

Exploring public awareness and willingness to engage in pharmacy-based sexual health services: A cross sectional survey

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Abstract

Background: Pharmacists are increasingly recognized as accessible providers of sexual and reproductive health services, including sexually transmitted infection (STI) testing and education. However, public comfort discussing sexual health in pharmacy settings remains underexplored. This study aimed to assess public willingness and comfort in engaging with pharmacists and pharmacy technicians on sexual health topics.

Methods: A 22-item cross-sectional survey developed and validated by the study investigators was distributed via Qualtrics to adults aged ≥ 18 years between September and November 2024. Recruitment occurred through Wayne State University communication platforms and an external consumer email list. Survey items included multiple-choice, Likert-scale, and yes/no questions across five domains: demographics, comfort discussing sexual health with pharmacy staff, willingness to use pharmacy-based sexual health services (PBSHS) (e.g., pharmacist-performed STI testing), provider preferences, and awareness of PBSHS. Responses were analyzed using descriptive statistics.

Results: A total of 110 eligible respondents were included in the analysis (mean age 26 years; 71% female). Although 73% of participants reported being comfortable discussing sexual health topics in general, only 39% reported feeling somewhat or extremely comfortable discussing sexual health with a pharmacist. Most respondents preferred discussing sexual health with a primary care provider (64%), while only 2% preferred a pharmacist. Awareness of pharmacy-based STI testing services was limited, with 53% reporting they were unaware such services were available. Despite this, 57% indicated willingness to receive pharmacist-performed point-of-care STI testing, and 74% reported willingness to receive pharmacist follow-up counseling and treatment after testing. Willingness to discuss sexual health through telepharmacy was reported by 71% of respondents.

Conclusion: Although willingness to utilize pharmacy-based sexual health services was moderate, awareness of available services and comfort discussing sexual health with pharmacists remain limited. Increasing public awareness of pharmacist-provided services and improving communication around pharmacists' clinical roles may enhance patient engagement with PBSHS.

Keywords: pharmacy-based sexual health, STI testing, pharmacist-patient communication, pharmacy technicians, sexual health counseling, community pharmacy services

Introduction

Sexual and reproductive health (SRH) is a critical aspect of public health, encompassing a wide range of services including contraception, fertility care, pregnancy-related services, and the prevention, education, and timely treatment of sexually transmitted infections (STIs).¹ Globally, more than 1 million STIs are acquired daily, highlighting the urgency of accessible, community-based prevention and care efforts.² Although primary care providers traditionally address sexual and reproductive health concerns, college-aged individuals often experience fragmented or inconsistent access to care and report barriers such as stigma, confidentiality concerns, and limited awareness of available services.^{3,4}

Pharmacists are uniquely positioned to address this gap as highly accessible and trusted healthcare professionals. In the United States (U.S.), pharmacists increasingly contribute to SRH care through expanded-scope services, including STI screening and treatment, partner management, emergency hormonal contraception, and, in many jurisdictions, hormonal contraception prescribing.^{5,6} National policy efforts, including the U.S. STI National Strategic Plan (2021–2025), have recognized pharmacy-based STI programs as a strategy to expand access to essential services.⁵ In many countries, including the United Kingdom and Canada, pharmacists are further integrated into sexual health service delivery, offering STI testing, contraceptive counseling, and health education.^{7–9} A 2021 scoping review by Navarrete et al. emphasized the global feasibility of pharmacist-led SRH services⁷, while Gauly et al. reported that both patients and providers view pharmacy-based sexual health services (PBSHS) as convenient, user-friendly, and beneficial.⁹

In the United States, however, the implementation of PBSHS remains inconsistent and fragmented. Although pharmacists are increasingly recognized as capable and willing to provide

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SRH care, public engagement is limited by barriers such as low awareness, privacy concerns, cultural stigma, and discomfort discussing sensitive topics in a pharmacy setting.^{7,9,10} Lutz et al. found that although patients receiving antiretroviral therapy expressed high trust in pharmacists, many demonstrated limited awareness and confidence in pharmacists' HIV-specific roles, including PrEP-related services.¹¹ In addition, Adje and Chinenye found that while community pharmacists reported strong competence, confidence, and comfort providing adolescent SRH services, their involvement was hindered by barriers such as lack of time, religious objections, limited educational resources, and reported lack of confidence in pharmacists.¹²

Recognizing these challenges, this study explores public awareness, comfort, and willingness to engage with pharmacists and pharmacy technicians for sexual health services, focusing on an urban university population that may be interested in seeking out PBSHS.

