**Factors influencing non-attendance at sexual healthcare appointments in the UK: A qualitative study**

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**Abstract**

Background: Missed sexual healthcare appointments lead to inefficiencies and wasted resources, longer waiting times and poorer outcomes. The aim of this research was to identify factors influencing non-attendance at sexual health appointments and to make recommendations for interventions.

Methods: Semi-structured interviews were carried out with UK-based sexual health service-users with experience of booking and missing appointments and sexual health professionals (n=28). Interviews were analysed using a thematic Framework approach.

Results: Perceptual, practical, and organisational factors were found to influence missed appointments. Perceptual factors included beliefs about the outcomes of attending; sense of responsibility to attend; concerns about privacy and security. Practical factors included competing demands and disruption to daily life; ability to attend; forgetting. Organisational factors included mode of appointment delivery and availability of appointments.

Conclusions: Interventions should combine strategies shown to be effective for overcoming practical barriers to attendance (e.g., reminder systems) with novel strategies communicating the benefits of attending and risks of missed appointments (e.g., behaviourally informed messaging). Text reminders containing behaviourally informed messages may be an efficient intervention for targeting perceptual and practical factors associated with missed appointments. Offering appointment modalities to suit individual preference and enabling service-users to remotely cancel/reschedule appointments may further support a reduction in missed appointments.

**Keywords**

Attendance, missed appointments, did not attend, remote healthcare, sexual health, healthcare services, qualitative; interviews

**Introduction**

Untreated sexually transmitted infections (STIs) and unplanned pregnancies are significant contributors to poor health [1]. While self-testing and treatment for STIs is becoming increasingly acceptable and widely used [2], clinician-led care remains an important part of service provision. Sexual health clinics (SHCs) provide a pathway for integrated services encompassing clinical care for STIs as well as advice on, and provision of, contraception. Despite attempts to increase prevention and treatment of STIs through improved access to sexual healthcare [3], evidence from the UK suggests that 75% of individuals at risk of STIs do not access SHCs [4] and rates of STIs continue to rise [5]. In addition to those who are at risk of STIs or in need of contraception and who do not access services, many people who do make sexual healthcare appointments, also fail to attend. These missed appointments lead to inefficiencies and wasted resources, longer waiting times for others and poorer outcomes for individuals who do not receive the care they need [6,7].

Research has explored motivation for, and barriers to, accessing sexual healthcare across populations, citing perceptions of STI risk [8, 9, 10], stigma [8,9,11,12], sexual health knowledge [13,14], and fear of exposure [10, 11]. Less research has focused on those who miss the sexual health appointments they have pre-booked. Reasons for not attending a scheduled appointment may be different to those not accessing services at all and thus may require different intervention strategies. Evidence from other outpatient services suggest reasons for missed appointments include symptoms resolved, forgetting, poor clinic organization/clinical error, perceptions of illness severity, perceptions of importance of attending, and poor health [15,16,17]. Strategies for addressing non-attendance have largely focused on telephone and text message reminders [18], however, these interventions fail to target reasons for not-attending other than forgetting.

As a result of the restrictions imposed by COVID-19, sexual healthcare services saw huge reductions in the delivery of face-to-face consultations, switching to telehealth delivery where possible [19]. Telehealth involves delivering healthcare appointments via telephone or videocall and has been used to enable access to healthcare remotely [20]. The telehealth approach has a growing evidence base across a range of healthcare contexts, including outpatient care [21], orthopaedic clinics [22] and cancer care [23, 24], citing benefits of increased convenience and reduced costs for patients [25].

To provide sexual healthcare that is acceptable and engaging for service-users, a greater understanding is needed of the underlying causes of non-attendance, particularly for those individuals who fail to attend an appointment that they have pre-booked. The aim of this research was to identify factors influencing patients’ non/attendance at pre-booked sexual healthcare appointments in the UK, and to make recommendations for interventions.

**Methods**

*Sampling and Recruitment*

Purposive and maximum variation sampling was used to recruit a diverse group of sexual health service-users aged 16 years and over, with experience of booking, attending and missing sexual healthcare appointments, and those who might do in the future. To gain a range of perspectives, variation was sought in key characteristics including age, gender, ethnicity, sexual orientation and service use. Service-users were recruited via poster advertisement and text message invitation to recent service-users (those with an appointment in the preceding six months), from two sexual health clinics provided by one UK-based service provider. The study was also advertised on the sexual health service website and associated social media accounts, as well as via a local University newsletter. Healthcare professionals with experience of working with individuals who attend and miss scheduled sexual health consultations were recruited via email from a clinical collaborator based within the same sexual health service.

Prospective participants were invited to contact the research team to express their interest in taking part. In response, they were emailed a study pack including an information sheet and link to an online consent form and demographic sheet, before arranging a time for data collection. A stakeholder advisory group comprised of sexual healthcare professionals and service-user representatives guided the research design and execution. A favourable review from an NHS Research Ethics Committee was granted prior to data collection (#20/NS/0092).

