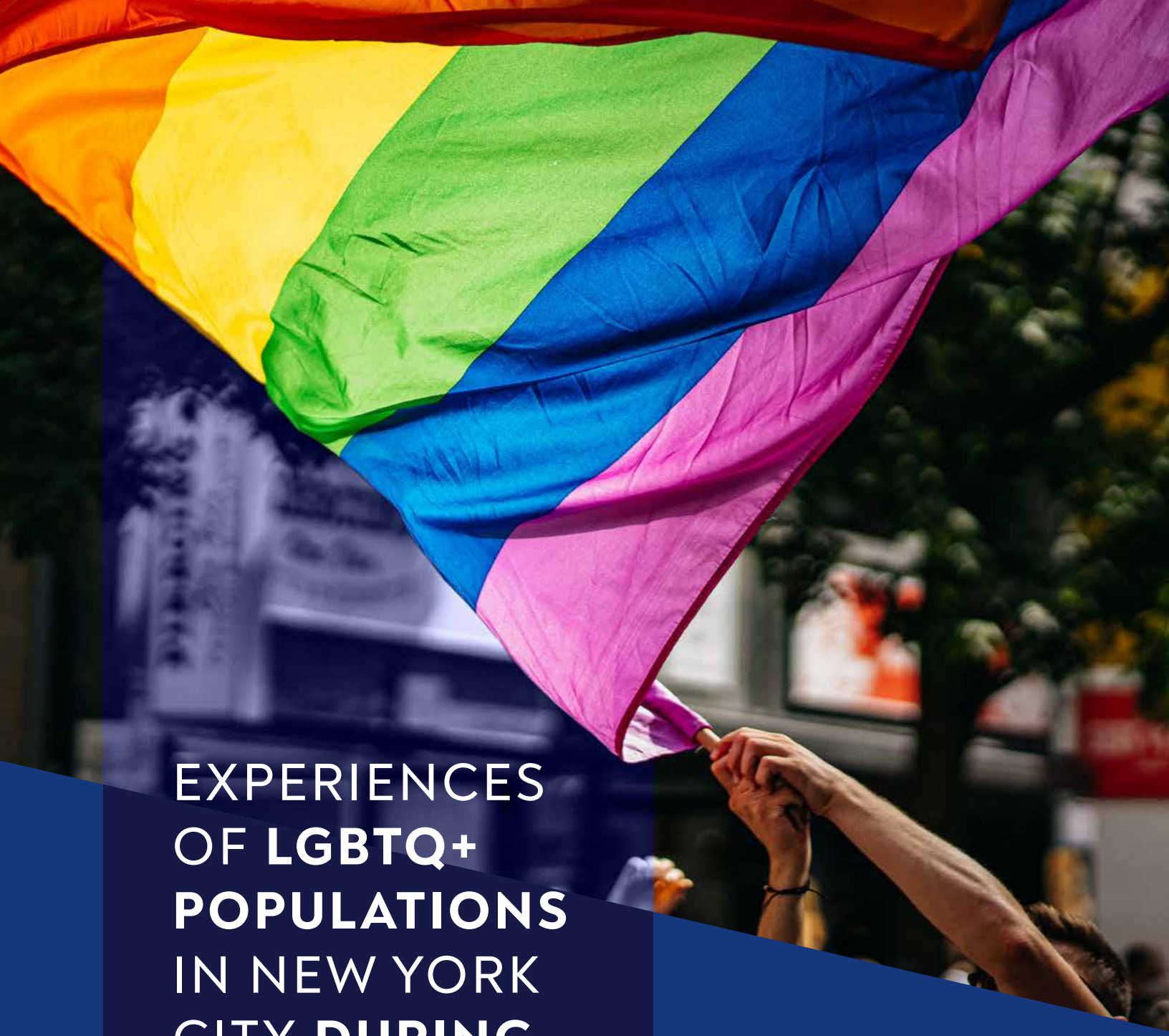


EXPERIENCES OF **LGBTQ+ POPULATIONS** IN NEW YORK CITY **DURING THE COVID-19 PANDEMIC**

(THE LEXICON STUDY)

icap Columbia University

EXECUTIVE SUMMARY

KEY FINDINGS

The Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ+) community continues to face discrimination and economic instability, despite recent gains in human rights. To gain insights into the burden of COVID-19 and the impact of the pandemic on this population, we conducted a cross-sectional survey, the LEXICON study. The online survey conducted from June to December 2021 included LGBTQ+ adults residing in New York City (NYC). We assessed the effects of COVID-19, overall burden of the pandemic, and vaccine uptake within this community. Participants ranged from 18 to 68 years in age. A majority of participants lived in the boroughs of Brooklyn or Manhattan, and they most commonly self-identified as gay or lesbian (56%), and cisgender (64%). Amongst the 36% who self-identified as a gender minority, 17% described themselves as transgender, 13% as nonbinary, questioning or genderqueer, 5% as agender, and 1% as Two-Spirit. The sample was racially diverse, with 49% Non-Hispanic (NH) White, 19% NH Black, and 24% Hispanic.

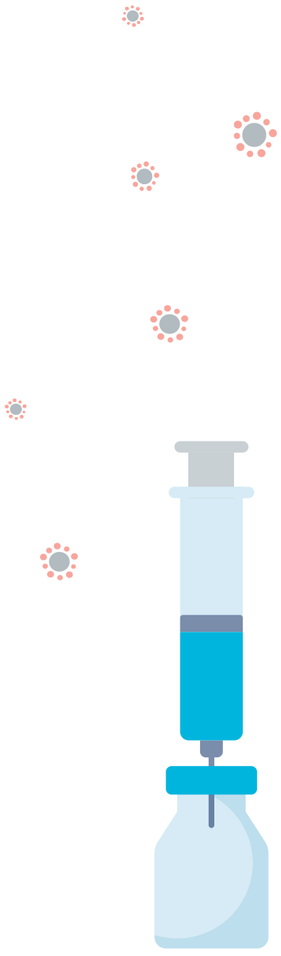
Key findings from this study are as follows:

- LGBTQ+ people in NYC are economically vulnerable. Almost 1 in 4 (22%) reported a history of homelessness, and 19% indicated that they faced eviction during the pandemic. Thirty-six percent of participants reported losing their jobs. The negative effects were particularly severe among gender minorities, who reported the highest burden of job loss (45%) and of moderate or severe financial hardship (59%) during the pandemic.

- Seventy-nine percent of participants had been tested for COVID-19 at least once. Thirty one percent reported having had a positive test, with Hispanic participants having the highest percentage of positive tests (39%).

- Forty-five percent of participants knew someone who had died from COVID-19, with this most frequently reported by Hispanic participants (51%) and gender minorities (52%).

- Fifty-five percent of participants screened positive for possible depression. This was highest in gender minorities (63%), those who were pansexual, queer or questioning (69%) and in Hispanic participants (63%). Anxiety disorders were also common, with 57% screening positive for a possible generalized anxiety disorder, with significant overlap between the two disorders- 81% of those with possible depression also screened positive for anxiety.



- Twenty-seven percent of participants reported experiencing discrimination due to their sexual or gender identity while seeking COVID-19 related services. Among those participants who had wanted to seek medical care during the pandemic but didn't, 15% reported that it was due to concerns that they would be stigmatized around their sexual and gender identities.

- Twenty-three percent of participants reported having no health insurance, and some participants experienced cost barriers to accessing health services, preventing them from seeking the medical care that they needed.

- About a third (32%) of participants reported experiencing verbal violence, and 15% experienced physical violence in their households during the pandemic. These forms of violence were most commonly reported by gender minorities (43% and 22%, respectively).

- LGBTQ+ people in NYC have comparable rates of vaccination (81% with at least one dose) to other adult populations in the city, with similar gaps in coverage. Participants who identified as NH Black had the lowest vaccination coverage (73%), and Asian participants the highest (97%). Staten Island residents also reported lower vaccination levels (72%), as did those who were separated or divorced (59%).

- In multivariable analysis, not having health insurance, having less than a college degree, being bisexual, and living in lower income households were the factors most strongly associated with not having received COVID-19 vaccination. Gender identity and race/ethnicity were not associated. These findings provide support for socio-economic factors as critical drivers for lack of vaccination.

RECOMMENDATIONS

The pronounced negative economic effects of the pandemic have been particularly severe in LGBTQ+ individuals in NYC. Financial and housing support have been provided by the government, but as hiring stalls due to recurrent COVID-19 surges, additional measures are needed, and outreach efforts should emphasize these programs. Further unemployment assistance should also be assured until the economic recovery has stabilized, and the pandemic is more controlled. Considering the high rates of depressive and anxiety-related symptoms, there is also a need for more aggressive mental health support for LGBTQ+ people, particularly gender minorities.

LGBTQ+ individuals have comparable vaccinated levels as the general population of NYC, but additional measures are still needed to encourage vaccination within under-represented groups. Lack of health insurance, the strongest predictor of not being vaccinated, suggests that campaigns should highlight how vaccines are safe and free, and financial assistance is available if someone suffers from a rare complication. Ensuring that low income and unemployed people know that they can get low-cost or free health insurance through the city, and that this insurance gives them access to culturally responsive and gender-affirming care, in addition to mental health resources, could also improve both vaccination and testing rates.

Vaccination campaigns should also emphasize that although the mRNA vaccines were rapidly developed for SARS-CoV-2, they had been under development for decades, primarily as part of immune therapies in cancer research, but also for infectious pathogens such as rabies, the Zika virus and influenza. Their safety in terms of both short and long-term side effects has thus been rigorously established and translating this in an accessible way to the general population will combat mRNA vaccine misinformation.

After adjustment for other potential confounders, such as age or race/ethnicity, individuals identifying as bisexual were less likely to be vaccinated than individuals of any other sexual identity. The reasons for this association are unclear and should be examined more closely. Nonetheless, this population would benefit from joint social programs and greater access to affirming health care. There are many organizations which provide emotional support for bisexual youths and adults; these can be engaged in more targeted ways.