Methods

A 22-item anonymous cross-sectional survey developed and validated by study investigators was distributed via Qualtrics (Qualtrics XM, Provo, UT; Version 2024) to adults 18 and older from September through November 2024. The survey instrument was evaluated for readability and reproducibility prior to distribution. Readability was assessed by administering the survey to five representative individuals followed by a debriefing session to evaluate clarity and ensure that respondents' interpretations aligned with the investigators' intended meaning. Reproducibility was assessed using a test–retest approach in which the survey was administered to 10 individuals twice, one week apart. Responses between the two administrations were compared using Pearson's correlation coefficient and Spearman's rank-order correlation to assess response stability.

The survey was sent to the Wayne State University (WSU) community in Detroit, Michigan through university newsletters and Academia, a secure gateway that provides students with access to information. Additionally, an invitation to complete the survey was sent via email to a consumer mailing list purchased from Exact Data (Exact Data, Chicago, IL). The survey instrument included multiple-choice, Likert-scale, and yes/no items grouped into five domains: 1) Demographics, 2) Comfort discussing sexual health with pharmacy staff, 3) Willingness to use PBSHS (e.g., STI testing), 4) Preference for provider types, and 5) Awareness of PBSHS. Participants were not required to answer each question of the survey before moving onto the next question.

Ethical safeguards were implemented to protect participant privacy and anonymity. Participants provided informed consent and completed the survey voluntarily at their convenience using a secure online platform, minimizing potential discomfort associated with sensitive topics. Qualtrics

settings were configured to prevent the collection of identifying information, ensuring that responses remained anonymous. The study was approved by the Institutional Review Boards at Wayne State University and Ferris State University.

Anonymous response data were analyzed using descriptive statistics. Categorical variables were reported as frequencies and percentages. No inferential statistical analyses were conducted due to the descriptive nature of the study. Participants had the option to be entered in a raffle to win one of five \$50 Amazon gift cards; contact information for raffle participation was collected separately from survey responses to preserve anonymity.

Results

A total of 114 responses were collected. Of these, 111 respondents (98%) provided consent to participate, while 2 (2%) declined consent. One respondent was younger than 18 years and was excluded per eligibility criteria; therefore, 110 respondents were included in the final analysis. Among included participants, the mean age was 26 years (SD ± 8.6 ; median 23 years, range 18–57). Respondents were predominantly female (71%), with most identifying as White (45%) or African American (21%). The majority were not employed in healthcare (85%), and 83% reported feeling somewhat or very educated about sexual health. Approximately 64% reported having an established primary care provider, while 58% indicated an established relationship with a pharmacist. Additional demographic characteristics are presented in Table 1.

Table 1. Participant Demographics and Baseline Characteristics (n=110)*

Age (n=107)	Median (Range)	23 (18-57)
	Mean (SD)	26 (± 8.6)
Category	Subcategory	n (%)
Sex (n=108)	Female	77 (71%)
	Male	26 (24%)
	Non-binary/Third gender	5 (5%)
Race (n=107)	White	48 (45%)
	African American	22 (21%)
	Asian	12 (11%)
	Hispanic/Latino	10 (9%)
	Middle Eastern/North African	4 (4%)
Educated about Sexual Health (n=107)	Very Uneducated	1 (1%)
	Somewhat Uneducated	7 (7%)
	Neutral	10 (9%)
	Somewhat Educated	64 (60%)
	Very Educated	25 (23%)

Employed in Healthcare (n=107)	Yes	15 (14%)
	No	91 (85%)
Education level (n=107)	Bachelor's Degree or Higher	50 (47%)
Established care with PCP (n=107)	Yes	68 (64%)
	No	33 (31%)
Established care with Pharmacist (n=106)	Yes	61 (58%)
	No	34 (32%)

*The overall analytic sample included 110 eligible participants. Variable-specific denominators reflect item-level response counts. To maintain clarity and avoid overcomplicating the table, only the most substantively relevant and commonly selected categories are presented, while infrequent or free-text responses were retained in the analysis but not individually displayed. Abbreviations: PCP, primary care provider

Comfort with Discussing Sexual Health

Overall, comfort discussing sexual health was generally high, with 73% reported being comfortable or extremely comfortable discussing sexual health topics in general. However, comfort decreased when the discussion involved pharmacists specifically; only 39% reported feeling somewhat or extremely comfortable discussing sexual health with a pharmacist. Among respondents with an established pharmacist relationship, 38% reported feeling somewhat or extremely comfortable discussing sexual health with a pharmacist, compared with 38% among those without an established pharmacist relationship. Notably, over half of respondents (56%) reported willingness to discuss sexual health with a pharmacy technician.

