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RESEARCH REPORT BASED ON A COMMUNITY-LED STUDY IN NINE AFRICAN COUNTRIES

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The SEARCH Collective

Zimbabwe

Gays and Lesbians of Zimbabwe

Sexual Rights Centre

Botswana

Bonela

Lesbians, Gays and Bisexuals of Botswana

Rainbow Identity Association

Zambia

Friends of Rainka

The Lotus Identity

TransBantu Zambia

Netherlands

COC

South Africa

Durban Lesbian and Gay Community and Health Centre

Gender Dynamix

Gender Health and Justice Research Unit, University of Cape Town

OUT LGBT Well-Being

Triangle Project

Lesotho

The People's Matrix Association

Ethiopia

Two organisations (names withheld)

Kenya

Ishtar-MSM

Jinsiangu

Maaygo

Minority Womyn in Action

National Gay and Lesbian Human Rights Commission

People Marginalised and Aggrieved

eSwatini

The Rock of Hope

Malawi

Centre for the Development of People

ACKNOWLEDGMENTS

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REPORT SUMMARY

This report presents research findings on the mental health and well-being of lesbian, gay, bisexual, transgender and intersex (LGBTI) people in East and Southern Africa. It also presents findings on LGBTI people's experiences of violence, and experiences in accessing healthcare.

It is part of a series of reports based on research in nine countries of Southern and East Africa: in Botswana, Ethiopia, Kenya, Lesotho, Malawi, South Africa, eSwatini, Zambia and Zimbabwe. In this series, we have published a report for each country, as well as this report, which summarises the findings for the entire region. The research was done collaboratively by a consortium of non-governmental organisations (NGOs), academic researchers from the University of Cape Town, and COC Netherlands who funded the project and provided logistical support.

Across those nine countries, we used a standardised questionnaire to survey 3,796 people, and ask about physical and sexual violence, depression, anxiety, suicidality and substance use, as well as experiences of discrimination when accessing healthcare.

The findings give us a sense of the precarious state of LGBTI people's mental health and well-being in East and Southern Africa, and the high levels of violence that LGBTI people experience: compared to what we know from the general population, LGBTI people have higher levels of mental health concerns, have experienced more violence, and have faced barriers to healthcare that are directly linked to their sexual orientation, gender identity or gender expression.

Our findings show that in the East and Southern African region, as elsewhere in the world, discrimination, stigma and marginalisation related to sexual orientation, gender identity and gender expression place LGBTI people at higher risk for mental health concerns and violence.

Introductory comments

Over the last two decades research on lesbian, gay, bisexual and transgender persons, health and violence has highlighted substantial vulnerabilities and health disparities based on sexual orientation, and gender identity and expression in many parts of the world. There is growing awareness of the broad ranging negative consequences of stigma, marginalization and discrimination on the health of people who identify as, or are perceived to be, lesbian, gay, bisexual, transgender and gender diverse (LGBT) (Mayer *et al.*, 2008; Institute of Medicine, 2011; Logie, 2012; Pega and Veale, 2015). For example, in a recent landmark report on LGBT health (Institute of Medicine, 2011), the United States Institute of Medicine pointed out that LGBT people are at increased risk of violence, harassment, and victimization. These findings underscore the link between stigma, marginalization and discrimination and corroborate that sexual orientation, gender identity and expression are important determinants of vulnerability and health (Logie, 2012; Pega and Veale, 2015).

LGBT people are not a homogenous population. The acronyms LGBT or LGBTI ("I" for intersex[1]) group individuals together based on similar experiences of discriminatory treatment in society because they fall outside of social norms about sexuality and gender, due to their sexual orientation, gender identity, gender expression, and/or sex characteristics. While this is helpful to analyse the consequences of marginalization, it is important not to assume that individuals under this umbrella acronym necessarily have similar experiences or needs. In fact, individual experiences differ greatly across the populations covered under the acronym. Thus, the populations represented by each individual letter in the acronym are complex and heterogeneous, even more so when differences in race, age, ability, religion, culture, socioeconomic class, and geographic location are also taken into account. In this report, we use the acronym LGBTI in order to point to similar experiences of stigma, marginalization and discrimination based on sexual orientation, gender identity, gender expression and sex characteristics in heteronormative societal frameworks. However, frequently we disaggregate this umbrella into its constituent groups in order to highlight specific characteristics and differences.

Until 1973, the American Psychological Association considered same-sex orientation, attraction, and behaviour (formerly referred to narrowly as homosexuality) to be a mental illness. It is now widely recognised that what is considered a mental illness depends on what society and scientists at a certain time and in a certain context agree to be 'abnormal' behaviours, cognitions and emotions (Gergen, 2001). Today, international medical and health organisations, such as the World Psychiatry Association have clearly stated that same-sex orientation, attraction, and behaviour are not mental illnesses, and that attempts to 'treat' same-sex sexual orientation are harmful and without evidence of success (Bhugra et al., 2016). The South African Society of Psychiatrists agrees that "there is no scientific evidence that reparative or conversion therapy is effective in changing a person's sexual orientation. There is, however, evidence that this type of therapy can be destructive" (Victor et al., 2014). Further, in 2015 a panel of experts from the Academy of Science of South Africa, endorsed by the Uganda National Academy of Sciences, condemned the use of 'conversion' therapy and called for widespread interventions to generate support for LGBTI people, particularly among healthcare providers (Academy of Science of South Africa, 2015).

Gender variance or diversity (formerly called non-conforming or transgender gender identity), unlike same-sex sexual orientation, remains classified as a mental illness by the American Psychological Association. Many argue that this is for the same reasons that same-sex sexual orientation was once classified as a mental illness (Drescher, 2015), and that gender variance is not pathological (Kara, 2017; Suess Schwend et al., 2018). In the process of revising the International Classification of Disease (ICD), the World Health Organisation is thus proposing to remove the diagnosis related to gender variance from the list of mental health conditions (De Cuypere and Winter, 2016; Robles et al., 2016; World Health Organization, 2018a).

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1   People with diverse sex characteristics, (also referred to as 'intersex') share similar experiences of discrimination and marginalisation as people with non-normative sexual orientations, gender identities and expressions. Additionally, people with diverse sex characteristics often have experienced forced genital mutilation by healthcare providers, and experience the physical, psychological and emotional consequences thereof. It was outside the scope of this research project to investigate these forced treatments. We strongly recommend that specific research into forced genital mutilations, and the impact of those on people with diverse sex characteristics, be done.

Diversity in sex characteristics (formerly called 'intersex'), like gender variance, remains classified as a pathological condition in the current classification of disease (World Health Organization, 2018b). Like for gender variance, many argue that this is a reflection of social attitudes towards diversity in sex characteristics, that such diversity is not per se pathological, and that regarding diversity of sex characteristics as a pathology increases the vulnerability of people to forced genital surgery, which is recognised as unlawful (GATE, 2017).

Sexual orientation, gender identity and expression and minority stress

Now that it is widely understood that same-sex sexual orientation and gender variance are not mental illnesses themselves, researchers have started to look at the mental health and well-being of people who identify as lesbian, gay, bisexual, transgender and intersex. Whilst this work is largely based in the US, the circumstances of minority stress for people on the African continent may not be all that different, and it is useful to know about the work that has already been done in the US in order to contextualise and interpret the findings of this report.

Researchers have found that compared with their heterosexual, cisgender counterparts, sexual and gender minority[2] populations suffer from more mental health problems, such as substance use (including alcohol, tobacco and illegal drug use), affective disorders (for example, depression and anxiety disorders) and suicide (Meyer, 2003; Hendricks and Testa, 2012; Bockting *et al.*, 2013a). The reason for these disparities in mental health outcomes is that stigma (widespread disapproval held by many people in a society), prejudice, discrimination and structural stigma (social stigma that is institutionalised or made into law, such as laws that criminalise consensual same-sex behaviour), lead to stressful social environments for sexual and gender minorities (Meyer, 2003; Hendricks and Testa, 2012; Hatzenbuehler *et al.*, 2014). This is called minority stress.

Meyer (2003) points out that minority stress adds to general stress that all people experience. It is chronic – that is it lasts a long time, or a person's entire life, as it is linked to underlying social and cultural norms (and stigma) that are relatively stable and only change slowly, if at all. Lastly, minority stress is socially based – that means it stems from social processes, institutions and structures (for example, laws that criminalise consensual same-sex activity), and not from individual events (such as change in financial circumstances, or death of a loved one).

Meyer (2003) also explains how minority stress affects people with same-sex sexual orientation, attraction, and behaviour, and suggests that there are four different processes that contribute to minority stress and mental health problems among sexual minorities. First, chronic and acute events or social circumstances might add to stress. This might include experiences of discrimination in healthcare facilities or schools, or being insulted or harassed in private or public. Second, expecting such stressful events, and guarding oneself against them, also leads to stress (regardless of whether or not the discriminatory encounter actually happens). Third, hearing negative, discriminatory attitudes means that people internalise the idea that they have less value. And forth, hiding one's sexual orientation in anticipation of discriminatory events further contributes to stress.

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2   For the purposes of this report, gender minority people are those who do not identify as cisgender, and are inclusive of the following: those who self-identify as transgender, gender non-conforming (GNC) or non-binary, have a different gender identity from what was assigned to them at birth, and/or identify as intersex.

Hendricks and Testa (2012) explain how minority stress affects gender minority people, and argue that the same factors shape minority stress for this group. That is, as with same-sex sexual orientation, it is not gender variance itself that is a mental illness, but that, essentially, "hostile and stressful social environments" (p. 462) lead to an increase in mental health problems among gender minority people.

Sexual orientation, gender identity and expression and structural stigma

Stigma against same-sex orientation and gender variance is one of the key factors that underlie the stressors in the minority stress model. A recent study built on the work by Meyer (2003) and Hendricks and Testa (2012) and examined the impact stigma has on the health and well-bring of sexual minority[3] people. This study specifically looked at the impact of structural stigma, defined as social prejudice against lesbian, bisexual and gay people at the community level. This study found that sexual minorities who lived in areas with high structural stigma in the United States were three times more likely to die from homicide and violence-related deaths, when compared to sexual minority people living in areas with low structural stigma (Hatzenbuehler et al., 2014), though this was later shown not to be statistically significant (Hatzenbuehler et al., 2018). The study also showed that sexual minorities in high-stigma areas were more likely to die from suicide. Additionally, those who died from suicide in high-stigma areas were on average 18 years younger than those who died from suicide in low-stigma areas. This confirmed the findings of an earlier study that showed that lesbian, gay and bisexual youth in areas with high anti-gay prejudice were more likely to attempt suicide (Hatzenbuehler, 2011).

The authors of the earlier study pointed out similarities to other forms of minority status and structural stigma, and concluded that structural stigma also includes laws that criminalise, or restrict, the activities or identity of a minority group. One example are American laws that enforced racial segregation in some American states until the 1960s. A study that looked at the health consequences of structural stigma among Black people found that states with laws that enforced racial segregation had higher death rates of Black people (Krieger, 2012). Recent studies from the United States show that sexual orientation-related discriminatory laws and policies – laws and policies that deprive sexual minorities of certain rights (for example, the right to marry) – contribute to higher levels of mental health problems among sexual minority populations (Hatzenbuehler, Keyes and Hasin, 2009; Hatzenbuehler et al., 2010). This is significant in the context of Southern and East Africa, where many countries have retained British colonial laws that criminalise consensual same-sex activity (Ambani, 2017), and thus discriminate against sexual and gender minority populations (Carroll and Mendos, 2017).

The findings that we present in this report demonstrate that, much like what we know from other contexts, sexual orientation and gender identity seem to be an influencing factor for people's mental health and well-being, for their experiences of violence and for their access to healthcare.

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3   For the purposes of this report, sexual minority people are those who do not identify as heterosexual, and are inclusive of the following: those who self-identify as lesbian, bisexual, gay, queer, pansexual, anyone who feels sexual attraction to, or has had sexual experiences with, a partner or partners of the same sex or gender, even if they self-identified as heterosexual, 'men who have sex with men' (MSM), and/or 'women who have sex with women' (WSW)

Similar to what researchers have observed in other parts of the world (Meyer, 2003; Mayer *et al.*, 2008b; Institute of Medicine, 2011b), we found disparities in health status between the LGBTI people participating in this study and data that exists for the general population: LGBTI people showed higher levels of mental health problems, experienced higher levels of violence and more barriers when accessing healthcare services. Drawing on the existing evidence on the impact of minority stress (Meyer, 2003) and structural stigma (Hatzenbuehler *et al.*, 2014), we argue that these disparities are due to the stigma, prejudice and social exclusion that LGBTI people experience due to their sexual orientation and/ or gender identity.

The structure of this report

This report consists of three sections. The first section is this introduction. The second section gives information about the methods we used in our study. We then move on to the third section to present our findings for the East and Southern African region. In this section, we describe the research findings for all lesbian participants, for bisexual women and bisexual men, for all gay participants, and for all participants who identified as transgender women, transgender men or gender non-conforming. Following this, we also present an overview of each health concern disaggregated by sexual orientation and gender identity – for sexual violence and physical violence, as well as the mental health findings related to depression, anxiety, suicidality, and substance use. This is followed by an overview of the limitations of our study, and a brief conclusion.

In the appendices, we provide more detailed information about our methodology and a glossary of terms related to sexual orientation and gender identity and expression, as well as a glossary of terms related to the statistical analysis.

This report presents an overview of the state of violence and mental health and well-being of LGBTI people in the East and Southern African region. We do not show data for specific countries, nor do we discuss our findings against other literature or findings from studies among the general population. The other nine reports in this series have more detailed research findings for each country, including such more detailed analysis and discussion: for Botswana, eSwatini, Ethiopia, Kenya, Lesotho, Malawi, South Africa, Zambia and Zimbabwe. We invite you to read these reports alongside this regional report for a nuanced picture of the state of health and well-being of LGBTI people across the East and Southern African region.

METHODOLOGY

This section describes how we conducted the study. We explain how we planned the study, what questions we asked, and what we did with the data that we collected. We also provide details about who officially approved the study in the nine countries that we conducted it.

Participatory approach

For this study, we followed a community-based participatory research (CBPR) approach. Community-based research is a partnership approach to research that involves community members and academic researchers as partners in all stages of the research process. In this way, all partners can contribute their knowledge and skills, can decide jointly on what to research, how to do it, and what to do with the research findings. It also means that all partners share the responsibility and the ownership of the process and the research findings (Israel *et al.*, 1998).

CBPR is a well-used approach for studies that explore health-related disparities, particularly among marginalised communities, such as people of colour, or people living in poverty (Israel *et al.*, 2010). Because it directly involves communities as co-researchers, it is an excellent approach to examine the social context of health concerns (Leung, Yen and Minkler, 2004). Because it emphasises that power is shared between researchers and the community, and because it focuses on action based on the research findings, it also helps to minimise the understandable distrust of academic research that often exists among marginalised communities, who may see academics as mining information or misrepresenting them (Israel *et al.*, 2010).

The 23 community partner organisations for this study are listed in Table 1. The academic partner was the Gender Health and Justice Research Unit at the University of Cape Town in South Africa. Additional academic partners were Dr Chelsea Morroni from the Botswana UPenn Partnership and the Liverpool School of Tropical Medicine; Prof Adamson Muula from the College of Medicine, University of Malawi; Sindy Matse from the National AIDS Council in the Ministry of Health of eSwatini and Nelson Muparamoto from the University of Zimbabwe. The project was funded by COC Netherlands, who also provided logistical support throughout the process.

TABLE 1: Community partner organisations

Country	Partner Organisations
Botswana	
	Bonela
	LeGaBiBo
	Rainbow Identity Association
Ethiopia	
	Names of the two organisations withheld for safety reasons
Lesotho	
	The People's Matrix Association
Kenya	
	Ishtar-MSM
	Jinsiangu
	Maaygo
	Minority Womyn in Action
	National Gay and Lesbian Human Rights Commission (NGLHRC)
	Persons Marginalised and Aggrieved (PEMA)
Malawi	
	Centre for the Development of People (CEDEP)
South Africa	
	Durban Gay and Lesbian Community and Health Centre
	Gender Dynamix
	OUT LGBT Well-Being
	Triangle Project
Swaziland	
	The Rock of Hope
Zambia	
	Friends of Rainka
	Trans Bantu Zambia (TBZ)
	The Lotus Identity
Zimbabwe	
	Gays and Lesbians of Zimbabwe (GALZ)
	Sexual Rights Coalition (SRC)

Study design

Design of study aims

In October 2015, COC Netherlands held a consultative meeting with the community partner organisations and researchers from the Gender Health and Justice Research Unit (GHJRU) at the University of Cape Town. At that meeting, partner organisations identified the gaps in current research and knowledge on LGBTI people's health in the Southern and East African region. Additionally, the partner organisations, GHJRU researchers and COC discussed what study design would be best suited and discussed strategies for sampling and recruitment. These discussions identified a number of areas where more research was needed to better understand LGBTI health concerns. To address all of these areas was beyond the scope of this research project. We ranked all research needs that were identified and decided to focus on the top three: mental health and well-being, experiences of violence, and access to healthcare services.

Based on the discussions with the partner organisations, the GHJRU researchers drafted the study design. After all community partners, as well as COC Netherlands, provided feedback on our suggested study design, we finalised the study protocol and developed a survey questionnaire. Because there is currently little or even no research evidence on LGBTI people's mental health and well-being in our Southern and East African context, this project is an important opportunity to develop baseline data. For this reason, we developed a survey that could be used in all study countries, in order to compare findings across countries.

The survey

We reviewed national and international academic literature on how to measure mental health and well-being amongst LGBTI populations, specifically in Southern and East Africa. Based on these findings, we developed a draft for the survey we wanted to use in the study. We held two meetings with the community partner organisations and COC Netherlands to discuss the scope and wording of questions in the survey, and we revised the draft based on the feedback we received.

In each meeting, we held a group session to review the survey question by question and adjust the aims and wording of each section and question. As a team, we agreed to make small changes to standardised scales that measure mental health outcomes. While we wanted to create a single survey that could be used in all countries, in some instances we changed the wording of some of the questions for specific countries, so that participants would understand them better (for example, "apartment" versus "flat").

Once we had made all the suggested changes, we sent the survey to all community partner organisations and COC for a final round of feedback. Based on this last feedback, we finalised the survey.

Question design

All questions on the survey had categorical answers (answers that would organise participants into groups (categories), for example people who lived in Botswana, people who lived in Kenya, people who lived in South Africa, etc.). Only age, and number of cigarettes smoked per day were measured as continuous variables (information that can be measured on a scale or counted). For

many questions, we added an "Other, specify" option, so that participants could write or type additional/different information.

Socio-demographic measurement

We asked a number of questions to learn about participants' socio-demographic circumstances. These included age, religion, education, housing, employment, race, and financial security (assessed by the question "On average do you have enough money to cover your basic needs?"). We created a variable to look at housing security, for which we asked participants if they owned their home, rented it, or shared a place with someone without paying rent. We classified participants who shared a place without financially contributing as 'housing insecure' because we hypothesised that they would be more vulnerable to being told to leave if their SOGIE was discovered by other people in the house. People who said they had no home, lived on the street, or lived in short-term accommodation (shelters) were also classified as housing insecure.

Measuring sexual orientation and gender identity

In public health literature, there is no recognised standard definition of sexual orientation or gender identity, nor is there consensus on how to measure them in quantitative studies. Sexual orientation is widely accepted as being comprised of three elements: sexual identity, sexual attraction, and sexual activity. A range of studies have used different combinations of these three elements to define participants' sexual orientation (King *et al.*, 2008). In order to paint a nuanced picture of the participants' sexual orientation, we aimed to assess each of these three elements.

