

Public awareness, attitudes and perceptions of community pharmacy-based HIV pre-exposure prophylaxis: a large cross-sectional survey of 14,678 adults in England

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Abstract

Background

HIV pre-exposure prophylaxis (PrEP) is highly effective at preventing HIV acquisition, but access and uptake in England remain unequal. Community pharmacies could broaden access, yet evidence on public awareness and acceptability of pharmacy-based PrEP in England is limited.

Methods

We analysed a cross-sectional online survey of 14,678 consenting adults recruited through NHS general practices in England, the National Institute for Health and Care Research (NIHR) Be Part of Research (BPoR) service, and professional and personal networks between 29 October 2022 and 29 October 2023. The questionnaire assessed PrEP awareness and use, interest in PrEP information, and attitudes towards pharmacy-based access. Outcomes were summarised descriptively and examined using multivariable logistic regression.

Results

Among 14,678 consenting respondents (mean age 47.6 years, SD 16.1; 55.4% female; 78.1% heterosexual; 82.5% White), 35.5% reported having heard of PrEP and 32.4% reported prior awareness that PrEP can prevent HIV. Current and previous PrEP use were reported by 1.8% and 1.2%, respectively, and 63.1% expressed interest in seeking PrEP information. Overall, 52.1% agreed or strongly agreed that they would be happy to obtain PrEP from a local pharmacy, 64.2% were comfortable obtaining PrEP information there, and 52.2% gave pharmacy the highest convenience score (5/5). In adjusted analyses, prior awareness was lower among Asian than White respondents (aOR 0.64, 95% CI 0.55–0.75). Support for pharmacy access was higher among respondents aged <25 versus ≥65 years (aOR 2.31, 95% CI 1.95–2.73), and among bisexual (aOR 2.40, 95% CI 2.07–2.79), homosexual (aOR 3.18, 95% CI 2.73–3.69) and pansexual respondents (aOR 2.00, 95% CI 1.47–2.73) versus heterosexual respondents.

Conclusions PrEP awareness was limited in this large non-probability sample, while interest in PrEP information and acceptability of pharmacy-linked access were substantial. The findings support evaluation of pharmacy-linked PrEP awareness, referral and access pathways alongside targeted communication. Because the sample was not nationally representative and clinical PrEP eligibility was not measured, population prevalence and unmet clinical need cannot be inferred.

Introduction

Pre-exposure prophylaxis (PrEP) is a highly effective HIV prevention strategy in which HIV-negative individuals use antiretroviral medication to reduce the risk of HIV acquisition. Randomised and pragmatic studies across populations have demonstrated substantial protection when PrEP is taken as prescribed, including the iPrEx, Partners PrEP and PROUD studies and the subsequent PrEP Impact Trial in England [1–4].

In England, PrEP has been available through NHS sexual health services since 2020, but uptake remains unequal. UK Health Security Agency surveillance for 2024 reported PrEP initiation or continuation among people with a documented PrEP need of 79.4% among White gay and bisexual men and 77.8% among gay and bisexual men from ethnic minority groups, compared with 34.6% among Black African heterosexual women and 36.4% among Black African heterosexual men [5]. The HIV Action Plan for England 2025–2030 therefore places explicit emphasis on equitable access to prevention and on widening routes to HIV testing and PrEP [6].

Barriers to PrEP uptake include limited awareness, stigma, low perceived personal relevance and difficulties accessing specialist sexual health services [7–10]. A 2025 modelling study estimated substantial unmet PrEP need in England, particularly among Black African populations, although such estimates depend on assumptions about the population that could benefit from PrEP [7]. These inequalities strengthen the case for communication and access strategies that extend beyond populations and settings traditionally associated with PrEP.

Sexual health clinics remain the principal route to NHS-funded PrEP in England, but community pharmacies offer a potentially complementary access point because of their geographic reach, extended opening hours and established public-health role. UK

mapping and implementation studies have highlighted the potential accessibility of pharmacies relative to sexual health services, while reviews and qualitative work identify both opportunities and implementation constraints, including training, privacy, staffing capacity, clinical governance and commissioning [11–14]. International models further demonstrate that pharmacy- and telehealth-supported PrEP delivery is feasible in selected settings [15–18]. Pharmacists also have established roles in medication counselling and multidisciplinary care [19–20].

Recent UK evidence has moved this agenda from theoretical feasibility towards implementation. Qualitative research with community pharmacists and underserved community members found pharmacy-based PrEP acceptable, but identified limited PrEP knowledge, privacy and capacity constraints, and the need for training and commissioning support [14]. A qualitative study of prospective PrEP service users in Wales also found community-pharmacy access likely to be acceptable, while highlighting uncertainty about how such services would operate in practice [21]. A 2026 pilot across five community pharmacies in South West England found a pharmacy PrEP awareness-raising and referral pathway acceptable and feasible, while also identifying the need for public education, pharmacist confidence and structural support for scale-up [15]. However, large-sample evidence on public awareness of PrEP and willingness to use pharmacy-linked pathways remains limited.

Existing UK research has largely focused on groups with established PrEP indications, younger people, service users, or pharmacy professionals [8–15, 21–22]. Evidence from a broad adult sample can complement this work by identifying population-level knowledge gaps and demographic differences in receptivity to pharmacy-linked access. Such evidence is relevant to current policy efforts to widen HIV prevention while maintaining clinically appropriate risk assessment and monitoring.

This study aimed to assess PrEP awareness, reported prior awareness that PrEP can prevent HIV, current or previous PrEP use, interest in seeking PrEP information, and attitudes towards obtaining PrEP through community pharmacies among adults recruited across English NHS regions. We also examined sociodemographic factors associated with four PrEP-related outcomes.

Methods

Study design, setting and participants

We conducted a cross-sectional online survey to examine public awareness, attitudes and perceptions regarding HIV PrEP, with particular emphasis on community pharmacy-based provision. The survey was administered using Imperial College London Qualtrics XM between 29 October 2022 and 29 October 2023. Reporting was guided by the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) [23] and the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement [24]. The completed CHERRIES checklist is provided in **Supplementary File 1**.