More needs to be done to understand how to mitigate the domestic violence which was alarmingly common in this study and which has increased globally during the pandemic. The victims of violence should be provided with information on safe spaces for gender minorities and other LGBTQ+ persons where they can seek help and refuge if necessary. Furthermore, the increase in violence might be exacerbated by negative economic impacts, and social support programs might therefore mitigate some of the current stressors contributing to this violence.

CONCLUSION

The LEXICON study provides important insights into the effects of COVID-19 on a historically vulnerable and marginalized population. LGBTQ+ individuals in NYC reported a similar burden of COVID-19 infection and of vaccine uptake to the general population of the city, but they have suffered disproportionately in terms of the financial and emotional effects of the pandemic, particularly among the most stigmatized such as gender minorities, and among those with multiple minority identities. These data suggest the need for strategies for reaching the remaining vaccine hesitant, of particular importance during these recurrent COVID waves. These data should also assist policy-makers in developing further programs to support those most negatively impacted by the pandemic.

Source: Anete Lusina

CONTENTS

BACKGROUND

New York City, 2020, Source: Jakayla Toney on Unsplash

By the end of 2021, the COVID-19 pandemic, caused by the novel SARS-CoV-2 coronavirus, had resulted in almost 79 million cases and 816,000 deaths in the United States, of which at least 35,000 deaths were reported in New York City (NYC).[1,2] Racial and ethnic minorities have been particularly impacted by COVID-19, especially in urban settings.[2] The surge in December 2021 in COVID-19 cases due to the Omicron variant marked an all-time high; nationally over 200,000 cases and more than 1,300 deaths occurred daily. Preliminary findings suggest that unvaccinated individuals remain at greater risk of infection and severe illness, as with prior variants.[3,4] Vaccination rates have increased in NYC, with an estimated 71.5% of all residents fully vaccinated by late December 2021.[2] However, there continue to be disparities in coverage, with the most vulnerable populations often the most under-represented in terms of vaccine uptake.[5]

Despite gains in human rights, the Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ+) community continues to face discrimination, familial rejection, mental health and substance use disorders, as well as smoking, and limited access to health services.[6-12] LGBTQ+ persons are also more likely to experience economic instability and to work in public-facing jobs considered essential.[13] Consequently, the LGBTQ+ population was thought to be at an elevated risk of infection and complications associated with COVID-19.[6,14] The higher prevalence of immunosuppressive conditions such as HIV has also been shown to confer a higher risk of infection and consequences for COVID-19, particularly in those with co-morbidities[15,16,17-20] LGBTQ+ individuals are more likely to live in urban settings, where adhering to non-pharmaceutical interventions (NPIs) such as social distancing can be difficult.[9-11,21] The intersection of race, gender identity, and sexuality can exacerbate stigma and barriers to services.[22] Compounding this potential for higher risk, some research has shown that LGBTQ+ persons report lower perceived susceptibility to COVID-19, and are therefore less likely to seek testing and to follow NPIs, including wearing of face coverings.[23,24] However, an online survey of the LGBTQ+ population in the United States (US), conducted after the availability of effective COVID-19 vaccines, found that members of this population were more accepting of the COVID-19 vaccines than straight, cisgender people who also took the survey.[25]

Studies have noted that LGBTQ+ individuals have been particularly vulnerable to poor mental health consequences during the COVID-19 pandemic, in part due to persistent barriers to access to health services due to stigma.[26,27] A study conducted among LGB persons in Hong Kong during the pandemic found that 31.5% met criteria for probable clinical depression, and 27.9% for generalized anxiety disorder.[28] This was more than two-fold higher than rates found in the general population.[29] National surveys of LGBTQ+ populations in the US have shown that they have experienced high rates of job loss, particularly among racial minorities or those living with HIV.[30] There are limited data about the ongoing mental health and social ramifications of the COVID-19 pandemic based on SOGI (sexual orientation, and gender identity), as well as accurate vaccination coverage numbers for members of these communities in NYC. Based on these findings, it is critically important to examine the burden of COVID-19 among this population as well as to determine their attitudes, behaviors, and beliefs related to COVID-19. Such information could inform the design of interventions and services to meet their needs.

With an estimated more than 700,000 LGBTQ+ residents, NYC represents the largest LGBTQ+ population in the US. To gain insights into the burden of COVID-19 disease and the effects of the COVID pandemic on this population, ICAP at Columbia University, a global health center situated at the Mailman School of Public Health, conducted an online survey: the LGBTQ+ Experience due to COVID-19 in New York City (LEXICON) study.

METHODS

ICAP Harlem Prevention Center recruitment table at Harlem Pride, 2019

New York City Pride, Source: Josh Wilburne on unsplash

SURVEY DESIGN AND PARTICIPANTS

We conducted an online electronic survey using the Qualtrics platform (Provo, Utah) between June 25 and December 10, 2021. We updated the survey in September 2021 to include a question on HIV and sexually transmitted infection (STI) testing frequency. Individuals who were eligible i.e. self-identified as LGBTQ+, aged 18 or older, a resident of NYC and willing and able to provide electronic consent, completed the survey accessed through a web link or a QR code. The survey was available in English, Spanish, French and Mandarin Chinese.

The survey collected data on the following (Table 1): socio-demographic characteristics, including age, ethnicity and race, sex assigned at birth, gender identity and sexual orientation; country of birth, education, marital status, and household income; and location of residence (zip code and borough). We also collected data on COVID-19-related knowledge, attitudes and beliefs, and other experiences, including SARS-CoV-2 testing and positive diagnoses, COVID-19-related hospitalizations, and quarantine related to exposure. We sought information on COVID-19 vaccination status or intents, most common sources of information and any drivers of vaccine hesitancy.

The survey also included questions regarding other medical history, including chronic conditions, health insurance status, and any barriers to accessing health services during the pandemic. We asked about the frequency of hazardous drinking over the past year, defined as five or more drinks at one sitting in men and four or more in women. In terms of the effects of the pandemic on participants, we collected information on the financial effects, including job and/or housing loss, as well as information regarding intimate partner violence. Mental health effects were assessed through screening for depression using the Patient Health Questionnaire-2 (PHQ-2) and for anxiety disorders using the Generalized Anxiety Disorder -2 items (GAD-2).[31,32]

To ensure comparability and data inter-operability between this survey and others, we derived many of the questions from the NYC Community Health Survey,[33] the PhenX COVID-19 toolkit,[34] and from the NIH Public Health Emergency and Disaster Research Response (DR2) resource.[35]

Table 1: LEXICON Questionnaire Modules

LEXICON QUESTIONNAIRE MODULES
SOCIO-DEMOGRAPHIC CHARACTERISTICS: Age, ethnicity and race, sex assigned at birth, gender identity and sexual orientation, country of birth, education, marital status, and household income, and location of residence (zip code and borough)
COVID-19-RELATED KNOWLEDGE, ATTITUDES, PRACTICES, AND BURDEN SARS-CoV-2 testing, positive diagnoses, related hospitalizations, and quarantine related to exposure
COVID-19 VACCINATION WILLINGNESS, UPTAKE, AND EXPERIENCES Vaccination status, intent, and drivers of vaccine hesitancy
MEDICAL HISTORY AND HEALTH CARE EXPERIENCES Chronic conditions, health insurance status, barriers to care
ALCOHOL AND SUBSTANCE USE
IMPACT OF THE COVID-19 PANDEMIC Effects on income, employment, housing, intimate partner violence (IPV), and mental health

Outreach staff from the ICAP Bronx Prevention Center performing community recruitment in Harlem

The study was promoted through popular LGBTQ+ social media and dating platforms, including Facebook, Instagram and Grindr. We posted materials at LGBTQ+ support organizations such as The Lesbian, Gay, Bisexual & Transgender Community Center (The Center), the Brooklyn Ghost Project, and in bars. In order to ensure that we reached communities which are traditionally under-represented in national surveys, such as gender and other minorities, we worked with community partners through ICAP's Harlem and Bronx Prevention Centers. These centers have long worked with LGTBQ+ communities and people of color in NYC. We also advertised the study in several venues, including NYC Pride and Black Pride events, the Pride Drag Brunch in Harlem, Trans-giving 2021, and many others.

Individuals were also recruited through panel surveys of verified eligible participants through the Qualtrics research group. Consenting individuals received a $30 e-gift card after extensive data validation to eliminate bots or respondents with malicious intent, including use of the ReCaptcha scoring system, the inclusion of duplicate age questions, qualitative questions which show whether a participant is paying attention to the wording, verifying that the IP address was unique and confirming that the geolocation corresponded to NYC.[36]

STATISTICAL ANALYSES

Racial and ethnic identity was classified using a standard two-question approach,[37] 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 Other Pacific Islander, were classified as Other, due to small numbers. We defined a gender minority as anyone who identified as agender, genderqueer, non-binary, transgender, intersex at birth, or two-spirit.[25] For socio-economic data, we defined poverty as a household income less than $25,000, and generated a binary variable grouping all incomes less than $50,000 per year versus $50,000 and more. [38] We classified educational attainment as a binary variable where we grouped those with an Associate degree, some college, or high school or less, versus those with a Bachelor's degree or greater.

We performed descriptive analyses, using the chi-squared test to examine differences in demographic characteristics, and COVID-19 related measures by sexual orientation, gender minority identity, and racial/ethnic status. An alpha level of 0.05 was used to determine significance, with all reported differences below statistically significant; all analyses were conducted using Stata 15.0. In order to understand how some of these characteristics intersect, we also analyzed characteristics associated with being unvaccinated using logistic regression, where we included any characteristics with a p-value <0.10 in univariable analysis in the multivariable model.

