ask for that where, kind of, chlamydia testing hasn't got a nickname as such'* (P09).

Collective action – the operational work to enact delivery of chlamydia testing

Attributes of a pharmacist

Many providers said pharmacists were in a good position to advise on chlamydia testing and review when it was necessary to refer a patient to the GP. Some said that they were cautious when offering it, to prevent the young person feeling uncomfortable. When asked their views about incorporating chlamydia treatment with the testing service as a 'test and treat' package, many providers reported that they were happy to do so, explaining that they had the clinical expertise to provide it, and that it *'completes the circle'* of the service, would '*be more as a full service'* and would '*add to the service'.*

Many pharmacists reported that they received training on how to deliver chlamydia testing, either by attending a sexual health learning session or by completing an on-line learning

module. Some reported that the learning sessions were helpful because the trainers clearly explained the test kit, yet others said that they thought that training on testing was too brief. They suggested that further training on how to effectively communicate with young people on testing would be helpful.

When providers and non-providers were asked whether their support staff received training to deliver chlamydia testing, several said that they were unsure. In addition, some providers reported that support staff either did not or rarely offered testing as it was usually done alongside providing ECP.

Reflexive monitoring - the appraisal work to evaluate delivery of testing

Evaluation and feedback on testing delivery

On evaluating testing activity, a few providers described that they undertook further promotional activities to maximise testing uptake. Some non-providers reported that due to a previous low uptake of testing, when evaluating the service, they decided not to continue offering the test: *'The reason why we didn't continue the service is because we didn't get a lot of people coming in, you see. (…) So for us, we have to take our staff out of the pharmacy to get the training done. Then you have to look at the number of patients who did come in for that, which isn't much at all'* (P20). All providers reported that if they had any feedback about the testing service, they had no issues discussing these with managers who contracted the service to pharmacies.

DISCUSSION

With chlamydia testing activity at a five-year low across community pharmacies in England [9], this paper found that perceived barriers remain to service delivery; young people did not request or readily accept the test kit when offered; pharmacists were cautious as to not cause offence on offering the test; and a further training need was identified on communicating with

young people about testing. Application of the NPT highlighted that these barriers affect service implementation and integration within pharmacy practice.

Strengths and limitations

This study has a number of strengths. First, application of the NPT provided theoretical support to the reading of the data, where the detailed work processes of the model provided a way of understanding current implementation of community pharmacy testing and how and whether it was integrated within existing practice. As a result, robust recommendations were developed which, when applied, aim to maximise activities under each construct leading to greater integration of chlamydia testing. Second, at times, participants reported on their dispensing and counselling activities and the first author's knowledge of such processes facilitated a thorough interpretation of their accounts.

One limitation was that pharmacists followed frameworks developed under pharmacy contracts in North East England to deliver chlamydia testing. Such frameworks and the chlamydia testing package provided may differ in other regions and countries. Therefore, the findings and recommendations should be closely evaluated for transferability. Second, the study reached data saturation from participants' accounts on pharmacy chlamydia testing. However, during recruitment, 42 pharmacists declined to participate for reasons reported earlier, but they may have brought complimentary views on their perceived barriers to testing. In future, highlighting the potential impact of delivering testing may facilitate participant recruitment. For further interpretation of the results, data on the chlamydia testing activity from each participating pharmacy could be gathered, to compare the work processes employed between pharmacies delivering more- and those delivering fewer tests.

Key findings and policy implications

The NPT construct Coherence encompasses the understanding into how a practice differs to others [24]. In the present study, pharmacists described that the chlamydia test kit was routinely offered *'at the end of'* other sexual health consultations, mainly the ECP. However, in common with other research [10,11], we found that many young people declined the kit when offered, which pharmacists perceived made it difficult to maintain practice. Taken together, these findings highlight that integrating chlamydia testing further within sexual health discussions may be necessary to support clients in understanding and rationalising their risk of the STI and increasing acceptance of the kit. Such discussions appear to be challenging to pharmacists who may not want to jeopardise positive client relationships by making young people feel uncomfortable, as congruent with findings from previous studies on pharmacists' perceptions of chlamydia testing and sexual and reproductive health [12,13,17]. To overcome this challenge, pharmacists in the present study and pharmacy staff in previous research [29] suggested further training on effective communication with clients on potentially sensitive sexual health matters. On examining pharmacy staff's implementation of England's Department of Health youth-friendly service criteria [30], a previous study found that training on communication would build on pharmacist experience and encourage young people's engagement in health discussions [31]. Under the NPT construct Collective Action, this would contribute to effective interactional work between pharmacists and the age group. In addition, further interactional work between pharmacists and their staff would strengthen service delivery. Of significance here is the recent requirement that all pharmacies in England are to become healthy living pharmacies from 2020, delivering interventions on key public health issues [32]; this would offer a greater opportunity for pharmacists and support staff to train and work together to offer sexual health and chlamydia testing.