The target population was adults aged ≥ 18 years residing in the UK. Recruitment occurred through NHS general practices in England, the National Institute for Health and Care Research (NIHR) Be Part of Research (BPoR) service, and professional and personal networks. General practices distributed SMS invitations containing a direct link to the Qualtrics survey and participant information. BPoR registrants received electronic study invitations through the NIHR service. These recruitment routes were not mutually exclusive and the dataset did not contain a reliable participant-level indicator of recruitment source.

The survey was not embedded in a host website, was not password protected and could be forwarded to others; accordingly, it functioned as an open e-survey and generated a non-probability convenience sample rather than a probability-based national sample. Participation was voluntary and no financial or other incentives were offered. The raw export contained 15,071 completed response records. Before analysis, 393 records in which respondents selected “No” to the electronic consent item were excluded, leaving an analytic sample of 14,678 consenting respondents assigned to one of six English recruitment regions.

Before the substantive questionnaire, potential participants were provided with study information describing the purpose of the research, participation requirements and use of their data, and were asked to provide explicit electronic informed consent. Only records with a “Yes” response to the consent item were eligible for the present analysis. The survey information described completion as taking approximately 5–10 minutes. Study data were stored securely at Imperial College London and analysed using unique study identifiers. The survey formed part of a wider study that also invited interested respondents to a separate qualitative interview; optional interview contact details were stored separately from survey responses.

Questionnaire development and administration

The questionnaire was developed with reference to the existing literature and refined through expert review, cognitive interviewing and pilot testing, with input from public-health and HIV-prevention specialists, including the Terrence Higgins Trust. Usability and technical functionality, including survey routing and conditional display logic, were tested before launch.

The e-survey was hosted on the Qualtrics XM platform. The exported instrument comprised 30 labelled items (Q1–Q30), encompassing participant information and consent, sociodemographic characteristics, PrEP awareness and use, information-seeking preferences, attitudes towards community pharmacy-based provision, and end-of-survey items. Most analytic questions were closed-ended. Adaptive questioning and display logic were used so that subsequent questions could depend on earlier responses; consequently, not every participant was presented with all 30 items and the number of items encountered varied by response pathway. The questionnaire comprised five pages in its longest pathway. Questionnaire items were not randomised. The complete instrument, including response options and branching logic, is provided in **Supplementary File 2**.

The supplied Qualtrics export contained response records marked Finished=TRUE and Progress=100%. Item-level non-response and conditional display logic nevertheless resulted in missing values for some questions; these were retained as missing rather than imputed. Variable-specific denominators are therefore reported for descriptive analyses. Respondents could not use the Back function to review or amend earlier responses before submission.

Prevention of duplicate entries and survey quality control

Qualtrics cookies were used to reduce the likelihood of multiple submissions from the same respondent. No participant registration or password authentication was required because the survey was intentionally administered as an open e-survey. Technical functionality was tested before fielding the survey. No responses were excluded solely on the basis of questionnaire completion time.

Survey participation, completion and missing data

Because a reliable denominator for unique visitors to the first survey or information page was unavailable, CHERRIES view and participation rates could not be calculated. The supplied export contained only records marked Finished=TRUE and Progress=100%, and therefore did not provide the denominator of all survey entrants required to calculate a CHERRIES completion rate. After exclusion of the 393 non-consenting records, all available responses from the 14,678 consenting respondents were retained. Item-level non-response was reported using variable-specific denominators and no imputation was undertaken. For regression analyses, gender responses of “Other” and “Prefer not to say” were combined because of small cell sizes, and ethnicity was grouped into White, Asian, Black, Mixed and Other categories.

Data analysis

Descriptive statistics were used to summarise participant characteristics and survey responses. For attitudinal items, response distributions are reported and, where stated, “agree” and “strongly agree” were combined. No weighting, post-stratification or other adjustment was applied to make the non-probability sample resemble the population of England. Univariable and multivariable logistic regression models examined four binary outcomes: current or previous PrEP use (Q9); reported prior awareness that PrEP can prevent HIV (Q3); interest in seeking information about PrEP (Q5); and support for obtaining PrEP from a local pharmacy (Q6). Current/past PrEP use was coded as current or previous use versus never use; “Other” and missing Q9 responses were excluded from this binary outcome. Prior awareness was coded yes versus no, with missing responses excluded. Interest in information seeking was coded yes when at least one substantive information source was selected and “I am not interested” was not selected; selection of “I am not interested” was coded no and blank responses were treated as missing. Pharmacy support was coded as “agree” or “strongly agree” versus “neither agree nor disagree”, “disagree” or “strongly disagree”; missing responses were excluded. Multivariable models adjusted for age group, gender, ethnicity, educational attainment, sexual orientation and relationship status and used complete cases for the outcome and all covariates. Age was categorised as <25, 25–44, 45–64 and ≥65 years. Model-specific analytic denominators were 14,007 for PrEP use, 14,218 for prior awareness, 14,199 for information seeking and 13,904 for pharmacy support. Associations are reported as adjusted odds ratios (aORs) with 95%

confidence intervals (CIs). Given the cross-sectional, non-probability design, estimates are interpreted as within-sample associations rather than causal effects or nationally representative prevalence estimates.

Exploratory analyses

To facilitate comparison of association patterns across the four adjusted outcomes, adjusted odds ratios (aORs) and 95% confidence intervals from the primary regression models were displayed together on a common logarithmic odds-ratio scale in **Supplementary Figure 1**. This cross-outcome comparison was descriptive and exploratory; no additional inferential model was fitted and the analysis did not alter the prespecified regression analyses.