*Data collection*

Participants took part in remote individual interviews or online qualitative surveys between January and July 2021, when Covid-19 social distancing restrictions were in place. Surveys were administered via the QualtricsXM platform and were included as an alternative mode of data collection for participants who wanted to take part in the study but who did not want to be interviewed. Although relatively novel, this approach is compatible with the qualitative paradigm, particularly for researching sensitive topics and for accessing the views of harder to engage groups [26]. Data collection followed a semi-structured approach and contained open-ended questions informed by a literature review [27], study objectives, and the stakeholder advisory group. Questions explored making, delivering and missing/attending scheduled sexual health appointments both in person and remotely (Supplementary file 1). Similar questions were asked in the interviews to those asked within the qualitative survey. Interviews were conducted by a trained member of the research team (RC), each lasting between 45-80 minutes. RC actively maintained a non-judgmental attitude throughout data collection, working to establish a rapport and put the participant at ease. Throughout data collection, participants were found to be open and forthcoming about their reasons for varying patterns of non/attendance, indicating they felt comfortable discussing this topic with the researcher. Interviews were audio-recorded before being transcribed and anonymised. All participants were given a £10 voucher to thank them for their time.

*Data analysis*

Data were analysed using a thematic Framework approach [28]. This method is particularly well suited to applied health research, facilitating comparison across and within cases, making it appropriate for comparing the views and experiences of a range of stakeholder groups [29]. Two researchers (RC and GH) independently engaged in data familiarisation, coding and grouping of codes to form a thematic framework. Several iterations of this process were performed until a final framework was developed and applied to all transcripts. Data were charted into a matrix before being subjected to interpretative analysis to generate themes and sub-themes from the whole data set. NVivo software V12 (QSR International) was used to assist with the application of the analytical framework to all transcripts and to support retrieval of coded data.

*Reflexivity*

The first, second and fourth authors (GH, RC & CF) are White British women working as academics in the field of Health and Psychology, with experience of conducting qualitative research on a range of health-related topics with diverse populations. The third author (JR) is a White British man with extensive experience of clinical work as a Sexual Health and HIV Consultant Physician. As described, regular meetings were held between the authors (and the stakeholder advisory group) during which, data and analysis were discussed and refined, while reflecting on how the authors’ backgrounds might influence collection and interpretation of data. Reflective journaling was also used to document what the researchers did, thought, and felt throughout data analysis, including reflections on the authors’ values, assumptions and subjectivities.

**Results**

The sample comprised 28 participants: 17 service-users (15 interviews; two surveys), three potential service-users (two interviews; one survey) and eight healthcare professionals (five interviews; three surveys). Service-users had an age range of 19-43 years. The majority were female (n=16) and white british (n=13). Other ethnities included white Asian (n=1), African (n=1), Indian (n=1), Pakistani (n=1), Chinese (n=1), black other (n=1), mixed other (n=1). Service-users identified as hetrosexual (n=16), homosexaual (n=1) or bisexual (n=3). Health professionals included doctors (n=4), Nurses (n=2), receptionist (n=1) and therapist (n=1). Years qualified ranged from 3.5 to 17 years (Tables 1&2). Analysis generated three themes: Beliefs about attending, Barriers to attending, Overcoming barriers.

**Beliefs about attending**

*Perceptions of necessity*

Individuals described a need to attend their sexual healthcare appointment when they had engaged in risky sexual activity (e.g., unprotected sex, sex outside of a relationship, sex following disclosure of an STI by a sexual partner), with urgency to attend related to symptom perception. Being asymptomatic or experiencing painless symptoms made it easier to miss an appointment, particularly if there was a time-lag between booking and availability. During this gap, participants were more likely to ignore or normalise symptoms as “*down to other things*” (Service-user 5, age 43, female, interview). Routine check-ups were given lower priority than appointments for newly developed symptoms. Nevertheless, participants articulated an obligation to attend because of health service waste, financially and in terms of professionals’ time. Responsibility also related to the risk of STI transmission. However, a lack of personal consequences for missing appointments reduced the need to cancel.

*I guess if you're just that sort of person that, say, had sex with loads of people and then never gets a test, you're just a bit selfish, really, aren't you? Because you could be carrying something.* (Service-user 11, age 27, male, interview)

*Value of Attending*

Service-users described positive outcomes following SHC appointment attendance. For many, it provided an opportunity to resolve worrying symptoms and reduce the possibility of poor outcomes, thus providing “*peace of mind*” (Service-user 11, age 27, male, interview). While professionals suggested that appointments might be missed in the hope that symptoms would improve, service-users suggested that availability of information elsewhere (e.g., on the internet) facilitated self-diagnosis and treatment, thus avoiding the need for attendance.

