

COVID-19 Vaccine Uptake and Factors Associated With Being Unvaccinated Among Lesbian, Gay, Bisexual, Transgender, Queer, and Other Sexual Identities (LGBTQ+) New Yorkers

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Routine data on vaccine uptake are not disaggregated by lesbian, gay, bisexual, transgender, queer, and other sexual identities (LGBTQ+) populations, despite higher risk of infection and severe disease. We found comparable vaccination uptake patterns among 1032 LGBTQ+ New Yorkers and the general population. We identified critical socioeconomic factors that were associated with vaccine hesitancy in this economically vulnerable population.

Keywords. LGBTQ+; COVID-19; vaccine hesitancy; socioeconomic impact; online survey.

Lesbian, gay, bisexual, transgender, queer, and other sexual identities (LGBTQ+) persons have been considered at higher risk of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection as they often perform essential jobs and reside in urban areas [1, 2]. Some LGBTQ+ individuals have also been shown to be at higher risk of severe coronavirus disease 2019 (COVID-19) due to comorbidities such as HIV [3]. Furthermore, studies have shown that sexual orientation and gender identity (SOGI) minorities experience stigma and barriers to accessing health services, including vaccination

[1]. However, information on COVID-19 vaccine intentions and uptake among LGBTQ+ persons is scant, as well as factors associated with vaccine hesitancy [1, 4]. We conducted an online survey to gain insights into the uptake of COVID-19 vaccination among an urban sample of LGBTQ+ adults residing in New York City (NYC).

METHODS

An online cross-sectional survey was conducted from June 30 to December 13, 2021, available in English, Spanish, French, and Mandarin, on the Qualtrics platform. Individuals were eligible if they were 18 years or older, lived in NYC, and self-identified as LGBTQ+. Recruitment was done using listservs from community-based research sites, social media platforms, LGBTQ+ community support organizations, and by distributing materials at select venues. The study was also advertised at several events, including 2021 NYC Pride and Black Pride events, the Pride Drag Brunch, and Trans-giving 2021. Additional recruitment was done through a representative database of existing Qualtrics participants who consented to be contacted and met the target demographics for this study.

All responses were subjected to extensive data validation procedures to eliminate invalid respondents, including the use of the ReCaptcha scoring system, duplicate age questions, qualitative questions capturing reader attention, verification that the IP address was unique, and confirmation that the geolocation corresponded to NYC [5].

Data Collection and Statistical Analyses

Participants reported their sex assigned at birth, gender identity, and sexual orientation. Racial and ethnic identity was classified using a standard 2-question approach [6], whereby participants who indicated a Hispanic origin were considered Hispanic, regardless of race. Those who selected more than one race, or selected American Indian, Alaskan Native, Hawaiian or Pacific Islander, were classified as another race or ethnicity due to small numbers. Gender minority status was defined as identifying as agender, genderqueer, nonbinary, transgender, intersex at birth, or 2-spirit [7]. For socioeconomic data, a binary variable grouping household incomes <\$50 000 per year vs ≥\$50 000 was constructed, and educational attainment was classified as having at least a college degree vs not. Depression was screened for using the Patient Health Questionnaire-2 [8], and generalized anxiety disorder (GAD) using the GAD-2.

Characteristics associated with not being vaccinated were analyzed using logistic regression, which included characteristics with a *P* value <.10 in univariable analysis in the multivariable model. All analyses were conducted using Stata 15.0.

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RESULTS

A total of 1038 validated participants completed the survey, with 1032 providing information on vaccine history or intentions. Sociodemographic characteristics are shown in [Table 1](#). The median age (range) was 29 (18–68) years. Participants identified as Non-Hispanic (NH) White (49.3%), followed by Hispanic (24.0%), NH Black (18.7%), Asian (3.3%), and multi-race or another race or ethnicity (4.7%). Participants most commonly self-identified as gay or lesbian (56.5%) and cisgender (64.2% of those assigned female and 65.4% of those assigned male at birth). Thirty-six percent of participants self-identified as a gender minority, including 17.3% as transgender and 12.6% as nonbinary, questioning, or genderqueer. During the COVID-19 pandemic, 36.1% of participants lost their job and 18.5% were threatened with eviction; job loss was most common among gender minorities (44.4%), pansexual, queer, or questioning participants (50.9%), and among Hispanic participants (46.7%). Fifty-four percent of the participants reported having had to quarantine due to COVID-19 exposure; forty-five percent knew someone who had died from COVID-19. This loss was most often reported by gender minorities (52.2%) and Hispanic participants (51.2%). Seventy-one percent of participants indicated that the HIV epidemic had made them more likely to adhere to recommended COVID-19 mitigation interventions. Twenty-seven percent reported that they had been discriminated against due to their SOGI while seeking COVID-19 services, and this was most frequently reported by gender minorities (32.7%).