Through monitoring coverage of chlamydia screening, commissioning groups in England evaluate whether local population needs are being met [5]. Although pharmacies were widely accessible, pharmacists in the present study reported that very few young people attended,

363 leading to low testing activity. This was particularly the case where they perceived that the
364 local population comprised mainly an ageing demographic. Under the NPT construct Reflexive
365 Monitoring, communicating the outcomes from such needs assessments to pharmacies would
366 identify whether a focussed effort is required to deliver more testing in areas of higher risk of
367 chlamydia, likely increasing these pharmacies' cognitive participation in the service. Secondly,
368 further opportunities to suitably offer the kit may also be necessary to increase testing. Whilst
369 pharmacists in the current study were hesitant to offer the kit with regular oral contraception,
370 with support, the recent reclassification of the regular progesterone-only contraceptive pill from
371 a prescription-only to pharmacy medicine in the UK may also offer a platform for pharmacists
372 to effectively integrate advice about STIs and chlamydia testing within the consultation on the
373 pill [33].
374
375 Previous studies have shown that pharmacists providing both chlamydia testing and treatment
376 found the service fulfilling for them and also their clients [15], and that uptake of pharmacy
377 treatment following a positive result was feasible [34]. Similarly, pharmacists in the present
378 study supported the potential addition of chlamydia treatment with associated medicines
379 counselling, as part of a 'test and treat' package, expanding service provision. This may
380 promote continuity of care and provide a more integrated and comprehensive service for
381 young people. Furthermore, treatment advice is a recognised core skill of pharmacists among
382 the public [35,36], which may ultimately strengthen clients' engagement in a 'test and treat'
383 package.
384
385 ## CONCLUSION
386 Based on interviews with pharmacists, this study explained why activity of community
387 pharmacy chlamydia testing in North East England may be low. The following were proposed
388 to promote practice: to further integrate chlamydia testing in discussions on STIs and safe sex,
389 and to feel confident on communicating this information through further training; to encourage

support staff to attend training and deliver testing; to evaluate where a focussed effort to offer testing may be necessary in areas of high-risk; and to consider further opportunities to suitably offer testing in line with the expanding public health role of pharmacies. The recommendations aim to normalise pharmacy chlamydia testing within routine work, contributing to a greater detection of the STI in the region.

FUNDING

This work was supported by the Harold and Marjorie Moss Charitable Trust (UK), DFH/19986, that covered the costs of disseminating the findings.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data underlying this article are available in the article and in its online supplementary material.

CONTRIBUTORSHIP STATEMENT

With guidance and support from authors LL, SF and CW, LA designed the study as part of their PhD research, collected and analysed the data. With access to the study data, all authors regularly discussed the coded transcripts and the themes as they developed in relation to the dataset. LA prepared the manuscript, with the draft versions and final manuscript critically reviewed and approved by LL, SF and CW.

ACKNOWLEDGEMENTS

Many thanks to all the participants who took the time to participate in the study.

REFERENCES

1. Rowley J, Vander Hoorn S, Korenromp E, et al. Chlamydia, gonorrhoea, trichomoniasis and syphilis: global prevalence and incidence estimates, 2016. *Bulletin of the World Health Organization*. 2019;**97**(8):548-555.

2. Ratna N, Sonubi T, Glancy M, et al. Sexually transmitted infections and screening for chlamydia in England, 2020. London: Public Health England; 2021. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015176/STI_NCSP_report_2020.pdf [accessed Apr 28, 2022].