We also conducted an exploratory joint correspondence analysis (JCA) to examine multivariable patterns among five categorical sociodemographic characteristics: gender, age group, ethnicity, sexual orientation and relationship status. The JCA used complete cases for these variables (n=14,282) and principal normalisation. Category coordinates were displayed in a two-dimensional joint correspondence plot. Dimension 1 accounted for 59.1% of total inertia and Dimension 2 for 20.5%, together representing 79.6% of total inertia. The JCA did not include any PrEP outcome and was interpreted descriptively as a complementary visualisation of demographic patterning; it was not used for hypothesis testing, participant classification or inference about associations with PrEP outcomes.

Two-sided $p < 0.05$ was used as the nominal threshold for statistical significance. No adjustment for multiple testing was applied; p-values are therefore interpreted alongside effect sizes and 95% CIs. Analyses were conducted using Stata version 17 (StataCorp, College Station, TX, USA).

Ethics

Ethical approval was obtained from the London-Dulwich Research Ethics Committee (REC reference 22/LO/0289; IRAS project ID 304648; CPMS ID 52576). Electronic informed consent was sought before the substantive questionnaire. Only records from respondents who selected “Yes” to the consent item were included in the present analysis. All procedures were conducted in accordance with the Declaration of Helsinki and applicable institutional and national requirements. Data were handled confidentially and processed in accordance with the UK GDPR and Data Protection Act 2018.

Patient and public involvement

Patient and public involvement in survey development was supported by the Terrence Higgins Trust. Input from charity representatives, public-health professionals and HIV-prevention specialists informed the relevance, wording and inclusivity of survey items. Cognitive interviewing and beta testing were used to refine clarity, flow and cultural sensitivity before launch.

Results

Participant characteristics

The analytic sample comprised 14,678 consenting respondents. Mean age was 47.6 years (SD 16.1); 55.4% identified as female (including trans women), 39.4% as male (including trans men), and 1.1% as non-binary. Most respondents identified as heterosexual (78.1%) and White (82.5%), and 56.9% reported a university degree or higher (**Table 1**). Recruitment-region data were distributed across six English regions, with the largest contributions from East Midlands, North West London, Thames Valley and South Midlands, and North West Coast.

Table 1. Respondent characteristics (N=14,678)

	n	%
Age, mean (SD)	47.6	(16.1)
Age in categories, n (%)		
<25	1,178	(8.0)
25–44	5,187	(35.3)
45–64	5,719	(39.0)
≥65	2,377	(16.2)
Missing	217	(1.5)
Gender, n (%)		
Female (including trans woman)	8,127	(55.4)
Male (including trans man)	5,786	(39.4)
Non-binary	160	(1.1)
Other (please specify)	299	(2.0)
Prefer not to say	175	(1.2)
Missing	131	(0.9)
Educational level, n (%)		
A level / college	3,771	(25.7)
Secondary school / high school	2,412	(16.4)
University degree or higher	8,350	(56.9)
Missing	145	(1.0)
Relationship status, n (%)		
Married / partnered	7,102	(48.4)
In a relationship	3,095	(21.1)
Other	422	(2.9)
Single	3,907	(26.6)
Missing	152	(1.0)
Ethnicity, n (%)		
White	12,116	(82.5)
Asian, Asian British or Asian Welsh	1,054	(7.2)
Black, Black British, Black Welsh, Caribbean or African	568	(3.9)
Mixed or Multiple ethnic groups	522	(3.6)
Other ethnic group	231	(1.6)
Missing	187	(1.3)
Sexuality, n (%)		
Heterosexual	11,470	(78.1)
Homosexual	1,199	(8.2)

	n	%
Bisexual	1,062	(7.2)
Other (please specify)	236	(1.6)
Pansexual	217	(1.5)
Prefer not to say	360	(2.5)
Missing	134	(0.9)
Region, n (%)		
East Midlands	4,725	(32.2)
East of England	320	(2.2)
North Thames (London)	119	(0.8)
North West Coast	3,143	(21.4)
North West London	3,188	(21.7)
Thames Valley and South Midlands	3,183	(21.7)

Main survey findings

Detailed response distributions are provided in **Supplementary Table 1**.

PrEP Awareness and use

Overall, 5,218 respondents (35.5%) reported having heard of PrEP, while 4,753 (32.4%) reported prior awareness that PrEP can help prevent HIV. Current PrEP use was reported by 271 respondents (1.8%) and previous use by 179 (1.2%), giving 450 respondents (3.1%) with current or past use. Interest in seeking further information about PrEP was reported by 9,257 respondents (63.1%); **Table 2**.

Among respondents who had heard of PrEP (n=5,218), common information sources included television/radio (29.3%), social media/online forums (27.0%), friends or family (22.2%), LGBTQI+ organisations (21.2%), sexual health clinics/organisations (17.3%) and healthcare professionals/GPs (15.8%); 1.3% selected pharmacists. Among respondents interested in learning more (n=9,257), healthcare professionals/GPs (64.6%) and sexual health clinics/organisations (39.4%) were the most frequently selected sources, while 15.4% selected pharmacists (**Table 2**).

Table 2. PrEP awareness, information seeking and pharmacy attitudes

	n	%
Have you ever heard about PrEP? (derived from Q4)		
Yes	5,218	(35.5)
No	9,311	(63.4)
Did not answer	149	(1.0)
Total	14,678	(100.0)
How did you hear about PrEP? Please select one or more (among respondents who had heard of PrEP; n=5,218)		
Friend or family member	1,161	(22.2)
Television / radio	1,527	(29.3)
Social media / online forums	1,407	(27.0)
Healthcare professional / doctor / GP	822	(15.8)
Pharmacist	70	(1.3)
Sexual health clinic / organisation	901	(17.3)
LGBTQI+ organisation/s	1,104	(21.2)
African organisation/s	34	(0.7)
Other	962	(18.4)
Were you previously aware that PrEP could help prevent HIV? (Q3)		
Yes	4,753	(32.4)
No	9,890	(67.4)
Did not answer	35	(0.2)
Total	14,678	(100.0)
Would you be interested in seeking information about PrEP? (derived from Q5)		
Yes	9,257	(63.1)
No	5,360	(36.5)
Did not answer	61	(0.4)
Total	14,678	(100.0)
Where would you most likely seek more information regarding PrEP? Please select one or more (among interested respondents; n=9,257)		
Friend or family member	448	(4.8)
Television / radio	508	(5.5)
Social media / online forums	2,167	(23.4)
Pharmacist	1,427	(15.4)
Healthcare professional / doctor / GP	5,978	(64.6)
Sexual health clinic / organisation	3,644	(39.4)
LGBTQI+ organisation/s	929	(10.0)
African organisation/s	55	(0.6)