1. **Sexual identity** was assessed by asking participants "In terms of your sexual orientation, how do you identify?" (Options: Lesbian, Bisexual, Gay, Heterosexual, Asexual, "Other, specify")

2. **Attraction** was assessed by asking participants who they were sexually and emotionally attracted to (2 questions).

3. **Sexual activity** was assessed by asking participants about who they have had "sexual experiences with in the past year and their lifetime" (2 questions).

For attraction and sexual activity, the questionnaire gave participants a list of options from which they could select all that applied (Options: With women, with men, with trans women, with trans men, with gender non-conforming people, with intersex people, "I have not had sexual experiences", "Other, specify").

There is also no standardised way of asking participants about gender identity. We decided to combine three questions:

1. **Gender identity** was assessed by asking "In terms of your gender identity, how do you identify?" (Options: Woman, Man, Trans woman, Trans man, Gender non-conforming, "Other, specify").

2. We asked about **sex assigned at birth** (Options: Male, Female, Intersex)

3. Additionally, we asked what sex/ gender was recorded in the participant's identity document(s)

Based on participants' answers to these questions, we created categories for sexual orientation and gender identity. For sexual orientation, these were: lesbian, gay, bisexual, 'non-normative', and heterosexual. For gender identity, they were: cisgender women, cisgender men, transgender women, transgender men and gender non-conforming people. We use these categories to disaggregate the findings about experiences of violence and mental health outcomes. To create these categories, in some instances we had to re-code the way participants self-identified, based on the other information they provided in the questions about their sexuality and gender identity. The detailed algorithm for this re-coding is explained in Appendix 1.

Intersex participants

In our study, only 30 participants identified themselves as 'intersex' Of those 30, 13 lived in Kenya, 5 in South Africa, 3 in Lesotho, 3 in Malawi, 2 in Botswana, 2 in Zambia and 1 in eSwatini and Zimbabwe, respectively. Such small numbers make it difficult to draw statistical inferences about the data. For this reason, while the intersex participants are still included in the overall findings reported here, we do not disaggregate by intersex identity.

Measuring mental health and well-being

To measure depression and anxiety, as well as drug and alcohol use, we used internationally used and recommended scales. We chose scales that had been used in research on the African continent (specifically the countries in this study), and, if possible, that had been used in research with LGBTI people (anywhere in the world). However, there was little information about whether scales had been used with LGBTI populations (King *et al.*, 2008; Myer *et al.*, 2008; Chishinga *et al.*, 2011). We also considered the ease of understanding and potential ease of translation to other languages when choosing scales. Based on all these considerations, we used the following scales:

- The CES-D 10 (Center for the Epidemiological Studies of Depression Short Form) to measure depression. It is widely used to screen for signs of depression in primary care settings, and is often used for research on the prevalence of depression. It is important to keep in mind, however, that we cannot diagnose people using the CES-D 10. In order to receive a definitive diagnosis of clinical depression, an individual needs to see a healthcare provider.
- The Generalized Anxiety Disorder 7-item scale (GAD-7) to assess signs of anxiety that participants may have had in the last two weeks.
- The Alcohol Use Disorders Identification Test (AUDIT) to assess whether an participant's alcohol use is harmful.
- The Drug Use Disorders Identification Test (DUDIT) to assess if a participant's drug use is harmful.

To ask about suicide, we reviewed literature about LGBTI health to develop suicidality measures (Haas *et al.*, 2010; Marshall *et al.*, 2016).

In Appendix 1, we provide more detail on the scales and how we used the data we collected.

Measuring violence

We developed the questions that asked about experiences of violence based on the GHJRU's previous work in violence research. Additionally, we reviewed literature about intimate partner

violence among LGBTI people (Calton, Cattaneo and Gebhard, 2015). We asked a series of "yes/no" questions about experiences with verbal harassment, emotional violence, physical violence ("Have you been physically assaulted?"), and sexual violence ("Have you been sexually assaulted?"). For physical and sexual violence, we asked about experiences in the last 12 months and in participants' lifetime. For participants who reported lifetime experiences of violence, we asked about three signs of post-traumatic stress based on the current *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) of the American Psychiatric Association. These are: flashbacks or nightmares reliving the event; avoiding situation/people reminding them of the violent incident; jumpiness, irritability or restlessness following the incident (American Psychiatric Association, 2013).

Translations

The survey was translated into the following languages: Amharic, Chichewa, isiNdebele, Sesotho, Setswana, Shona, Siswati and Swahili. These translations were done by professional translators, and then reviewed by the community partner organisations. The changes that the partner organisations suggested were discussed with the professional translator, and incorporated into the final translated versions.

Fieldworker training

Each community partner organisation had a designated research coordinator and a research assistant. These two were responsible for training and overseeing fieldworkers, who collected data by handing out surveys to participants. We (the GHJRU researchers) trained the research coordinators and assistants in a three day 'Train the trainer workshop'. The training included information on research processes, how to make decisions about study design and methodology, best practices in data collection, research ethics and participant protection, as well as discussions about data analysis and the use of data once the study is over. We wrote a fieldworker manual, so that research coordinators and assistants would have the information from the training on hand. When organisations decided to employ additional fieldworkers, they were trained by the research coordinator.

Who could participate in the survey?

Eligibility to participate in the survey was defined by age, sexual orientation, and gender identity.

- **Be of adult age:** all participants needed to self-identify as being age 18 or older
- **Self-identified as LGBTI**: Participants were required to either not identify as heterosexual (and therefore be a sexual minority/member of the LGBTI community) or not be cisgender (and therefore be a gender minority, for example, transgender). Included in gender minorities are people with diverse sex characteristics (or who identified as intersex). We asked participants to self-identify. In the informed consent statement, we gave the following categorisations or identities as prompts to help potential participants determine their eligibility: gay, lesbian, bisexual, transgender, transsexual, transman, transwoman, intersex, queer, genderqueer, gender non-conforming, pansexual, omnisexual, men who have sex with men (MSM), women who have sex with women (WSW), kuchu.

Our study did not use a comparison group—that is, we did not survey people who identify strictly as heterosexual and cisgender. While this limits our ability to compare our findings about sexual and gender minority people with heterosexual and cisgender people, we draw on research with the general population to discuss possible differences between LGBTI people and heterosexual, cisgender people.

Sampling methodology

We combined two sampling methods to find research participants: community-based sampling and online-based sampling. This means that partner organisations would find participants at their events, or during their outreach activities, and also disseminate a link to an online version of the survey. In Appendix 1, we discuss in more detail why we chose these methods.

Neither of these two sampling methods allow us to draw inferences beyond the constituency population, meaning we will not be able to make predictions about larger LGBTI populations across the country or region. The findings from our study are therefore not representative of all LGBTI people in the participating countries, although they do give us an indication of what some of the problems affecting LGBTI people in these contexts maybe.

Each partner organisation aimed to enrol 200 participants. The numbers of participants in each country were therefore determined by the number of partner organisations in that country. In total, we analysed data from 3,796 participants. Table 2 shows the number of participants in each country. In Appendix 1, you will find a more detailed breakdown by country and organisation.

TABLE 2: Number of participants, by country

Country	Number of participants
Botswana	618
Ethiopia	198
Kenya	976
Lesotho	173
Malawi	197
South Africa	832
eSwatini	103
Zambia	353
Zimbabwe	346
TOTAL	3,796

Collecting data

As part of the participatory design of this project, each partner organisation designed an individual plan for recruiting participants, based on the recruitment plan that we have explained above. Organisations used a range of methods, including: promotion of the online survey through a facebook advert, promoting the survey among people who came for services at their office, recruiting through personal and professional networks of the fieldworkers.

The partner organisations used a mix of self-administration and fieldworker-administration to collect the data. **Self-administration** meant that the participant read the survey to themselves and filled it out on their own. **Fieldworker-administration** meant that a fieldworker read the questions to the participant.

Because questions about mental health, violence and experiences of discrimination might bring up traumatic memories or distress to people, all participants had access to psychosocial support, both during the data collection process and afterwards. In some organisations, this was provided by counsellors within the organisations, in others, through referrals to LGBTI-affirming counsellors outside of the organisation. All fieldwork teams held regular debriefing sessions for the fieldworkers, who also had access to the same psychosocial support services.

Pilot study

Before finalising the questionnaire, we conducted a pilot study in South Africa, the first country to implement data collection. The purpose of the pilot was to identify questions that should be added or removed, rephrased, or otherwise adjusted. The pilot study showed us a few questions that we needed to change in order to make the survey as easy to understand as possible. Once we made these changes, the questionnaire was considered final. We made no more changes to it during the study.

Analysing data

We entered all survey data into an online database called REDCap, an electronic data management system by Vanderbilt University, and then analysed it with the software Stata15. We ran descriptive statistics and measured associations between differences that we found among the participants in our sample. Where data was missing because participants had not answered a question, we used a method called 'multiple imputation'.

For many key outcomes in this report, we report statistics for subgroups of the overall sample. We use this approach to highlight times when specific subgroups may be particularly vulnerable due to historical and persistent socio-economic disparities and oppression. However, we could only do this in countries where the size of the overall sample and subgroup were large enough to examine meaningfully.

Appendix 1 has more detailed information on our data analysis.

Research approvals and regulatory compliance

The study was approved by the University of Cape Town's Faculty of Health Sciences Human Research Ethics Committee. Additionally, it was approved by national ethics or health regulatory bodies in each country (Table 3). In accordance with the guidelines for research on sexual and gender minorities' health in rights-constrained environments and established best practices (amfAR, 2015; Amon *et al.*, 2012), in countries where obtaining regulatory approval would have significantly increased risks for our community partner organisations and/or research participants, we constituted a review board of community members to evaluate the risks and benefit of the study. This was overseen and approved by the University of Cape Town's Faculty of Health Sciences Human Research Ethics Committee. We only enrolled participants who provided informed consent.

TABLE 3: Research approvals

Country	Approval authority	Reference number
Botswana	Review Board, Office of Research and Development, University of Botswana Ministry of Health and Wellness, Republic of Botswana	UBR/RES/IRB/ BIO/009 HPDME: 13/18/1
Ethiopia	Approval through community review board	-
Kenya	Kenya Medical Research Institute	KEMRI/RES/7/3/1
Lesotho	Research and Ethics Committee, Ministry of Health, Lesotho	ID94-2017
Malawi	University of Malawi, College of Medicine Research and Ethics Committee	P.01/18/2330
South Africa	University of Cape Town Faculty of Health Sciences Human Ethics Research Committee	HREC 012/2016
eSwatini	Scientific and Ethics Committee, Ministry of Health and Social Welfare, Kingdom of Swaziland	no reference number
Zambia	Approval through community review board	-
Zimbabwe	Medical Research Council of Zimbabwe	MRCZ/A/2303

FINDINGS

The overall study population: sample characteristics

Country of origin

Each partner organisation aimed to enrol 200 participants. The numbers of participants in each country were therefore determined by the number of partner organisations in that country. In total, we analysed data from 3,796 participants. Table 3 and Figure 1 show the number of participants in each country. In the Appendix, you will find a more detailed breakdown by country and organisation.

TABLE 3: Number of participants, by country

Country	Number of participants
Botswana	618
Ethiopia	198
Kenya	976
Lesotho	173
Malawi	197
South Africa	832
eSwatini	103
Zambia	353
Zimbabwe	346
TOTAL	**3,796**

Participants' countries of residence
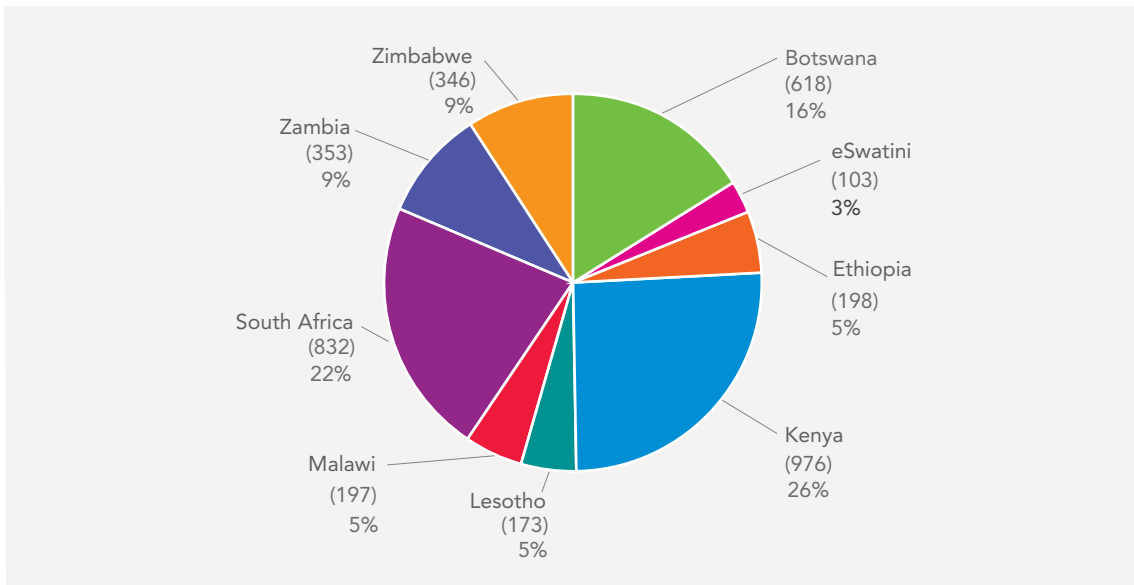
Sexual orientation

Figure 2 details the sexual orientations of participants. About half of the participants identified as gay men (45%), about one quarter (24%) as lesbian women. One in five (19%) identified as bisexual, and 5% and 7% identified as heterosexual or another sexual orientation, respectively.

FIGURE 2: Sexual orientations, overall sample
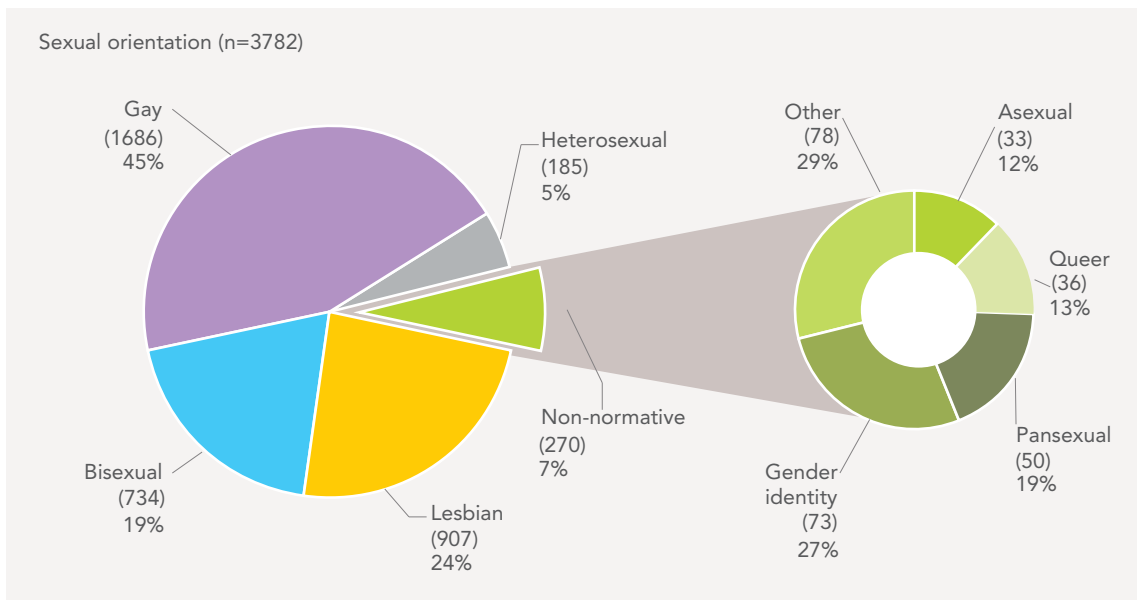
Gender identity

Figure 3 shows the gender identities of participants. Half of participants (51%) identified as cisgender men, and one quarter (25%) as cisgender women. One quarter identified as a gender minority: 10% of participants identified as transgender women, 8% as transgender men and 5% as gender non-conforming.

FIGURE 3: Gender identities, overall sample
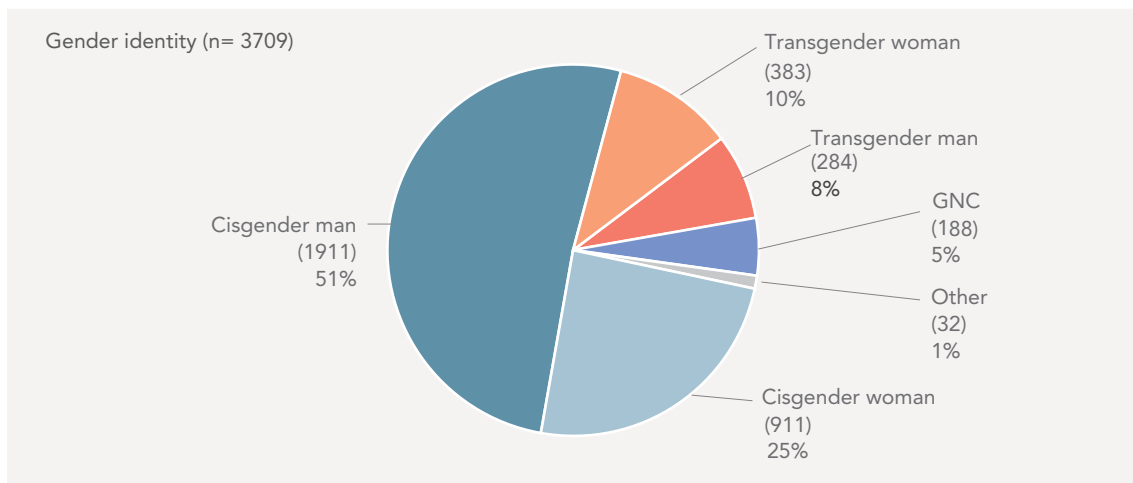
Findings for lesbian participants

Gender identities of lesbian participants

In order to identify lesbian participants' gender identities, we asked two questions: How did participants self-identify their gender identity, and what sex was assigned to them at birth. Three quarters of lesbian participants identified as cisgender women, the remaining quarter identified as a gender minority: as transgender men (13%), transgender women (3%) or another gender (1%; Figure 4).

FIGURE 4: Gender identities of lesbian participants
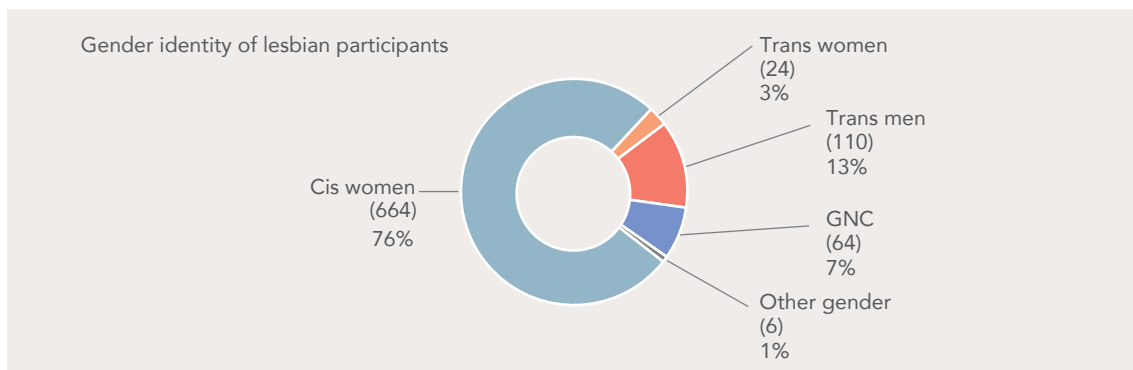
Sociodemographic characteristics

Table 4 shows detailed information about the demographic characteristics of the 907 lesbian participants.