3. Scholes D, Stergachis A, Heidrich FE, et al. Prevention of Pelvic Inflammatory Disease by Screening for Cervical Chlamydial Infection. *N Engl J Med.* 1996;**334**(21):1362-1366.

4. Mardh, PA . Tubal factor infertility, with special regard to chlamydial salpingitis. *Curr Opin Infect Dis.* 2004;**17**:49–52.

5. Public Health England. National chlamydia screening programme standards (seventh edition), 2016. London: Public Health England; 2018. Available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/477343/NCSP_Standards_7th_edition_FINAL.pdf [accessed Jul 2, 2021].

6. British Association for Sexual Health and HIV. Standards for the management of sexually transmitted infections (STIs). Cheshire: British Association for Sexual Health and HIV; 2019. Available: https://www.bashh.org/media/4429/bashh-standards-for-sti-management-2019.pdf [accessed Aug 4, 2021].

7. Public Health England. Information to support the commissioning of chlamydia screening in general practice and community pharmacies, 2014. London: Public Health England; 2014. Available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/373205/Developing_service_specifications_for_chlamydia_testing_and_treatment_in_GP_and_CommPharm.pdf [accessed Aug 7, 2021].

8. Public Health England. The Pharmacy Offer for Sexual Health, Reproductive Health and HIV: A resource for commissioners and providers. London: Public Health England; 2019. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/788240/Pharmacy_Offer_for_Sexual_Health.pdf [accessed Nov 26, 2021].

9. Public Health England. Chlamydia testing data in 15-24 year olds, England, 2015-2019. [Internet]. London: Public Health England; 2020. Available: www.gov.uk/government/statistics/national-chlamydia-screening-programme-ncsp-data-tables [accessed Dec 2, 2021].

10. Brabin L, Thomas G, Hopkins M, et al. Delivery of chlamydia screening to young women requesting emergency hormonal contraception at pharmacies in Manchester, UK: a prospective study. *BMC Womens Health*. 2009;**9**(7). http://dx.doi.org/10.1186/1472-6874-9-7

11. Gudka S, Marshall L, Creagh A, et al. To develop and measure the effectiveness and acceptability of a pharmacy-based chlamydia screening intervention in Australia. *BMJ open*. 2013;**3**(8).

12. Thomas G, Humphris G, Ozakinci G, et al. A qualitative study of pharmacists' views on offering chlamydia screening to women requesting emergency hormonal contraception. *BJOG*. 2010;**117**(1):109-113. http://dx.doi.org/10.1111/j.1471-0528.2009.02362.x.

13. Dabrera G, Pinson D, Whiteman S. Chlamydia screening by community pharmacists: a qualitative study. *J Fam Plann Reprod Health Care*. 2011;**37**(1):17-21.

14. Deeks L, Cooper GM, Currie MJ, et al. Can Pharmacy Assistants Play a Greater Role in Public Health Programs in Community Pharmacies? Lessons From a Chlamydia Screening Study in Canberra, Australia. *Res Social Adm Pharm.* 2014;**10**(5). http://dx.doi.org/10.1016/j.sapharm.2013.11.006

15. Baraitser P, Pearce V, Holmes J, et al. Chlamydia testing in community pharmacies: evaluation of a feasibility pilot in south east London. *BMJ Qual Saf.* 2007;**16**(4):303-307.

16. Parker R, Bell A, Currie M, et al. 'Catching Chlamydia': Combining Cash Incentives and Community Pharmacy Access for Increased Chlamydia Screening, the View of Young People, *Aust J Prim Health.* 2015;**21**(1):79-83. http://dx.doi.org/10.1071/PY12135.

17. Gauly J, Ross J, Hall I, et al. Pharmacy-based sexual health services: a systematic review of experiences and attitudes of pharmacy users and pharmacy staff. *Sex Transm Infect*. 2019;**95**(7):488-495.

18. Arnet I, Gudka S, Salter S, et al. Readiness of pharmacists and consumers for pharmacy-based chlamydia screening in Australia and Switzerland. *Sexual & reproductive healthcare*. 2018;**16**:138-153.

19. NHS. Find pharmacy services. 2018. [Internet]. Available: https://www.nhs.uk/service-search/pharmacy [accessed Sep 18, 2021].