	n	%
Other	810	(8.8)
I have enough information to take PrEP safely & effectively		
Strongly agree	1,027	(7.0)
Agree	1,668	(11.4)
Neither agree nor disagree	4,744	(32.3)
Disagree	3,806	(25.9)
Strongly disagree	3,079	(21.0)
Did not answer	354	(2.4)
I would be happy to obtain PrEP if it were available from my local pharmacy		
Strongly agree	3,013	(20.5)
Agree	4,633	(31.6)
Neither agree nor disagree	4,728	(32.2)
Disagree	948	(6.5)
Strongly disagree	949	(6.5)
Did not answer	407	(2.8)
I would feel comfortable getting information about PrEP from a pharmacist/pharmacy		
Strongly agree	3,284	(22.4)
Agree	6,132	(41.8)
Neither agree nor disagree	2,656	(18.1)
Disagree	1,296	(8.8)
Strongly disagree	749	(5.1)
Did not answer	561	(3.8)

Attitudes toward pharmacy-based provision

Just over half of respondents (52.1%) agreed or strongly agreed that they would be happy to obtain PrEP from a local pharmacy, while 64.2% agreed or strongly agreed that they would feel comfortable obtaining PrEP information from a pharmacist or pharmacy. Separately, 62.1% agreed or strongly agreed with the survey statement that PrEP “should be available over-the-counter in pharmacies”; this wording reflects the questionnaire item and should not be interpreted as a description of current clinical prescribing or monitoring requirements. Pharmacy received the highest convenience score (5/5) from 52.2% of respondents, compared with 18.9% for sexual health clinics and 41.3% for online websites; because each setting was rated separately, these percentages do not represent a forced ranking between settings (**Table 2; Supplementary Table 1**). Factors affecting respondents’ decisions about accessing PrEP are summarised in **Figure 1** and **Supplementary Table 1**.

Factors influencing PrEP access decisions

For the Q18 decision-factor items, the combined proportion responding “a lot” or “very much” was 53.0% for lack of information, 45.4% for high cost, 43.1% for PrEP not being easily available, 37.6% for lack of support, 35.3% for concerns about side effects, 30.7% for uncertainty about complete protection, 23.5% for stigma, 22.8% for inconvenience of regular medication and 10.3% for cultural or religious sensitivities (**Supplementary Table 1**).

Predictors of PrEP use, prior awareness and pharmacy support

In multivariable models, current or past PrEP use was strongly associated with male gender (aOR 9.01, 95% CI 6.05–13.41), bisexual orientation (aOR 17.73, 95% CI 11.34–27.71) and homosexual orientation (aOR 52.46, 95% CI 35.83–76.81) relative to the corresponding reference categories. Reported prior awareness that PrEP can prevent HIV was higher among younger participants, men, non-binary participants, Black participants, those with university-level education and non-heterosexual groups, but lower among Asian than White participants (aOR 0.64, 95% CI 0.55–0.75). Support for obtaining PrEP from a local pharmacy was higher among younger respondents, Asian and Black respondents, university-educated respondents and bisexual, homosexual and pansexual respondents. For example, compared with respondents aged ≥ 65 years, those aged < 25 years had higher adjusted odds of pharmacy support (aOR 2.31, 95% CI 1.95–2.73); compared with heterosexual respondents, aORs were 2.40 (95% CI 2.07–2.79) for bisexual, 3.18 (95% CI 2.73–3.69) for homosexual and 2.00 (95% CI 1.47–2.73) for pansexual respondents. Adjusted models are shown in **Table 3**; corresponding univariable and multivariable models are provided in **Supplementary Tables 2–5**.

Adjusted associations between participant sociodemographic characteristics and PrEP use, prior awareness, information-seeking and support for community pharmacy access are displayed in **Figure 2**. **Supplementary Figure 1** presents the same adjusted estimates on a common logarithmic odds-ratio scale to facilitate exploratory comparison of effect direction and magnitude across outcomes. Exploratory JCA of the five sociodemographic variables is shown in **Supplementary Figure 2**; among 14,282 complete cases, the first two dimensions accounted for 79.6% of total inertia (59.1% and 20.5%, respectively). Because PrEP outcomes were not included in the JCA, category proximities should not be interpreted as associations with PrEP outcomes.

Table 3. Adjusted associations between participant characteristics and four PrEP outcomes