The youngest lesbian participant was 18 years old, and the oldest 63 years old. More than two thirds (71%) of lesbian participants listed Christianity as their faith, followed by 16% who said they were not religious and lesbian participants following African tradition and Islam (7% and 3%, respectively).

TABLE 4: Sociodemographic profile of lesbian participants

Demographic characteristics of lesbian participants (n=907)		
	n	%
Age group	(n=871)	
18-24	362	41.56
25-34	417	47.88
35-44	74	8.50
45-54	16	1.84
55-64	2	0.23
Country	(n=907)	
Botswana	220	24.26
Ethiopia	44	4.85
Kenya	188	20.73
Lesotho	51	5.62
Malawi	46	5.07
South Africa	203	22.38
eSwatini	35	3.86
Zambia	78	8.60
Zimbabwe	42	4.63
Religious beliefs*	(n=901)	
African tradition	61	6.77
Islam	29	3.22
Christianity	635	70.48
Not religious	148	16.43

*more than one answer possible

Socioeconomic circumstances

Table 5 details the socioeconomic profile of lesbian participants.

TABLE 5: Socioeconomic profile of lesbian participants

Sample of lesbian participants (n=907)		
	n	%
Housing type (n=905)		
Binary		
Informal	42	4.64
Formal	863	95.36
Housing security (n=902)		
Owns home	92	10.20
Rents home	481	53.33
Shares housing without paying	329	36.47
Highest completed level of education (n=905)		
Categorical		
No formal education	9	0.99
Primary education	36	3.98
Secondary school	381	42.10
Post-secondary school/ University diploma or degree	479	52.93
Employment (n=899)		
No employment	422	46.94
Formal employment	290	32.26
Informal employment	187	20.80
Sufficient money for basic needs (n=897)		
No	506	56.41
Yes	391	43.59
Private medical aid/ health insurance (n=869)		
No	607	69.85
Yes	262	30.15

The majority of lesbian participants lived in houses or apartments (formal, stable housing structures; 95%). The other 5% (42 participants) lived in shacks, hotels, or mobile houses (informal, unstable, or transient housing). One in ten lesbian participants (10%) owned their home, about half (53%) were renting, and more than one third (36%) lived in someone else's home without paying.

Levels of education were reported as high in the overall sample: 95% had completed a secondary education degree, and more than half (53%) had completed a post-secondary education degree (for example, a tertiary degree or a post-secondary diploma. Many lesbian participants were in financially precarious situations: almost half did not have a paid job (47%), and two in five (21%) held informal jobs, without contracts. More than half (56%) did not have enough money to meet their basic needs. Thirty percent of lesbian participants had private medical aid or health insurance.

Experiences of violence

We asked participants about their experiences of violence, including verbal harassment related to participants' sexual orientation and gender identity or expression (SOGIE) and experiences of physical violence, sexual violence and domestic violence. We asked about experiences of violence in the previous year, as well as at any point in participants' lifetime. Table 6 shows the findings.

Past research across the world has shown that LGBTI people are vulnerable to violence (Blondeel et al., 2018). In summary, our findings confirm this for lesbian people living in the East and Southern African region.

TABLE 6: Harassment and violence, lesbian participants

Sample of lesbian participants (n=907)		
	n	%
SOGIE-related verbal harassment		
Experienced in lifetime (n=851)	543	63.81
Experienced in past year (n=807)	338	41.88
Sexual violence		
Experienced in lifetime (n=853)	339	39.74
Experienced in past year (n=849)	137	16.14
Physical violence		
Experienced in lifetime (n=849)	404	47.59
Experienced in past year (n=844)	206	24.41

In the following subsections, we discuss the different forms of violence (verbal, sexual and physical) in detail.

Verbal harassment

Almost two thirds (64%) of lesbian participants had experienced verbal harassment due to their sexual orientation and/or gender identity or expression at some point in their life, and more than two in five (42%) in the previous year (Table 6 and Figure 5).

FIGURE 5: Verbal harassment past year, lesbian participants

Verbal harassment in past year (n=807)

Experienced
verbal harassment
(338)
42%
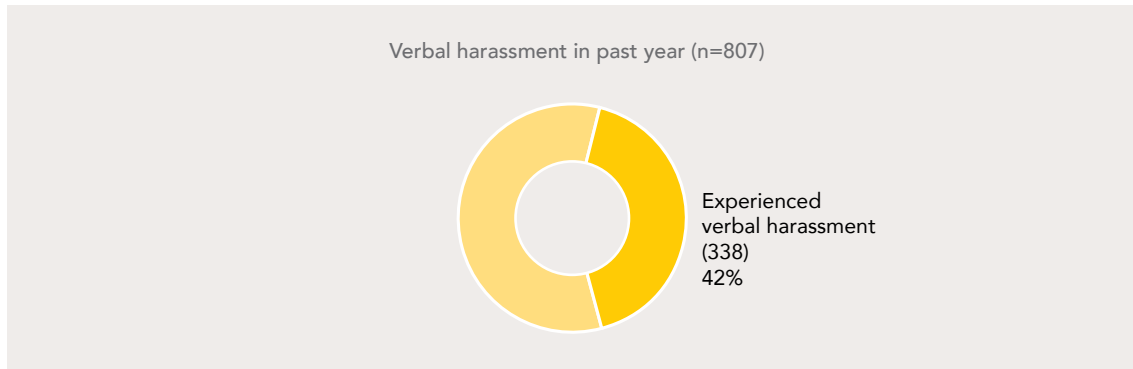
Sexual violence

Two in five lesbian participants (40%) were survivors of sexual violence. One in six (16%) had experienced sexual violence in the past year.

FIGURE 6: Sexual violence lifetime, lesbian participants
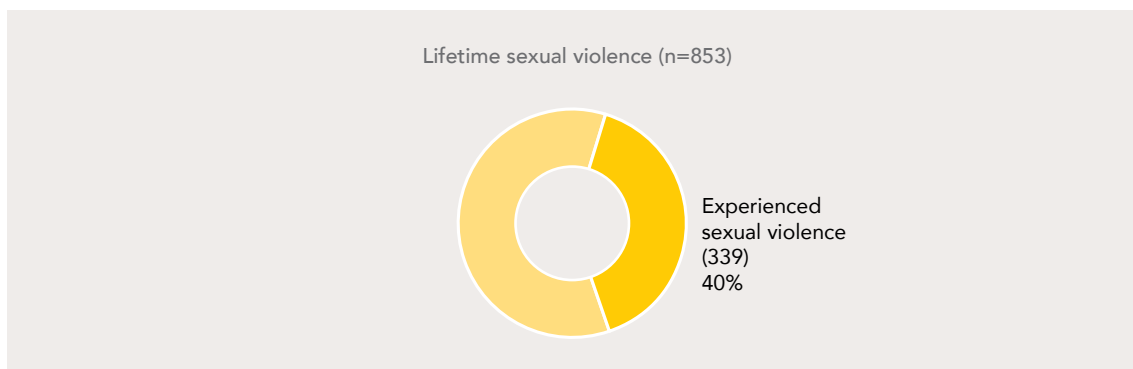
Lifetime sexual violence (n=853)

Experienced
sexual violence
(339)
40%

The World Health Organization has shown that the health consequences of sexual violence are significant and diverse: they include physical injuries, unwanted pregnancy, sexually transmitted infections, including HIV, higher rates of mental health concerns, including depression and post-traumatic stress disorder, and higher likelihood of attempting suicide (Krug *et al.*, 2002). The high levels of sexual violence that lesbian participants had experienced are therefore not only an immediate risk to their health and well-being, but also increase the likelihood of long-term, chronic health concerns for survivors of violence.

Physical violence

Almost half of lesbian participants (48%) had experienced physical violence in their lifetime (Figure 7). One quarter (24%) had experienced physical violence in the past year. Similar to sexual violence, physical violence does not only have immediate risks for health and well-being, but also

carries the risk of long-term health concerns. Our findings suggest that a large amount of lesbian participants are survivors of violence and might therefore have additional health risks. This is supported by our findings: of the 435 lesbian participants who had experienced violence, almost half (48%, 210 participants) showed signs of posttraumatic stress disorder.

FIGURE 7: Physical violence lifetime, lesbian participants

Lifetime physical violence

Experienced
physical violence
(404)
48%
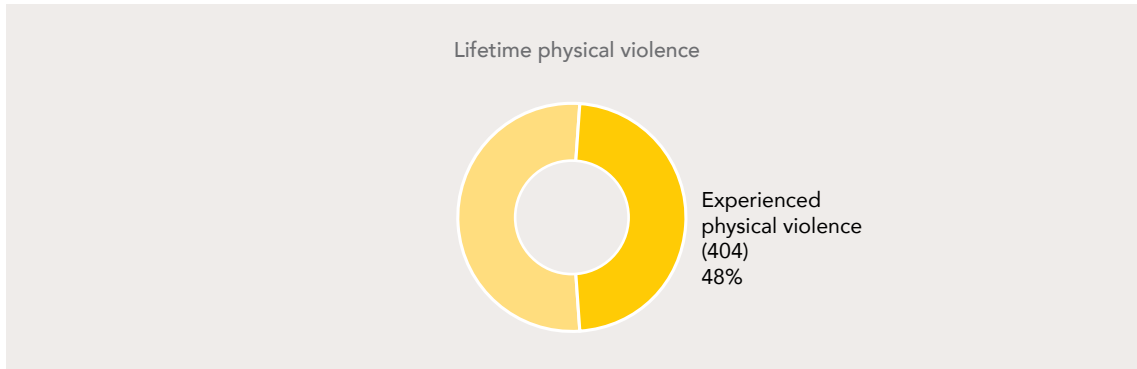
Depression

Table 7 summarises the mental health outcomes for depression, anxiety, and suicidality, as well as for alcohol, drug and tobacco use among lesbian participants.

TABLE 7: Mental health outcomes, lesbian participants

Sample of lesbian participants (n=907)		
	n	%
Depression (CES-D-10) (n=853)		
Classified as not depressed	418	49.00
Classified as depressed	435	51.00
Anxiety (GAD-7) (n=831)		
Categorical		
No signs of anxiety	336	40.43
Signs of mild anxiety	289	34.78
Signs of moderate anxiety	114	13.72
Signs of severe anxiety	92	11.07
Binary		
No/mild anxiety	625	75.21
Moderate/severe anxiety	206	24.79

Sample of lesbian participants (n=907)		
	n	%
Suicidality		
Suicidal ideation, lifetime (n=826)	361	43.70
Suicidal attempts, lifetime (n=821)	269	32.76
Suicidal ideation, past year (n=791)	140	17.70
Suicidal attempts, past year (n=795)	106	13.33

Alcohol use (n=824)		
Categorical		
No alcohol use	185	22.45
Some alcohol use	233	28.28
Hazardous use	198	24.03
Harmful use	89	10.80
Alcohol dependence	119	14.44
Binary		
No/some alcohol use	418	50.73
Hazard/Harm/ dependence	406	49.27

Drug use (n=834)		
Categorical		
No drug use	579	69.42
Some drug use	82	9.83
Harmful drug use	148	17.75
Drug dependence	25	3.00
Binary		
No/some drug use	661	79.26
Harmful use/ dependence	173	20.74

Tobacco use (n=855)		
Doesn't smoke at all	486	56.84
Smoke some days	219	25.61
Smoke everyday	150	17.54

Based on the CES-D 10, a screening tool for depression, half of lesbian participants (435 of 853, 51%) were classified as currently depressed (Figure 8).

FIGURE 8: Depression, lesbian participants
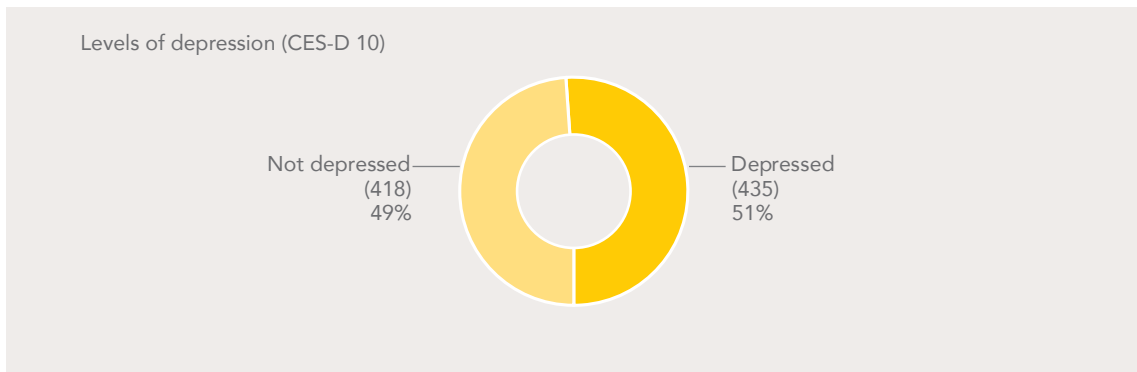
Levels of depression (CES-D 10)

Not depressed
(418)
49%

Depressed
(435)
51%

Anxiety

The instrument GAD-7 was used to assess signs of anxiety in participants in the last two weeks. Based on the anxiety score (GAD-7), we classified participants into four categories: participants with no signs of anxiety, with signs of mild anxiety, with signs of moderate anxiety, and with signs of severe anxiety. The GAD-7 score should not be taken as a definitive diagnosis of anxiety in participants, but an assessment of current symptoms. According to the anxiety scores, almost two-thirds of lesbian participants (60%) had experienced anxiety in the last two weeks (see Figure 9). More than one in ten lesbian participants (11%) reported signs of severe anxiety.

FIGURE 9: Anxiety, lesbian participants
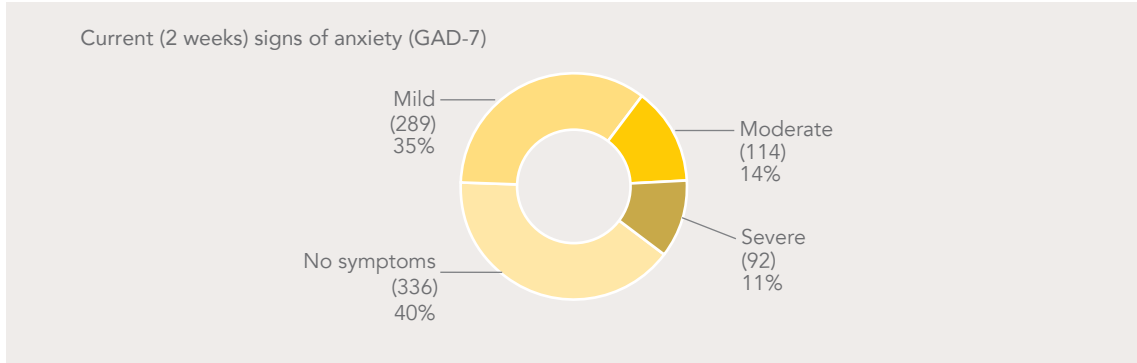
Current (2 weeks) signs of anxiety (GAD-7)

Mild
(289)
35%

Moderate
(114)
14%

No symptoms
(336)
40%

Severe
(92)
11%

Suicidality

We asked four questions about suicide: whether participants had thought about ending their life (suicidal ideation) at some point in their lives, and in the past year; and whether participants had tried to end their own life (suicide attempt) at some point in their lives, and in the past year (Table 7).

Figure 10 shows how many lesbian participants had ever thought about ending their life. More than two in five lesbian participants (43%) had thought about ending their life at least once at some point in their life, and one in six (17%) had thought about ending their life in the previous year.

FIGURE 10: Suicidal ideation, lesbian participants

Suicide ideation

No thoughts of suicide
Thoughts of suicide, but not in
the last year or unknown when
Thoughts of suicide in the last year

(465)
57%

(356) 43%

(216)
26%

(140)
17%
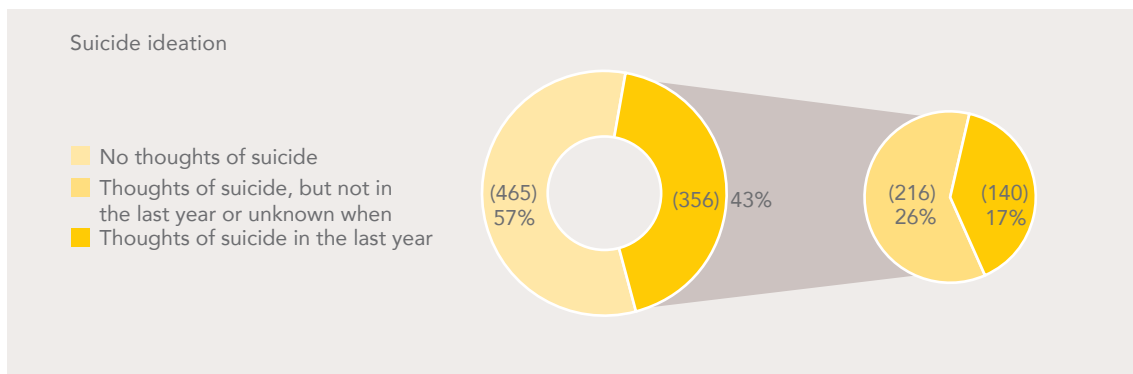
One in three lesbian participants (33%) had tried to end their life at some point in their lives. One in eight participants (13%) had tried to end their life in the past year (Figure 11).

FIGURE 11: Suicide attempts, lesbian participants

Suicide attempts

No attempts of suicide
Attempted suicide, but not in
the last year or unknown when
Attempted suicide in the last year

(552)
67%

(269) 33%

(163)
20%

(106)
13%
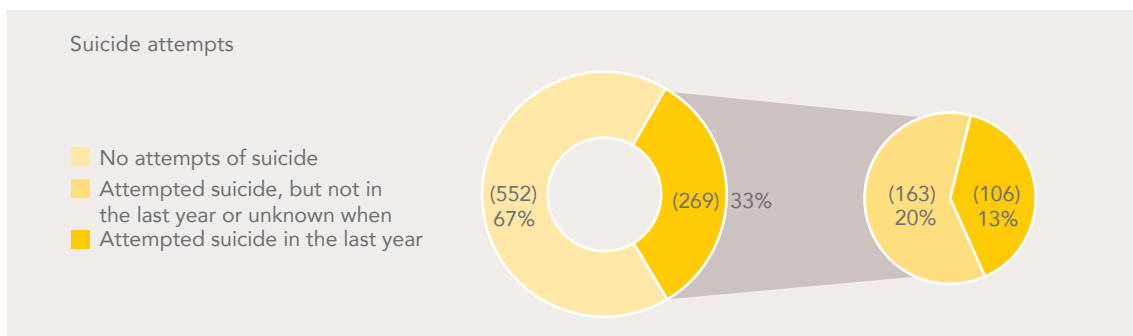
Alcohol use

We used the 10-item AUDIT instrument to ask lesbian participants about how much alcohol they consume, and the impacts of their drinking on their lives. Figure 12 shows the levels of alcohol use among lesbian participants. Only 24% of participants said they never drink alcohol. More than a quarter participants drank some alcohol without health risks (28%). However, almost half of our participants drank alcohol at a level that had risks for their health: 35% showed signs of hazardous (25%) or harmful (11%) alcohol use, and 14% showed signs of alcohol dependence.