Preferences for provider type showed a strong inclination toward primary care providers. Nearly two-thirds of respondents (64%) preferred discussing sexual health with their primary care provider, compared with only 2% who preferred pharmacists.

Awareness and Willingness

Willingness to utilize pharmacy-based sexual health services varied. Over half of respondents (57%) expressed willingness (ratings 4–5 on a 5-point scale) to receive pharmacist-performed point-of-care STI testing, while 17% reported unwillingness (ratings 1–2). Awareness of pharmacy-based STI testing services was moderate, with 43% reporting awareness and 53% unaware. Respondents with an established pharmacist relationship demonstrated greater awareness of pharmacy-based STI testing services compared with those without an established pharmacist (49% vs. 31%). Notably, willingness to engage in pharmacist-led follow-up care was higher, with 74% indicating willingness to receive counseling or treatment from a pharmacist following STI testing results.

Among respondents who reported being somewhat or extremely comfortable discussing sexual health with a

pharmacist (n=41), 88% expressed willingness to receive follow-up counseling and treatment, and none of these respondents reported unwillingness to receive follow-up care.

Telepharmacy

Willingness to discuss sexual health topics via telepharmacy was reported by 71% of respondents. Among respondents who were generally comfortable discussing sexual health (n=79), approximately 70% indicated willingness to use telepharmacy for sexual health discussions.

Detailed responses related to comfort, awareness, preferences, willingness, and exploratory associations are presented in Table 2.

Table 2. Survey Respondents' Comfort, Preferences, and Willingness Regarding Pharmacy-Based Sexual Health Services

Survey Item	n (%)
How comfortable are you discussing sexual health in general?	
Extremely uncomfortable	2 (2)
Uncomfortable	7 (7)
Neutral	19 (18)
Comfortable	55 (51)
Extremely comfortable	24 (22)
Do you have a preference between your primary care provider and pharmacist when it comes to speaking about topics regarding sexual health?	
Yes - prefer PCP	66 (64)
Yes - prefer pharmacist	2 (2)
No preference	35 (34)
Do you currently receive care from a pharmacy and/or pharmacist in your area?	
Yes	61 (58)
No	34 (32)
Unsure	11 (10)
How comfortable are you speaking to a pharmacist about sexual health and topics related to sexual health?	
Extremely uncomfortable	11 (10)
Somewhat uncomfortable	23 (22)
Neutral	30 (29)
Somewhat comfortable	32 (30)
Extremely comfortable	9 (9)
Are you willing to speak to a pharmacy technician about sexual health and topics related to sexual health?	
Yes	58 (56)
No	24 (23)
Unsure	22 (21)

Survey Item	n (%)
On a scale of 1 to 5 how willing are you to receive point of care sexually transmitted infection (STI) testing performed by a pharmacist?	
1 – Extremely unwilling	7 (7)
2	10 (10)
3	27 (26)
4	31 (30)
5 – Extremely willing	28 (27)
Are you aware that there is point of care testing for sexually transmitted infections (STIs) available through a pharmacy? (Examples of STIs include gonorrhea, chlamydia, genital herpes, syphilis, HIV, etc.)	
Yes	45 (43)
No	55 (53)
Unsure	4 (4)
Are you willing to receive follow-up counseling and treatment from a pharmacist in response to point of care sexually transmitted infection (STI) testing results?	
Yes	76 (74)
No	6 (6)
Unsure	21 (20)
Are you willing to speak about topics regarding sexual health via telepharmacy? (Telepharmacy definition: pharmacist use of virtual communication technology to provide patient care)	
Yes	74 (71)
No	14 (13)
Unsure	16 (15)

Abbreviations: PCP, primary care provider

Discussion

This study provides patient-level insight into awareness, comfort, and willingness to engage in PBSHS within a predominantly college-aged population. Four key findings from this study contribute to the current literature. First, comfort discussing sexual health with pharmacists was substantially lower than general comfort discussing sexual health overall. Second, awareness of pharmacy-based STI testing was limited despite moderate willingness to utilize such services. Third, having an established pharmacist relationship was associated with greater awareness of services but not with greater comfort discussing sexual health. Fourth, willingness to engage in telepharmacy services was high, particularly among respondents who were generally comfortable discussing sexual health topics.

Together, these findings suggest that awareness, context-specific comfort, and perceived role clarity may be important determinants of patient engagement in PBSHS.

Comfort with Discussing Sexual Health

Although respondents generally reported comfort discussing sexual health topics, fewer felt comfortable engaging in these discussions with pharmacists specifically. Additionally, most participants preferred discussing sexual health with a primary care provider rather than a pharmacist. These findings suggest that while sexual health conversations are not broadly avoided, the pharmacy setting may not yet be perceived as a preferred or established environment for these discussions.