	aOR	95% CI	p-value	aOR	95% CI	p-value	aOR	95% CI	p-value	aOR	95% CI	p-value
	Current/past PrEP use (n=14,007)			Reported prior awareness that PrEP prevents HIV (n=14,218)			Interest in seeking PrEP information (n=14,199)			Support for obtaining PrEP from local pharmacy (n=13,904)		
Age												
≥65	Ref.	-	-	Ref.	-	-	Ref.	-	-	Ref.	-	-
<25	2.37	(1.20, 4.69)	0.013	2.62	(2.17, 3.16)	<0.001	2.03	(1.69, 2.43)	<0.001	2.31	(1.95, 2.73)	<0.001
25–44	4.69	(2.62, 8.37)	<0.001	2.58	(2.25, 2.97)	<0.001	1.72	(1.53, 1.92)	<0.001	2.04	(1.83, 2.29)	<0.001
45–64	2.92	(1.63, 5.22)	<0.001	1.57	(1.37, 1.80)	<0.001	1.54	(1.40, 1.71)	<0.001	1.53	(1.38, 1.70)	<0.001
Gender												
Female	Ref.	-	-	Ref.	-	-	Ref.	-	-	Ref.	-	-
Male	9.01	(6.05, 13.41)	<0.001	1.17	(1.07, 1.28)	<0.001	0.82	(0.76, 0.89)	<0.001	1.01	(0.94, 1.09)	0.719
Non-binary	3.96	(1.78, 8.80)	<0.001	1.49	(1.03, 2.16)	0.036	0.82	(0.56, 1.22)	0.327	1.38	(0.95, 2.02)	0.093
Other/Prefer not to say	2.97	(1.17, 7.58)	0.022	0.90	(0.70, 1.16)	0.433	0.68	(0.55, 0.84)	<0.001	0.59	(0.48, 0.74)	<0.001
Ethnicity												
White	Ref.	-	-	Ref.	-	-	Ref.	-	-	Ref.	-	-
Asian*	1.57	(1.05, 2.35)	0.028	0.64	(0.55, 0.75)	<0.001	2.23	(1.90, 2.62)	<0.001	1.23	(1.07, 1.42)	0.003
Black†	1.24	(0.57, 2.68)	0.591	1.54	(1.27, 1.86)	<0.001	2.91	(2.32, 3.64)	<0.001	1.41	(1.17, 1.69)	<0.001
Mixed	1.22	(0.67, 2.20)	0.518	1.10	(0.89, 1.34)	0.377	1.38	(1.13, 1.70)	0.002	1.11	(0.92, 1.34)	0.283
Other	2.05	(1.07, 3.93)	0.03	1.07	(0.79, 1.46)	0.651	1.62	(1.19, 2.20)	0.002	1.23	(0.92, 1.65)	0.159
Education												
A level/college	Ref.	-	-	Ref.	-	-	Ref.	-	-	Ref.	-	-
Secondary school/high school	0.81	(0.54, 1.22)	0.311	0.86	(0.74, 0.99)	0.036	0.93	(0.83, 1.04)	0.201	1.10	(0.98, 1.23)	0.103
University degree or higher	1.09	(0.83, 1.43)	0.516	1.95	(1.77, 2.15)	<0.001	1.10	(1.01, 1.20)	0.022	1.19	(1.10, 1.30)	<0.001
Sexuality												
Heterosexual	Ref.	-	-	Ref.	-	-	Ref.	-	-	Ref.	-	-
Bisexual	17.73	(11.34, 27.71)	<0.001	4.05	(3.52, 4.65)	<0.001	2.06	(1.75, 2.41)	<0.001	2.40	(2.06, 2.79)	<0.001
Homosexual	52.46	(35.83, 76.81)	<0.001	21.52	(17.79, 26.04)	<0.001	3.89	(3.27, 4.64)	<0.001	3.17	(2.73, 3.69)	<0.001

	aOR	95% CI	p-value	aOR	95% CI	p-value	aOR	95% CI	p-value	aOR	95% CI	p-value
Other	7.40	(2.96, 18.53)	<0.001	2.24	(1.68, 2.98)	<0.001	0.95	(0.72, 1.27)	0.739	1.01	(0.76, 1.35)	0.921
Pansexual	14.06	(6.53, 30.27)	<0.001	4.14	(3.08, 5.56)	<0.001	3.45	(2.31, 5.17)	<0.001	2.00	(1.47, 2.73)	<0.001
Prefer not to say	7.44	(3.42, 16.16)	<0.001	1.57	(1.21, 2.03)	<0.001	1.23	(0.96, 1.58)	0.099	1.22	(0.96, 1.55)	0.101
Relationship status												
In a relationship	Ref.	-	-	Ref.	-	-	Ref.	-	-	Ref.	-	-
Married / partnered	0.65	(0.47, 0.90)	0.01	0.83	(0.75, 0.93)	<0.001	0.62	(0.56, 0.68)	<0.001	0.81	(0.73, 0.89)	<0.001
Other	1.83	(0.95, 3.54)	0.07	1.14	(0.88, 1.48)	0.327	0.72	(0.57, 0.91)	0.005	0.78	(0.62, 0.98)	0.035
Single	1.54	(1.17, 2.01)	0.002	1.11	(0.99, 1.25)	0.06	1.09	(0.97, 1.22)	0.137	1.14	(1.03, 1.27)	0.011

*Includes Asian British or Asian Welsh; † includes Black British, Black Welsh, Caribbean or African. Pharmacy support was coded as agree/strongly agree versus neither agree nor disagree/disagree/strongly disagree; missing responses were excluded. All multivariable models used complete cases for the outcome and the six adjustment variables.

Discussion

This large cross-sectional survey identifies substantial gaps in reported prior PrEP awareness alongside considerable interest in further information and generally favourable attitudes towards pharmacy-linked access. The adjusted analyses also show marked demographic patterning in prior awareness, information seeking and pharmacy acceptability. These findings are relevant to England's current emphasis on widening and equalising access to HIV prevention [5, 6].

Principal findings

Only 32.4% of respondents reported having been aware that PrEP can prevent HIV, although 35.5% reported having heard of PrEP. By contrast, 63.1% expressed interest in seeking further information. Pharmacy-related attitudes were also favourable: 52.1% were happy to obtain PrEP from a local pharmacy, 64.2% were comfortable receiving PrEP information from a pharmacy, and 52.2% gave pharmacy the highest convenience score (5/5). These findings indicate a distinction between prior awareness and receptivity to additional information or alternative access routes.

The findings do not establish clinical PrEP need, because the survey did not collect sufficient information to determine guideline-based eligibility. They do, however, show that a substantial proportion of this broad adult sample was receptive to pharmacy-based information and access. Community pharmacies may therefore be useful as part of a wider HIV-prevention pathway, particularly for awareness raising, signposting, testing and referral, while prescribing and monitoring arrangements remain aligned with clinical guidance [15, 25].