FIGURE 12: Alcohol use, lesbian participants

Alcohol use (AUDIT)

Some use
(233)
28%

Hazardous
(198)
24%

Harmful
(89)
11%

Not drinking
(185)
23%

Dependence
(119)
14%
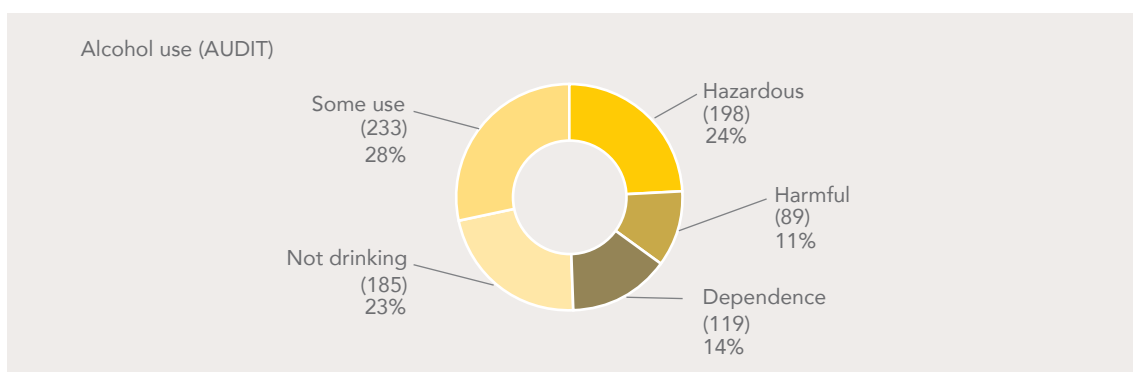
Drug use

To measure levels of drug use among our sample, we used the DUDIT instrument. The majority of participants reported no drug use (69%, see Figure 13), however, one in five lesbian participants reported drug use at levels that negatively impacted their health, including harmful use (18%) and drug dependence (3%).

FIGURE 13: Drug use, lesbian participants

Drug use (DUDIT)

Some use
(82)
10%

Harmful use
(148)
18%

No drug use
(579)
69%

Drug dependence
(25)
3%
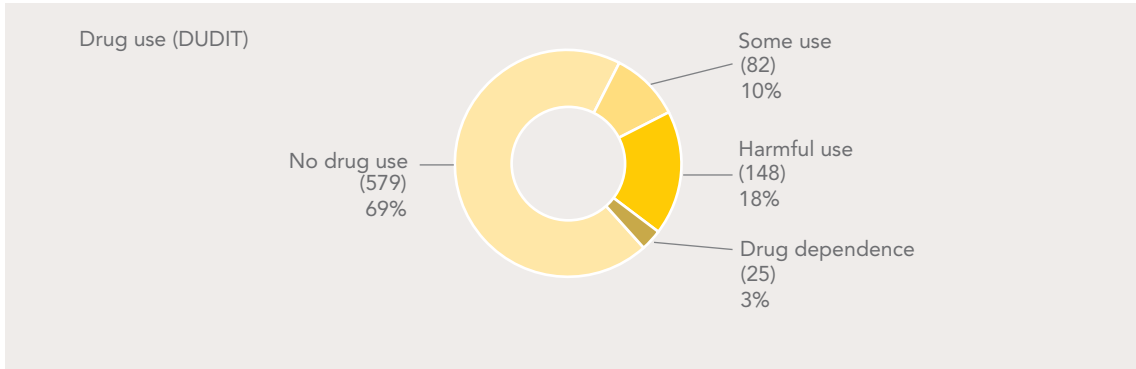
Tobacco use

More than two in five lesbian participants (43%) reported that they smoke tobacco. On in six (17%) smoke every day and a quarter smokes some days (26%, see Figure 14).

FIGURE 14: Tobacco use, lesbian participants

Tobacco use, overall sample

Some days
(219)
26%

Not at all
(486)
57%

Everyday
(150)
17%
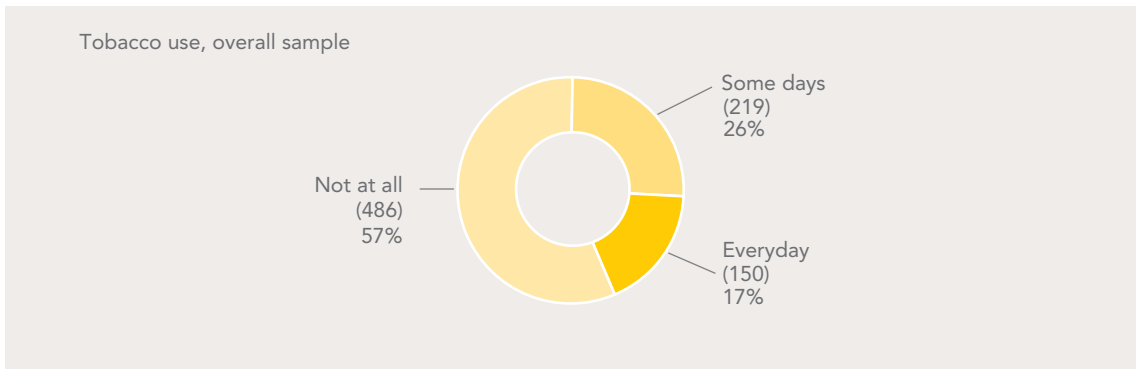
Findings for gay participants

Gender identities of gay participants

In order to identify gay participants' gender identities, we asked two questions: How did participants self-identify their gender identity, and what sex was assigned to them at birth. More than four in five gay participants (83%) identified as cisgender men, and 17% identified as a gender minority: as transgender women (11%), transgender men (3%) or gender non-conforming (3%; see Figure 15).

FIGURE 15: Gender identities, gay participants

Gender identity of gay participants

Cis men (1383) 83%
Trans women (192) 11%
Trans men (48) 3%
GNC (46) 3%
Other gender (4) 0%
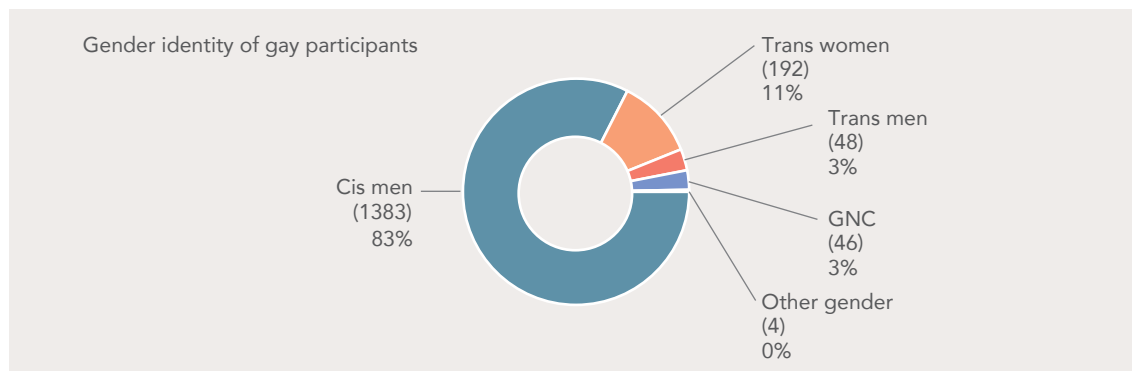
Sociodemographic characteristics

Table 8 shows detailed information about the demographic characteristics of the 1686 gay participants.

The youngest gay participant was 18 years old, and the oldest 63 years old. More than two thirds (72%) of gay participants listed Christianity as their faith, followed by 13% who said they were not religious and gay participants following Islam and African tradition (9% and 4%, respectively).

TABLE 8: Sociodemographic characteristics, gay participants

Sample of gay participants (n=1686)		
	n	%
Age group	(n=1606)	
18-24	671	41.78
25-34	773	48.13
35-44	137	8.53
45-54	21	1.31
55-64	4	0.25

Sample of gay participants (n=1686)		
	n	%
Country	(n=1686)	
Botswana	191	11.33
Ethiopia	115	6.82
Kenya	518	30.72
Lesotho	38	2.25
Malawi	92	5.46
South Africa	328	19.45
eSwatini	39	2.31
Zambia	175	10.38
Zimbabwe	190	11.27

Religious beliefs*	(n=1680)	
African tradition	60	3.57
Islam	152	9.05
Christianity	1214	72.26
Not religious	219	13.04

*more than one answer possible

Socioeconomic circumstances

Table 9 details the socioeconomic profile of gay participants.

TABLE 9: Socioeconomic profile, gay participants

Sample of gay participants (n=1686)		
	n	%
Housing type (n=1682)		
Binary		
Informal	95	5.65
Formal	1587	94.35

Housing security (n=1657)		
Owns home	145	8.75
Rents home	894	53.95
Shares housing without paying	618	37.30

Sample of gay participants (n=1686)		
	n	%
Highest completed level of education (n=1680)		
Categorical		
No formal education	32	1.90
Primary education	126	7.50
Secondary school	827	49.23
Post-secondary school/ University diploma or degree	695	41.37
Employment (n=1650)		
No employment	745	45.15
Formal employment	530	32.12
Informal employment	375	22.73
Sufficient money for basic needs (n=1638)		
No	963	58.79
Yes	675	41.21
Has medical aid (n=1577)		
No	1094	69.37
Yes	483	30.63

The majority of gay participants lived in houses or apartments (formal, stable housing structures; 94%). The other 6% (95 participants) lived in shacks, hotels, or mobile houses (informal, unstable, or transient housing). One in eleven gay participants (9%) owned their home, about half (54%) were renting, and more than one third (37%) lived in someone else's home without paying.

Levels of education were reported as high: 91% had completed a secondary education degree, and two in five (41%) had completed a post-secondary education degree (for example, a tertiary degree or a post-secondary diploma. Many gay participants were in financially precarious situations: almost half were unemployed (45%), and only a third held formal employment (32%). Three in five (59%) did not have enough money to meet their basic needs. Thirty-one percent of gay participants had private medical aid or health insurance.

Experiences of violence

We asked participants about their experiences of violence, including verbal harassment related to participants' sexual orientation and gender identity or expression (SOGIE) and experiences of physical violence, sexual violence and domestic violence. We asked about experiences of violence in the previous year, as well as at any point in participants' lifetime. Table 6 shows the findings.

Past research across the world has shown that LGBTI people are particularly vulnerable to violence (Blondeel et al., 2018). Our findings confirm this for gay people living in the East and Southern African region.

TABLE 10: Harassment and violence, gay participants

Sample of gay participants (n=1686)		
	n	%
SOGIE-related verbal harassment		
Experienced in lifetime (n=1576)	1010	64.09
Experienced in past year (n=1487)	584	39.27
Sexual violence		
Experienced in lifetime (n=1589)	579	36.44
Experienced in past year (n=1588)	325	20.47
Physical violence		
Experienced in lifetime (n=1588)	732	46.10
Experienced in past year (n=1582)	414	26.17

In the following subsections, we discuss the different forms of violence (verbal, sexual and physical) in detail.

Verbal harassment

Almost two thirds (64%) of gay participants had experienced verbal harassment due to their sexual orientation and/or gender identity or expression at some point in their life, and two in five (39%) in the previous year (Table 10 and Figure 16).

FIGURE 16: Verbal harassment past year, gay participants

Verbal harassment in past year, overall sample (n=1487)

Experienced verbal harassment (584) 39%
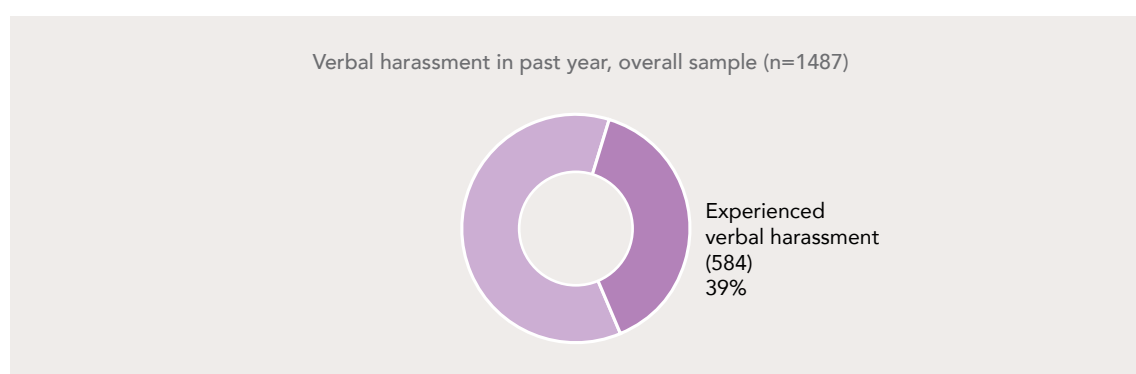
Sexual violence

More than one third of gay participants (36%) were survivors of sexual violence (Figure 17). One in five (20%) had experienced sexual violence in the past year.

FIGURE 17: Sexual violence lifetime, gay participants
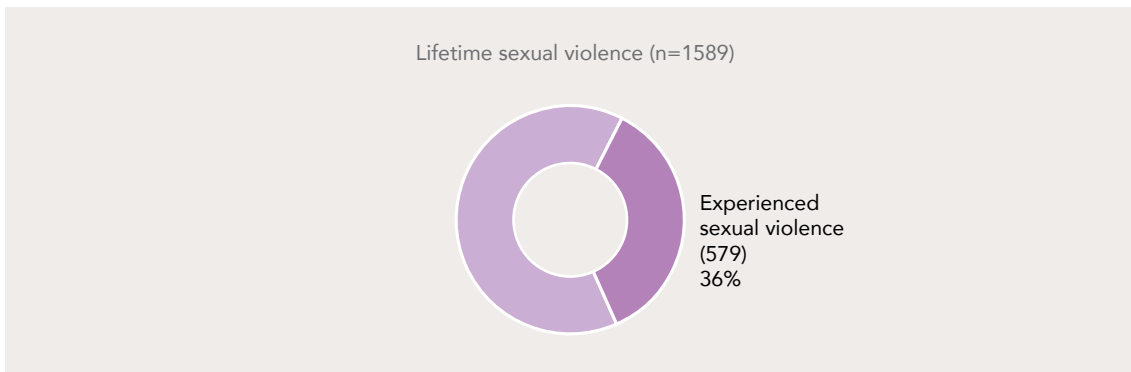
Lifetime sexual violence (n=1589)

Experienced
sexual violence
(579)
36%

The World Health Organization has shown that the health consequences of sexual violence are significant and diverse: they include physical injuries, unwanted pregnancy, sexually transmitted infections, including HIV, higher rates of mental health concerns, including depression and post-traumatic stress disorder, and higher likelihood of attempting suicide (Krug *et al.,* 2002). The high levels of sexual violence that gay participants had experienced are therefore not only an immediate risk to their health and well-being, but also increase the likelihood of long-term, chronic health concerns for survivors of violence.

Physical violence

Almost half of gay participants (46%) had experienced physical violence in their lifetime (Figure 18). One quarter (26%) had experienced physical violence in the past year. Similar to sexual violence, physical violence does not only have immediate risks for health and well-being, but also carries the risk of long-term health concerns. Our findings suggest that a large amount of gay participants are survivors of violence and might therefore have additional health risks. This is supported by our findings: of the 793 gay participants who had experienced violence, more than one third (38%) showed signs of posttraumatic stress disorder.

FIGURE 18: Physical violence lifetime, gay participants

Lifetime physical violence (n=1588)

Experienced
physical violence
(732)
46%
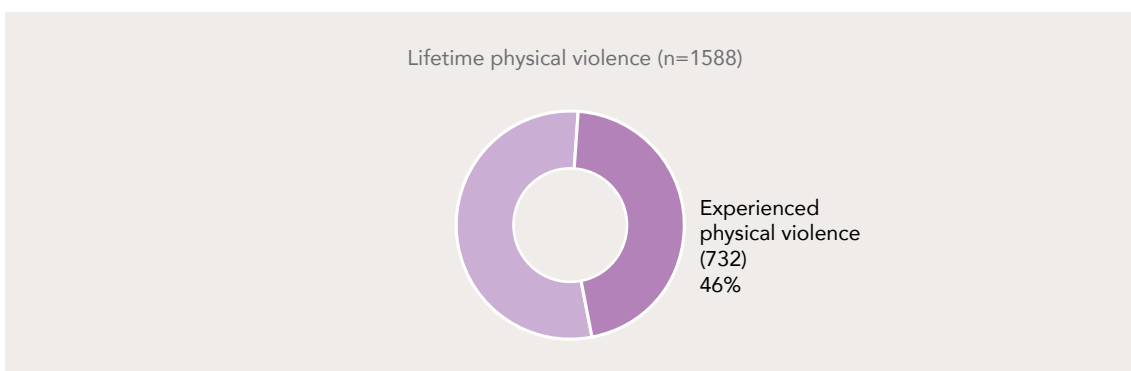
Depression

Table 11 summarises the mental health outcomes for depression, anxiety, and suicidality, as well as for alcohol, drug and tobacco use among gay participants.

TABLE 11: Mental health outcomes, gay participants

Sample of gay participants (n=1686)		
	n	%
Depression (CES-D-10) (n=1593)		
Classified as not depressed	864	54.24
Classified as depressed	729	45.76
Anxiety (GAD-7) (n=1527)		
Categorical		
No signs of anxiety	728	47.68
Signs of mild anxiety	518	33.92
Signs of moderate anxiety	184	12.05
Signs of severe anxiety	97	6.35
Binary		
No/mild anxiety	1246	81.60
Moderate/severe anxiety	281	18.40
Suicidality		
Suicidal ideation, lifetime (n=1559)	613	39.32
Suicidal attempts, lifetime (n=1533)	448	29.22
Suicidal ideation, past year (n=1485)	218	14.68
Suicidal attempts, past year (n=1509)	193	12.79
Alcohol use (n=1515)		
Categorical		
No alcohol use	414	27.33
Some alcohol use	424	27.99
Hazardous use	318	20.99
Harmful use	136	8.98
Alcohol dependence	223	14.72
Binary		
No/some alcohol use	838	55.31
Hazard/Harm/ dependence	677	44.69

Sample of gay participants (n=1686)		
	n	%
Drug use (n=1532)		
Categorical		
No drug use	1164	75.98
Some drug use	96	6.27
Harmful drug use	212	13.84
Drug dependence	60	3.92
Binary		
No/some drug use	1260	82.25
Harmful use/ dependence	272	17.75

Tobacco use (n=1571)		
Doesn't smoke at all	1054	67.09
Smoke some days	292	18.59
Smoke everyday	225	14.32

Based on the CES-D 10, a screening tool for depression, almost half of gay participants (729 out of 1593, 46%) were classified as currently depressed (Figure 19).