Despite SHCs being described as *“sterile”* (Service-user 9, age 28, female, interview) and run-down, clinician expertise in sexual health was valued. However, as appointments moved to telehealth delivery during Covid-19, participants expressed apprehension about the accuracy of remote assessment, leading to multiple appointments and a loss of timely access to specialist treatments:

*After a short period of the video consultation, even in a short period of time, there may be some factors or some issues that missed out during the consultation. As a result, you would have to rebook another consultation, which would take much more time out of your hands for your treatment and care to be closely monitored.* (Service-user 15, age 32, male, interview)

Telephone appointments were further perceived to challenge therapeutic relationships. Professionals reported a loss of non-verbal cues; requiring sensitivity and intuition to identify “*underlying issues*” (HCP 8, Nurse, interview). Professionals were also concerned that telehealth appointments would lack personalisation, feeling more transactional than consultative. Service-users reiterated these concerns, highlighting a loss of “*human warmth and compassion*” (Service-user 9, age 28, female, interview). For others, however, removing face-to-face contact provided a less threatening environment:

*You just say what you have to say, almost like Confession, where they don't see your face.* (Service-user 9, age 28, female, interview)

Video calls were perceived to make HCPs appear more personable because of visual contact facilitating non-verbal communication. Providing options for mode of appointment delivery was expressed as optimal, providing service-users with choice in *how* they received their appointment at the point of booking.

*Concerns about attending*

Participants expressed concerns about stigma attached to attending sexual health appointments and associated it with shameful behaviour. While telehealth services reduced anxieties about being seen, concerns were raised about remote privacy. To maintain privacy and confidentiality, HCPs discussed the need for staff to assess service-users’ ability to talk freely, before proceeding with the telehealth appointment. Some individuals, particularly those from non-white backgrounds feared that remote appointments were recorded and could therefore be leaked.

Despite making an appointment, fear related to unknown appointment purpose and processes created a barrier to attendance. Such anxiety was particularly evident in first-time attenders, and then again in relation to COVID-19 restrictions, which heightened uncertainty regarding the procedure for attendance. The possibility of an “*unexpected*” (Service-user 3, age 20, female, interview) test result generated fear in several cases. While the need to access results motivated some individuals to attend, it was also a barrier due to fear of what they may find out:

*I know getting the text saying, "We need to phone you about your test results," can be quite panicking because, obviously, you're just expecting the text to say, "All clear."* (Service-user 12, age 25, male, interview)

**Barriers to attending**

*Ability to attend*

Attending appointments depended on the resources available to service-users, including time, remembering and finances. Attendance was perceived to create competing priorities (e.g., work, caregiving), leading to missed appointments. Discrepancy between the perceived need and availability of convenient appointments and the prioritisation of appointments above other responsibilities influenced attendance, as did forgetting the appointment.

By reducing costs, need for travel or organisation of time away from routine duties (e.g. work, childcare), and time wasted waiting for the appointment, telehealth services were conceived as more convenient and cost-effective. However, not being provided with a set time for telehealth appointments prohibited service-user ability to step away from day-to-day life, meaning that activities such as childcare or work meetings, could prevent remote attendance.

*I'm going to go about doing stuff, and then if I miss that call then I have to call back or have to do it another time.* (Service-user 11, age 27, male, interview)

Service-users’ divided attention during telephone appointments was also thought to increase the risk of misunderstanding information, enhanced by a lack of non-verbal cues, potentially leading to service-user distress. Further concerns were raised about the impact of technical barriers disrupting appointments.

*He was just sort of reacting really badly on the phone, and I couldn't tell exactly where he was or what was happening or if someone was with him.* (HCP 3, Doctor, interview)

*Organisational barriers*

Healthcare Professionals raised concerns about the impact of clinic efficiency on attendance. Administrative issues were reported to cause some service-users not to receive reminders for booked appointments. Limiting appointment options was also undesirable. Providing a flexible approach to appointment type was thought to enable individuals to engage with services via modalities that suited their circumstances or preferences, thus encouraging attendance. Service-users were considered “*less comfortable with making phone calls*” (HCP 3, Doctor, interview), and so communicating via apps, online messaging services or via text was considered facilitative.

**Overcoming barriers**

Participants suggested that text/email appointment reminders should include additional communication to enhance service-users’ sense of responsibility to attend or reschedule, such as the cost of missed appointments or the need to take personal responsibility. To improve perceptions of confidentiality, reminders were advised to be discreet and non-judgmental. Use of social media and other campaigns/advertisements (e.g. posters, leaflets) were considered useful for highlighting the consequences of missing appointments both to the individual and to others (e.g. potential partners; health service). It was also suggested that more “*patient*-*friendly*” (HCP 5, Nurse, interview) modes of contact were needed, such as commonly used messaging services (e.g. WhatsApp) to contact patients, suggesting service-users would feel “*more confident in sharing photos*” (HCP 5, Nurse, interview) using apps that were encrypted and could be used with WiFi. Although participants acknowledged that concerns raised about security would need to be addressed. Participants also reported that service-users were more likely to cancel or reschedule appointments if they could do it themselves online or with a mobile application.

**Discussion**

Findings provide insight into factors influencing missed sexual healthcare appointments. Perceptual factors included beliefs about appointment necessity (related to perceptions of symptom severity and risky behaviour); beliefs about outcomes of attending; sense of responsibility to self and others; concerns about privacy; and concerns about process. Practical factors included competing demands and disruption to daily life; ability to attend; and forgetting. Organisational factors included the mode of appointment delivery and availability of appointments. While remote consultations were perceived to reduce missed appointments by increasing convenience and mitigating some concerns (e.g. being seen), telehealth also created barriers such as finding an appropriate time/space for consultations.