RESULTS

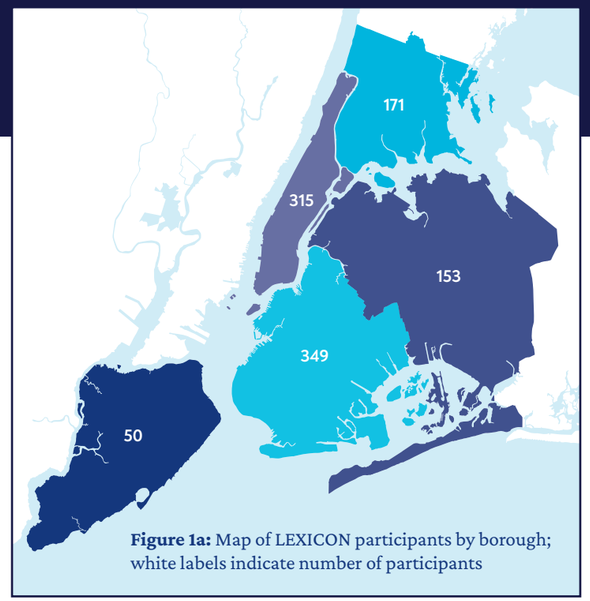


Figure 1a: Map of LEXICON participants by borough; white labels indicate number of participants

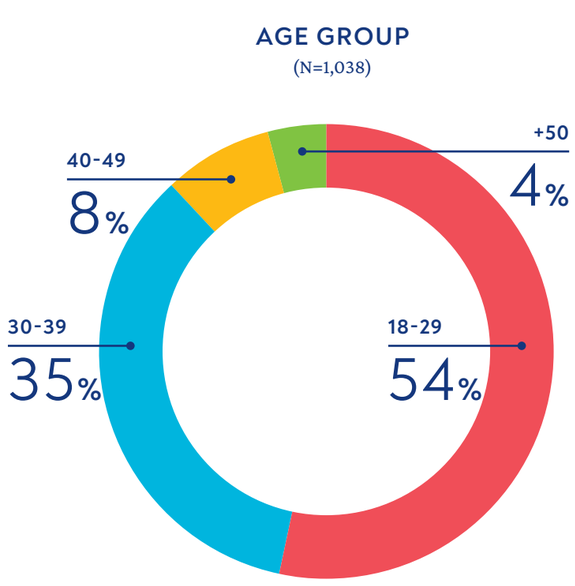


Figure 1b: Age of LEXICON Participants

STUDY PARTICIPANTS

A total of 1,038 participants were deemed eligible after data validation and included for analysis. A majority lived in Brooklyn or in Manhattan (Figure 1a). The median age was 29 years (range 18-68) (Figure 1b). Most participants were assigned male at birth (61%), with 38% assigned female, and 9 participants identifying as intersex. Participants most commonly identified as having a gay or lesbian (56%) sexual orientation. The majority (64%) were cisgender (62% and 65% of those assigned female or male at birth, respectively). Amongst the 36% who self-identified as a gender minority, 17% self-described as transgender, and 13% as nonbinary, questioning or genderqueer (Figure 1c).

The sample was racially diverse, with 49% Non-Hispanic (NH) White, 19% NH Black, 24% Hispanic, 3% Asian, and 5% were multi-race or other, including 25 participants who identified as American Indian or Alaskan Native (Figure 2). Nine percent of participants reported being born outside the US, with sub-Saharan Africa the most common region of origin (25%).

In terms of relationship status, 40% were single and 18% married (Figure 3). Participants were well distributed across income groups, with approximately 25% in each income band, although only 20% reported a household income over $100,000 (Figure 4). Those who identified as pansexual or asexual had the lowest household incomes, with 36% and 41% reporting household incomes less than $25,000, respectively. Gender minorities also reported lower household incomes, with 1 in 3 (33%) living in poverty. Poverty was most common in Brooklyn (35%) and Staten Island (26%) (Figure 5a), whereas lowest educational attainment (i.e., without a college degree) was most common among participants from Staten Island (54%) and the Bronx (47%) (Figure 5b). Almost a quarter (22%) of participants reported having been homeless in the past (Figure 5c); this was most strongly associated with being asexual (41%), a gender minority (32%), or Hispanic (33%) or NH Black or another race (32%).

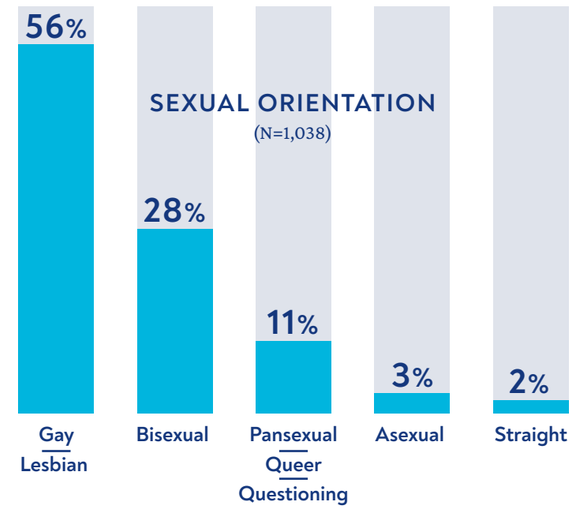
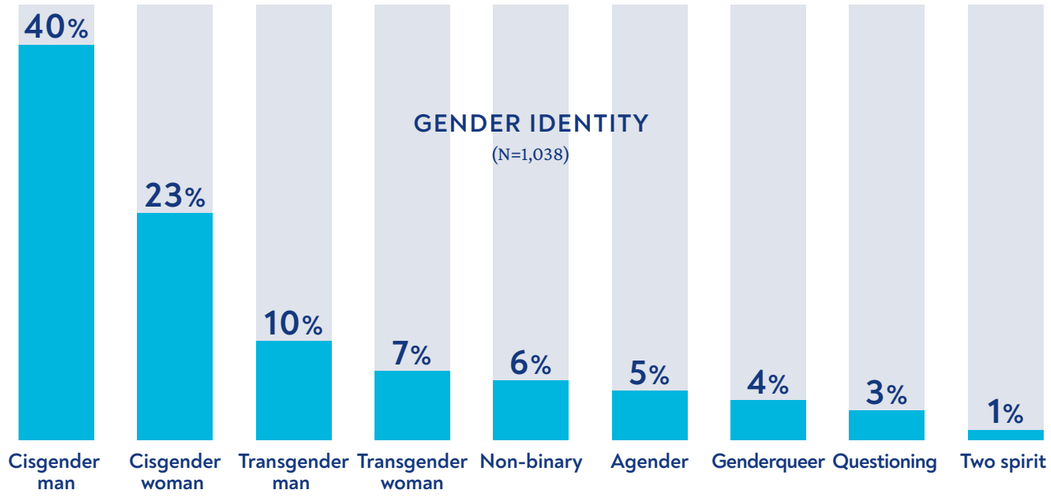


Figure 1c: Self-Reported Sexual Orientation, Gender Identity, and Sexual Characteristics of LEXICON participants



SEXUAL ORIENTATION BY RACE/ETHNICITY

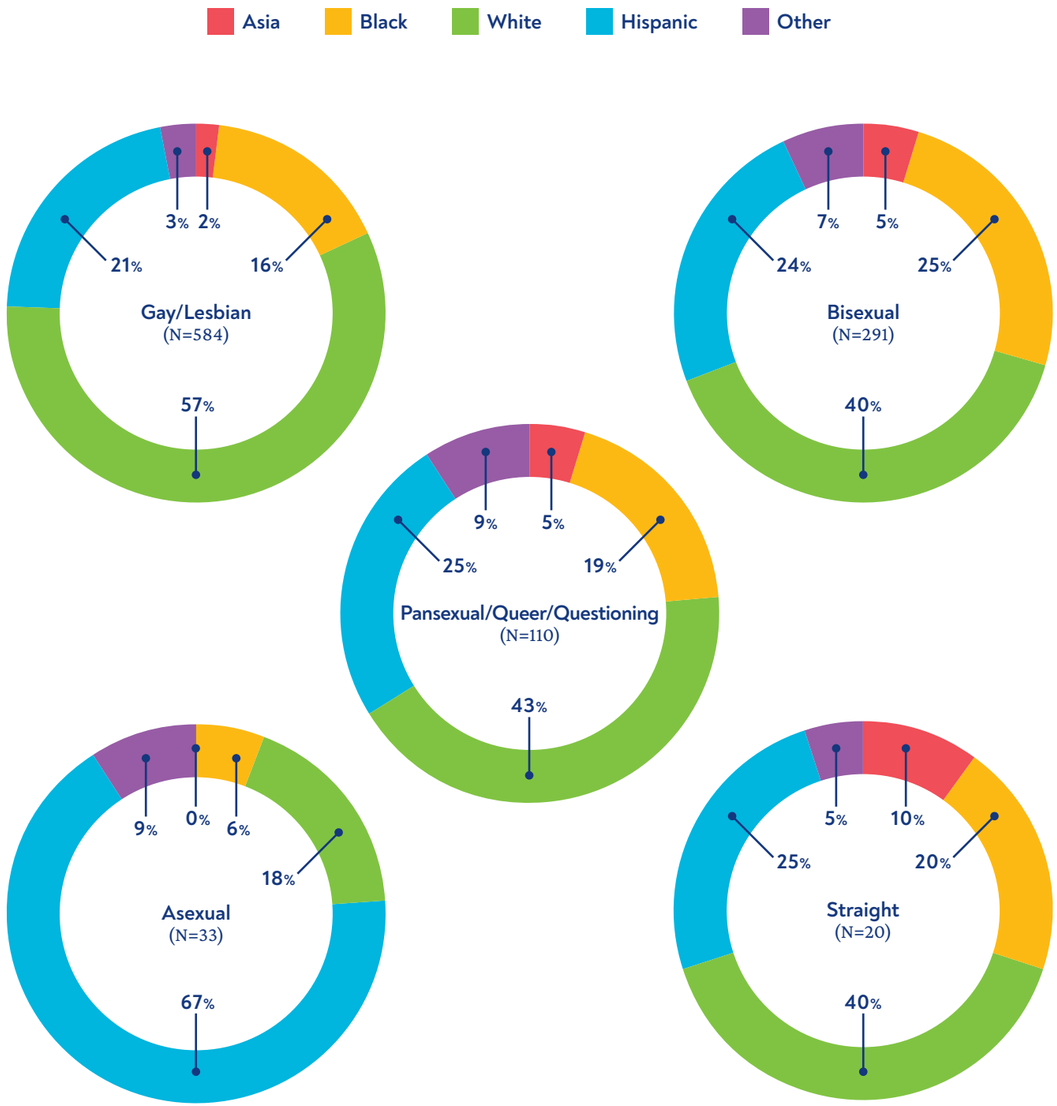


Figure 2: Sexual Orientation and Racial Identity of LEXICON Participants

RELATIONSHIP STATUS

(N=1,038)