FIGURE 19: Depression, gay participants
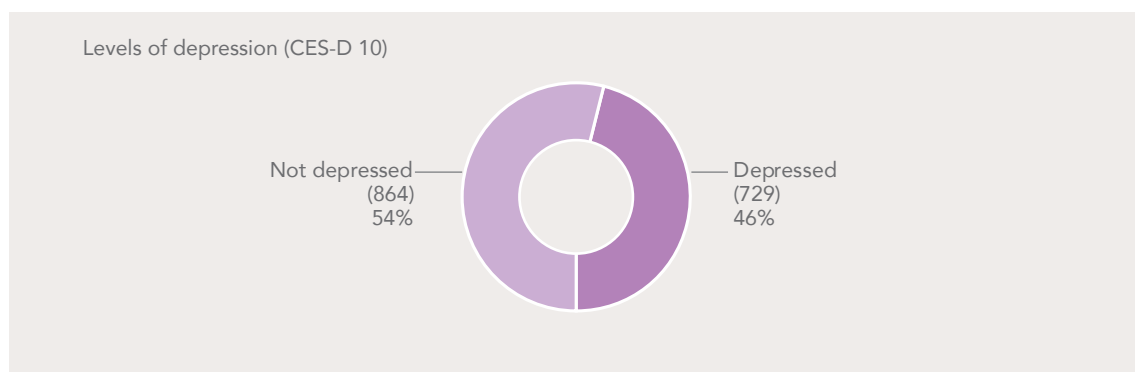
Levels of depression (CES-D 10)

Not depressed (864) 54%

Depressed (729) 46%

Anxiety

The instrument GAD-7 was used to assess signs of anxiety in participants in the last two weeks. Based on the anxiety score (GAD-7), we classified participants into four categories: participants with no signs of anxiety, with signs of mild anxiety, with signs of moderate anxiety, and with signs of severe anxiety. The GAD-7 score should not be taken as a definitive diagnosis of anxiety in participants, but an assessment of current symptoms. According to the anxiety scores, more than half of gay participants (52%) had experienced anxiety in the last two weeks (see Figure 20). One in five gay participants (18%) reported signs of moderate or severe anxiety.

FIGURE 20: Anxiety, gay participants
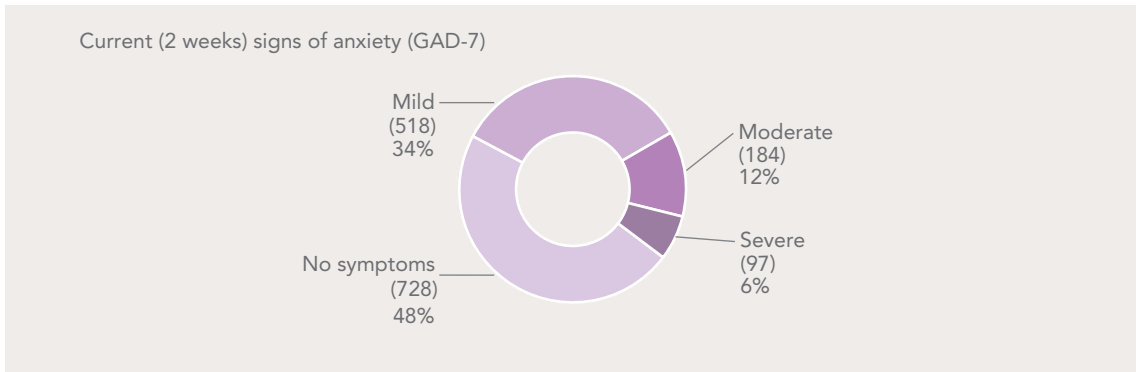
Current (2 weeks) signs of anxiety (GAD-7)

Mild
(518)
34%

Moderate
(184)
12%

Severe
(97)
6%

No symptoms
(728)
48%

Suicidality

We asked four questions about suicide: whether participants had thought about ending their life (suicidal ideation) at some point in their lives, and in the past year; and whether participants had tried to end their own life (suicide attempt) at some point in their lives, and in the past year (Table 11).

Figure 21 shows how many gay participants had ever thought about ending their life. Almost two in five gay participants (38%) had thought about ending their life at least once at some point in their life, and one in seven (14%) had thought about ending their life in the previous year.

FIGURE 21: Suicidal ideation, gay participants

Suicide ideation

■ No thoughts of suicide
■ Thoughts of suicide, but not in the last year or unknown when
■ Thoughts of suicide in the last year

(946)
62%

(587) 38%

(369)
24%

(218)
14%
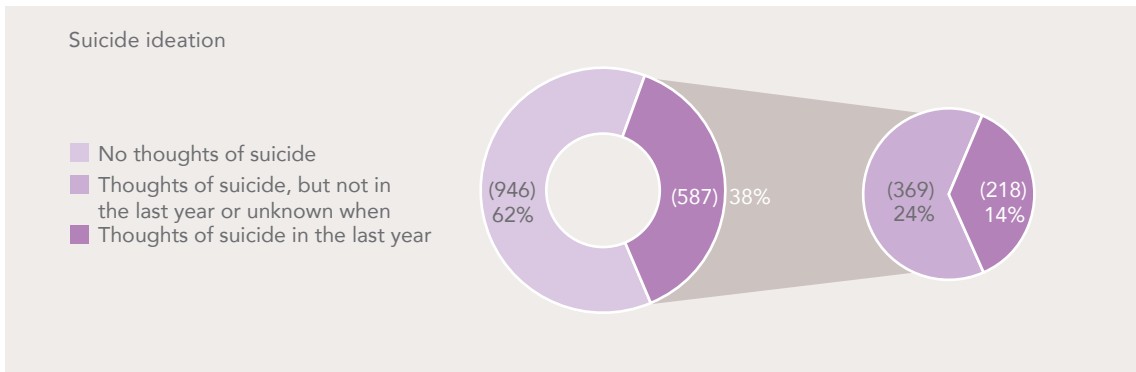
Three in ten gay participants (29%) had tried to end their life at some point in their lives. One in seven participants (14%) had tried to end their life in the past year (Figure 22).

FIGURE 22: Suicide attempts, gay participants

Suicide attempts

- No attempts of suicide
- Attempted suicide, but not in the last year or unknown when
- Attempted suicide in the last year

(1085) 71%
(448) 29%
(230) 15%
(218) 14%
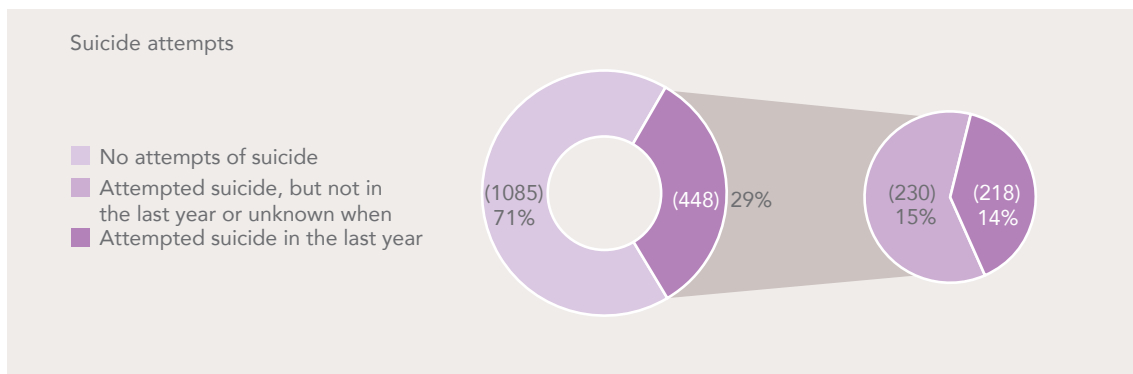
Alcohol use

Figure 23 shows the levels of alcohol use among gay participants. Only 27% of participants said they never drink alcohol. More than a quarter of gay participants drank some alcohol without health risks (28%). However, almost half of our participants drank alcohol at a level that had risks for their health: one third showed signs of hazardous (21%) or harmful (9%) alcohol use, and 15% showed signs of alcohol dependence.

FIGURE 23: Alcohol use, gay participants

Alcohol use (AUDIT)

Some use (424) 28%
Hazardous (318) 21%
Harmful (136) 9%
Not drinking (414) 27%
Dependence (223) 15%
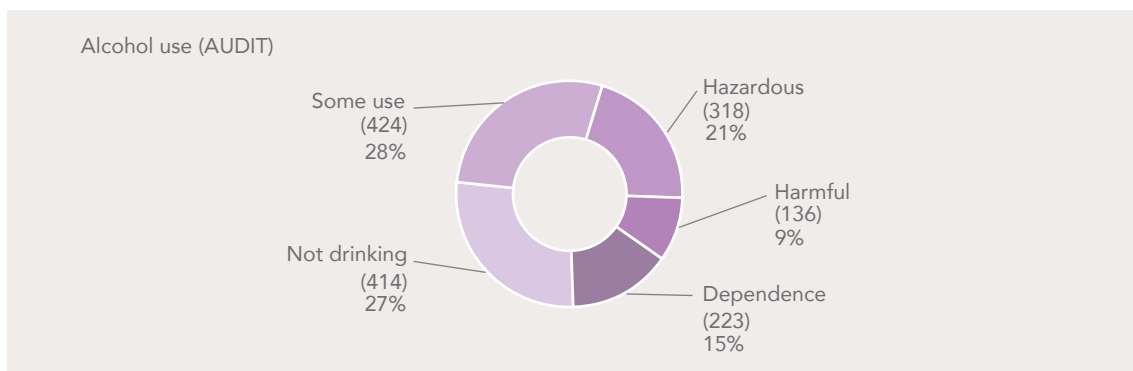
Drug use

The majority of gay participants reported no drug use (76%, see Figure 24), however, one in six gay participants reported drug use at levels that negatively impacted their health, including harmful use (14%) and drug dependence (4%).

FIGURE 24: Drug use, gay participants

Drug use (DUDIT)

Some use
(96)
6%

Harmful use
(212)
14%

No drug use
(1164)
76%

Drug dependence
(60)
4%
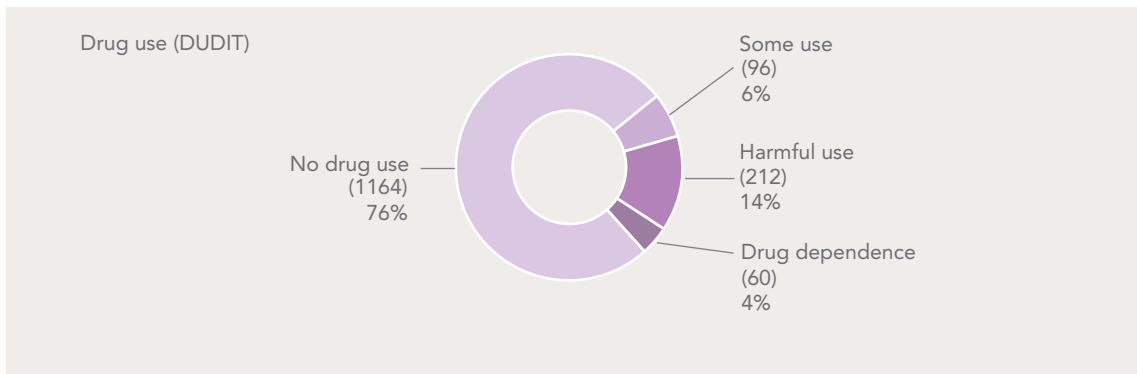
Tobacco use

One third of gay participants (33%) reported that they smoke tobacco. On in seven (14%) smoke every day and one in five smokes some days (19%, see Figure 25).

FIGURE 25: Tobacco use, gay participants

Tobacco use

Some days
(292)
19%

Not at all
(1054)
67%

Harmful use
(225)
14%
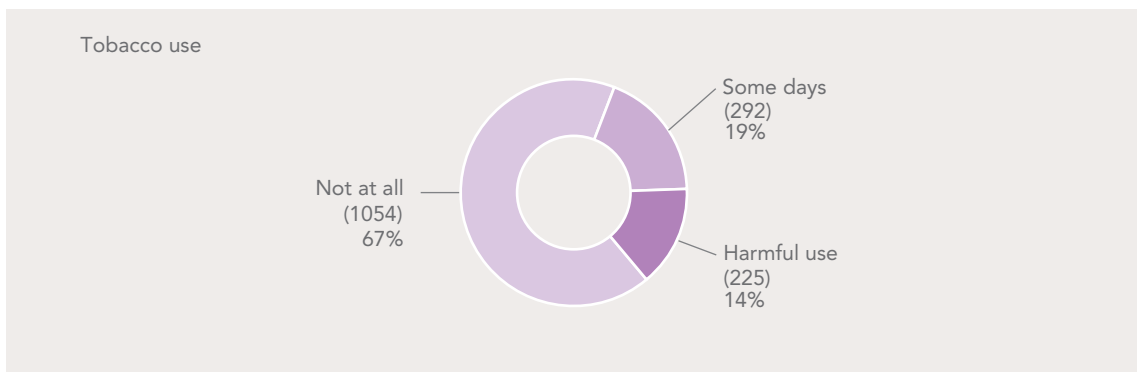
Findings for bisexual women and bisexual men

Gender identities of bisexual women and bisexual men

Figure 26 shows the gender identities of the 202 bisexual women and 487 bisexual men. Most identified as cisgender (90% of bisexual women and 96% of bisexual men).

FIGURE 26: Gender identities of bisexual women and men
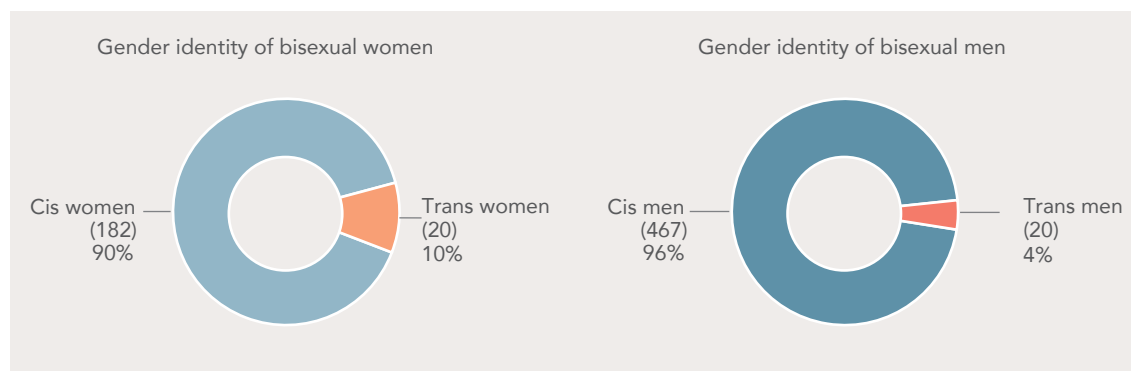
Sociodemographic characteristics

Table 12 shows detailed information about the demographic characteristics of the 202 bisexual women and 487 bisexual men. Overall, they were quite young: four in five bisexual women (80%) and nine in ten bisexual men (89%) were under the age of 35.

TABLE 12: Sociodemographic characteristics, bisexual participants

	Bisexual women (n=202)		Bisexual men (n=487)	
	n	%	n	%
Age group	(n=198)		(n=448)	
18-24	74	37.37	178	39.73
25-34	85	42.93	220	49.11
35-44	38	19.19	45	10.04
45-54	1	0.51	4	0.89
55-64	0	0.00	1	0.22

Country	(n=202)		(n=487)	
Botswana	41	20.30	84	17.25
Ethiopia	10	4.95	21	4.31
Kenya	29	14.36	150	30.80
Lesotho	21	10.40	19	3.90
Malawi	2	0.99	35	7.19
South Africa	58	28.71	63	12.94

	Bisexual women (n=202)		Bisexual men (n=487)	
	n	%	n	%
eSwatini	4	1.98	19	3.90
Zambia	22	10.89	35	7.19
Zimbabwe	15	7.43	61	12.53

Religious beliefs*	(n=202)		(n=485)	
African tradition	2	0.99	25	5.15
Islam	6	2.97	35	7.22
Christianity	147	72.77	368	75.88
Not religious	42	20.79	52	10.72

*more than one answer possible

Socioeconomic circumstances

Table 13 details the socioeconomic profile of bisexual women and bisexual men.

TABLE 13: Socioeconomic profile, bisexual women and bisexual men

	Bisexual women (n=202)		Bisexual men (n=487)	
	n	%	n	%
Housing type	(n=201)		(n=481)	
Informal	9	4.48	40	8.32
Formal	192	95.52	441	91.68

Housing security	(n=201)		(n=475)	
Owns home	24	11.94	55	11.58
Rents home	114	56.72	271	57.05
Shares housing without paying	63	31.34	149	31.37

Highest completed level of education	(n=202)		(n=482)	
Categorical				
No formal education	5	2.48	17	3.53
Primary education	8	3.96	19	3.94
Secondary school	74	36.63	231	47.93
Post-secondary school/ University diploma or degree	115	56.93	215	44.61

	Bisexual women (n=202)		Bisexual men (n=487)	
	n	%	n	%
Employment	(n=201)		(n=474)	
No employment	75	37.31	215	45.36
Formal employment	73	36.32	130	27.43
Informal employment	53	26.37	129	27.22
Sufficient money for basic needs	(n=198)		(n=472)	
No	92	46.46	277	58.69
Yes	106	53.54	195	41.31
Has medical aid	(n=193)		(n=457)	
No	120	62.18	321	70.24
Yes	73	37.82	136	29.76

The majority of bisexual participants lived in houses or apartments (formal, stable housing structures; 96% of bisexual women and 92% of bisexual men). One in nine bisexual participants (12% of bisexual women and bisexual men) owned their home, about half (57%) were renting, and about one third (31%) lived in someone else's home without paying.

Levels of education were reported as high: 94% of bisexual women and 93% of bisexual men had completed a secondary education degree, and 57% of bisexual women and 45% of bisexual men had completed a post-secondary education degree (for example, a tertiary degree or a post-secondary diploma. Many bisexual participants were in financially precarious situations: almost half of bisexual men (45%) and more than one in three bisexual women (37%) were unemployed. Almost half of bisexual women (46%) and three in five bisexual men (59%) did not have enough money to meet their basic needs.

Experiences of violence

Past research across the world has shown that LGBTI people are vulnerable to violence (Blondeel et al., 2018). Our findings confirm this for bisexual women and bisexual men living in the East and Southern African region (Table 14).

TABLE 14: Harassment and violence, bisexual women and bisexual men

	Bisexual women (n=202)		Bisexual men (n=487)	
	n	%	n	%
SOGIE-related verbal harassment				
Experienced in lifetime	(n=198)		(n=470)	
	96	48.48	209	44.47
Experienced in past year	(n=194)		(n=456)	
	53	27.32	119	26.10

	Bisexual women (n=202)		Bisexual men (n=487)	
	n	%	n	%
Sexual violence				
Experienced in lifetime	(n=200)		(n=470)	
	95	47.50	148	31.49
Experienced in past year	(n=199)		(n=468)	
	40	20.10	82	17.52

	Bisexual women		Bisexual men	
Physical violence				
Experienced in lifetime	(n=200)		(n=469)	
	109	54.50	188	40.09
Experienced in past year	(n=200)		(n=469)	
	54	27.00	104	22.17

Verbal harassment

Almost half of bisexual women and bisexual men had experienced verbal harassment due to their sexual orientation and/or gender identity or expression at some point in their life (48% and 44% respectively), and more than one in four (27% and 26% respectively) in the previous year (Table 14 and Figure 27).