In line with the Necessity and Concerns Framework [30], missing appointments was associated with perceived need to attend (related to symptom perception and risky behaviour), balanced against concerns about the adverse effects of attending (e.g., missing work, arranging childcare, being seen). This finding fits with previous research suggesting new symptoms drive an initial urgency to schedule appointments, but that the need to attend fades over time [31]. In the case of sexual health, urgency to make and attend an appointment is likely associated with risky sexual behaviour, with motivation to attend fading as time increases between the behaviour and the appointment; or with the absence/demise of symptoms. A recent UK-based study reported a reduction in missed GP appointments from 7.8% to 3.9% by reducing forward booking time to one day [32]. As in the current study, competing demands, including the need to work and/or caregiving responsibilities have previously been identified as reasons for missing healthcare appointments [33].

Responsibility to attend was understood both in terms of wasted resources and care for the individual’s own health/that of their partner/s. While sexual healthcare is free at the point of access in the UK, access to healthcare without financial consequences can devalue appointments and demotivate attendance [34]. By appealing to social responsibility, previous research shows that rephrasing appointment reminders to include the social and economic cost of a missed appointment may be effective for reducing missed appointments [35,36], including those for sexual healthcare [37].

Consistentwith existing research, some service-users suggested that telehealth services worked to overcome privacy concerns by offering greater anonymity [38,39,40]. However, others still had concerns about finding a private space for telephone appointments and regarding how confidential remote care was (e.g. potential for recording/listening in). In addition, service-users raised concerns about the quality of care delivered via telephone and worried about the effectiveness of remote examinations and a loss of therapeutic intimacy [39, 40, 41]. Consequently, for some, there was a preference for face-to-face appointments despite practical obstacles to attendance. Nevertheless, to reduce missed telephone appointments, research shows that SHCs must adopt a secure platform that enhances trust [41]. Healthcare professionals also need to identify the appropriateness of remote assessments when booking appointments and offer alternative appointment modalities where needed [42].

Appointment reminders were identified as an opportunity to reduce missed appointments. This fits with evidence that reminder systems improve appointment attendance across a range of healthcare settings [6]. This includes simple reminders (time, date, location of appointment) as well as “reminder-plus” messages which use a reminder to target the practical barrier of forgetting alongsdide theoretically, and behaviourally informed messaging targeting concerns about attending, responsibility to, and value of, attending. While the latter has received less attention, research indicates consistent evidence that “reminder-plus” messages may be more effective than simple reminders [39, 6]. A study by Rutland et al [43] found SMS reminder plus health promotional message significantly improved GUM clinic reattendance.

Finally, participants supported previous findings that service-users require easier approaches to cancelling and rescheduling appointments [6], suggesting apps, email/online messaging services or texts to arrange or reschedule appointments. Enhancing the ease by which appointments are rescheduled would mean SHCs could reallocate appointments to other service-users, thereby reducing waste [6]. Reducing waiting lists by reallocating cancelled appointments can improves clinic efficiency and increase attendance [44]. While web-based appointment scheduling systems have been found to decrease non-attendance rates [45], consideration must also be given to service-users’ e-health literacy and digital poverty [46].

**Practice implications**

Based on this research several interventions can be recommended (Table 3). Strong evidence supports the use of reminder interventions [6], however, more research is needed to explore the effectiveness and cost-effectiveness of providing additional information as part of a “reminder-plus” system, including whether messages should be “gain-framed” or “loss-framed” [6]. Co-developing the content of such messages with target service-users is recommended to ensure messaging is acceptable and engaging. Mixed views on privacy and confidentiality of in-person and remote care also suggest that service-users would value optionality in the mode of SHC appointment delivery.

**Limitations**

Although the study design was guided by a stakeholder advisory group, recruiting persistent non-attenders remained challenging. Male participants were also under-represented within our sample, although reflective of similar studies [47]. Future research would benefit from exploring more diverse views as well as in-depth consideration of demographic characteristics (e.g. socio-economic status, gender, ethnic background, sexual orentation) given research in other settings indicating the importance of these factors for understanding non-attendance [48]. Member checking is also recommended in future research as a key strategy for supporting credibility and reliability of findings.

**Conclusion**

Non/attendance at sexual healthcare appointments is influenced by perceptual and practical barriers including beliefs about need and outcomes of attending, sense of responsibility, concerns about privacy, competing demands and forgetting. Interventions are recommended to target these factors by combining reminder systems with behaviourally informed messaging. Offering choice in appointment modality may also reduce missed appointments.

