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► To cite this version:

Alain Léobon, Eugénie Samson-Daoust. Trajectories of prep use in gay, bisexual and other men who have sex with men (gbmsm) and trans people according to eligibility criteria in France. The 30th Annual Canadian Conference on HIV / AIDS Research, May 2021, VIRTUEL - ON LINE, Canada. , 2021. halshs-03508825

HAL Id: halshs-03508825

<https://shs.hal.science/halshs-03508825>

Submitted on 3 Jan 2022

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TRAJECTORIES OF PrEP USE IN GAY, BISEXUAL AND OTHER MEN WHO HAVE SEX WITH MEN (gbMSM) AND TRANS PEOPLE ACCORDING TO ELIGIBILITY CRITERIA IN FRANCE

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CONTEXT:

France supports and reimburses pre-exposure prophylaxis (PrEP) completely since 2016. Two programs of the National AIDS Research Agency (ANRS) have helped this process: the IPERGAY trial, and the PREVENIR study that later followed. First European country where PrEP was available, France has made this treatment accessible, but also free of charge, by covering it entirely with its social security program (Temporary Recommendation of Use [RTU] granted by the ANSM on the 25th of November 2015 [Secrétariat des Commissions, 2015]).

In 2018, 10,000 people in France were engaged in PrEP uptake, with more recent reports indicating this number has risen to 20,000 users, with the vast majority renewing their prescription (Billioti de Gage, Le Tri, & Dray-Spira, 2019). Even though general practitioners can prescribe PrEP, it is still mandatory for the first prescription to be made by a specialist doctor.

When the 2018 edition of the Net Gay Barometer (NGB 2018) was promoted, PrEP users were mainly constituted of gay, bisexual and other men who have sex with men (gbMSM), half of them living in the greater Paris area (Molina et al., 2018). Within the gbMSM population, PrEP still seems underused considering the eligibility, through HIV risk-taking with various sexual partners, of over a third of them (Annequin et al., 2020). The NGB 2018 thus included new questions regarding various risk reduction strategies in its sexual health section (combined prevention, which included PrEP use).



METHOD & RESULTS

OBJECTIVE: To investigate factors that predict PrEP use among an eligible sample (PrEP users vs. non-users).

METHOD: Data was collected through an online questionnaire completed by 10,853 French participants (NGB 2018). Amongst 8,411 HIV-negative gbMSM and trans people living in France, 3,251 (38.7%) were considered eligible to PrEP according to adapted French guidelines (Haute Autorité de Santé, 2019; Morlat, 2018), out of which 445 (13.7%) were already PrEP users. Univariate and multivariate logistic regression were used.

PrEP ELIGIBILITY CRITERIA					
PRIMARY ELIGIBILITY CRITERIA				SECONDARY ELIGIBILITY CRITERIA (in the past 12 months)	
OR	Man who has sex with men	French resident	HIV-negative		At least 2 casual male partners AND regular (sometimes – always) unprotected anal sex with them
				OR	More than 10 casual male partners AND rare unprotected anal sex with them
				OR	At least 2 casual trans female partners AND regular (sometimes – always) unprotected sex with them
OR	Man who has sex with trans people			OR	More than 10 casual trans femal partners AND rare unprotected sex with them
				OR	At least 2 sexually transmitted infections (STIs)
				OR	Post-exposure prophylaxis (PEP) emergency use
OR	Trans person			OR	Psychoactive substance use in a sexual context
				OR	First hepatitis C infection
				OR	Unprotected sex work (as client or worker)
				OR	At least one casual bareback partner at-risk of HIV transmission (status unknown, divergent or does not want to know)
				OR	Psychoactive substance injection

RESULTS:

More than a hundred key variables of the NGB 2018 were first analyzed using chi-squares and ANOVAs, which allowed us to identify 70 variables where statistically significant differences were observed between eligible PrEP users and non-users. Multicollinearity was ruled out using a correlation matrix. Table 1 presents results of chi-squares and ANOVAs for sociodemographic variables that were later used in the multivariate model for control purposes. Table 2 presents regression results for variables included in the final multivariate model, as well as their univariate results.