FIGURE 27: Verbal harassment past year, bisexual women and bisexual men

Bisexual women (n=194)

Experienced verbal harassment (53) 27%

Bisexual men (n=456)

Experienced verbal harassment (119) 26%
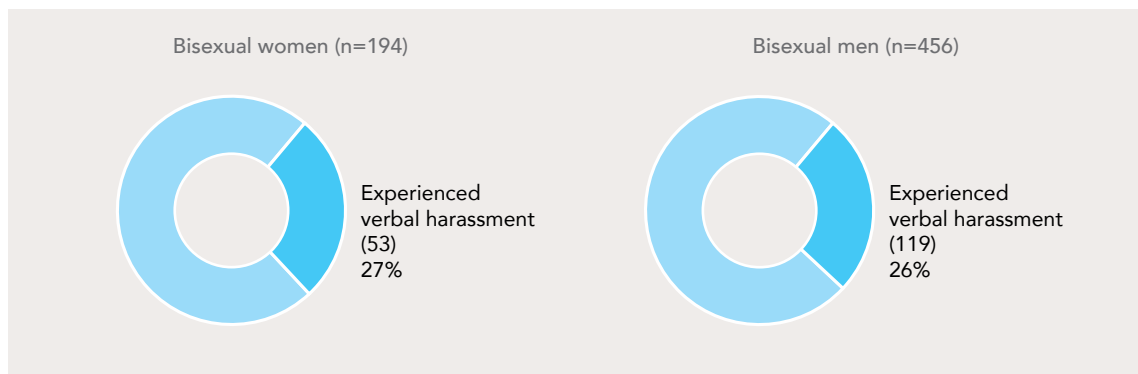
Sexual violence

Half of bisexual women (48%) and one in three bisexual men (31%) were survivors of sexual violence (Figure 28). One in five bisexual women (20%) and one in six bisexual men (18%) had experienced sexual violence in the past year.

Figure 28: Sexual violence lifetime, bisexual women and bisexual men
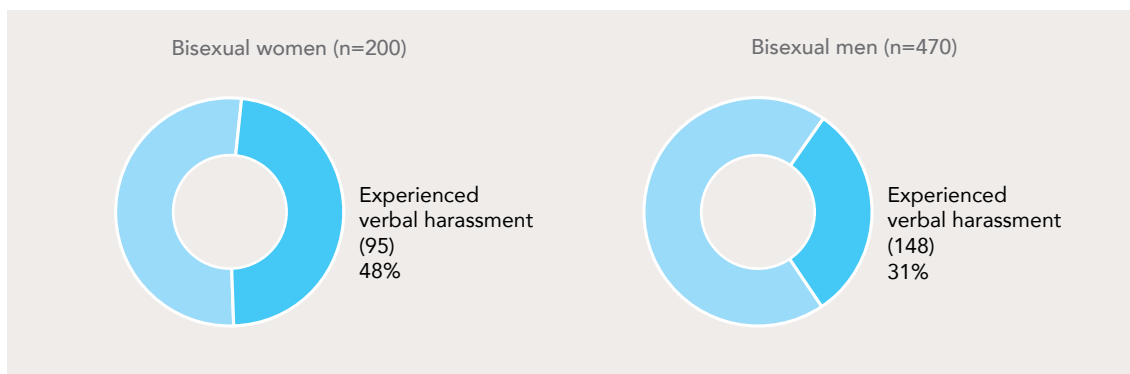
Bisexual women (n=200)   Bisexual men (n=470)

Experienced verbal harassment (95) 48%

Experienced verbal harassment (148) 31%

The World Health Organization has shown that the health consequences of sexual violence are significant and diverse: they include physical injuries, unwanted pregnancy, sexually transmitted infections, including HIV, higher rates of mental health concerns, including depression and post-traumatic stress disorder, and higher likelihood of attempting suicide (Krug *et al.*, 2002). The high levels of sexual violence that bisexual participants had experienced are therefore not only an immediate risk to their health and well-being, but also increase the likelihood of long-term, chronic health concerns for survivors of violence.

Physical violence

More than half of bisexual women (55%) and two in five bisexual men (40%) had experienced physical violence in their lifetime (Figure 29). More than one in four bisexual women (27%) and more than one in five bisexual men (22%) had experienced physical violence in the past year.

FIGURE 29: Physical violence lifetime, bisexual women and bisexual men
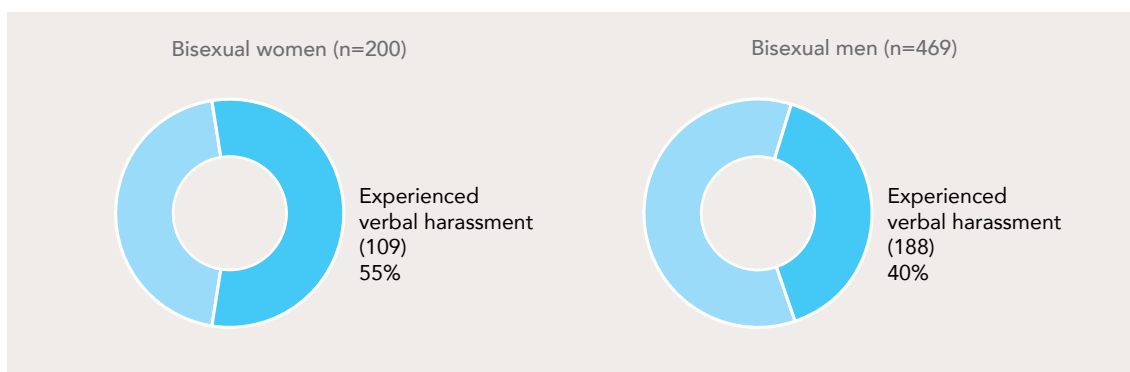
Bisexual women (n=200)   Bisexual men (n=469)

Experienced verbal harassment (109) 55%

Experienced verbal harassment (188) 40%

Similar to sexual violence, physical violence does not only have immediate risks for health and well-being, but also carries the risk of long-term health concerns. Our findings suggest that a large amount of bisexual participants are survivors of violence and might therefore have additional health risks. This is supported by our findings: of the 115 bisexual women who had experienced violence, more than half (58%) showed signs of posttraumatic stress disorder. Among the 195 bisexual men who had experienced violence, it was almost every third (30%).

Depression

Table 15 summarises the mental health outcomes for depression, anxiety, and suicidality, as well as for alcohol, drug and tobacco use among bisexual women and bisexual men.

TABLE 15: Mental health outcomes, bisexual women and bisexual men

	Bisexual women (n=202)		Bisexual men (n=487)	
	n	%	n	%
Depression (CES-D-10)	(n=200)		(n=468)	
Classified as not depressed	85	42.50	277	59.19
Classified as depressed	115	57.50	191	40.81
Anxiety (GAD-7)	(n=192)		(n=456)	
Categorical				
No signs of anxiety	57	29.69	228	50.00
Signs of mild anxiety	68	35.42	140	30.70
Signs of moderate anxiety	38	19.79	62	13.60
Signs of severe anxiety	29	15.10	26	5.70
Binary				
No/mild anxiety	125	65.10	368	80.70
Moderate/severe anxiety	67	34.90	88	19.30
Suicidality				
Suicidal ideation, lifetime	(n=196)		(n=456)	
	103	52.55	138	30.26
Suicidal attempts, lifetime	(n=195)		(n=453)	
	66	33.85	102	22.52
Suicidal ideation, past year	(n=186)		(n=444)	
	49	26.34	44	9.91
Suicidal attempts, past year	(n=189)		(n=447)	
	18	9.52	35	7.83
Alcohol use	(n=186)		(n=442)	
Categorical				
No alcohol use	34	18.28	139	31.45
Some alcohol use	59	31.72	108	24.43
Hazardous use	48	25.81	85	19.23
Harmful use	14	7.53	42	9.50
Alcohol dependence	31	16.67	68	15.38

	Bisexual women (n=202)		Bisexual men (n=487)	
	n	%	n	%
Binary				
No/some alcohol use	93	50.00	247	55.88
Hazard/Harm/ dependence	93	50.00	195	44.12

Drug use	(n=188)		(n=451)	
Categorical				
No drug use	122	64.89	331	73.39
Some drug use	29	15.43	29	6.43
Harmful drug use	34	18.09	61	13.53
Drug dependence	3	1.60	30	6.65
Binary				
No/some drug use	151	80.32	360	79.82
Harmful use/ dependence	37	19.68	91	20.18

Tobacco use	(n=193)		(n=463)	
Doesn't smoke at all	108	55.96	281	60.69
Smoke some days	48	24.87	96	20.73
Smoke everyday	37	19.17	86	18.57

Based on the CES-D 10, a screening tool for depression, more than half of bisexual women (58%) and two in five bisexual men (40%) were classified as currently depressed (Figure 30).

FIGURE 30: Depression, bisexual women and bisexual men

Depression, bisexual women (CES-D 10)

Not depressed (85) 42%

Depressed (115) 58%

Depression, bisexual men (CES-D 10)

Not depressed (227) 59%

Depressed (191) 41%
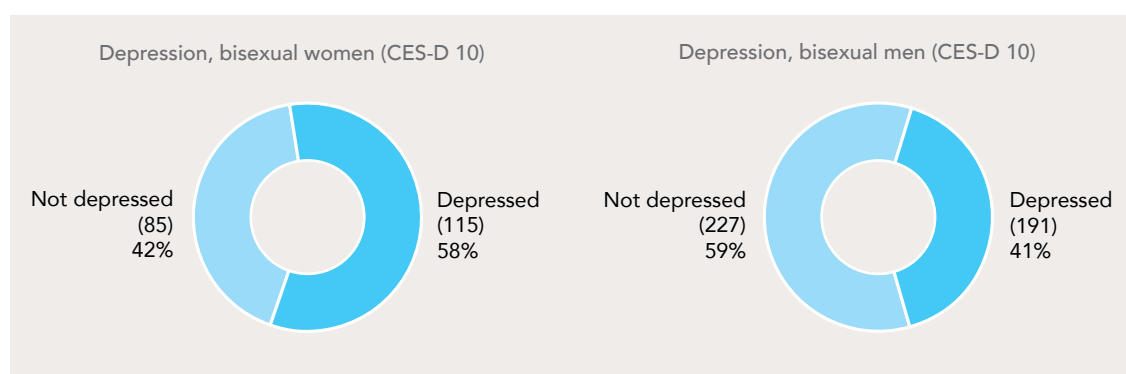
Anxiety

According to the GAD-7 anxiety scores, more than two thirds of bisexual women (70%) had experienced anxiety in the last two weeks (see Figure 31). One in three bisexual women reported signs of moderate or severe anxiety (20% and 15% respectively). Among bisexual men, one in

three (36%) had experienced anxiety in the last two weeks, and one in four reported signs of moderate or severe anxiety (18% moderate and 7% severe, respectively).

FIGURE 31: Anxiety, bisexual women and bisexual men
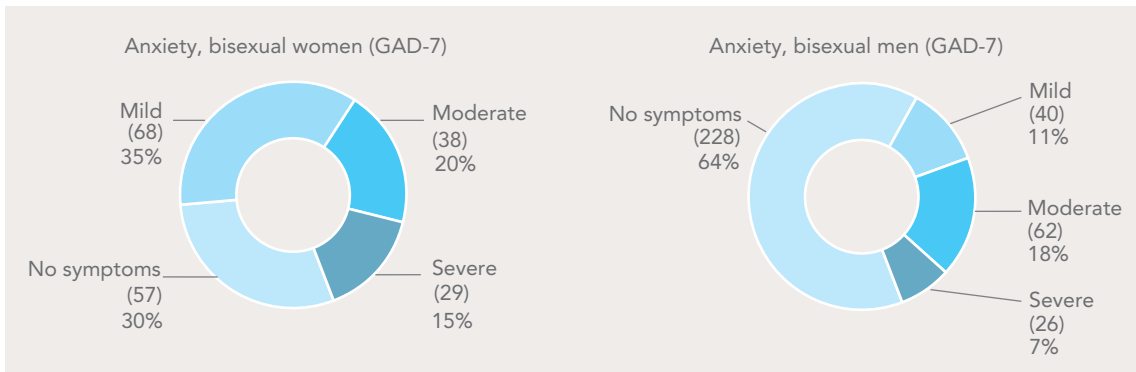
Anxiety, bisexual women (GAD-7)

Mild (68) 35%
Moderate (38) 20%
No symptoms (57) 30%
Severe (29) 15%

Anxiety, bisexual men (GAD-7)

No symptoms (228) 64%
Mild (40) 11%
Moderate (62) 18%
Severe (26) 7%

Suicidality

We asked four questions about suicide: whether participants had thought about ending their life (suicidal ideation) at some point in their lives, and in the past year; and whether participants had tried to end their own life (suicide attempt) at some point in their lives, and in the past year (Table 15).

Figure 32 shows how many bisexual women had ever thought about ending their life. More than half (53%) had thought about ending their life at least once at some point in their life, and one in four (25%) had thought about ending their life in the previous year. Among bisexual men, one in three (30%) had thought about ending their life at least once at some point in their life, and one in ten (10%) had thought about ending their life in the previous year (Figure 33).

FIGURE 32: Suicidal ideation, bisexual women

Suicide ideation bisexual women

- No thoughts of suicide
- Thoughts of suicide, but not in the last year or unknown when
- Thoughts of suicide in the last year

(93) 47%
(103) 53%
(54) 28%
(49) 25%
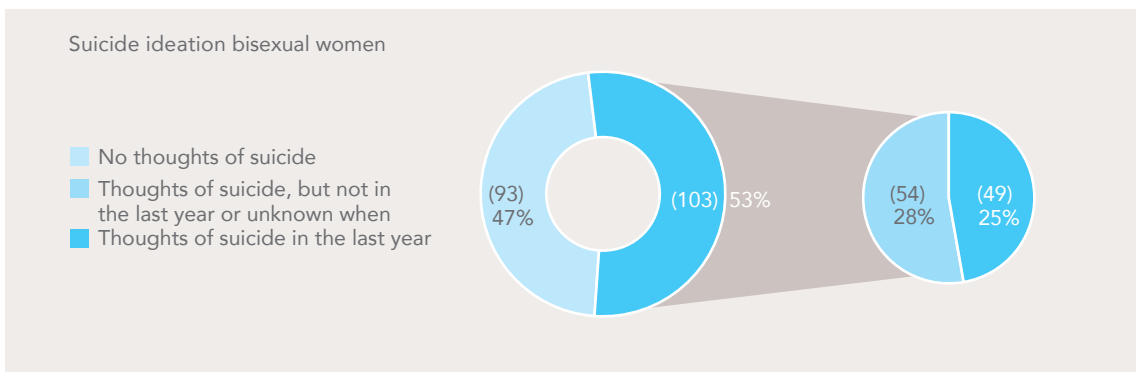
FIGURE 33: Suicidal ideation, bisexual men

Suicide ideation bisexual men

- No thoughts of suicide
- Thoughts of suicide, but not in the last year or unknown when
- Thoughts of suicide in the last year

(318) 70% (138) 30%   (94) 20% (44) 10%
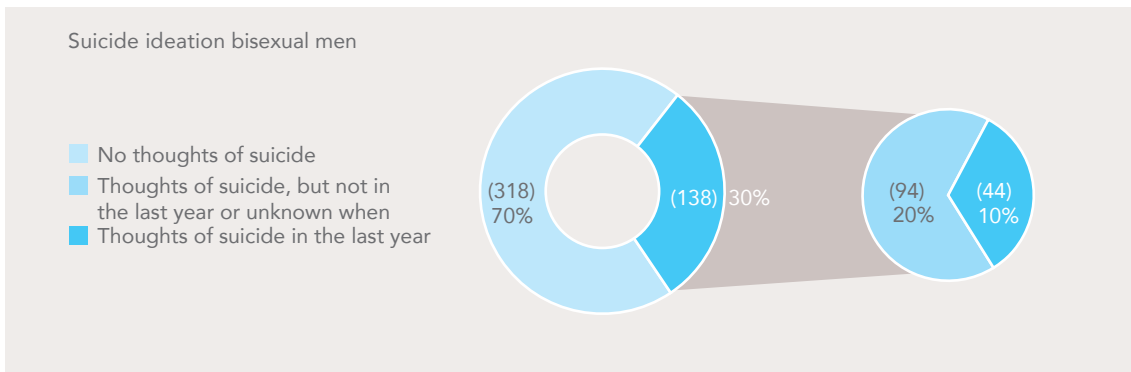
One in three bisexual women (34%) and almost one in four bisexual men (23%) had tried to end their life at some point in their lives. One in ten bisexual women and men (9% and 10% respectively) had tried to end their life in the past year (Figure 34 and Figure 35).

FIGURE 34: Suicide attempts, bisexual women

Suicide attempts, bisexual women

- No attempts of suicide
- Attempted suicide, but not in the last year or unknown when
- Attempted suicide in the last year

(129) 66% (66) 34%   (48) 25% (18) 9%
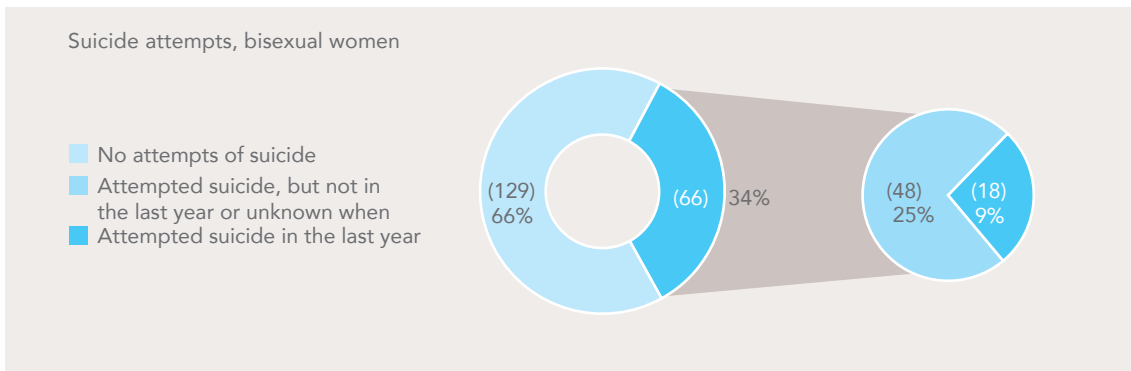
FIGURE 35: Suicide attempts, bisexual men

Suicide attempts, bisexual men

- No attempts of suicide
- Attempted suicide, but not in the last year or unknown when
- Attempted suicide in the last year

(351) 77% (102) 23%   (58) 13% (44) 10%
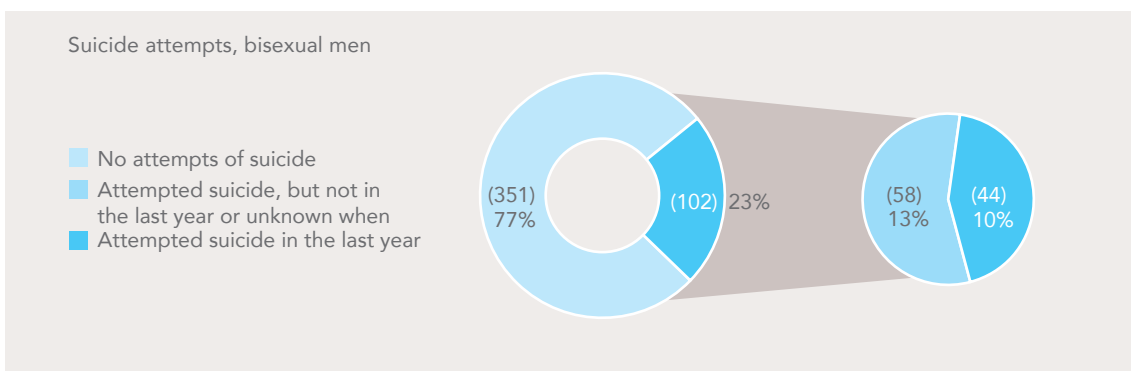
Alcohol use

Figure 36 shows the levels of alcohol use among bisexual women and bisexual men. Four in five bisexual women (82%) drank alcohol – and half drank alcohol at levels that negatively impacted their health, including 17% who showed signs of alcohol dependence. Among bisexual men, three thirds drank alcohol, and almost half at a level that was bad for their health. One in seven (15%) showed signs of alcohol dependence.