Comparison to existing literature

The low level of reported prior PrEP awareness observed here is consistent with prior UK and international research documenting uneven awareness and uptake, particularly outside groups historically targeted by PrEP programmes [8–10, 22, 26–29]. Recent estimates of unmet PrEP need in England also suggest that many people who could benefit do not attend specialist sexual health services [7]. Our findings add a broad public perspective to this evidence by showing substantial interest in further information and a sizeable level of acceptability for pharmacy-linked access.

Evidence on pharmacy delivery is developing rapidly. UK reviews and qualitative studies identify accessibility, convenience and perceived discretion as potential facilitators, while training, privacy, staffing, testing infrastructure and commissioning remain important constraints [12–14, 21]. The 2026 UK pilot provides early implementation evidence for a pharmacy awareness and referral pathway linked to remote sexual-health-clinic assessment and prescribing [15]. These developments are consistent with wider policy interest in expanding community pharmacy clinical roles [30]. The present survey complements those implementation studies by quantifying public attitudes at scale.

1525Healthcare professionals and sexual health services were the preferred information sources among respondents seeking further information, whereas 15.4% selected pharmacists. This indicates that pharmacy involvement should complement, rather than displace, established clinical services. Pharmacy-based pathways may be particularly useful when integrated with specialist sexual health services and clear referral, testing and monitoring arrangements [15, 25].

Equity and demographic patterning in PrEP attitudes

Regression results showed substantial demographic differences in reported prior PrEP awareness and information seeking. Prior awareness that PrEP can prevent HIV was markedly higher among participants reporting homosexual or bisexual orientation and among younger and university-educated respondents. Asian respondents had lower adjusted odds of prior awareness than White respondents, whereas Black respondents had higher adjusted odds. These findings underline that broad categories such as “ethnic minority” can conceal heterogeneous patterns.

The pharmacy-access outcome showed a different pattern from prior awareness. Younger respondents had higher adjusted odds of supporting local-pharmacy access, as did Asian and Black respondents, university-educated respondents and those reporting bisexual, homosexual or pansexual orientation. Male gender was not independently associated with pharmacy support relative to female gender. Respondents in the combined “Other/Prefer not to say” gender category had lower adjusted odds, as did those who were married/partnered or in the “Other” relationship-status category; single respondents had modestly higher adjusted odds. These models estimate independent associations after mutual adjustment; because interaction terms were not evaluated, the results should not be interpreted as demonstrating statistical interaction or intersectional effects.

The lower prior awareness observed in some groups is relevant to communication strategy but should not be equated with clinical PrEP need. Public-health messaging should broaden awareness without implying that all population groups have equivalent HIV acquisition risk and should direct individuals towards personalised risk assessment and appropriate testing.

Taken together, the results support a dual approach: broad, non-stigmatising PrEP awareness alongside targeted efforts informed by local epidemiology and service data. This is more defensible than assuming a single demographic profile for PrEP need or pharmacy acceptability.

Implications for policy and practice

Three implications follow. First, PrEP communication should extend beyond groups traditionally reached by HIV-prevention campaigns while remaining clinically accurate and risk-informed. The 2025–2030 HIV Action Plan specifically prioritises equitable access and improved PrEP offer and uptake among underserved populations [5, 6]. Community, primary-care and digital channels may help normalise PrEP information and direct people to appropriate assessment.

Second, pharmacies appear acceptable to many respondents, but public acceptability alone is not sufficient to justify a specific dispensing model. The 2025 BASHH/BHIVA PrEP guideline requires appropriate HIV testing, renal assessment where indicated, STI screening, adherence support and ongoing monitoring [25]. Current UK pilot evidence supports pharmacy-linked awareness, testing and referral pathways, with specialist services retaining key clinical functions where required [15]. Future commissioning should therefore evaluate models that specify pharmacist training, prescribing or supply arrangements, governance, data sharing and referral pathways rather than assuming simple over-the-counter provision.

Third, implementation should be equity-oriented and evaluated for differential reach. The demographic differences observed here suggest that a universal offer of information may need to be combined with tailored communication for groups with lower awareness or lower support for pharmacy access. Evaluation should assess not only uptake but also who is reached, who

declines, whether linkage to testing and care is completed, and whether alternative delivery models narrow or widen existing inequalities [5, 6, 15].

Limitations

This study has several limitations. First, the cross-sectional design precludes causal inference. Second, recruitment through general practices, BPoR and professional/personal networks used a non-probability convenience approach and may have introduced self-selection; the sample was not nationally representative, respondents were highly educated, recruitment was concentrated in several English regions, and online English-language participation may have underrepresented people with lower digital access or health literacy. Third, 393 exported records in which respondents selected “No” to the electronic consent item were excluded before analysis; no data from these records contributed to the reported findings. Fourth, the denominator of unique survey visitors was unavailable, so CHERRIES view and participation rates could not be calculated, and the export of records marked Finished=TRUE/Progress = 100% did not provide the denominator of all survey entrants required for an overall completion rate. Fifth, Q3 was preceded by a brief description stating that PrEP can prevent HIV and then asked respondents whether they had previously been aware of this; the 32.4% estimate should therefore be interpreted as self-reported prior awareness rather than an independently tested knowledge score. The same standardised PrEP information preceded several later attitude items, so reported acceptability reflects responses after exposure to this information rather than purely pre-existing views. Sixth, clinical HIV-acquisition risk and guideline-based PrEP eligibility were not measured in sufficient detail, so these data cannot estimate population PrEP need or unmet clinical need. Seventh, the item stating that PrEP “should be available over-the-counter in pharmacies” does not map directly onto current UK clinical requirements for assessment, testing, prescribing or supply, and monitoring and should be interpreted only as an attitudinal item. Eighth, outcomes were self-reported and may be affected by recall, non-response and social-desirability bias. Ninth, multiple regression coefficients were examined without multiplicity adjustment, so nominal p-values should be interpreted with effect sizes and confidence intervals. Finally, the cross-outcome display and JCA were exploratory and descriptive; neither provides evidence of statistical interaction, intersectionality or outcome associations beyond the fitted regression models. These limitations constrain population generalisability but do not negate the value of the large sample for identifying within-sample patterns in awareness and attitudes.