TABLE 1. CHI-SQUARE AND ANOVA RESULTS FOR SOCIODEMOGRAPHIC VARIABLES OF PARTICIPANTS ELIGIBLE TO PREP IN FRANCE

VARIABLES	ELIGIBLE WITHOUT PREP USE (N = 2806)	ELIGIBLE PREP USERS (N = 445)	TOTAL (N = 3251)	<i>p</i>
WEBSITE OF ORIGIN				< 0.001
SOCIAL NETWORKS	57.4%	58.7%	57.6%	
GENERAL MSM DATING WEBSITES	26.6%	15.5%	25.1%	
BDSM WEBSITE	13.6%	13.5%	13.6%	
BAREBACK WEBSITE	2.4%	12.4%	3.7%	
AGE	37.95 (14.24)	39.17 (10.46)	38.12 (13.79)	0.001
GENDER IDENTITY	N = 2777	N = 443	N = 3220	0.334
CIS MAN	97.4%	98.6%	97.6%	
TRANS MAN	0.9%	0.5%	0.9%	
TRANS WOMAN	0.9%	0.2%	0.8%	
NONBINARY	0.7%	0.7%	0.7%	0.006
BORN OVERSEAS	5.3%	9.0%	5.8%	
MAIN PROFESSION IN THE PAST 12 MONTHS	N = 2798	N = 444	N = 3242	< 0.001
RETIRED	6.0%	1.1%	5.3%	
PART-TIME STUDENT	1.5%	0.9%	1.4%	
FULL-TIME STUDENT	16.2%	5.2%	14.7%	
PART-TIME EMPLOYEE	8.8%	7.4%	8.6%	
FULL-TIME EMPLOYEE	46.8%	59.5%	48.5%	
SELF-EMPLOYED / INDEPENDENT	8.5%	14.0%	9.2%	
UNEMPLOYED	7.0%	8.1%	7.2%	
SICK LEAVE	0.8%	0.9%	0.8%	
OTHER	4.5%	2.9%	4.3%	

VARIABLES	ELIGIBLE WITHOUT PREP USE (N = 2806)	ELIGIBLE PREP USERS (N = 445)	TOTAL (N = 3251)	<i>p</i>
RESIDENT IN THE PARIS REGION	25.3%	44.0%	27.9%	< 0.001
UNIVERSITY EDUCATION	66.1%	84.3%	68.6%	< 0.001
NET MONTHLY INCOME				< 0.001
LESS THAN €600	15.4%	6.5%	14.2%	
€600 - €999	8.2%	5.2%	7.8%	
€1,000 - €1,599	25.1%	16.9%	23.9%	
€1,600 - €2,999	33.4%	41.3%	34.5%	
€3,000 - €4,999	13.1%	21.1%	14.2%	
MORE THAN €5,000	4.9%	9.0%	5.4%	0.001
RELATIONSHIP STATUS				
SINGLE	54.0%	57.8%	54.5%	
IN A RELATIONSHIP	23.7%	19.3%	23.1%	
CIVIL OR COMMON LAW UNION	6.0%	10.1%	6.5%	
MARRIED	11.1%	7.4%	10.6%	
SEPARATED	1.2%	2.2%	1.3%	
DIVORCED	2.5%	1.8%	2.4%	
WIDOWED	0.8%	0.7%	0.8%	
OTHER	0.9%	0.7%	0.8%	< 0.001
SEXUAL ORIENTATION				
HOMOSEXUAL	78.6%	93.9%	80.7%	
BISEXUAL	17.4%	3.4%	15.5%	
HETEROSEXUAL	0.2%	0.2%	0.2%	
QUEER, PANSEXUAL, ALLOSEXUAL OR FLUID	1.8%	1.6%	1.8%	
OTHER	1.9%	0.9%	1.8%	< 0.001
LEVEL OF OUTNESS REGARDING SEXUAL RELATIONSHIPS WITH MEN	2.99 (1.87)	3.79 (1.50)	3.10 (1.84)	

NOTE: DARK PURPLE INDICATES STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN GROUPS. PERCENTAGES SHOWN REPRESENT FREQUENCIES OF N OF ABOVE COLUMN (χ^2 FOR CATEGORICAL VARIABLES). NUMBERS SHOWN WITH TWO DECIMALS REPRESENT MEANS WITH STANDARD DEVIATION IN PARENTHESES FOR EACH GROUP (ANOVAS FOR CONTINUOUS VARIABLES).

TABLE 2. UNIVARIATE AND MULTIVARIATE REGRESSION RESULTS OF PREP USE PREDICTORS WHEN ELIGIBLE IN FRANCE

VARIABLES	OR (95% CI)	AOR (95% CI)
NUMBER OF MALE CASUAL PARTNERS IN THE PAST 12 MONTHS	1.015 (1.013–1.018)***	1.008 (1.005–1.012)***
NUMBER OF MARGINAL SEXUAL PRACTICES WITH MALE CASUAL PARTNERS AT LEAST RARELY IN THE PAST 12 MONTHS	1.513 (1.426–1.605)***	1.317 (1.195–1.453)***
SERODIVERGING HIV STATE WITH CASUAL MALE PARTNERS (REGULARLY OR OCCASIONALLY)		
UNCONCERNED	1.000	1.000
SEROCONVERGENCE	1.185 (0.855–1.642)	1.007 (0.622–1.631)
POSSIBLE SERODIVERGENCE	3.775 (2.745–5.193)***	1.382 (0.848–2.251)
CERTAIN SERODIVERGENCE	9.490 (6.848–13.151)***	2.305 (1.395–3.808)**
BAREBACK PRACTICES		
NO BAREBACK	1.000	1.000
EXCLUSIVELY IN THE COUPLE RELATIONSHIP	2.769 (1.817–4.221)***	1.418 (0.786–2.558)
NONEXCLUSIVELY	5.617 (3.875–8.143)***	2.129 (1.238–3.661)**
ONLY WITH CASUAL PARTNERS	5.687 (3.943–8.202)***	2.291 (1.355–3.874)**
NO BAREBACK	1.000	1.000
NUMBER OF STIS (EXCLUDES HIV AND HCV) IN THE LAST 12 MONTHS	1.151 (1.103–1.200)***	1.184 (1.117–1.255)***