FIGURE 36: Alcohol use, bisexual women and bisexual men

Alcohol use, bisexual women (AUDIT)

Some use
(59)
32%

Hazardous
(48)
26%

Harmful
(14)
7%

Not drinking
(34)
18%

Dependence
(31)
17%

Alcohol use, bisexual men (AUDIT)

Some use
(108)
24%

Hazardous
(85)
19%

Harmful
(42)
10%

Not drinking
(139)
32%

Dependence
(68)
15%
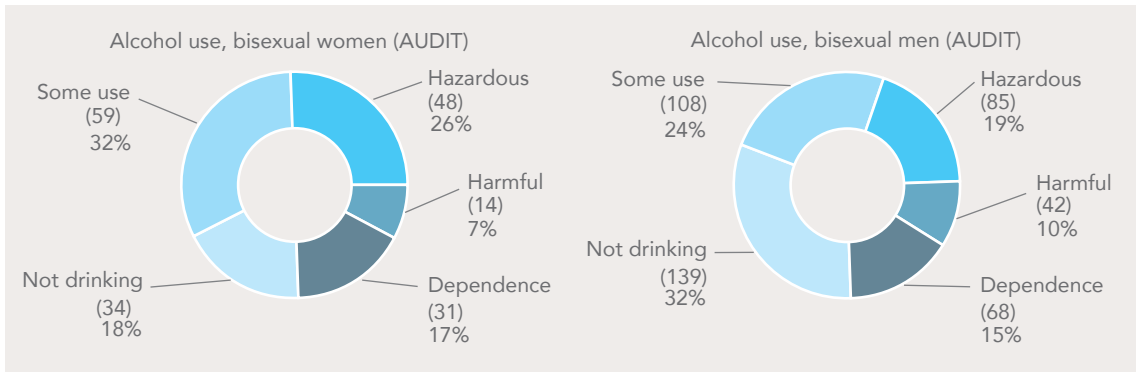
Drug use

The majority of bisexual participants did not use drugs (see Figure 37), however, one in five bisexual women (20%) and bisexual men (21%) reported using drugs at levels that negatively impacted their health.

FIGURE 37: Drug use, bisexual women and bisexual men

Drug use, bisexual women

No drug use
(122)
65%

Some use
(29)
15%

Harmful use
(34)
18%

Drug
dependence
(3)
2%

Drug use, bisexual men

No drug use
(331)
73%

Some use
(29)
6%

Harmful use
(61)
14%

Drug
dependence
(30)
7%
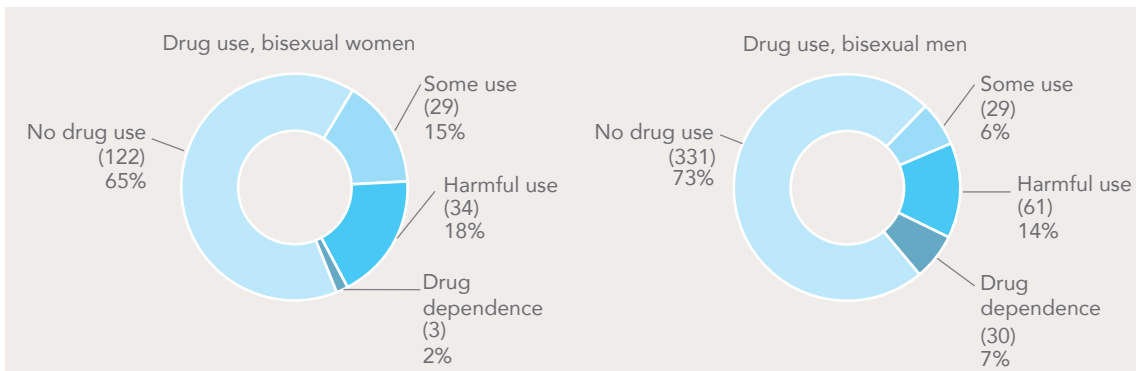
Tobacco use

Just under half of bisexual women (44%) smoked tobacco: one in five (19%) said they smoke every day, and one in four (25%) smoke some days (Figure 38). Among bisexual men, two in five (39%) smoked tobacco: one in six (18%) every day, and one in five (21%) some days.

FIGURE 38: Tobacco use, bisexual women and bisexual men

Tobacco use, bisexual women

Not at all
(108)
56%

Some days
(48)
25%

Everyday
(37)
19%

Tobacco use, bisexual men

Not at all
(281)
61%

Some days
(96)
21%

Everyday
(86)
18%
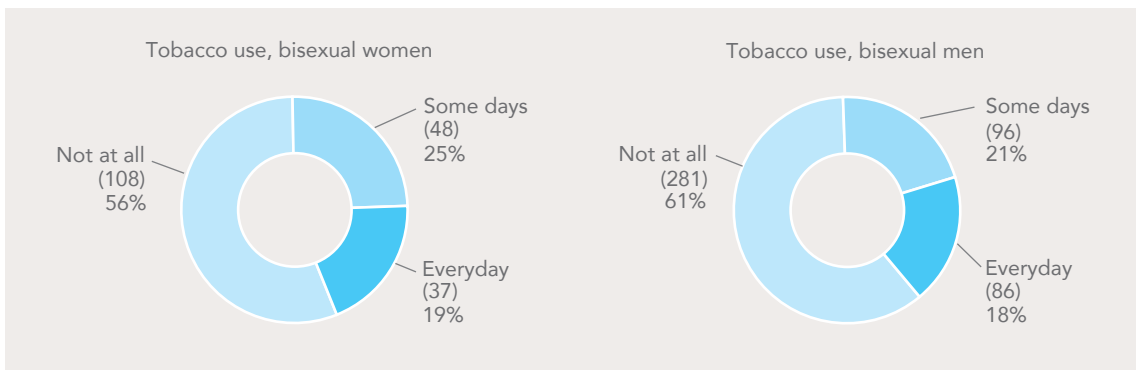
Findings for transgender and gender non-conforming participants

Sexual orientations of transgender and gender non-conforming participants

Figure 39 and Figure 40 show the sexual orientations of the 383 transgender women, 284 transgender men and 188 gender non-conforming participants in our sample. These figures highlight the sexual diversity among transgender and gender non-conforming people.

FIGURE 39: Sexual orientations of transgender women and transgender men
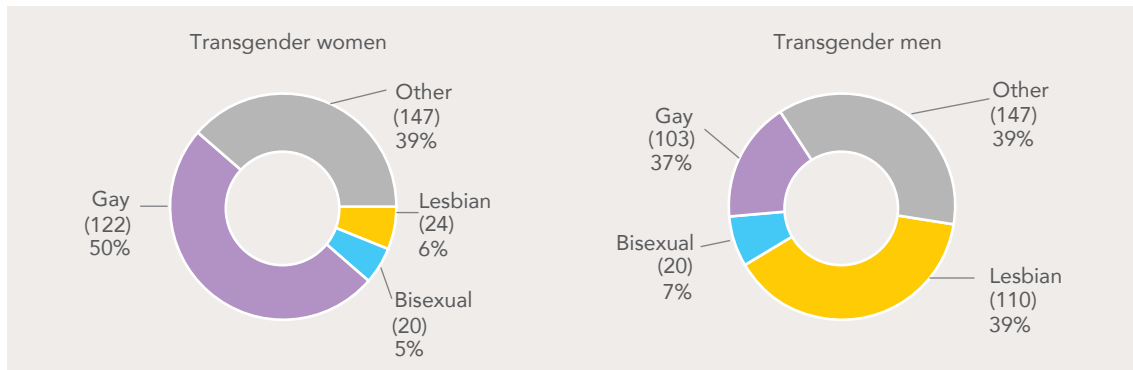
FIGURE 40: Sexual orientations of gender non-conforming participants
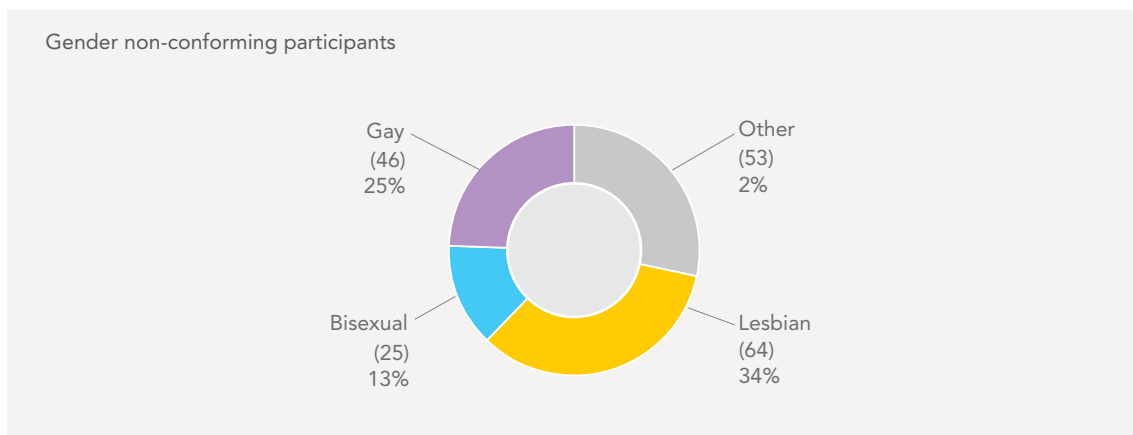
Sociodemographic characteristics

Table 16 shows detailed information about the demographic characteristics of the transgender and gender non-conforming participants. The majority of them was under the age of 35: more than four in five transgender women (87%), and nine in ten transgender men and gender non-conforming people (90% each).

TABLE 16: Sociodemographic profile, transgender and gender non-conforming participants

	Transgender women (n=383)		Transgender men (n= 284)		Gender non-conforming people (n= 188)	
	n	%	n	%	n	%
Age group	(n=369)		(n=271)		(n=178)	
18-24	154	41.73	113	41.70	85	47.75
25-34	168	45.53	130	47.97	76	42.70
35-44	43	11.65	25	9.23	15	8.43
45-54	2	0.54	3	1.11	2	1.12
55-64	2	0.54	0	0.00	0	0.00
Country	(n=383)		(n=284)		(n=188)	
Botswana	21	5.48	35	12.32	23	12.23
Ethiopia	2	0.52	1	0.35	4	2.13
Kenya	89	23.24	57	20.07	65	34.57
Lesotho	16	4.18	35	12.32	5	2.66
Malawi	60	15.67	34	11.97	4	2.13
South Africa	104	27.15	57	20.07	53	28.19
eSwatini	7	1.83	9	3.17	4	2.13
Zambia	60	15.67	37	13.03	24	12.77
Zimbabwe	24	6.27	19	6.69	6	3.19
Religious beliefs*	(n=380)		(n=283)		(n=187)	
African tradition	9	2.37	20	7.07	5	2.67
Islam	36	9.47	20	7.07	8	4.28
Christianity	284	74.74	199	70.32	111	59.36
Not religious	40	10.53	33	11.66	57	30.48

*More than one answer possible

Socioeconomic circumstances

Table 17 details the socioeconomic profile of transgender women, transgender men and gender non-conforming participants.

TABLE 17: Socioeconomic profile, transgender and gender non-conforming participants

	Transgender women (n=383)		Transgender men (n= 284)		Gender non-conforming people (n= 188)	
	n	%	n	%	n	%
Housing type	(n=382)		(n=284)		(n=186)	
Binary						
Informal	57	14.92	20	7.04	9	4.84
Formal	325	85.08	264	92.96	177	95.16
Housing security	(n=355)		(n=276)		(n=183)	
Owns home	42	11.83	25	9.06	12	6.56
Rents home	157	44.23	145	52.54	110	60.11
Shares housing without paying	156	43.94	106	38.41	61	33.33
Highest completed level of education	(n=380)		(n=284)		(n=188)	
Categorical						
No formal education	8	2.11	5	1.76	2	1.06
Primary education	46	12.11	16	5.63	11	5.85
Secondary school	228	60.00	137	48.24	63	33.51
Post-secondary school/ University diploma or degree	98	25.79	126	44.37	112	59.57
Employment	(n=373)		(n=281)		(n=187)	
No employment	205	54.96	156	55.52	70	37.43
Formal employment	78	20.91	66	23.49	51	27.27
Informal employment	90	24.13	59	21.00	66	35.29
Sufficient money for basic needs	(n=374)		(n=277)		(n=184)	
No	267	71.39	193	69.68	101	54.89
Yes	107	28.61	84	30.32	83	45.11
Has medical aid	(n=358)		(n=279)		(n=179)	
No	281	78.49	219	78.49	102	56.98
Yes	77	21.51	60	21.51	77	43.02

The majority of transgender men and gender non-conforming people lived in houses or apartments (formal, stable housing structures; 93% of transgender men and 95% of gender non-conforming people). Among transgender women, however, one in seven (15%) lived in informal housing: shacks, mobile homes or on the street.

Many transgender and gender non-conforming participants were in financially precarious situations: more than half of transgender women (55%) and transgender men (55%) were unemployed. Among gender non-conforming people, more than one in three (37%) was unemployed. More than two thirds of transgender women (71%) and transgender men (70%), and more than half of gender non-conforming people (57%) did not have enough money to meet their basic needs.

Gender affirming practices and access to gender-affirming care

We asked the 887 gender minority participants about their access to and use of gender affirming practices. Participants' gender affirming practices are shown in Table 18. These findings are important because gender affirming practices such as binding[4] are proven to support people's gender identity and expression, reduce psychological distress and increase their safety in public (Manderson 2012, Ekins and King 2006, Cole and Han 2011). However, some gender affirming practices also might have health implications (Peitzmeier et al. 2017). It is therefore important for NGOs and healthcare providers to know about the risks of gender affirming practices and to discuss them with people who want to use gender affirming practices, so that they can make informed choices and learn how to reduce these risks.

Almost two in five gender minority participants who were assigned female at birth said that they used some form of binding (38%). More than two in five gender minority participants who were assigned male at birth said that they tucked (44%). One in six gender minority participants (18%) used hormones for gender affirmation.

TABLE 18: Gender affirming practices

Gender minority participants (n=887)		
	n	%
Binding (among those assigned female at birth, n=375)	142	37.87
Tucking (among those assigned male at birth, n=477)	209	43.82
Hormones (n=864)	153	17.71

We asked participants who identified as transgender or gender non-conforming whether they had access to hormonal and surgical gender affirmation procedures (regardless of whether or not they wanted to actually make use of any of these). Table 19 shows that access to both hormonal and surgical gender affirmation was quite low: 31% of gender minority participants had access to hormone treatment, and one in five (22%) had access to surgical procedures.

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4   Binding is a technique to flatten one's breast or chest by using constrictive materials and clothing. Tucking is a technique to hide the bulge of male genitalia so that they are not conspicuous through clothing.

TABLE 19: Access to gender affirming care

Access to gender-affirming care for gender minority participants (n=887)		
	n	%
Access to hormones (n=685)	213	31.09
Access to surgical procedures (n=683)	149	21.82

Because these are numbers for the entire region, they mask that access to gender affirming care is very uneven access across the region: for example, in Ethiopia, no one had access to hormones or surgical gender affirmation, while in South Africa, 57% had access to hormones, and 38% had access to surgical gender affirmation. Figure 41 therefore shows access to hormonal and surgical gender affirmation by country.

FIGURE 41: Access to gender affirming care, by country
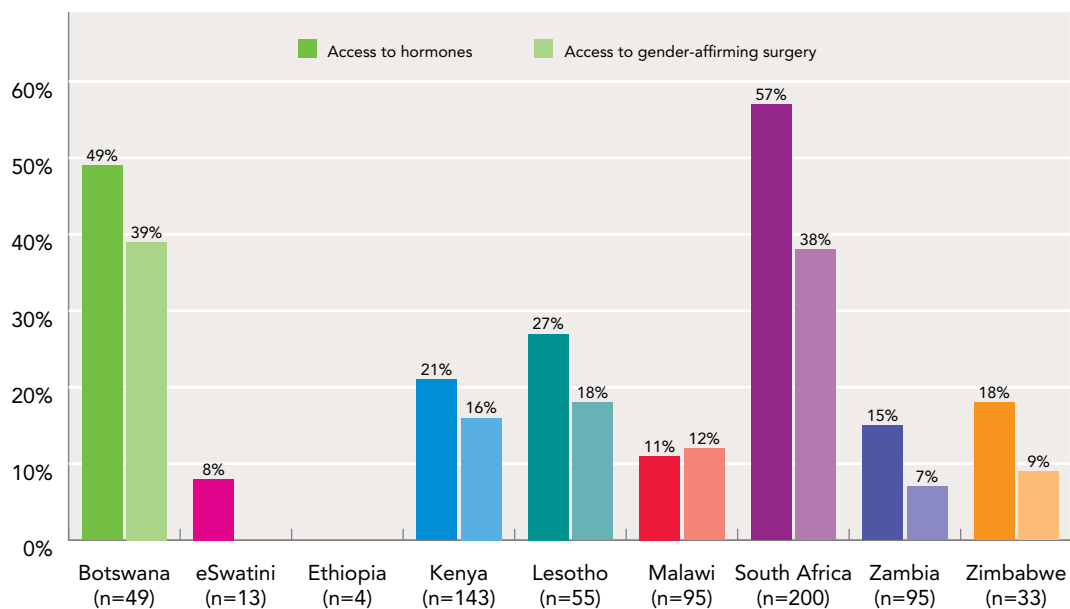
Experiences of violence

Past research across the world has shown that LGBTI people are vulnerable to violence (Blondeel et al., 2018). Our findings confirm this for transgender women, transgender men and gender non-conforming people living in the East and Southern African region (Table 20). Transgender women and gender non-conforming people in particular had experienced very high levels of violence.

TABLE 20: Harassment and violence, transgender and gender non-conforming participants

	Transgender women (n=383)		Transgender men (n= 284)		Gender non-conforming people (n= 188)	
	n	%	n	%	n	%
SOGIE-related verbal harassment						
Experienced in lifetime	(n=364)		(n=267)		(n=173)	
	291	79.95	181	67.79	133	76.88
Experienced in past year	(n=336)		(n=250)		(n=159)	
	199	59.23	120	48.00	90	56.60
Sexual violence						
Experienced in lifetime	(n=368)		(n=271)		(n=172)	
	200	54.35	110	40.59	97	56.40
Experienced in past year	(n=362)		(n=269)		(n=171)	
	109	30.11	65	24.16	42	24.56
Physical violence						
Experienced in lifetime	(n=368)		(n=270)		(n=172)	
	230	62.50	125	46.30	103	59.88
Experienced in past year	(n=361)		(n=268)		(n=173)	
	144	39.89	78	29.10	54	31.21

Verbal harassment

Four in five transgender women (80%) and more than three quarters of gender non-conforming people (77%) had experienced verbal harassment due to their sexual orientation and/or gender identity or expression at some point in their life, and more than half (59% and 57% respectively) in the previous year (Table 20, see also Figure 42 and Figure 43). Among transgender men, two thirds (68%) had experienced verbal harassment in their lifetime, and almost half (48%) in the previous year (Figure 42).