Future research directions

Future research should evaluate pharmacy-linked PrEP pathways prospectively, including awareness raising, HIV/STI testing, risk assessment, referral, prescribing or supply, monitoring and linkage to specialist care [15, 25]. Implementation studies should measure reach, uptake, safety, completion of referrals, patient experience, cost and equity across demographic and geographic groups. Very brief advice may also merit testing as a low-burden way to initiate PrEP conversations during routine encounters; evidence from tobacco cessation suggests that brief clinician-delivered advice can influence behaviour, although effectiveness for PrEP cannot be assumed and requires direct evaluation [31]. Studies should also examine whether tailored digital, community and peer-led communication improves PrEP knowledge without increasing stigma or inappropriate risk perception.

Conclusions PrEP awareness was limited in this large convenience sample, while interest in further information and acceptability of pharmacy-linked access were substantial. Community pharmacies may have a useful role in awareness raising, testing, referral and potentially broader PrEP access when integrated with clinically appropriate assessment and monitoring. Policy and implementation should combine wider, non-stigmatising communication with equity-focused evaluation and targeted outreach. Because the study was not nationally representative and did not measure clinical PrEP eligibility, the findings should not be interpreted as estimates of population PrEP need.

Abbreviations

aOR: adjusted odds ratio; BPoR: Be Part of Research; BASHH: British Association for Sexual Health and HIV; BHIVA: British HIV Association; CHERRIES: Checklist for Reporting Results of Internet E-Surveys; CI: confidence interval; GP: general practitioner; HIV: human immunodeficiency virus; JCA: joint correspondence analysis; NHS: National Health Service; PrEP: pre-exposure prophylaxis; REC: Research Ethics Committee; SMS: Short Message Service; STI: sexually transmitted infection; STROBE: Strengthening the Reporting of Observational Studies in Epidemiology.

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the London-Dulwich Research Ethics Committee (REC reference 22/LO/0289; IRAS project ID 304648; CPMS ID 52576). Electronic informed consent was sought before the substantive questionnaire. The analytic dataset included only respondents who selected “Yes” to the consent item; 393 records with a “No” response were excluded before analysis. All procedures were conducted in accordance with the Declaration of Helsinki and applicable institutional and national requirements. Data were handled confidentially and processed in accordance with the UK GDPR and Data Protection Act 2018.

Consent for publication

Not applicable. The manuscript does not contain identifiable personal data, images, videos, case histories or other information relating to an individual participant that would require separate consent for publication.

Availability of data and materials

The de-identified survey data and analysis code will be made available upon reasonable request to the corresponding author, subject to Imperial College London institutional data-access procedures and applicable information-governance requirements.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

AEO conceptualised the study and contributed to study development, methodology, interpretation, drafting, reviewing and editing. EB contributed to methodology, data analysis, verification, interpretation, reviewing and editing. AA contributed to project administration, data collection, data curation, extraction and verification. MA and SL contributed to study conceptualisation and manuscript review and editing. SOS, AS and DM contributed to data interpretation and manuscript review and editing. SP, SA, WJ, RB and AM contributed to manuscript review and editing. AEO, EB and AA had full access to and verified the data. All authors read and approved the final manuscript. AEO is the guarantor.