Eighty-one percent of participants had received at least 1 dose of a COVID-19 vaccine, with 52.1% of those vaccinated having received the Pfizer/BioNTech vaccine, 29.8% Moderna, and 18.0% J&J/Janssen. The percentage of participants reporting at least 1 dose of the vaccine in descending order by geographic residence were from Queens (86.9%), Manhattan (85.0%), Brooklyn (79.9%), the Bronx (76.2%), and Staten Island (72.0%); by racial identity, Asian (97.1%), NH White (82.9%), Hispanic (82.7%), another race (83.3%), and NH Black (73.1%); by sexual orientation, gay/lesbian (84.6%), pansexual (83.6%), asexual (78.1%), or bisexual (74.0%); and by gender identity, 83.4% among gender minorities and 80.4% in cisgender participants ([Table 1](#)). Vaccination uptake was lowest among those with a household income <\$50 000 (75.1%), without a college degree (75.5%), or without health insurance (64.0%). Knowing someone who died from COVID-19 was associated with higher vaccination levels (84.9%). Of the 18.5% of participants who reported that they were unvaccinated ($n = 191$), 53.4% indicated that they intended to get vaccinated in the future; this proportion did not change significantly over time ($P_{\text{trend}} = .67$). Of the unvaccinated, bisexual participants were the most likely (57.3%) to indicate no intention to get

vaccinated, as were the uninsured (58.8%). Otherwise, vaccine intentions did not vary by gender identity, race, or ethnicity.

The most common reasons chosen by participants for getting vaccinated were wanting to be protected against infection (75.1%), wanting things to go back to normal (45.7%), and wanting to protect other people in the community (29.9%) or their family members (24.2%); 12.0% said that they were mandated to be vaccinated by their place of work or study. Participants reported that the most important characteristics of a vaccine were that it was safe (74.0%) and worked well (73.4%). Twenty-nine percent of participants indicated that it was important that the vaccine had been tested in people “like them.” This did not vary by sexual orientation, gender identity, or race and ethnicity. Among those who stated that they had no intention to get vaccinated ($n = 85$), the most commonly selected reasons were that COVID-19 vaccines were not safe (44.7%), they might have long-term side effects (40.0%), they do not work (27.1%), or that they were developed too quickly (16.5%).

Factors Associated With Being Unvaccinated

Univariable logistic regression analysis showed several factors significantly associated with being unvaccinated, including identifying as NH Black. In multivariable analysis, the significant factors associated with being unvaccinated were being between 30 and 39 years of age (adjusted odds ratio [aOR], 1.60; 95% CI, 1.09–2.36), being bisexual (aOR, 2.10; 95% CI 1.41–3.10), having an annual household income <\$50 000 (aOR, 1.89, 95% CI, 1.22–2.92), and not having a college degree (aOR, 1.50; 95% CI, 1.00–2.28). The strongest factor associated with being unvaccinated was not having health insurance, which was associated with a >3-fold increase in the odds of being unvaccinated (aOR, 3.11; 95% CI, 2.13–4.54). After adjusting for socioeconomic and other factors, race and ethnicity, gender identity, having experienced SOGI-based discrimination, and HIV status were no longer associated with vaccination status. Participants reporting symptoms of anxiety (aOR, 0.53; 95% CI, 0.37–0.76) or knowing someone who had died from COVID-19 (aOR, 0.64; 95% CI, 0.45–0.92) were significantly less likely to be unvaccinated.

DISCUSSION

This study showed that LGBTQ+ individuals in NYC have vaccination uptake comparable to that in the general population, despite more than one in four reporting discrimination when accessing COVID-19 services [9]. These results support the findings from national surveys of LGBTQ+ populations, which have found high rates of vaccine uptake, including among gender minorities [7, 10]. However, bisexuality was associated with lower vaccine uptake, which might reflect greater stigma and medical mistrust, and less integration into better defined

Table 1. Vaccination Status and Factors Associated With Being Unvaccinated Among LGBTQ+ Adults in New York City, 2021 (n = 1032)