20. Pharmaceutical Services Negotiating Committee. Pharmaceutical Services Negotiating Committee Pharmacy Services Spreadsheet. London: Pharmaceutical Services Negotiating Committee; 2021. Available: https://psnc.org.uk/wp-content/uploads/2021/04/Services-Spreadsheet-Updated-16.04.21.xlsx [accessed Jul 20, 2021].

21. Ahmaro L, Lindsey L, Forrest S, et al. Young people's perceptions of accessing a community pharmacy for a chlamydia testing kit: a qualitative study based in North East England. *BMJ Open.* 2021;**11**:e052228. doi: 10.1136/bmjopen-2021-052228.

22. Department for Communities and Local Government. The English Indices of Deprivation 2015. London: Department for Communities and Local Government; 2015. Available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/465791/English_Indices_of_Deprivation_2015_-_Statistical_Release.pdf [accessed Oct 9, 2021].

23. Woodhall SC, Soldan K, Sonnenberg P, et al. Is chlamydia screening and testing in Britain reaching young adults at risk of infection? Findings from the third National Survey of Sexual Attitudes and Lifestyles (Natsal-3). *Sex Transm Infect*. Available: http://dx.doi.org/10.1136/sextrans-2015-052013.

24. May C, Finch T. Implementing, Embedding, and Integrating Practices: An Outline of Normalization Process Theory. *Sociology.* 2009;**43**(3):535-554.

25. Kerr C, Nixon A, Wild D. Assessing and demonstrating data saturation in qualitative inquiry supporting patient-reported outcomes research. *Expert Rev Pharmacoecon Outcomes Res*. 2010;**10**(3):269-81.

26. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;**3**(2):77-101.

27. Timmermans S, Tavory I. Theory construction in qualitative research: From grounded theory to abductive analysis. *Sociol Theory*. 2012;**30**(3):167-186.

28. O'Brien BC, Harris IB, Beckman TJ, et al. Standards for reporting qualitative research: a synthesis of recommendations. *Acad Med.* 2014;**89**(9):1245-1251. doi: 10.1097/ACM.0000000000000388.

29. Gauly J, Ross J, Parsons J. et al. Staff and Users' Experiences of Pharmacy-Based Sexual and Reproductive Health Services: A Qualitative Interview Study from the UK. *Pharmacy*. 2020;**8**(4):206. https://doi.org/10.3390/pharmacy8040206

30. Department of Health. Quality criteria for young people friendly health services. London: Department of Health; 2011. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/216350/dh_127632.pdf [accessed Sep 6, 2021].

31. Alsaleh F, Smith F, Rigby E. et al. Applying the 'You're Welcome' youth-friendly service criteria to community pharmacy in the UK. *J Pharm Health Serv Res.* 2016;**7**(1):71-79. http://dx.doi.org/10.1111/jphs.12125.

32. Department of Health and Social Care. The Community Pharmacy Contractual Framework for 2019/20 to 2023/24: supporting delivery for the NHS Long Term Plan. London: Department of Health and Social Care; 2019. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819601/cpcf-2019-to-2024.pdf [accessed Dec 3, 2021].

33. Medicines and Healthcare products Regulatory Agency. Press release: First progestogen-only contraceptive pills to be available to purchase from pharmacies. London: Medicines and Healthcare products Regulatory Agency; 2021. Available: https://www.gov.uk/government/news/first-progesterone-only-contraceptive-pills-to-be-available-to-purchase-from-pharmacies [accessed Dec 12, 2021].

34. Anderson C, Thornley T. A pharmacy-based private chlamydia screening programme: results from the first 2 years of screening and treatment. *Int. J. Clin. Pharm*. 2011;**33**(10):88-91. http://dx.doi.org/10.1007/s11096-010-9460-3.

35. Krska J, Morecroft CW. Views of the general public on the role of pharmacy in public health. *J Pharm Health Serv Res*. 2010;**1**(1):33-38.

36. Saramunee K, Krska J, Mackridge A, et al. How to enhance public health service utilization in community pharmacy?: general public and health providers' perspectives'. *Res. Social Adm. Pharm*. 2014;**10**(2):272-284.