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Figures

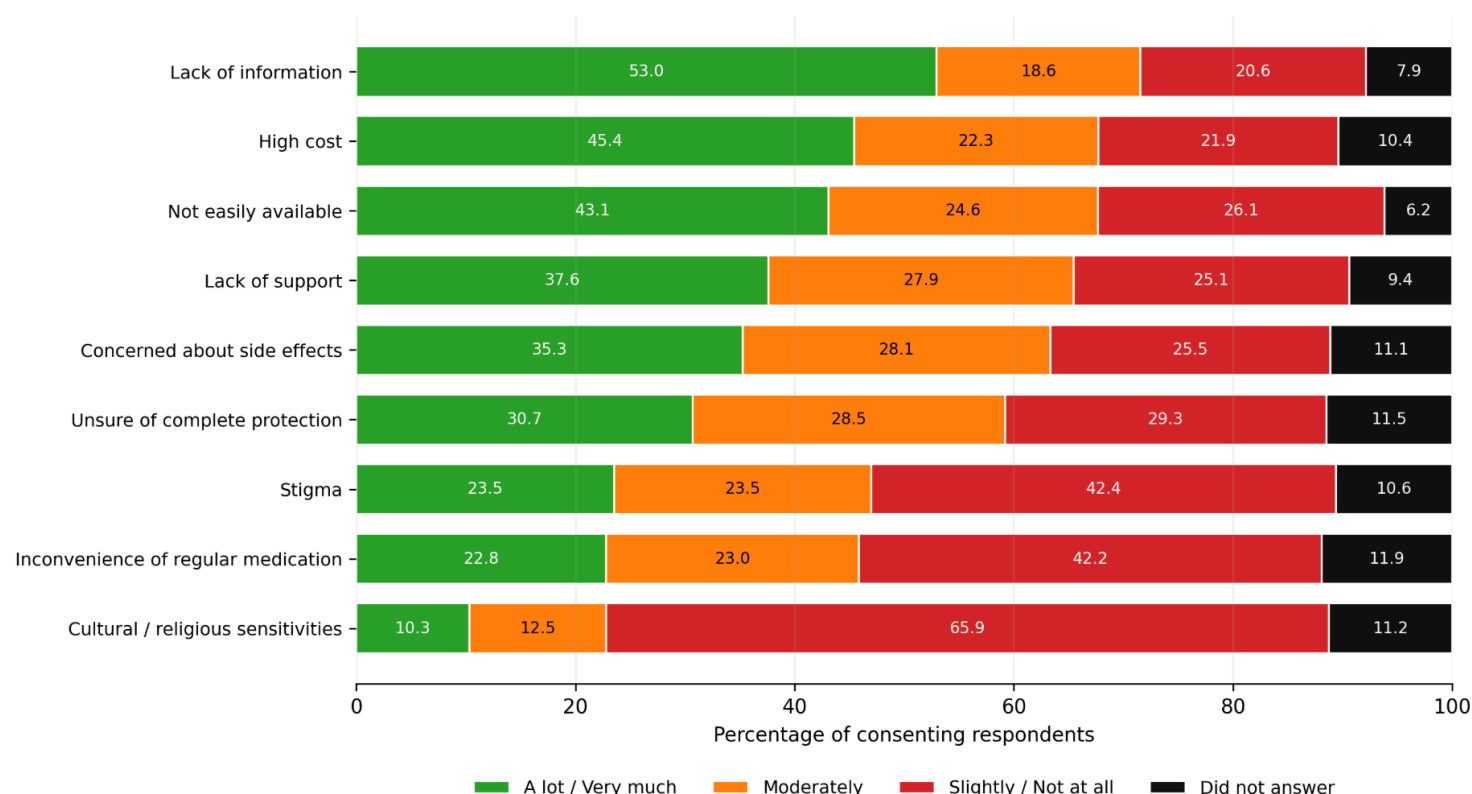


Figure 1

Factors affecting participants’ decisions about accessing PrEP

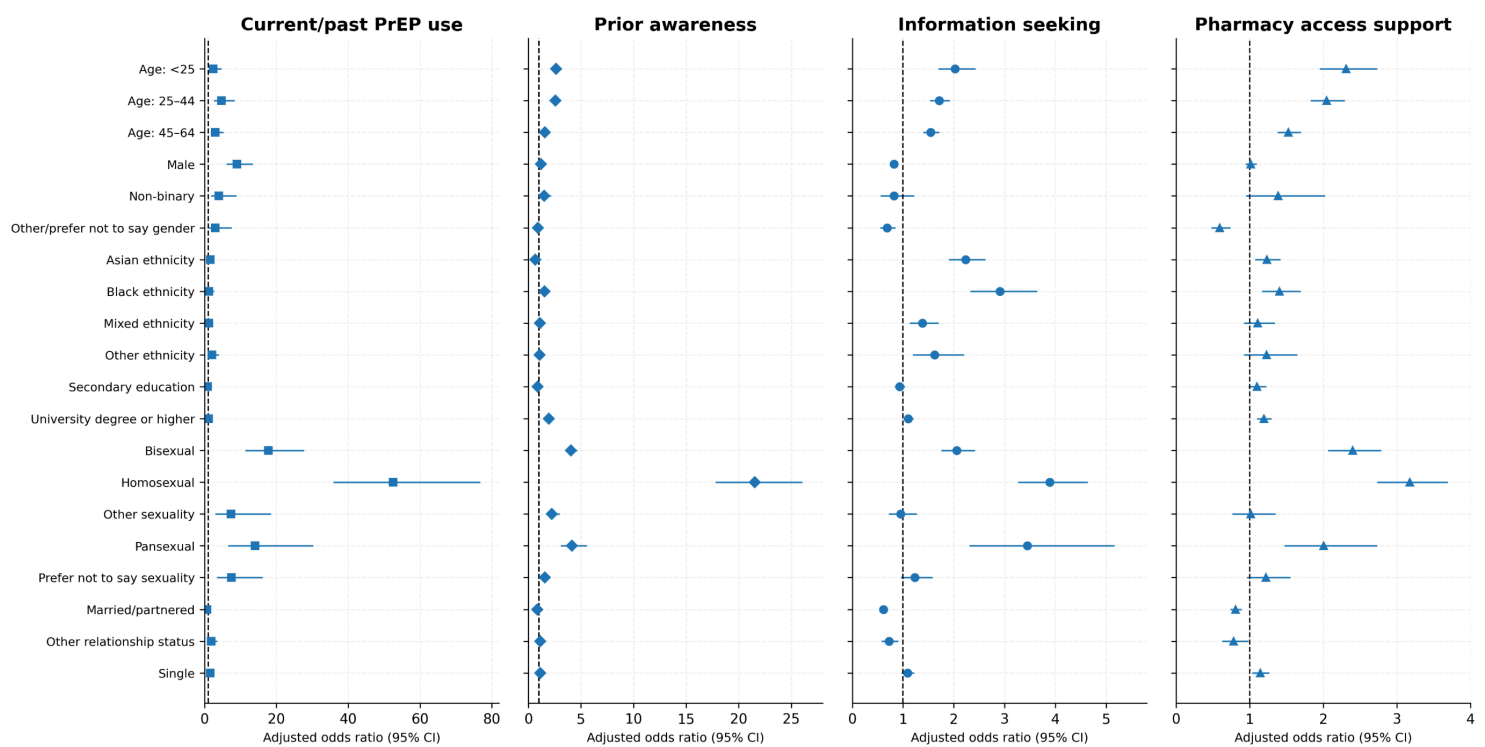


Figure 2

Adjusted associations between participant sociodemographic characteristics and PrEP use, prior awareness, information-seeking and support for community pharmacy access. Points represent adjusted odds ratios (aORs) and horizontal lines represent 95% confidence intervals from multivariable logistic regression models adjusted for age, gender, ethnicity, educational attainment, sexual orientation and relationship status. Model-specific analytic denominators were n=14,007 for current/past PrEP use, n=14,218 for prior awareness, n=14,199 for information seeking and n=13,904 for pharmacy support. Dashed vertical lines indicate the null value (aOR=1). Reference categories were age ≥65 years, female gender, A-level/college education, heterosexual orientation, White ethnicity and being in a relationship. X-axis scales differ between panels to permit visualisation of the substantially different effect-size ranges across outcomes.

Supplementary Files

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