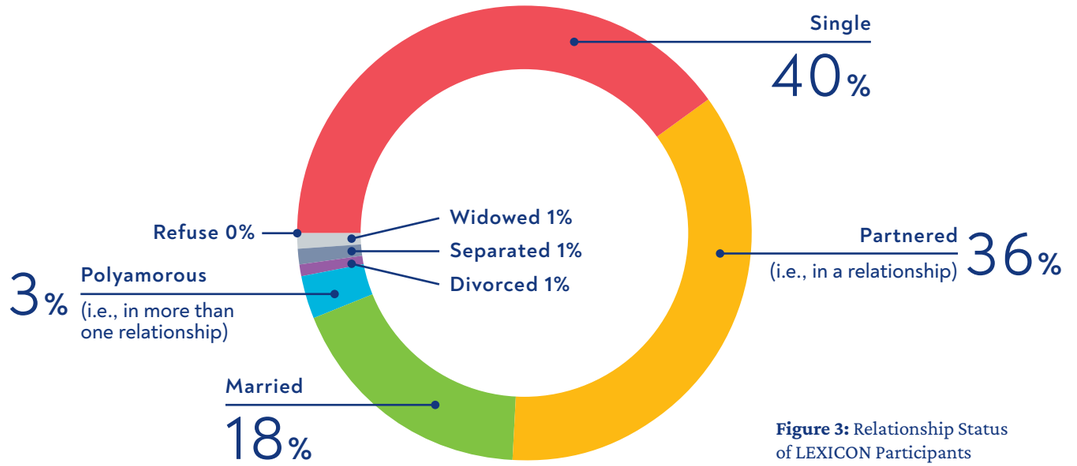


Figure 3: Relationship Status of LEXICON Participants

HOUSEHOLD ANNUAL ICOME

(N=1,007)

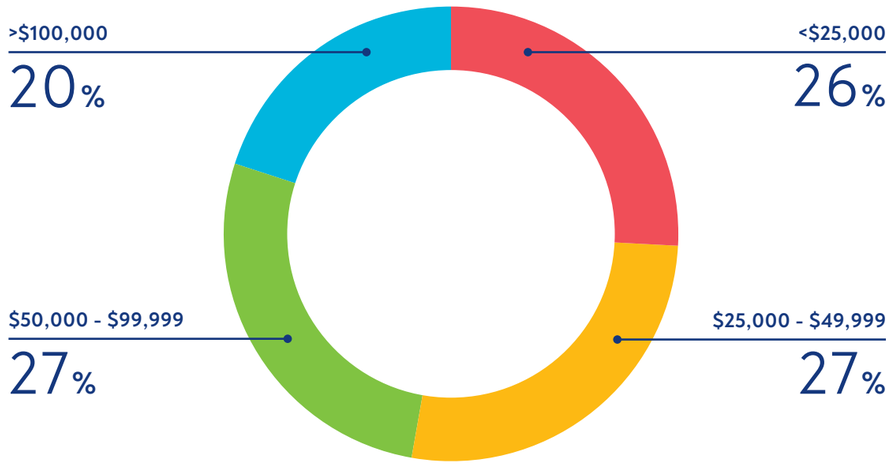


Figure 4: Household Income of LEXICON Participants

PERCENT LOW INCOME (%)

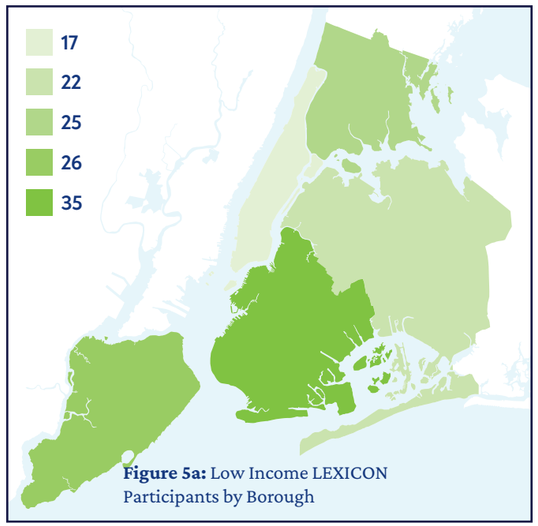


Figure 5a: Low Income LEXICON Participants by Borough

PERCENT WITHOUT A COLLEGE EDUCATION (%)

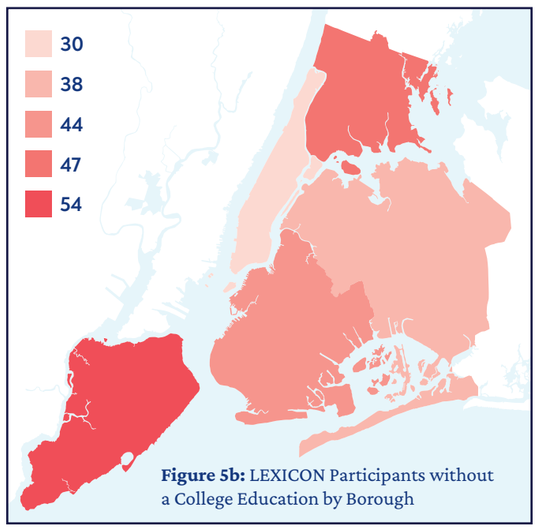


Figure 5b: LEXICON Participants without a College Education by Borough

EVER EXPERIENCED HOMELESSNESS

(N=1,021)

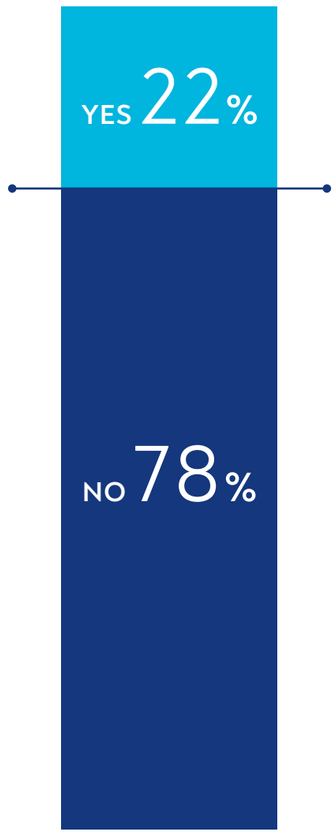


Figure 5c: Percentage of LEXICON Participants having ever Experienced Homelessness

COVID-19 EXPOSURE, TESTING, TEST POSITIVITY

Nearly 4 out of 5 (79%) participants reported having been tested for SARS-CoV-2, with the highest percent in Queens (83%) and the lowest in Staten Island (64%, Figure 6). Testing did not vary by gender identity, but a smaller percent of NH Black (74%) and bisexual participants (70%) reported having been tested. Of those tested, 30% had a positive test (Figure 7). Test positivity varied only by sexual orientation, with 21% of bisexual participants reporting having had a positive test.

Among those who reported having had a SARS-CoV-2 test, 17% were hospitalized for COVID-19, most commonly among NH White participants, among whom 22% reported having been hospitalized for COVID-19, and among NH Black participants, where 15% reported hospitalization.

More than half of the participants (53%) reported having had to quarantine due to exposure to COVID-19; this was more commonly reported by gender minorities than cisgender participants (58% vs 51%) and was most commonly reported by asexual (70%) or pansexual (62%) participants, and by NH White (58%) and Hispanic (55%) participants.

Close to half (45%) of the participants knew someone who had died due to COVID-19. This was most commonly reported by gender minorities (52%), and Hispanic participants (51%).

PERCENT EVER TESTED (%)

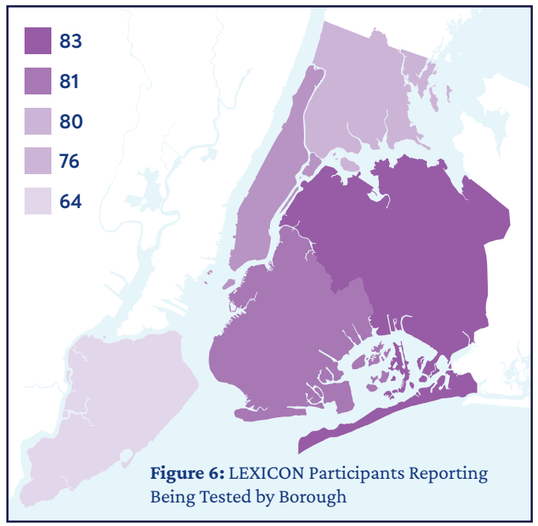


Figure 6: LEXICON Participants Reporting Being Tested by Borough

PERCENT WITH A POSITIVE TEST (%)