**References**

1. Workowski K A Centers for Disease Control and Prevention Sexually Transmitted Diseases Treatment Guidelines, Clinical Infectious Diseases, 61 (2015) S759-S762
2. Lorenc A, Brangan E, Kesten JM, et al What can be learnt from a qualitative evaluation of implementing a rapid sexual health testing, diagnosis and treatment service? BMJ Open (2021) 11: e050109
3. Parmar S (2013) Integrated Sexual Health Services: National Service Specification. London: DH, Crown Copyright.
4. Tanton C, Geary RS, Clifton S et al Sexual health clinic attendance and non-attendance in Britain: findings from the third National Survey of Sexual Attitudes and Lifestyles (Natsal-3). Sexually Transmitted Infections, 94(4) (2017) 268-276
5. Centers for Disease Control and Prevention. New data show that STDs remain far too high. [www.cdc.gov/std/statistics/2020/default.htm](http://www.cdc.gov/std/statistics/2020/default.htm).
6. McLean SM, Booth A, Gee M et al Appointment reminder systems are effective but not optimal: results of a systematic review and evidence synthesis employing realist principles. Patient Preference and Adherence, 10 (2016) 479-499
7. Crable EL, Biancarelli DL, Aurora M et al Interventions to increase appointment attendance in safety net health centers: A systematic review and meta-analysis. J Eval Clin Pract, 27 (2021) 965-975
8. Balfe M & Brugha R What prompts young adults in Ireland to attend health services for STI testing? BMC Public Health, 9 (2009) 311
9. Balfe M & Brugha R What concerns do young adults in Ireland have about attending health services for STD testing? Deviant Behavior, 32(4) (2011) 320-350
10. Mulholland E & van Wersch A Stigma, sexually transmitted infections and attendance at the GUM clinic: an exploratory study with implications for the theory of planned behaviour. Journal of Health Psychology, 12(1) (2007) 17-31
11. Jaspal R Perceptions of HIV testing venues from men who have sex with men in London and the Midlands, United Kingdom. Journal of Gay and Lesbian Social Services, 30(4) (2018) 336-355
12. Normansell R, Drennan VM, & Oakeshott P Exploring access and attitudes to regular sexually transmitted infection screening: the views of young, multi-ethnic, inner-city, female students. Health Expectations, 19 (2015) 322-330
13. Tilson EC, Sanchez V, Ford CL et al Barriers to asymptomatic screening and other STD services for adolescents and young people: focus group discussions. BMC Public Health, 4(21) (2004)
14. Malta M, Bastos FI, Strathdee, SA et al*.* Knowledge, perceived stigma, and care-seeking experiences for sexually transmitted infections: a qualitative study from the perspective of public clinic attendees in Rio de Janeiro, Brazil. BMC Public Health 7, 18 (2007)
15. van Baar JD, Joosten H, Car J et al Understanding reasons for asthma outpatient (non)-attendance and exploring the role of telephone and e-consulting in facilitating access to care: exploratory qualitative study. BMJ Quality & Safety, 15 (2006) 191-195
16. Lewis K, Patel D, Yorston D et al A Qualitative Study in the United Kingdom of Factors Influencing Attendance by Patients with Diabetes at Ophthalmic Outpatient Clinics. Ophthalmic Epidemiology 14 (2007)
17. Hogan AM, McCormack O, Traynor O et al. Potential impact of text message reminders on non-attendance at outpatient clinics. Irish Journal of Medical Science 177 (2008) 355-358
18. Hasvold PE & Wootton R Use of telephone and SMS reminders to improve attendance at hospital appointments: a systematic review. Journal of Telemedicine and Telecare 17 (2011)
19. British Association for Sexual Health and HIV. (2020). BASHH COVID-19 Sexual Health ‘Clinical Thermometer’ Survey Round 3 Results Snapshot. Retrieved 29th June, 2021. <https://members.bashh.org/resources/Documents/Covid-19/BASHH%20COVID-19%20Clinical%20Thermometer%20Survey%20-%20Third%20Round%20Results%20Snapshot%20Sept%2020.pdf>
20. Monaghesh E & Hajizadeh A The role of telehealth during COVID-19 outbreak: a systematic review based on current evidence. BMC Public Health, 20 1193 (2020)
21. Schulz T, Long K, Kanhutu K, Bayrak I, Johnson D, Fazio T. Telehealth during the coronavirus disease 2019 pandemic: Rapid expansion of telehealth outpatient use during a pandemic is possible if the programme is previously established. Journal of Telemedicine and Telecare 28 (6) 445-451 (2022)
22. Siow MY, Walker JT, Britt E, Kozy JP, Zanzucchi A, Girard PJ, Schwartz AK, Kent WT. What Was the Change in Telehealth Usage and Proportion of No-show Visits for an Orthopaedic Trauma Clinic During the COVID-19 Pandemic? Clin Orthop Relat Res. 478 (10) 2257-2263 (2020)
23. Burbury K, Wong ZW, Yip D, Thomas H, Brooks P, Gilham L, Piper A, Solo I, Underhill C. Telehealth in cancer care: during and beyond the COVID-19 pandemic. Intern Med J. 51 (1) 125-133 (2021)
24. Naumann L, Reul-Hirche H, Comans T, Burns CL, Paratz J, Cottrell M. Evaluating telehealth for the education and monitoring of lymphoedema and shoulder dysfunction after breast cancer surgery. Support Care Cancer 31 (4) (2023)
25. Chapman KA, Machado SS, van der Merwe K, Bryson A, Smith D. Exploring primary care non-attendance: a study of low-income patients. J Prim Care Community Health. 13:21 (2022)
26. Braun V, Clarke V, Boulton E et al The online survey as a qualitative research tool. International Journal of Social Research Methodology, 24 (6) 641-654 (2021)
27. Clarke R, Heath G, Ross JDC, Farrow C Increasing attendance at pre-booked sexual health consultations: a systematic review. Sex Health 19 (4) (2022) 236-247
28. Ritchie J & Spencer L Qualitative data analysis for applied policy research. In: Bryman, A., Burgess, R.G. (Eds.), Analysing Qualitative Data. Routledge, London (1994)
29. Gale N, Heath G, Cameron E et al Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC Medical Research Methodology, 13, 117 (2013)
30. Horne R & Weinman J Self-regulation and self-management in asthma: exploring the role of illness perceptions and treatment beliefs in explaining non-adherence to preventer medication. Psychology & Health 17 (1) (2002) 17-32
31. Lacy NL, Paulman A, Reuter MD et al Why we don't come: patient perceptions on no-shows. Ann Fam Med 2 (6) (2004) 541-545
32. Margham T, Williams C, Steadman J et al Reducing missed appointments in general practice: evaluation of a quality improvement programme in East London British Journal of General Practice e31-e38 (2021)
33. Bedford LK, Weintraub C, Dow AW Into the Storm: A Mixed Methods Evaluation of Reasons for Non-attendance of Appointments in the Free Clinic Setting SN Comprehensive Clinical Medicine 1-7 (2020)
34. Williamson AE, Ellis DA, Wilson P et al Understanding repeated non-attendance in health services: a pilot analysis of administrative data and full study protocol for a national retrospective cohort. BMJ Open, 7 (2017)
35. Hallsworth M, Berry D, Sanders M et al Stating Appointment Costs in SMS Reminders Reduces Missed Hospital Appointments: Findings from Two Randomised Controlled Trials. PLoS One, 10 (2015)
36. Aggarwal A, Davies J & Sullivan R “Nudge” and the epidemic of missed appointments Can behavioural policies provide a solution for missed appointments in the health service? Journal of Health Organization and Management 30 (2016) 558-564
37. Malotte CK, Ledsky R, Hogben M et al Comparison of methods to increase repeat testing in persons treated for gonorrhoea and/or chlamydia at public sexually transmitted disease clinics. Sexually Transmitted Diseases, 31(11) (2004) 637-642
38. Nadarzynski T, Bayley J, Llewellyn C et al Acceptability of artificial intelligence (AI)-enabled chatbots, video consultations and live webchats as online platforms for sexual health advice. BMJ Sexual & Reproductive Health, 46(6) (2020) 210-217
39. Grove M, Brown LL, Knudsen HK et al Employing telehealth within HIV care: advantages, challenges and recommendations. AIDS, 35(8), (2021) 1328-1330
40. Dandachi D, Dang BN, Lucari B et al Exploring the attitude of patients with HIV about using telehealth for HIV care. AIDs Patient Care and STDs. 34(4) (2020)
41. Garrett CC, Hocking J, Chen MY et al Young people’s views on the potential use of telemedicine consultations for sexual health: results of a national survey. BMC Infectious Diseases, 11(285) (2011)
42. Galpin K, Sikka N, King SL Expert consensus: Telehealth skills for health care professionals. Telemedicine Journal and E-Health (2020)
43. Rutland E, Roe H, Weaver A Health promotional messages in short message service (SMS) follow-up of GU medicine clinic defaulters; a tool to improve subsequent attendance rates? Sexually Transmitted Infections 88 Suppl 1 (2012)
44. Sauer U, Mann S, Stephenson JM Moving towards same-day provision of Level 3 care in sexual and reproductive health services. BMJ Sexual & Reproductive Health, 44, (2018) 299-302
45. Zhao P, Yoo I, Lavoie J et al Web-based medical appointment systems: a systematic review. Journal of Medical Internet Research, 19 (2017)
46. Kontos E, Blake KD, Chou WYS et al Predictors of eHealth usage: insights on the digital divide from the Health Information National Trends Survey 2012. Journal of Medical Internet Research, 16(7), e172 (2014)
47. Mapp F, Wellings K, Mercer CH, et al Help-seeking for genitourinary symptoms: a mixed methods study from Britain’s Third National Survey of Sexual Attitudes and Lifestyles (Natsal-3) BMJ Open 9: e030612 (2019)
48. Jefferson L, Atkin K, Sheridan R et al Non-attendance at urgent referral appointments for suspected cancer: a qualitative study to gain understanding from patients and GPs British Journal of General Practice 69 689: e850-e859 (2019)

