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Bridging the serodivide: attitudes of PrEP users towards sex partners living with HIV

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ABSTRACT

The introduction of biomedical HIV prevention methods, such as pre-exposure prophylaxis (PrEP), holds the potential to overcome the serodivide. We investigated the attitudes of PrEP users towards having sex with partners living with HIV. PrEP users in the Netherlands were recruited online and completed three questionnaires over a period of six months. We investigated changes over time in feelings of fear of HIV, comfort, and attitudes towards condom use when having sex with men living with HIV (MLHIV). A majority of PrEP users in our sample (up to 71.6%) had sex with MLHIV. Feeling comfortable to have sex with MLHIV did not change over time, but was already at a high level at T1. Most importantly, feeling safe not to use condoms with HIV-positive partners significantly increased, and did so in a rather short period of time after the onset of PrEP use (3–6 months). Taken together, the findings suggest that PrEP may contribute to decreasing the serodivide between MSM rather quickly after the onset of PrEP use.

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KEYWORDS

PrEP; HIV stigma; condom use; serodivide



Introduction

The division between HIV-positive and HIV-negative men who have sex with men (MSM) has been described as the “serodivide”; defined as the avoidance of sex with a partner of a serodiscordant HIV status (Koester et al., 2018). The serodivide is driven by concerns about HIV transmission and can result in serosorting, an HIV-risk reduction strategy of choosing same HIV status sex partners (Davis et al., 2006; Eaton et al., 2009; Golden et al., 2008). The introduction of biomedical HIV prevention, such as pre-exposure prophylaxis (PrEP) and treatment-as-prevention (TasP), holds the potential to overcome the serodivide and to reduce HIV stigma (Brisson & Nguyen, 2017; Grant & Koester, 2016; Haas et al., 2017; Jaspal & Daramilas, 2016; Malone et al., 2018; Persson, 2016). While there is initial evidence (Golub et al., 2018; Koester et al., 2018), more empirical research is needed to investigate the potential effect of PrEP on decreasing the serodivide and its temporal stability.

Several factors may play a role in the potential of PrEP to facilitate sexual interactions between serodiscordant sex partners. Firstly, PrEP users have been found to report reduced fear of HIV (Collins et al.,

2017; Hojilla et al., 2016; Keen et al., 2020; Koester et al., 2017; Whitfield et al., 2019) and increased comfort and confidence in connecting with other men sexually, particularly with men living with HIV (MLHIV) (Storholm et al., 2017). Secondly, gay men in serodiscordant relationships have been found to expect that PrEP use would increase their sexual comfort, as they would feel less fear of HIV (Brooks et al., 2011). This reduced fear of HIV may be related to decreased condom use, as PrEP users may feel sufficiently protected against HIV. Thirdly, compared to gay men who were not using PrEP, PrEP users felt more comfortable having condomless anal sex with MLHIV, especially when the partner living with HIV had an undetectable viral load (Holt et al., 2018). Hence, (non-)condom use can serve as an indicator of PrEP user’s fear of HIV and sexual comfort when having sex with a partner living with HIV.

The aim of the current study was to investigate the attitude change of PrEP users regarding having sex with MLHIV and its temporal stability. We investigated whether PrEP users who have sex with MLHIV over time feel less fear of HIV, feel more comfortable when having sex with MLHIV, and feel safe to not use

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condoms. We followed early PrEP users over a period of six months, and this longitudinal assessment allowed us to investigate the stability of such attitude changes.

Methods

Participants and procedure

We recruited participants via the Dutch PrEP-advocacy website PrEPnu.nl, between February 2017 and March 2019. At this time PrEP availability was still limited in the Netherlands, and not formally implemented yet. Consequently, most PrEP users were informal PrEP users, meaning that they either procured PrEP via informal channels (i.e., pharmacies abroad or pill sharing of people living with HIV), or had limited access to PrEP-related medical services (Buttram, 2018). After the intake questionnaire (T0), participants received a follow-up questionnaire via email after three (T1) and six months (T2). All participants who completed at least two questionnaires (T0 + T1/T2) were entered into a raffle to win a €100, – gift card. The Ethics Review Committee Psychology and Neuroscience of Maastricht University approved this study (ERCPN-174_10_12_2016). The full details of the methods of this study have been described before (van Dijk et al., 2021).

Participants younger than 18 years or living with HIV were excluded from participation. For the current analysis, we only included participants who reported using PrEP both at T1 and T2 ($N = 183$), regardless of their PrEP use at T0. We did not include data from T0, because not all relevant items for this analysis were assessed at T0. Participants who indicated to have sex with MLHIV at T1 but not at T2 ($N = 7$) and vice versa ($N = 17$) were not included in the analysis, as they only answered the items once.

Materials

The questionnaires were administered in Dutch and English using Qualtrics[®]. We asked PrEP users whether they used PrEP daily, on demand, or recreationally (i.e., season based; (Elsesser et al., 2016; Hojilla et al., 2016;

Underhill et al., 2018)). PrEP users were asked if they have had sex with MLHIV (yes/no). If yes, we asked them to indicate their attitudes towards HIV and having (condomless) sex with MLHIV with respect to the period prior PrEP use (see Table 1).