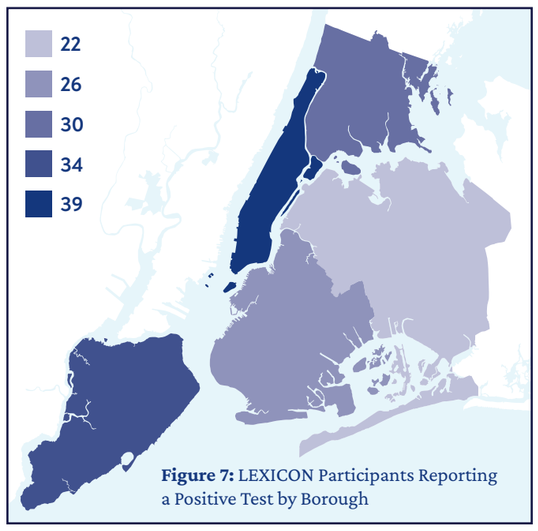
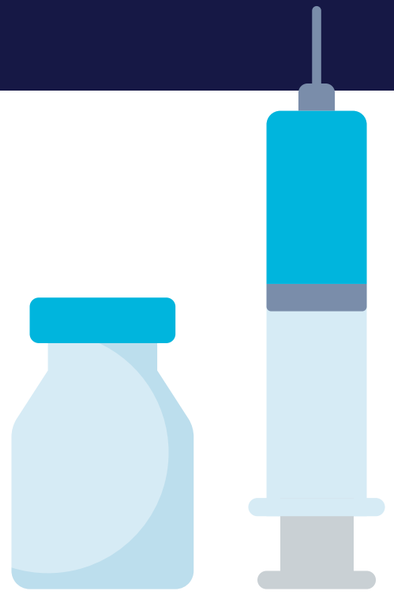


Figure 7: LEXICON Participants Reporting a Positive Test by Borough

HISTORY OF COVID-19 VACCINATION AND INTENT TO GET VACCINATED

The majority of participants (81%) had received at least one dose of a COVID-19 vaccine, with most (52%) reporting having received the Pfizer/BioNTech vaccine. The percentage of participants reporting at least one dose of the vaccine were in descending order from Queens (87%), Manhattan (85%), Brooklyn (80%), the Bronx (76%) and Staten Island (72%) (Figure 8a); by racial identity, 97% in Asians, 83% of NH White, Hispanic or Other participants, and 73% of NH Black participants; and by sexual orientation, gay/lesbian (85%), pansexual (84%), asexual (78%) or bisexual (74%) (Figure 8b).

Vaccination uptake was lowest among those with a household income less than $25,000 or from $25,000 to $50,000 (75% of both groups), and among those without a college degree (75%). Divorced and separated participants had a very low vaccine uptake (59%), whereas knowing someone who died from COVID-19 was associated with higher vaccination coverage (85%). The percent who reported having been vaccinated did not vary by gender identity or by age group. Regarding beliefs around COVID-19 vaccination, most participants (65%) felt that getting vaccinated is a responsibility to their community, with less than 1% (n=10) believing that vaccines are a hoax.



PERCENT VACCINATED (%)

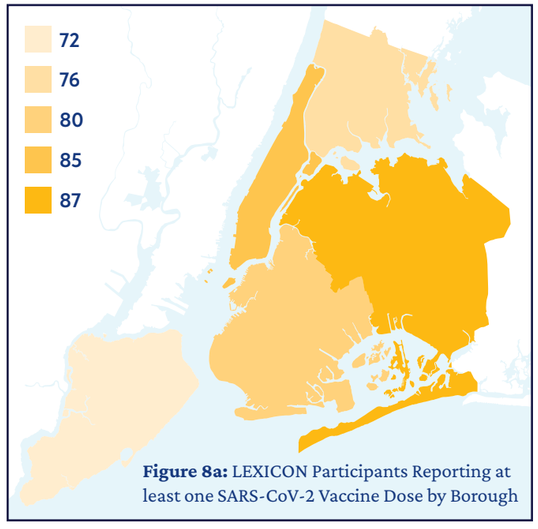


Figure 8a: LEXICON Participants Reporting at least one SARS-CoV-2 Vaccine Dose by Borough

PERCENT VACCINATED BY GENDER & RACE COMPARED TO OVERALL POPULATION

(N=1,027)

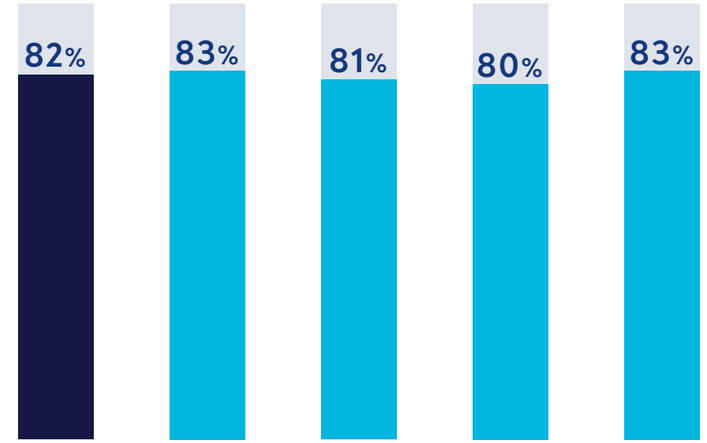


Figure 8b: LEXICON Participants Vaccination Status by Gender Identity and Race

FACTORS ASSOCIATED WITH NOT HAVING BEEN VACCINATED

The univariable logistic regression analysis revealed several factors associated with being unvaccinated including being bisexual or NH Black, having a household income less than $50,000 per year, having less than a college degree, not being anxious, and not having health insurance (Table 2).

In multivariable analysis, the factors which remained significant were being between 30-39 years of age (adjusted odds ratio (aOR) 1.55, 95% CI 1.06-2.28), being bisexual (aOR 2.15, 95% CI 1.45-3.18), having a lower household income (aOR 1.92, 95% CI 1.24-2.95), no college degree (aOR 1.49, 95% CI 1.00-2.23), and not being anxious (aOR 1.94, 95% CI 1.36-2.78). The strongest predictor of not being vaccinated was not having health insurance, which was associated with a more than 3-fold increase in the odds of being unvaccinated (aOR 3.07, 95% 2.11-4.48). In this model, race/ethnicity, gender identity, place of birth, hazardous drinking, and HIV status were not associated with vaccination status (Figure 9).

CHARACTERISTIC	ODDS RATIO	(95% CI)	ADJUSTED ODDS RATIO	(95% CI)
AGE GROUP (YEARS)				
18-29	1.0		1.0	
30-39	1.07	(0.77-1.50)	**1.55**	(1.06-2.28)
40-49	0.85	(0.45-1.60)	1.18	(0.60-2.34)
50 and older	0.24	(0.06-1.01)	0.36	(0.08-1.58)
SEXUAL ORIENTATION				
Gay/Lesbian	1.0		1.0	
Bisexual	1.93	(1.36-2.73)	**2.15**	(1.45-3.18)
Pansexual/ Queer/ Questioning	1.07	(0.62-1.86)	1.09	(0.58-2.04)
Asexual	1.53	(0.64-3.65)	1.56	(0.60-4.07)
Straight	0.30	(0.04-2.31)	0.52	(0.06-4.25)
RACE/ETHNICITY				
NH White	1.0		1.0	
Asian	0.15	(0.02-1.09)	0.16	(0.02-1.20)
NH Black	1.79	(1.21-2.65)	1.22	(0.77-1.92)
Hispanic	1.02	(0.68-1.52)	0.82	(0.51-1.31)
Other	0.97	(0.44-2.14)	0.77	(0.32-1.88)
BOROUGH				
Brooklyn	1.0		1.0	
The Bronx	1.24	(0.80-1.93)	0.93	(0.57-1.51)
Manhattan	0.70	(0.47-1.05)	0.91	(0.58-1.42)
Queens	0.60	(0.35-1.02)	0.63	(0.35-1.13)
Staten Island	1.54	(0.79-3.02)	1.23	(0.60-2.54)
YEARLY HOUSEHOLD INCOME				
$50,000 or more	1.0		1.0	
0-$49,999	2.51	(1.78-3.52)	**1.92**	(1.24-2.95)
EDUCATION				
Bachelor's degree or higher	1.0		1.0	
No college degree	1.90	(1.39-2.61)	**1.49**	(1.00-2.23)
LIKELY ANXIETY DISORDER (GAD-2)				
Yes	1.0		1.0	
No	1.44	(1.05-1.98)	**1.94**	(1.36-2.78)
HAS HEALTH INSURANCE				
Yes	1.0		1.0	
No	3.71	(2.65-5.19)	**3.07**	(2.11-4.48)

Note that there was no association between not being vaccinated and sex assigned at birth, gender identity, HIV status, birth continent, hazardous drinking, or screening positive for likely depression. Red font indicates that it is statistically significant.