VARIABLES	OR (95% CI)	AOR (95% CI)
NUMBER OF RISK REDUCTION STRATEGIES KNOWN	1.373 (1.288–1.463)***	1.171 (1.067–1.285)**
NUMBER OF RISK REDUCTION STRATEGIES APPLIED	0.878 (0.853–0.903)***	0.836 (0.798–0.877)***
PERCEIVED PREP EFFICACY TO REDUCE RISKS OF HIV INFECTION AND TRANSMISSION		
PREP UNKNOWN OR NO ANSWER	1.000	1.000
NOT AT ALL OR NOT VERY EFFECTIVE	6.489 (0.583–72.230)	4.688 (0.385–57.055)
MODERATELY EFFECTIVE	20.229 (4.052–100.998)***	6.551 (1.033–41.554)*
RATHER EFFECTIVE	38.783 (9.351–160.858)***	19.276 (4.384–84.754)***
VERY EFFECTIVE	345.983 (85.956–1392.626)***	134.228 (31.611–569.966)***
NUMBER OF SPACES WHERE DISCRIMINATION AGAINST SEX WORK WAS FELT IN THE LAST 12 MONTHS	1.789 (1.290–2.481)***	1.643 (1.030–2.621)*
SEXUAL HEALTH CONCERNS: HIV/AIDS PREVENTION		
ISSUE NOT ENCOUNTERED	1.000	1.000
ISSUE ENCOUNTERED WITHOUT FEELING CONCERNED	6.152 (4.468–8.469)***	3.771 (2.401–5.924)***
LITTLE CONCERNED ABOUT THIS ISSUE	3.625 (2.341–5.613)***	1.892 (1.026–3.489)*
QUITE CONCERNED ABOUT THIS ISSUE	5.812 (4.227–7.992)***	3.718 (2.385–5.795)***
VERY CONCERNED ABOUT THIS ISSUE	9.786 (6.879–13.923)***	7.965 (4.779–13.273)***

NOTE. $R^2 = 0.35$ (COX-SNELL), 0.62 (NAGELKERKE). MODEL $\chi^2(51) = 1290.13$, $P < 0.001$. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$. OR = ODDS RATIO; AOR = ADJUSTED ODDS RATIO; CI = CONFIDENCE INTERVAL. SOCIODEMOGRAPHIC VARIABLES NOT SHOWN BUT INCLUDED IN MULTIVARIATE MODEL WITH FORCED ENTRY FOR CONTROL PURPOSES: AGE, GENDER IDENTITY, BIRTH COUNTRY, RESIDENCY IN PARIS REGION, WEBSITE OF ORIGIN, UNIVERSITY EDUCATION, PROFESSION, RELATIONSHIP STATUS, SEXUAL ORIENTATION, AND LEVEL OF OUTNESS OF SEXUAL RELATIONSHIPS WITH MEN. FORWARD STEPWISE METHOD WAS USED FOR IDENTIFYING VARIABLES SHOWN IN TABLE (10), OUT OF 36.



DISCUSSION

The proportion of French gbMSM and trans people eligible to PrEP in the NGB 2018 is coherent with previous findings on the subject (Annequin et al., 2020; Velter, Duchesne, Rahib, & Lydié, 2020), and even slightly higher (approx. 5% more), which could be explained by our inclusion of trans men and women among eligible participants. This inclusion is not systematic in studies done on gbMSM and is often limited to trans men since trans women are not gbMSM. Our results also show that there are no statistically significant difference between eligible PrEP users and non-users regarding their gender identity, which indicates that PrEP uptake is similar in gbMSM and trans people.

Through its previous editions, the NGB, as well as other research (Duchesne, Lydié, & Velter, 2020), has observed an increase in unprotected anal sex in gbMSM with casual partners. PrEP is thus an additional HIV risk reduction tool to address this issue. Besides, our results showed that PrEP users tend to be more concerned about HIV prevention, but also to know more risk reduction strategies than their non-user counterparts. These strategies included condom and lubricant use, withdrawal before ejaculation, adoption of lower risk practices, adaptation to context and meeting places, lower risk substance use, reduction in the number of partners, negotiated security, serosorting, and consideration of the viral load. Unsurprisingly, even though they are more knowledgeable about them, PrEP users do not apply those risk reduction strategies as much as non-users. This obviously leads them to contracting more STIs as a result, but PrEP follow-up is highly rigorous and allows for early detection and treatment of STIs, when it is available.

A lowered application of risk reduction strategies is possibly a direct effect of PrEP use, but it can also be explained by the high perceived efficacy of PrEP to reduce risks of HIV infection and transmission. PrEP use is best predicted by this variable in our model, which underlines the importance of prior knowledge and information from reliable sources in PrEP uptake. This will be facilitated in the near future by the opening of first-time prescription from a specialist doctor to general practitioners. Further analyses, which cross PrEP eligibility and use with perceived efficacy against HIV, are under way to identify what are the barriers to PrEP uptake when someone is eligible and perceives PrEP as highly effective against HIV.

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