*Table 1: Service-user participant characteristics*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Participant | Age | Gender | Ethnicity | Sexual orientation | Relationship status | Employment  | Sexual health clinic use | Data collection |
| Service-user 1 | 20 | Female | White British | Heterosexual | In relationship | Full-time | Reason/ concerned | Interview |
| Service-user 2 | 19 | Female | White British | Heterosexual | In relationship | Student | If urgent | Survey |
| Service-user 3 | 20 | Female | White British | Heterosexual | Single | Part-time | If urgent | Interview |
| Service-user 4 | 21 | Female | White Asian | Heterosexual | Single | Student  | A few times | Interview |
| Service-user 5 | 43 | Female | White British | Heterosexual | Married | Self-employed | At GP request  | Interview |
| Service-user 6 | 37 | Female | White British | Heterosexual | In relationship | Full-time | Contraceptive needs | Interview |
| Service-user 7 | 28 | Female | White British | Bisexual | Married | Full-time | At GP request | Interview |
| Service-user 8 | 25 | Female | White British | Heterosexual | In relationship | Full-time | Contraceptive needs | Interview |
| Service-user 9 | 28 | Female | African | Heterosexual | In relationship | Student | Regularly + if urgent | Interview |
| Service-user 10 | 41 | Female | White British | Heterosexual | Separated  | Full-time | If urgent | Interview |
| Service-user 11 | 27 | Male | White British | Heterosexual | In relationship | Self-employed | If urgent | Interview |
| Service-user 12 | 25 | Male | White British | Homosexual | In relationship | Full-time | Regularly + if urgent | Interview |
| Service-user 13 | 39 | Female | White British | Heterosexual | Married | Part-time | If urgent | Interview |
| Service-user 14 | 21 | Female | White British | Heterosexual | Married | Full-time | If urgent | Interview |
| Service-user 15 | 32 | Male | Indian | Bisexual | Single | Full-time | Regularly + if urgent | Interview |
| Service-user 16 | 28 | Female | White British | Heterosexual | In relationship | Full-time | If urgent | Survey |
| Service-user 17 | 24 | Female | Black other | Heterosexual | Single | Unemployed | Regularly | Interview |
| Potential service-user 1 | 26 | Male | Pakistani | Heterosexual | Single | Student | Prefer not to say | Interview |
| Potential service-user 2 | 19 | Female | Chinese | Heterosexual | Single | Student | Never | Interview |
| Potential service-user 3 | 29 | Female | Mixed other | Bisexual | In relationship | Self-employed | If urgent | Survey |