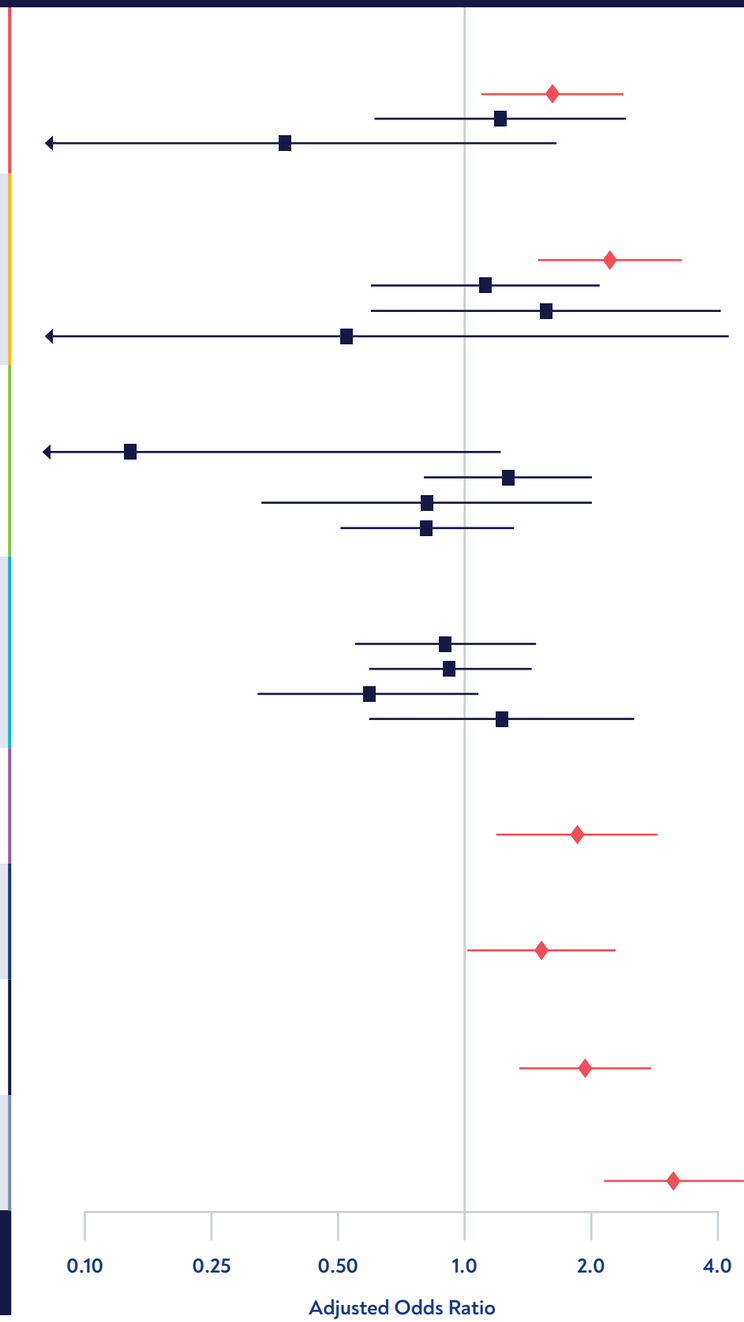


Table 2: Logistic regression analysis of characteristics associated with not being vaccinated among LGBTQ+ in New York City, 2021

Figure 9: Forest Plot of the multivariable Analysis of factors associated with not being vaccinated

REASONS FOR GETTING VACCINATED OR INTENTION TO GET VACCINATED

Among those who had been or intended to get vaccinated, the most common reasons for doing so that were selected from a list provided to participants were wanting to be protected against infection (75%), wanting things to go back to normal (46%), and wanting to protect other people in the community (30%) or their family members (24%); 12% said that they were mandated to be vaccinated by their place of work or study, and 12% indicated that they got vaccinated due to concerns regarding a medical condition that put them at risk for serious disease. Trust in the government, the FDA or the US Centers for Disease Control (CDC) were rarely selected amongst the reasons for getting vaccinated. Among all participants, including those who did not want the vaccine, the most important selected characteristics of a vaccine were that it was safe (74%) and worked well (73%) (Figure 10). Thirty 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/ethnicity.

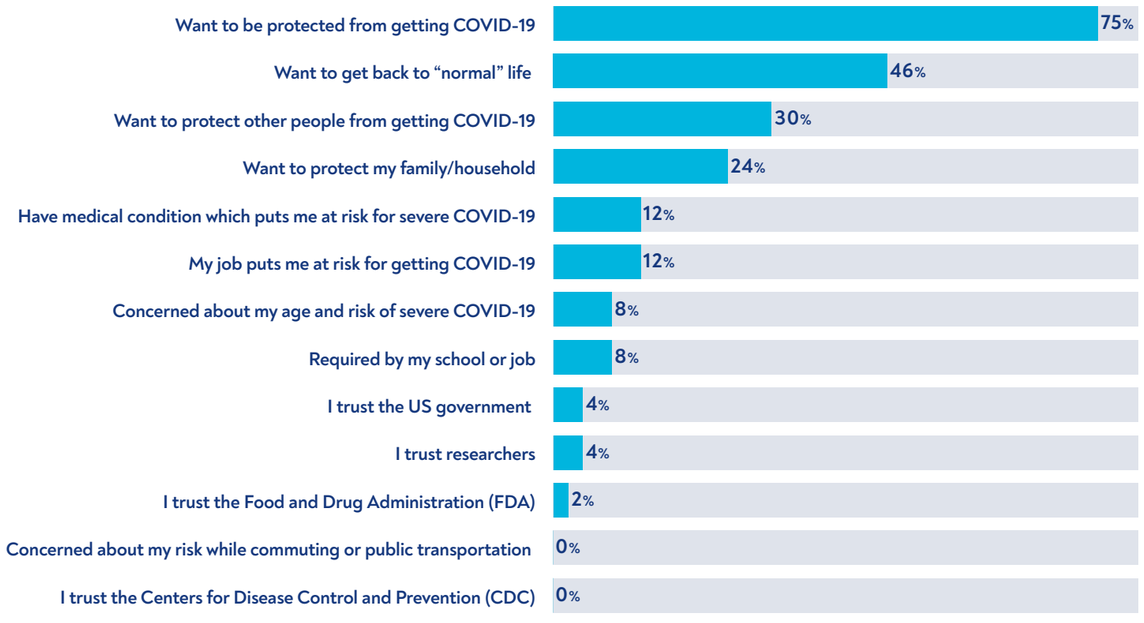


Figure 10: LEXICON Participants Reasons for Vaccination or Intention to Vaccinate

Of the 19% of all participants who reported that they were unvaccinated (n=191), 55% reported that they intended to get vaccinated in the future. Unvaccinated bisexual participants were the most likely to indicate no intention to get vaccinated (58%). Otherwise, vaccine intentions did not vary by gender identity or race/ethnicity. Among the reasons selected for not wanting to ever get vaccinated (n=85), the most commonly selected were that COVID-19 vaccines weren't safe (45%), they might have long-term side effects (40%), they don't work (27%), or that they were developed too quickly (16%) (Figure 11).

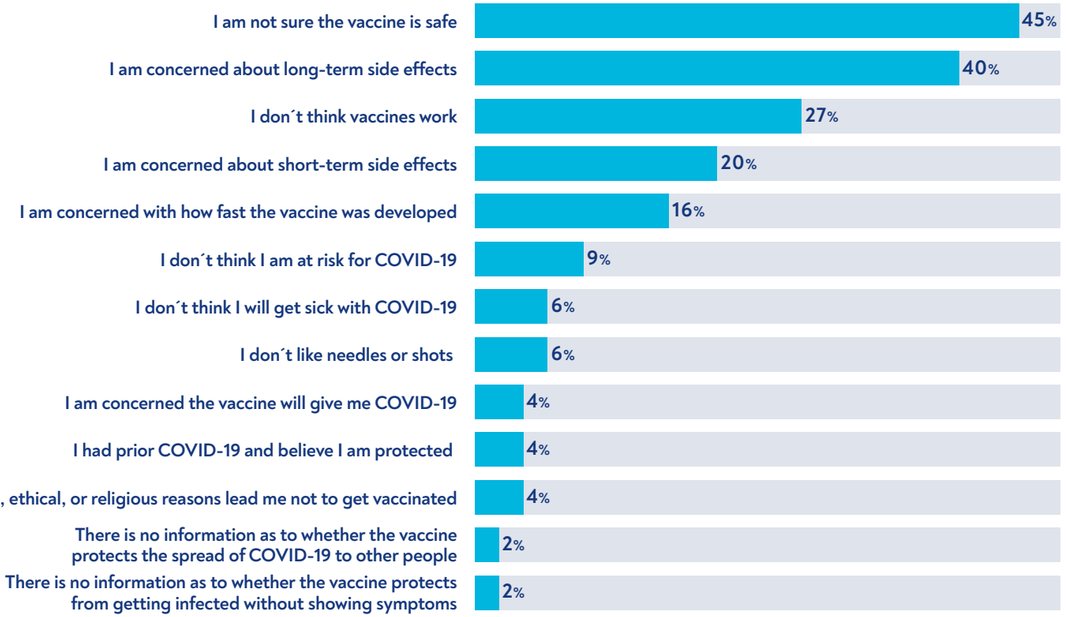


Figure 11: LEXICON Participants Reasons Against Vaccination

KNOWLEDGE AND PRACTICES RELATED TO COVID-19

Most participants correctly answered the COVID-19 related knowledge questions: 84% knew that asymptomatic people could transmit COVID-19 disease, 76% knew that someone who recovered from COVID-19 could get reinfected, 78% knew that vaccines prevent severe illness, and 81% knew that even those who were vaccinated needed to follow other preventative measures.

Most participants (71%) indicated that the HIV epidemic had led them to be more conscientious about conforming to recommended mitigation measures for COVID-19, most commonly in participants assigned male at birth (77%), NH Black participants (75%), and gender minorities (75%). This was reflected in the high vaccination uptake noted above, and that, in the 3 months prior to the survey, only 9% of participants claimed never or rarely to have worn a mask in public, and 18% claimed to have never or rarely socially distanced.

ACCESS TO HEALTH SERVICES

Overall, 59% of participants indicated a need to see a health professional over the past year, most commonly among gender minorities (67%) and among pansexual participants (79%); 14% (n=88) reported not being able to see one. Of these participants, 27% reported that they were too worried about the cost, 15% feared that they might get judged due to their sexual orientation or gender identity, 17% were not able to get an appointment, and 11% didn't want to seek care during the pandemic. Among those without health insurance, 41% reported that they were too concerned about cost to access health services.

One in four (23%) of all participants reported not having health insurance. In addition, 27% of participants reported that they felt discriminated against due to their sexual or gender characteristics when accessing COVID-19 related services. This was most commonly reported by gender minorities, where 1 in 3 (33%) reported this concern. Discrimination based on race was less frequently reported (17%), but 32% of NH Black participants felt discriminated against while seeking services.