Data analysis

Data was analyzed using SPSS Statistics[®] version 26. A chi-square test was conducted to assess any differences between T1 and T2 in the percentage of PrEP users who had sex with MLHIV. We conducted a repeated measures analysis of variance (ANOVA) for each variable to investigate attitude changes between T1 and T2.

Results

Participant characteristics and prevalence of sexual encounters with MLHIV

At T2, 131 (71.6%) PrEP users reported having sex with MLHIV, significantly more than at T1 (121, 66.1%, $\chi^2(1,183) = 89.92, p < .001$). For the analyses below, we only use data of the PrEP users who had sex with MLHIV at both assessments ($N = 112$) to correct for incidental sexual experiences with MLHIV at either T1 or T2.

All 112 participants were cisgender MSM, with a mean age of 45 years (range: 22–71). The majority used PrEP daily (T1: 67 (59.8%)), (T2: 61 (54.5%)), followed by PrEP on demand (T1: 28 (25.0%), T2: 34 (30.4%)), and recreationally (17 (15.2%) both T1 and T2). Seventy participants (62.5%) were using PrEP since six months or less, 14 (6%) between 6 and 12 months, and 28 (17%) more than 12 months.

Changes in attitudes

Attitudes towards sex with MLHIV did not change between T1 and T2 ($F < 1$), and were already relatively high at T1 (Table 1). Scores on the variable ‘feeling safe to not use condoms with HIV-positive sex partners’ increased significantly from T1 to T2 ($F(1,111) = 5.57, p = .02, \eta_p^2 = .048$).

Table 1. Descriptive statistics and repeated measures ANOVA to compare the scores on the variables of interest between the two assessments (T1 and T2).

	T1	T2	<i>F</i>	<i>df</i>	<i>P</i>	η_p^2
I have less fear of HIV when I have sex with HIV positive men	4.33 (1.06)	4.33 (1.01)	<0.001	1, 111	1.00	<.001
I feel more comfortable when I have sex with HIV positive men	4.16 (1.11)	4.26 (1.08)	0.58	1, 111	.45	.005
I feel safe to not use condoms with HIV-positive sex partners	3.70 (1.39)	4.01 (1.23)	5.57	1, 111	.02	.048

Notes: All items began with “Since I started using PrEP ...”. Participants indicated their agreement using a 5-point scale ranging from (1) strongly disagree to (5) strongly agree.

Discussion

We investigated whether PrEP users reported increased sexual encounters with MLHIV and whether those who had sex with MLHIV experienced less fear of HIV, felt more comfortable having sex with MLHIV, and felt safe to not use condoms. PrEP users reported an increase in having sex with MLHIV. We found lower levels of fear of HIV and feeling more comfortable having sex with MLHIV compared to the period prior to PrEP use, and these attitudes did not change during the study period. While reduced fear of HIV and increased sexual comfort have been reported in qualitative studies (Collins et al., 2017; Hojilla et al., 2016; Koester et al., 2017; Storholm et al., 2017), our study, to the best of our knowledge, is the first quantitative study to report this change in sexual encounters with MLHIV and decrease in condom use in a longitudinal design with informal PrEP users. Our findings are similar to those of an earlier longitudinal study with formal PrEP users in the United States (Whitfield et al., 2019), however the focus of our study is specifically on sexual interaction with MLHIV. This suggests that, over time, PrEP users are open to sex with MLHIV and those who have sex with MLHIV feel more confident to rely on the protective effect of PrEP.

This study has several strengths and limitations. This study was one of the first to investigate changes regarding feelings of fear and comfort related to having sex with MLHIV among PrEP users using a longitudinal design. Moreover, we investigated this in a context with mostly informal PrEP users, while earlier similar studies were conducted in Australia and the United States where the formal availability of PrEP is much higher (Keen et al., 2020; Whitfield et al., 2018). At the time of our study, formal PrEP services were not implemented yet in the Netherlands, and early PrEP adopters therefore had to rely on community information regarding accessing and using PrEP. A limitation is that we did not assess attitudes regarding sex with MLHIV of PrEP users who indicated not having sex with MLHIV, so we could not compare attitudes. We recruited participants via the PrEP advocacy website PrEPnu.nl. Our sample may have an overrepresentation of well-informed PrEP users more engaged in their sexual health, because this website provided information about using PrEP and obtaining PrEP in a context of limited availability. We could not rule out that other characteristics of these PrEP users are contributing to their attitudes regarding sex with MLHIV, next to their PrEP use. Future research could investigate the role of undetectable viral load (TasP) and its interaction with PrEP use on decreasing the serodivide and trust in biomedical prevention as well as HIV-stigma reduction.

In sum, PrEP use may contribute to decreasing HIV-related stigma and to improve sexual interactions between serodiscordant MSM. Together with earlier findings, our results provide evidence for the psychosocial and behavioral potential of PrEP use on closing the serodivide. HIV community organizations could promote and emphasize the role of PrEP in stigma reduction campaigns.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author, MvD.

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