*Table 2: Healthcare professional participant characteristics*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Participant | Profession | Speciality  | Years qualified | Data collection |
| HCP1 | Receptionist | Sexual health | 12 | Survey |
| HCP2 | Doctor | Sexual health | 12 | Interview |
| HCP3 | Doctor | Sexual health | 11 | Interview |
| HCP4 | Doctor | Sexual health | 17 | Interview |
| HCP5 | Nurse | Sexual health | 11 | Interview |
| HCP6 | Therapist | Sexual health | 20 | Survey |
| HCP7 | Doctor | Sexual health | 9 | Survey |
| HCP8 | Nurse | Sexual health | 3.5 | Interview |

*Table 3: Factors influencing missed sexual healthcare appointments, possible interventions and evidence for such interventions.*

|  |  |  |
| --- | --- | --- |
| Influencing factor  | Potential intervention  | Evidence for intervention  |
| Perceived necessity of attending (reduced necessity with time between booking and appointment date – lack of symptoms + reduced perceptions of risk)  | Reduce time between booking appt and offering appt  | Margham et al (2021) Reduced forward booking time to 1 day for GP appointments. The practice that made this change reduced its mean DNA rate (7.8% vs. 3.9%). |
| Perceived necessity of attending (reduced necessity with lack of symptoms) outweighed by concerns about attending (e.g. disruption to daily life – work, caregiving responsibilities) | Responsive tailored messaging or automatic messaging to reinforce attendance need (even when asymptomatic); emphasise benefits of attending and to address potential concerns. | \*Rutland et al (2012) SMS follow-up of clinic defaulters improved subsequent re-attendance rates at GUM clinic if a health promotional message was included (15.2% vs. 4.5%, p=0.032).\*Tanner et al (2018) Responsive, context-specific, theory-informed messages delivered via social media + text message to reinforce attendance needs and address sexual health appointment concerns resulted in significant reductions in missed HIV care appointments (68.0% vs. 53.3%, p=0.04).Crable et al (2021) recommend intervention approaches to improve patients' understanding of the importance and benefits of attending appointments (in different healthcare settings) to complement more traditional reminder systems.  |
| Personal responsibility to attend (to health service and to self/others) | Highlighting personal responsibility to attend (alongside appointment reminders) | Hallsworth et al (2015) Rephrasing appointment reminders to include the cost of a missed outpatient appointment to the health system is more effective for reducing missed appointments than standard reminder messages alone (11.1% vs. 8.4%, p=0.01). |
| Value of attending (perceived outcome + uncertainty about procedures)  | SHC appointment reminders could use *information about physical and emotional consequences* to increase beliefs about positive outcomes of appointment attendance and *demonstration of behaviour* to address uncertainty about procedures | Sallis et al (2019a) Including behaviourally informed messages in appointment letters, such as *social comparison* to enhance social norms perceptions, can increase attendance to NHS health checks compared to traditional appointment letters (33.5% vs 29.3%, p=0.01). Crable et al (2021) Informing and reassuring service-users about procedures within the appointment prior to attendance may help to reduce appointment anxiety and thus reduce missed appointments  |
| Confidentiality and privacy | Offer different options for appointments (e.g. telephone, face-to-face)Improve clinic environment for FTF appointments  | Garrett et al (2011) To reduce missed telephone appointments, SHCs must adopt a secure platform that service-users can trust. Galpin et al (2020) Healthcare professionals need to identify service-users who cannot speak freely during remote assessments when booking appointments and offer alternative appointment modalities where possible.Pampati et al (2019) Flexible hours, inconspicuous entrances, and minimal time in waiting rooms may help alleviate privacy concerns for young people accessing sexual healthcare. |
| Forgetting  | Reminder systems  | McLean et al (2016) reminder systems improve appointment attendance across a range of health care settings and patient population sub-groups, as well as being acceptable and feasible across a range of health care settings. Little difference between different reminder technologies (e.g., SMS reminders, phone call reminders or other reminders) but telephone reminders more effective for cancelling/rescheduling appointments than text messages, meaning that more appointments can be reallocated.\*Rutland et al (2012) SMS follow-up of clinic defaulters improved subsequent re-attendance rates at GUM clinic if a health promotional message was included (15.2% vs. 4.5%, p=0.032).\*Tanner et al (2018) Responsive, context-specific, theory-informed messages delivered via social media + text message to reinforce attendance needs and address sexual health appointment concerns resulted in significant reductions in missed HIV care appointments (68.0% vs. 53.3%, p=0.04). |
| Booking and/or cancelling/rescheduling appointments | Facilitated appointment systems  | McLean et al (2016) Service-users desire easier and more convenient approaches to cancelling and rescheduling appointments.Zhao et al (2017) Web-based appointment scheduling systems have previously been found to decrease non-attendance rates  |