Most participants (67%) reported that the pandemic had not impacted their ability to access sexually transmitted infection (STI) or HIV testing services. However, 20% indicated that they had not tried to access those testing services since the pandemic began. Of all participants, 27% reported that their last HIV or STI test was over a year prior to the survey, 22% 6-12 months ago, and 46% within the last 6 months. Of HIV-negative participants assigned male at birth who reported casual sexual partners in the past three months, 44% had not been tested for HIV in the past 6 months, and 19% said that the pandemic had made testing harder. Sixty participants (6% of all) reported living with HIV; prevalence was highest in transgender women (13%), cisgender men (8%), and in nonbinary people (6%). Many (30% of those living with HIV) reported that the pandemic impacted their ability to collect their antiretrovirals.

SEXUAL BEHAVIOR DURING THE COVID-19 PANDEMIC

Overall, 69% of participants reported a negative impact on their identity and sexual behavior, with 42% reporting a moderate to severe impact. This did not vary by race/ethnicity or gender identity but was most commonly reported by pansexual/queer participants (48%). Over a third (38%) of participants reported having engaged in sexual activity with someone outside their household or quarantine pod in the three months prior to the survey. Gay cisgender men reported the largest number of partners outside their pod, with a mean of 4.4 partners, followed by pansexual men who reported a mean of 3.8 partners. Among these participants, 60% were worried about getting COVID-19 during sexual activity, but 38% said that they were more likely to engage in sexual activity with a new partner after getting vaccinated.

ECONOMIC EFFECTS OF THE COVID-19 PANDEMIC

Most participants (65%) reported that COVID-19 had negatively affected their lives somewhat or a lot, particularly among the pansexual/queer/questioning (81%). A large percent (81%) reported financial problems during the pandemic, with 19% reporting being threatened with eviction, and 36% losing their job due to the pandemic. The negative effects were particularly severe among gender minorities, who reported more job loss (45% versus 32% among cisgender participants), more moderate or severe financial hardship (59% versus 45%), and more threats of eviction (25% versus 15%).

Some racial/ethnic minorities also suffered more financial problems than NH White and Asian participants, where 24% of Hispanic, 21% of NH Black, and 33% of other race/ethnic groups lost their jobs, compared to 14% of NH White and 9% of Asian participants.

MENTAL HEALTH EFFECTS OF THE COVID-19 PANDEMIC

One in four (25%) participants reported having been diagnosed with depression and 28% reported being diagnosed with anxiety at some point in their lives. Based on the PHQ-2 screening tool, 55% of participants screened positive for likely ongoing depression. This was highest in gender minorities (62%), those who were pansexual, queer or questioning (69%), and in Hispanic participants (63%). Current anxiety disorders were also common, with 57% screening positive for a possible generalized anxiety disorder. Anxiety was also more common among gender minorities (62%), pansexual, queer or questioning participants (76%), and Hispanic or other races (63% for each). There was significant overlap between these mental disorders, with 81% of those with depressive symptoms also reporting anxiety.

Thirty-six percent of the participants reported drinking excessively daily or weekly. This was most common among NH White participants (43%) but did not differ by sexual or gender orientation. However, 50% of all participants stated that their mental health improved after getting vaccinated.

EXPERIENCE WITH VIOLENCE

About a third (32%) reported experiencing verbal violence, and 15% experienced physical violence in their households during the pandemic. These forms of violence were most commonly reported by gender minorities (43% and 21%, respectively). Almost 1 in 5 (19%) experienced unwanted sexual contact; here too gender minorities had the highest rates (27% compared to 14% reported by cisgender participants). However, 35% of participants declined to answer any questions related to the issue of violence.

DISCUSSION

Source: Mercedes Mehling on Unsplash

The LEXICON survey, which aimed to assess the effects of the COVID-19 pandemic on the LGBTQ+ population in NYC, provides important information on the uptake of NPIs and vaccination as well as the effects of the pandemic on mental and financial health.[39] Our key finding is that vaccination uptake has been good in this population, and is similar to the uptake in the general population of the city.[2] This is despite some having experienced discrimination when accessing COVID-19-related services. This supports the findings of an earlier national survey of LGBTQ+ people that vaccine intentions were higher than in other adults, although there was still significant hesitancy among those who were both sexual and racial minorities due to medical mistrust.[25,40] We also found that LGBTQ+ people in NYC have suffered disproportionately in terms of job loss, threats of eviction, domestic violence and damage to mental health.

The higher level of vaccination seen in this population could be partially due to the impact of the HIV epidemic. Many of the participants felt they were more conscientious about adopting NPIs and getting vaccinated, including racial and gender minorities, because of this history. Although our study found that protecting oneself and getting back to normal were the main drivers for vaccine uptake amongst our respondents, the national LGBTQ+ survey noted that protecting the community was the most important reason for vaccination.[25] Another survey of cisgender men who have sex with men (MSM) also found that altruism was a strong driver of vaccine acceptance.[41] However, in our study a bisexual orientation was associated with lower vaccine uptake, which may indicate that they are often not part of traditional LGBTQ+ communities, and therefore are less engaged by targeted health campaigns. Biphobia remains quite common, and is associated with bisexual erasure, where the legitimacy of bisexuality is denied outright.[42,43] Studies have shown that bisexuals are significantly less likely to disclose their status to health professionals, and suffer from greater mental health issues, and bisexual youth receive less support from older members of the community. [44,45] Furthermore, few medical guidelines have been developed on how to provide sensitive health care to this group, who are often people of color and gender minorities and therefore vulnerable to multiple forms of discrimination without social support.[46]

Our study also provides important information on who remains unvaccinated within this vulnerable group, and why. Although the most common reasons for vaccine hesitancy were similar to those seen in other studies, namely concerns about safety and efficacy,[47] a minority of participants reported that they were worried about the cost of a medical visit to access health care during the pandemic. Moreover, a quarter of participants did not have health insurance. As the primary drivers of not being vaccinated in our multivariable analysis were income, education and not having health insurance, this indicates that many are experiencing financial barriers to vaccination. The national survey of LGBTQ+ found that more than a third of participants were uncertain about the cost of vaccination in June 2021, and this concern clearly persists, despite widespread campaigns emphasizing that vaccination is free.[25] Pairing this information with the frequency of concerns over side effects in the unvaccinated, it is feasible that even if someone knows that the vaccine is

free, they might be anxious about how they could get care for any side effects. Since many also felt that they had been discriminated against when accessing COVID-19 services, it is clear that many SOGI and racial minorities are not using the dedicated health facilities which provide free and compassionate care. Reaching those still left behind by vaccination drives will require innovative ways to find people in non-traditional venues.

The participants also reported that the pandemic had a serious impact on them overall, including financially and emotionally. The rates of job loss were higher than to those in similar studies; a global survey found that 11% of cisgender men who have sex with men lost their jobs,[48] whereas 29% had lost their jobs in our study. Another study of LGBTQ+ individuals across the US reported 27% job loss versus the 36% in our study.[30] This may reflect the many service and tourist industry jobs in NYC, which all suffered during the pandemic and have been slow to recover.

Preceding the pandemic, the LGBTQ+ population in New York State was shown to have higher rates of binge or heavy drinking (23%), and diagnosed depression (31%) than non-sexual and gender minorities.[49] Participants in the LEXICON Survey had slightly lower rates of having been diagnosed with depression (25%) but more than half reported recent symptoms consistent with a depressive disorder. The pandemic has had a serious impact on mental health globally, due to financial stress, isolation, and personal loss, including in the LGBTQ+ communities, with some studies suggesting that they have been far more negatively impacted.[48,50-54] NYC residents were also at high risk of increases in depressive and anxiety disorders as the city was hard hit by the pandemic and had an extended lockdown.[53] However, our survey was conducted after the most extreme lockdowns had ceased, and with wide availability of vaccination, making our results even more concerning for a long-lasting impact of this pandemic which will not be easily countered with current social support programs. These negative effects are compounded by the experiences of violence reported by our participants. As more than a third refused to answer questions on violence, our results are likely an underestimate.

Our survey had several strengths, including a diverse sample of participants, and an adequate sample size to enable analyses disaggregated by sexual, gender and racial identities. Advertising the survey through direct promotion at venues, and through ICAP's established networks, enabled the study to include a large proportion of gender and racial minorities in the analysis, those who have been the most vulnerable to the pandemic.[30] The study also had some limitations. Despite targeting all boroughs with advertising and recruitment, and providing the survey in four languages, our participants included a limited number of Asians, which may limit generalizability of the finding to this population.