Prior research has identified privacy concerns, stigma, and uncertainty about pharmacists' roles as barriers to open communication in community pharmacies.^{13,14} The present findings extend this literature by demonstrating that this gap persists even within a relatively young and educated population. This suggests that discomfort may stem less from lack of knowledge and more from contextual and environmental factors within the pharmacy setting.

Importantly, willingness to receive pharmacist-led follow-up services exceeded reported comfort initiating sexual health discussions. This distinction indicates that patient comfort may be highly context-dependent. Respondents may be more open to structured, clinically defined services than to unprompted or generalized conversations about sensitive topics. This nuance adds to the literature by highlighting that willingness to utilize services does not necessarily require high baseline conversational comfort.

Awareness and Willingness

Awareness of pharmacy-based STI testing services was limited among respondents. However, many expressed openness to receiving pharmacist-performed STI testing. Additionally, respondents with an established pharmacist relationship appeared more likely to be aware of available services, although this familiarity did not correspond to greater comfort discussing sexual health.

These findings align with prior literature demonstrating that while PBSHS are feasible and acceptable, limited public awareness remains a persistent barrier to utilization.^{5,7,9} The present study reinforces this gap at the patient level, suggesting that service availability alone may not translate into engagement without clear communication and visibility.

Pharmacy Technicians and Telepharmacy

A notable proportion of respondents indicated willingness to speak with pharmacy technicians about sexual health topics. However, comparisons between technicians and pharmacists should be interpreted cautiously due to differences in how survey questions were structured. Rather than indicating preference, these findings may reflect openness to engaging with multiple members of the pharmacy team. A U.S. study examining patient perceptions of technician-administered immunizations found that patients cited increased accessibility and shorter wait times as factors contributing to comfort with

technician involvement in clinical services.¹⁵ Although this study did not evaluate sexual health discussions specifically, it suggests that perceived accessibility may influence patient receptivity to technician-delivered services.

Telepharmacy was viewed positively and may represent an alternative avenue for reducing contextual discomfort. Prior research suggests that telemedicine may improve accessibility to sexual health services and is acceptable to many younger individuals, although privacy concerns remain an important consideration.¹⁶ Evidence from telepharmacy services also indicates high patient satisfaction with pharmacist-delivered virtual care, supporting the feasibility of remote communication for sensitive health discussions.¹⁷ These findings, together with the current study results, suggest that telepharmacy may represent a promising avenue for addressing contextual discomfort in pharmacy-based sexual health services.

Implications and Future Directions

The present findings remain at the patient level and suggest that efforts to expand PBSHS should focus on increasing awareness, clarifying pharmacist roles, and optimizing the environment in which sexual health discussions occur. Pharmacist-patient communication training, particularly in motivational interviewing and SRH topics, together with infrastructure enhancements such as soundproof consultation rooms, have been recommended to normalize sexual health discussions, improve patient trust, and ensure greater privacy.^{13,18} Evidence from pharmacy-based STI programs demonstrates that these services are feasible and acceptable; however, their broader implementation is limited by operational and structural barriers such as privacy concerns, inconsistent training, remuneration challenges, and workflow constraints.⁵ The data from this study reinforce that patient engagement may improve when services are structured, clearly defined, and visibly available.

Future research should explore how repeated exposure to PBSHS influences comfort and utilization over time and should examine whether targeted educational interventions improve awareness and engagement across diverse populations.

Limitations

This study has several limitations. Its cross-sectional design precludes causal inference. The sample was drawn from a single geographic region and was predominantly young and female, limiting generalizability. Self-selection bias may also have influenced responses, as individuals more comfortable with sexual health topics may have been more likely to participate. Additionally, differences in survey question formats (e.g., comfort vs. willingness scales) limit direct comparisons between certain variables. Despite these limitations, the study provides novel patient-level insight into awareness, comfort, and willingness related to PBSHS.

Conclusion

This study highlights a gap between patient awareness of pharmacy-based sexual and reproductive health services (PBSHS) and willingness to engage with them. While many respondents expressed openness to pharmacist-provided STI testing, follow-up counseling, and telepharmacy-based discussions, comfort discussing sexual health with pharmacists remained lower than general comfort discussing these topics overall. These findings suggest that patient awareness, perceived role clarity, and contextual comfort may influence engagement with PBSHS. Future efforts should focus on patient-centered strategies that increase awareness of available services, improve communication about pharmacists' clinical roles, and evaluate whether targeted education or alternative service delivery approaches, such as telepharmacy, enhance patient comfort and utilization over time.

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