\*Evidence specifically related to sexual healthcare

**Supplementary file 1**

**Interview / survey questions – Service users**

Accessing appointments:
1. Tell me about a time when you have made or received a sexual health clinic appointment.

Who were you referred by? (Self? Other?)

How did you make the appointment (e.g., online, via telephone, letter sent)
How long did you have to wait for the appointment?

2. How did you feel about making that appointment?

Any concerns or worries?
3. How easy or difficult was it to schedule the appointment?

What would make it easier?

How easy or difficult was it to change/cancel the appointment?

Attending appointments:
4. Did you attend your scheduled appointment?

Why/why not?
5. How was the appointment delivered? (e.g., face-to-face in clinic, via telephone, via video-call)

How did you feel about the way the appointment was delivered? Why?

Was it what you were expecting? Why?
6. Do you think the way the appointment was delivered affected your attendance?

Why?
7. What would be your preferred mode of delivery for sexual health consultations? (e.g., face-to-face, telephone, video-call)

Why?
8. How important do you think it is for you to attend scheduled sexual health appointments?

Why?

Any concerns or worries about attending?
9. Have you ever missed an appointment?

Why?
10. Can you tell me about any communication you’ve received from the sexual health clinic?

How did you feel about it?

What would make it more helpful?

Future appointments:
11. What might make you decide not to attend an appointment in the future?
12. Why do you think other people might miss scheduled appointments?
13. Do you think the way the appointment is delivered (e.g., face-to-face, telephone, video-call) would impact on your attendance in the future?

Why?
14. What would help you or others to attend an appointment?
15. Is there anything that you would like to add?

**Interview/survey questions – Healthcare professionals**

1. Tell me a bit about your job role

What contact do you have with patients?
2. Have you experienced people not attending scheduled clinic appointments?

Can you tell me a bit about that?
3. Have you experienced people not attending scheduled telephone/online appointments?

 Can you tell me a bit about that?
4. How much of a problem do you perceive non-attendance to be?

Why is it a problem?
5. How easy do you think it is for patients to come for an appointment?
6. How difficult do you think it is for patients to come for an appointment?
7. Why do you think some people do not attend their clinic appointments?

What are the practical barriers to attendance?

What are the perceptual barriers to attendance?
8. What do you think could be done to prevent non-attendance?

What strategies could be put in place to improve attendance?
9. How do you think the delivery of the appointment (e.g., in person, on the phone) impacts attendance?

Why?
10. Have you a sense of what service-users prefer?

Which do mode of delivery do you prefer?

Why?
11. How do you feel about delivering care via telephone or online rather than face-to-face?

Why?

How might this way of working impact the quality of care you provide?
12. Can you tell me about how your work has changed during the Covid-19 pandemic (e.g. changes to service delivery – remote working)

How have those changes impacted on your own experiences of working?

How do you think those changes have impacted on service-user attendance/ service- user satisfaction?

13. Is there anything you would like to add?

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Jonathan Ross reports personal fees from GSK Pharma and Bayer Consumer Care; ownership of shares in GSK Pharma and AstraZeneca Pharma; lead author of the UK and European Guidelines on Pelvic Inflammatory Disease; Member of the European Sexually Transmitted Infections Guidelines Editorial Board. He is an NIHR Journals Editor and associate editor of Sexually Transmitted Infections journal. He is treasurer for the International Union against Sexually Transmitted Infections and chair of charity trustees for the Sexually Transmitted Infections Research Foundation. The other authors report no conflicts of interest.

**Data sharing statement**: The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.