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REFERENCES

1. Center for Systems Science and Engineering, Johns Hopkins University of Medicine. COVID-19 dashboard. December 26, 2021 2021. https://coronavirus.jhu.edu/map.html (accessed December 26, 2021 2021).
2. New York City Health. COVID-19: Data. 2021. https://www1.nyc.gov/site/doh/covid/covid-19-data.page.
3. Cohen J. Omicron sparks a vaccine strategy debate. *Science* 2021; **374**(6575): 1544-5.
4. Dolgin E. Omicron is supercharging the COVID vaccine booster debate. *Nature* 2021.
5. Abuelgasim E, Saw LJ, Shirke M, Zeinah M, Harky A. COVID-19: Unique public health issues facing Black, Asian and minority ethnic communities. *Curr Probl Cardiol* 2020; **45**(8): 100621.
6. Fredriksen-Goldsen KI, Kim HJ, Shui C, Bryan AEB. Chronic Health Conditions and Key Health Indicators Among Lesbian, Gay, and Bisexual Older US Adults, 2013-2014. *Am J Public Health* 2017; **107**(8): 1332-8.
7. Turner CM, Ahern J, Santos GM, Arayasirikul S, Wilson EC. Parent/Caregiver Responses to Gender Identity Associated With HIV-Related Sexual Risk Behavior Among Young Trans Women in San Francisco. *J Adolesc Health* 2019; **65**(4): 491-7.
8. McCabe SE, Matthews AK, Lee JGL, Veliz P, Hughes TL, Boyd CJ. Tobacco Use and Sexual Orientation in a National Cross-sectional Study: Age, Race/Ethnicity, and Sexual Identity-Attraction Differences. *Am J Prev Med* 2018; **54**(6): 736-45.
9. Rader B, Astley CM, Sy KTL, et al. Geographic access to United States SARS-CoV-2 testing sites highlights healthcare disparities and may bias transmission estimates. *J Travel Med* 2020; **27**(7).
10. Griffin-Tomas M, Cahill S, Kapadia F, Halkitis PN. Access to Health Services Among Young Adult Gay Men in New York City. *Am J Mens Health* 2019; **13**(1): 1557988318818683.
11. Heck JE, Sell RL, Gorin SS. Health care access among individuals involved in same-sex relationships. *Am J Public Health* 2006; **96**(6): 1111-8.
12. Valera P, Owens M, Malarkey S, Acuna N. Exploring Tobacco and E-Cigarette Use among Queer Adults during the Early Days of the COVID-19 Pandemic. *Int J Environ Res Public Health* 2021; **18**(24).
13. Cahill S, Grasso C, Keuroghlian A, Sciortino C, Mayer K. Sexual and Gender Minority Health in the COVID-19 Pandemic: Why Data Collection and Combatting Discrimination Matter Now More Than Ever. *Am J Public Health* 2020; **110**(9): 1360-1.
14. Fredriksen-Goldsen KI. Resilience and Disparities among Lesbian, Gay, Bisexual, and Transgender Older Adults. *Public Policy Aging Rep* 2011; **21**(3): 3-7.
15. Geretti AM, Stockdale AJ, Kelly SH, et al. Outcomes of Coronavirus Disease 2019 (COVID-19) Related Hospitalization Among People With Human Immunodeficiency Virus (HIV) in the ISARIC World Health Organization (WHO) Clinical Characterization Protocol (UK): A Prospective Observational Study. *Clin Infect Dis* 2021; **73**(7): e2095-e106.
16. Bhaskaran K, Rentsch CT, MacKenna B, et al. HIV infection and COVID-19 death: a population-based cohort analysis of UK primary care data and linked national death registrations within the OpenSAFELY platform. *Lancet HIV* 2021; **8**(1): e24-e32.
17. Sun J, Zheng Q, Madhira V, et al. Association Between Immune Dysfunction and COVID-19 Breakthrough Infection After SARS-CoV-2 Vaccination in the US. *JAMA Intern Med* 2021.
18. Mirzaei H, McFarland W, Karamouzian M, Sharifi H. COVID-19 Among People Living with HIV: A Systematic Review. *AIDS Behav* 2021; **25**(1): 85-92.
19. Kouhpayeh H, Ansari H. HIV infection and increased risk of COVID-19 mortality: A Meta-Analysis. *Eur J Transl Myol* 2021; **31**(4).
20. Hadi YB, Naqvi SFZ, Kupec JT, Sarwari AR. Characteristics and outcomes of COVID-19 in patients with HIV: a multicentre research network study. *AIDS* 2020; **34**(13): F3-F8.
21. Levy A, Prasad S, Griffin DP, Ortega M, O'Malley CB. Attitudes and Knowledge of Medical Students Towards Healthcare for Lesbian, Gay, Bisexual, and Transgender Seniors: Impact of a Case-Based Discussion With Facilitators From the Community. *Cureus* 2021; **13**(8): e17425.
22. Jaiswal J, Halkitis PN. Towards a More Inclusive and Dynamic Understanding of Medical Mistrust Informed by Science. *Behav Med* 2019; **45**(2): 79-85.
23. Ko N-Y, Lu W-H, Chen Y-L, et al. Cognitive, Affective, and Behavioral Constructs of COVID-19 Health Beliefs: A Comparison Between Sexual Minority and Heterosexual Individuals in Taiwan. 2020; **17**(12): 4282.
24. Starks TJ, Jones SS, Sauermilch D, et al. Evaluating the impact of COVID-19: A cohort comparison study of drug use and risky sexual behavior among sexual minority men in the U.S.A. *Drug and alcohol dependence* 2020; **216**: 108260.
25. Tegan and Sara Foundation. US LGBTQ+ community and the COVID-19 vaccine: attitudes and drivers, 2021.
26. Moitra E, Tao J, Olsen J, et al. Impact of the COVID-19 pandemic on HIV testing rates across four geographically diverse urban centres in the United States: An observational study. *Lancet Reg Health Am* 2022; **7**: 100159.
27. Alencar Albuquerque G, de Lima Garcia C, da Silva Quirino G, et al. Access to health services by lesbian, gay, bisexual, and transgender persons: systematic literature review. *BMC Int Health Hum Rights* 2016; **16**: 2.
28. Suen YT, Chan RCH, Wong EMY. Effects of general and sexual minority-specific COVID-19-related stressors on the mental health of lesbian, gay, and bisexual people in Hong Kong. *Psychiatry research* 2020; **292**: 113365.
29. Choi EPH, Hui BPH, Wan EYF. Depression and Anxiety in Hong Kong during COVID-19. *International journal of environmental research and public health* 2020; **17**(10).
30. Martino RJ, Krause KD, Griffin M, LoSchiavo C, Comer-Carruthers C, Halkitis PN. Employment Loss as a Result of COVID-19: a Nationwide Survey at the Onset of COVID-19 in US LGBTQ+ Populations. *Sex Res Social Policy* 2021: 1-12.
31. Zhang YL, Liang W, Chen ZM, et al. Validity and reliability of Patient Health Questionnaire-9 and Patient Health Questionnaire-2 to screen for depression among college students in China. *Asia Pac Psychiatry* 2013; **5**(4): 268-75.
32. Kroenke K, Spitzer RL, Williams JB, Monahan PO, Lowe B. Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. *Ann Intern Med* 2007; **146**(5): 317-25.
33. NYC Department of Health and Mental Hygiene Bureau of Epidemiology Services. 2019 New York City Community Health Survey Questionnaire. 2019.
34. RTI International. PhenX Toolkit: COVID-19 protocol library. 2021.
35. National Institutes of Health. NIH Public Health Emergency and Disaster Research Response (DR2). 2021.
36. Griffin M, Martino RJ, LoSchiavo C, et al. Ensuring survey research data integrity in the era of internet bots. *Qual Quant* 2021: 1-12.
37. Office of Budget and Management. Revisions to the standards for the classification of federal data on race and ethnicity. 1997.

38. Shin J, Krampner J, Virgin V, Hill A. New York City government poverty measure 2019. An annual report from the office of the mayor. In: Opportunity MsOfE, editor.; 2019.
39. Sell RL, Krims EI. Structural Transphobia, Homophobia, and Biphobia in Public Health Practice: The Example of COVID-19 Surveillance. *Am J Public Health* 2021; **111**(9): 1620-6.
40. Bogart LM, Ojikutu BO, Tyagi K, et al. COVID-19 Related Medical Mistrust, Health Impacts, and Potential Vaccine Hesitancy Among Black Americans Living With HIV. *J Acquir Immune Defic Syndr* 2021; **86**(2): 200-7.
41. Teixeira da Silva D, Biello K, Lin WY, et al. COVID-19 Vaccine Acceptance among an Online Sample of Sexual and Gender Minority Men and Transgender Women. *Vaccines (Basel)* 2021; **9**(3).
42. Fernando D. Men who have sex with men and women (MSMW), biphobia and the CDC: A bridge ignored?! *Prev Med* 2017; **105**: 368-9.
43. The Trevor Project. How to support bisexual youth. Ways to cae for young people who are attracted to more than one gender2021. https://www.thetrevorproject.org/wp-content/uploads/2021/07/How-to-Support-Bisexual-Youth.pdf (accessed.
44. Rich AJ, Armstrong HL, Cui Z, et al. Sexual orientation measurement, bisexuality, and mental health in a sample of men who have sex with men in Vancouver, Canada. *J Bisex* 2018; **18**(3): 299-317.
45. Parsons LE. Bisexuality and Health Care. *J Bisex* 2021; **21**(1): 42-56.
46. Ross LE, Goldberg JM, Flanders CE, Goldberg AE, Yudin MH. Bisexuality: The Invisible Sexual Orientation in Sexual and Reproductive Health Care. *J Obstet Gynaecol Can* 2018; **40**(8): 1057-60.
47. Garg I, Hanif H, Javed N, et al. COVID-19 Vaccine Hesitancy in the LGBTQ+ Population: A Systematic Review. *Infect Dis Rep* 2021; **13**(4): 872-87.
48. Santos GM, Ackerman B, Rao A, et al. Economic, Mental Health, HIV Prevention and HIV Treatment Impacts of COVID-19 and the COVID-19 Response on a Global Sample of Cisgender Gay Men and Other Men Who Have Sex with Men. *AIDS Behav* 2021; **25**(2): 311-21.
49. New York State Department of Health. Sexual orientation and gender identity: selected demographics and health indicators. New York State Adults, 2014-2016. BRFSS brief.; 2016.
50. Javed B, Sarwer A, Soto EB, Mashwani ZU. Impact of SARS-CoV-2 (Coronavirus) Pandemic on Public Mental Health. *Front Public Health* 2020; **8**: 292.
51. Javed B, Sarwer A, Soto EB, Mashwani ZU. The coronavirus (COVID-19) pandemic's impact on mental health. *Int J Health Plann Manage* 2020; **35**(5): 993-6.
52. Yao H, Chen JH, Xu YF. Patients with mental health disorders in the COVID-19 epidemic. *Lancet Psychiatry* 2020; **7**(4): e21.
53. Collaborators C-MD. Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. *Lancet* 2021; **398**(10312): 1700-12.
54. Akre ER, Anderson A, Stojanovski K, Chung KW, VanKim NA, Chae DH. Depression, Anxiety, and Alcohol Use Among LGBTQ+ People During the COVID-19 Pandemic. *Am J Public Health* 2021; **111**(9): 1610-9.

Source: NYC Pride, 2019, Jessica Green

EXPERIENCES OF **LGBTQ+ POPULATIONS** IN NEW YORK CITY **DURING THE COVID-19 PANDEMIC** (THE LEXICON STUDY)

icap Columbia University