Characteristic	Total, No.	Vaccinated, % (No.)	Unvaccinated, % (No.)	OR	(95% CI)	P Value	aOR	(95% CI)	P Value
Borough									
Brooklyn	348	79.9 (278)	20.1 (70)	1.0			1.0		
The Bronx	168	76.2 (128)	23.8 (40)	1.24	(0.80–1.93)	.34	0.96	(0.58–1.57)	.86
Manhattan	313	85.0 (266)	15.0 (47)	0.70	(0.47–1.07)	.09	0.91	(0.58–1.43)	.69
Queens	153	86.9 (133)	13.1 (20)	0.60	(0.33–1.02)	.06	0.61	(0.34–1.11)	.11
Staten Island	50	72.0 (36)	28.0 (14)	1.54	(0.79–3.02)	.20	1.24	(0.60–2.57)	.56
Age group, y									
18–29	553	81.1 (449)	18.8 (104)	1.0			1.0		
30–39	362	80.1 (290)	19.9 (72)	1.07	(0.77–1.50)	.68	1.60	(1.09–2.36)	.02
40–49	79	83.5 (66)	16.5 (13)	0.85	(0.45–1.60)	.62	1.23	(0.61–2.46)	.56
≥50	38	94.7 (36)	5.3 (2)	0.24	(0.06–1.01)	.05	0.40	(0.09–1.75)	.22
Sex assigned at birth									
Female	391	79.5 (311)	20.5 (80)	1.0					
Male	632	82.6 (522)	17.4 (110)	0.82	(0.59–1.13)	.22			
Intersex	9	88.9 (8)	11.1 (1)	0.49	(0.06–3.94)	.50			
Sexual orientation									
Gay/lesbian	583	84.6 (493)	15.4 (90)	1.0			1.0		
Bisexual	288	74.0 (213)	26.0 (75)	1.93	(1.36–2.73)	<.001	2.10	(1.41–3.11)	<.001
Pansexual/queer/questioning	110	83.6 (92)	16.4 (18)	1.07	(0.62–1.86)	.81	1.05	(0.56–1.97)	.88
Asexual	32	78.1 (25)	21.9 (7)	1.53	(0.64–3.65)	.33	1.66	(0.63–4.33)	.30
Straight	19	94.7 (18)	5.3 (1)	0.30	(0.04–2.31)	.25	0.49	(0.06–4.13)	.51
Race and ethnicity									
NH White	509	82.9 (422)	17.1 (87)	1.0			1.0		
Asian	34	97.0 (33)	2.9 (1)	0.15	(0.02–1.09)	.06	0.15	(0.02–1.16)	.07
NH Black	193	73.1 (141)	26.9 (87)	1.79	(1.21–2.65)	.004	1.24	(0.79–1.96)	.35
Hispanic	248	82.7 (205)	17.3 (43)	0.97	(0.44–2.14)	.94	0.84	(0.52–1.34)	.46
Other	48	83.3 (40)	16.7 (8)	1.02	(0.68–1.52)	.93	0.72	(0.29–1.76)	.47
Gender identity									
Cisgender	664	80.4 (534)	19.6 (130)	1.0					
Transgender, nonbinary, or other gender minority	368	83.4 (307)	16.6 (61)	0.82	(0.58–1.14)	.24			
Yearly household income									
≥\$50 000	479	88.3 (423)	11.7 (56)	1.0			1.0		
0–\$49 999	530	75.1 (398)	24.9 (132)	2.51	(1.78–3.52)	<.001	1.89	(1.22–2.92)	.004
Education									
Bachelor's degree or higher	624	85.4 (533)	14.6 (91)	1.0			1.0		
No college degree	408	75.5 (308)	24.5 (100)	1.90	(1.39–2.61)	<.001	1.50	(1.00–2.24)	.05
Has health insurance									
Yes	781	86.8 (678)	13.2 (103)	1.0			1.0		
No	236	64.0 (151)	36.0 (85)	3.71	(2.65–5.19)	<.001	3.11	(2.13–4.54)	<.001
Anxiety symptoms (GAD-2)									
No	444	78.4 (348)	21.6 (96)	1.0			1.0		
Yes	579	83.9 (486)	16.1 (93)	0.69	(0.51–0.95)	.02	0.53	(0.37–0.76)	.001
Depressive symptoms (PHQ-2)									
No	466	81.6 (380)	18.5 (86)	1.0					
Yes	558	81.5 (455)	18.5 (103)	1.00	(0.73–1.37)	.99			
Experienced discrimination due to SOGI									
No	745	82.0 (611)	18.0 (134)	1.0					
Yes	276	80.4 (222)	19.6 (54)	1.11	(0.78–1.58)	.56			
Knew someone who died from COVID-19									
No	570	78.8 (449)	21.2 (121)	1.0			1.0		
Yes	462	84.8 (392)	15.2 (70)	0.66	(0.48–0.92)	.01	0.64	(0.45–0.92)	.02
Reported HIV status									
Negative	937	81.4 (763)	18.6 (174)	1.0					
Positive	60	86.7 (52)	13.3 (8)	0.67	(0.31–1.45)	.31			
Never tested	29	79.3 (23)	20.7 (6)	1.14	(0.46–2.85)	.77			

Numbers in bold indicate $P < .05$.

Abbreviations: aOR, adjusted odds ratio; COVID-19, coronavirus disease 2019; GAD-2, Generalized Anxiety Disorder 2-item; OR, odds ratio; PHQ-2, Patient Health Questionnaire-2; SOGI, sexual orientation and gender identity.

SOGI communities [11]. The study also demonstrated that the most common correlates of being unvaccinated were socioeconomic, particularly being uninsured. These findings are consistent with other sources, where education, income, and perceived threat of COVID-19 are the strongest predictors of vaccine hesitancy, regardless of minority status [12]. Studies have suggested that some people remain uncertain about whether vaccination is free, particularly younger people [7]. As many unvaccinated participants reported concerns about the safety of the vaccines, it is possible that not having insurance amplifies these concerns.

The study findings also showed substantial negative effects of COVID-19 on this population, with reported high levels of job loss, evictions, or homelessness and low levels of health insurance coverage, highlighting the economic vulnerability of members of the LGBTQ+ community, particularly among those with intersecting minority identities [13].

In conclusion, it is important that future efforts for this population emphasize the benefits and safety of the vaccines and the availability of vaccines at no cost and address the negative financial impact of COVID-19 on this population.

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