FIGURE 42: Verbal harassment past year, transgender participants

Transgender women (n=336)

Transgender men (n=250)

Experienced verbal harassment (199) 59%

Experienced verbal harassment (120) 48%
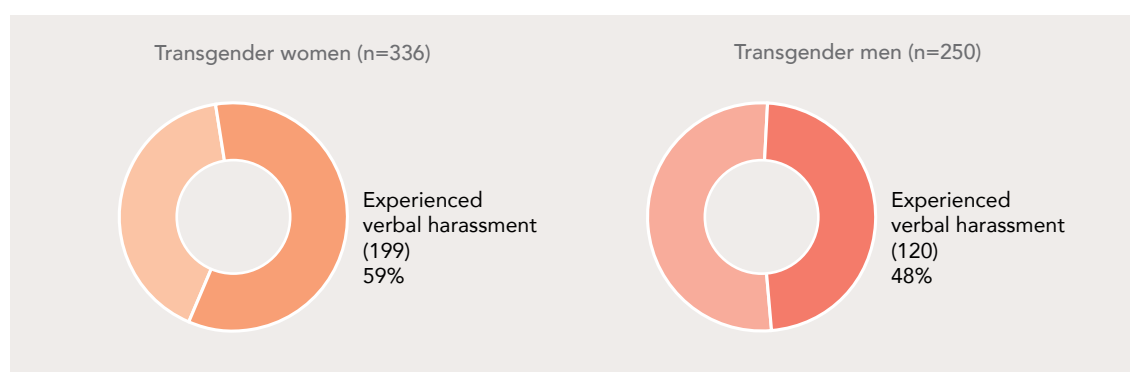
FIGURE 43: Verbal harassment past year, gender non-conforming participants

Gender non-conforming people (n=159)

Experienced
verbal harassment
(90)
57%
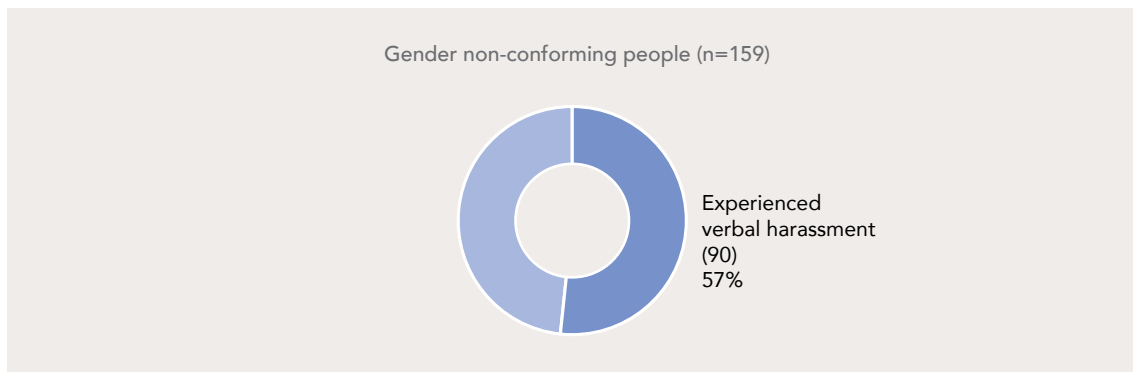
Sexual violence

More than half of transgender women and gender non-conforming people (54% and 56% respectively), and two in five transgender men (41%) were survivors of sexual violence (Figure 44 and Figure 45). Almost one in three transgender women (30%), and a quarter of transgender men and gender non-conforming people (24% and 25% respectively) had experienced sexual violence in the past year ().

FIGURE 44: Sexual violence lifetime, transgender people

Transgender women (n=368)

Experienced
sexual violence in
lifetime
(200)
54%

Transgender men (n=271)

Experienced
sexual violence in
lifetime
(110)
41%
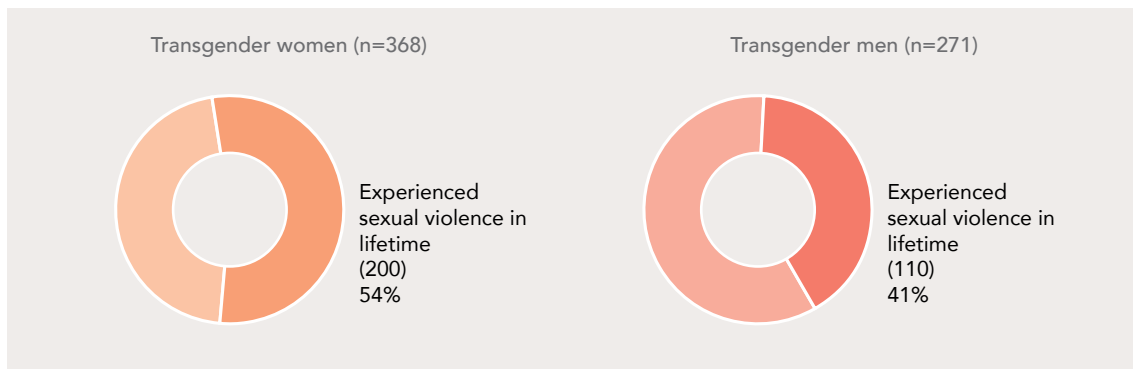
FIGURE 45: Sexual violence lifetime, gender non-conforming participants
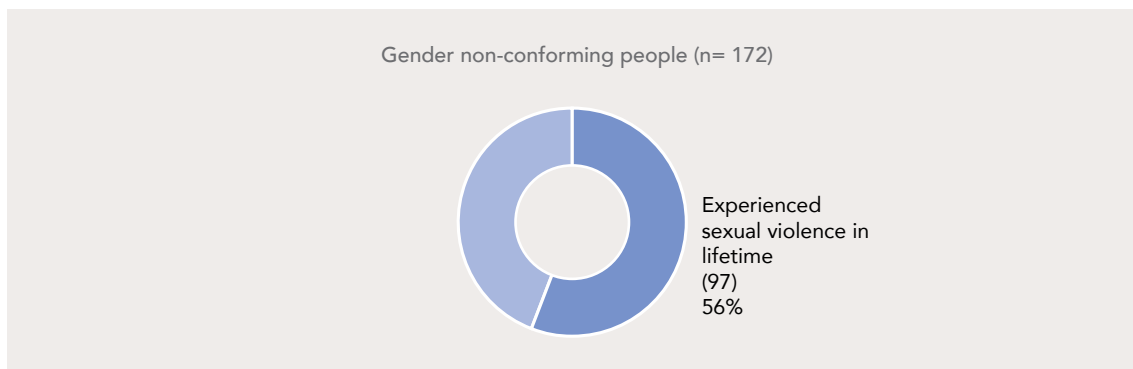
Gender non-conforming people (n= 172)

Experienced
sexual violence in
lifetime
(97)
56%

The World Health Organization has shown that the health consequences of sexual violence are significant and diverse: they include physical injuries, unwanted pregnancy, sexually transmitted

infections, including HIV, higher rates of mental health concerns, including depression and post-traumatic stress disorder, and higher likelihood of attempting suicide (Krug *et al.*, 2002). The high levels of sexual violence that transgender and gender non-conforming participants had experienced are therefore not only immediate risks to their health and well-being, but also increase the likelihood of long-term, chronic health concerns for survivors of violence.

Physical violence

Almost two-thirds of transgender women (63%) and almost half of transgender men (46%) had experienced physical violence in their lifetime (Figure 46). Among gender non-conforming participants, it was three in five (60%; Figure 47).

FIGURE 46: Physical violence lifetime, transgender participants

Transgender women (n=368)

Transgender men (n=270)

Experienced physical violence in lifetime (230) 63%

Experienced physical violence in lifetime (125) 46%
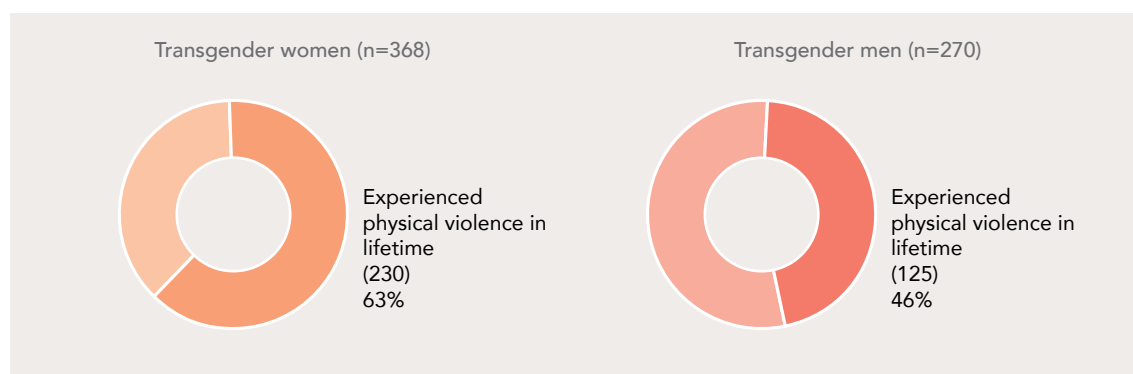
FIGURE 47: Physical violence lifetime, gender non-conforming participants
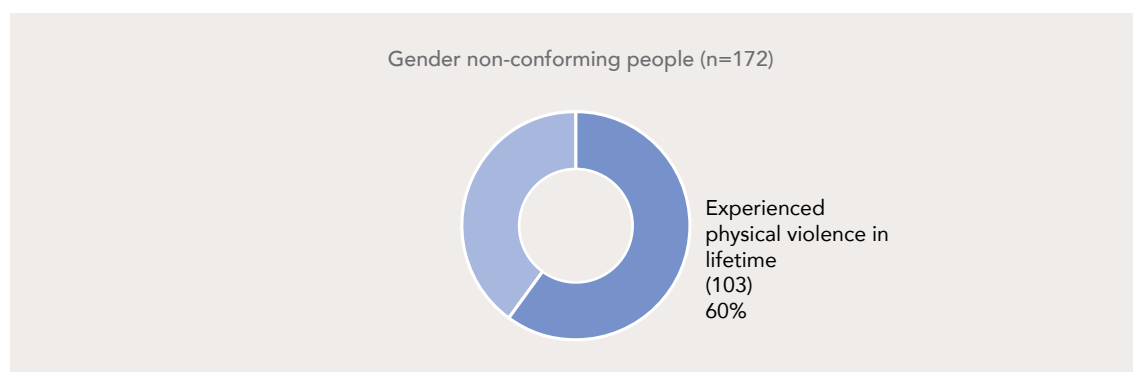
Gender non-conforming people (n=172)

Experienced physical violence in lifetime (103) 60%

Similar to sexual violence, physical violence does not only have immediate risks for health and well-being, but also carries the risk of long-term health concerns. Our findings suggest that a large amount of transgender and gender non-conforming participants are survivors of violence and might therefore have additional health risks. This is supported by our findings: of the 253 transgender women and 133 transgender men who had experienced violence, half (49%) showed signs of posttraumatic stress disorder. Of the 114 gender non-conforming participants who had experienced violence, it was three in five (61%).

Depression

Table 21 summarises the mental health outcomes for depression, anxiety, and suicidality, as well as for alcohol, drug and tobacco use among transgender and gender non-conforming participants.

TABLE 21: Mental health outcomes, transgender and gender non-conforming participants

	Transgender women (n=383)		Transgender men (n= 284)		Gender non-conforming people (n= 188)	
	n	%	n	%	n	%
Depression (CES-D-10)	(n=371)		(n=266)		(n=174)	
Classified as not depressed	163	43.94	132	49.62	69	39.66
Classified as depressed	208	56.06	134	50.38	105	60.34
Anxiety (GAD-7)	(n=350)		(n=261)		(n=169)	
Categorical						
No signs of anxiety	130	37.14	106	40.61	50	29.59
Signs of mild anxiety	129	36.86	90	34.48	73	43.20
Signs of moderate anxiety	46	13.14	39	14.94	24	14.20
Signs of severe anxiety	45	12.86	26	9.96	22	13.02
Binary						
No/mild anxiety	259	74.00	196	75.10	123	72.78
Moderate/severe anxiety	91	26.00	65	24.90	46	27.22
Suicidality						
Suicidal ideation, lifetime	(n=363)		(n=259)		(n=175)	
	166	45.73	116	44.79	101	57.71
Suicidal attempts, lifetime	(n=360)		(n=254)		(n=172)	
	131	36.39	82	32.28	79	45.93
Suicidal ideation, past year	(n=341)		(n=241)		(n=165)	
	63	14.48	52	21.58	44	26.67
Suicidal attempts, past year	(n=348)		(n=241)		(n=168)	
	60	17.24	37	15.35	29	17.26

	Transgender women (n=383)		Transgender men (n= 284)		Gender non-conforming people (n= 188)	
	n	%	n	%	n	%
Alcohol use	(n=336)		(n=258)		(n=167)	
Categorical						
No alcohol use	80	23.81	71	27.52	27	16.17
Some alcohol use	76	22.62	60	23.26	53	31.74
Hazardous use	78	23.21	50	19.38	36	21.56
Harmful use	37	11.01	32	12.40	17	10.18
Alcohol dependence	65	19.35	45	17.44	34	20.36
Binary						
No/some alcohol use	156	46.43	131	50.78	80	47.90
Hazard/Harm/ dependence	180	53.57	127	49.22	87	52.10

Drug use	(n=343)		(n=253)		(n=164)	
Categorical						
No drug use	250	72.89	193	76.28	89	54.27
Some drug use	19	5.54	12	4.74	24	14.63
Harmful drug use	57	16.62	42	16.60	45	27.44
Drug dependence	17	4.96	6	2.37	6	3.66
Binary						
No/some drug use	269	78.43	205	81.03	113	68.90
Harmful use/ dependence	74	21.57	48	18.97	51	31.10

Tobacco use	(n=354)		(n=263)		(n=180)	
Doesn't smoke at all	205	57.91	158	60.08	90	50.00
Smoke some days	76	21.47	66	25.10	54	30.00
Smoke everyday	73	20.62	39	14.83	36	20.00

Based on the CES-D 10, a screening tool for depression, more than half of transgender women (56%), half of transgender men (50%) and three in five gender non-conforming participants (60%) were classified as currently depressed (Figure 48 and Figure 49).

FIGURE 48: Depression, transgender participants

Depression, transgender women (CES-D 10)

Not depressed
(163)
44%

Depressed
(208)
56%

Depression, transgender men (CES-D 10)

Not depressed
(132)
50%
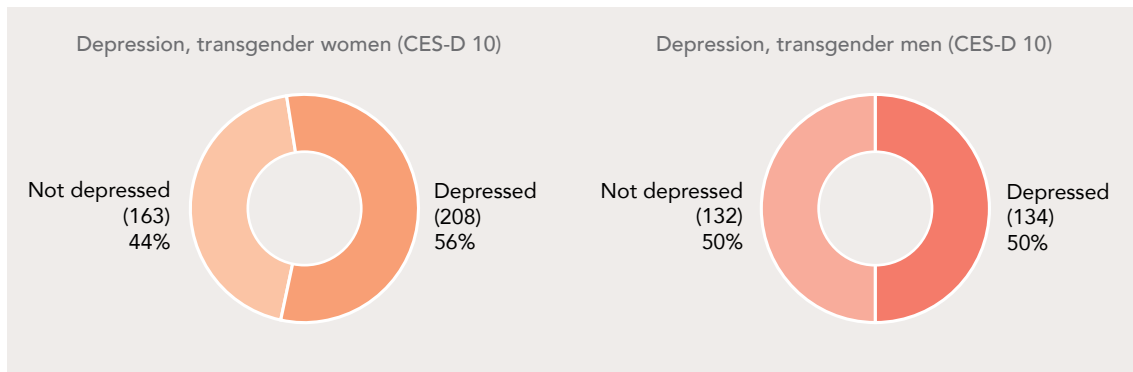
Depressed
(134)
50%

FIGURE 49: Depression, gender non-conforming participants

Depression, gender non-conforming people (CES-D 10)

Not depressed
(69)
40%

Depressed
(105)
60%
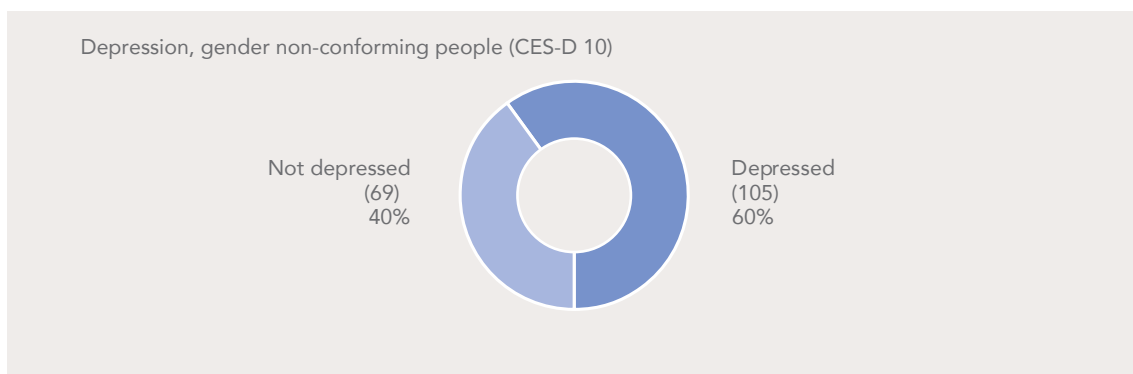
Anxiety

According to the GAD-7 anxiety scores, almost two thirds of transgender women (63%) and three in five transgender men (59%) had experienced anxiety in the last two weeks (see Figure 50). One in four transgender women reported signs of moderate or severe anxiety (13% moderate and 13% severe respectively). Among transgender men, and one in four reported signs of moderate or severe anxiety (15% moderate and 10% severe respectively). Among gender non-conforming people, 70% had experienced anxiety in the previous two weeks (Figure 51), and one in four moderate (14%) and severe (13%) anxiety.

FIGURE 50: Anxiety, transgender participants

Anxiety, bisexual women (GAD-7)

Mild
(129)
37%

Moderate
(46)
13%

No symptoms
(130)
37%

Severe
(45)
13%

Anxiety, bisexual men (GAD-7)

Mild
(90)
34%

Moderate
(39)
15%

No symptoms
(106)
41%

Severe
(26)
10%
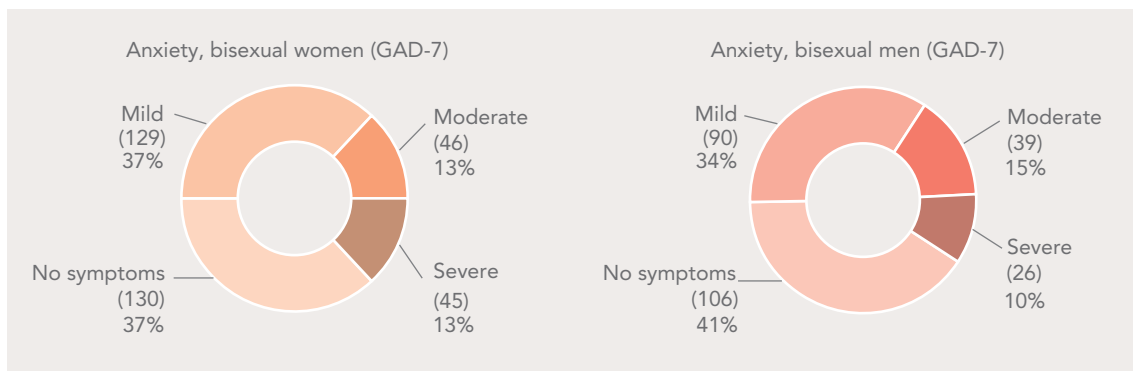
FIGURE 51: Anxiety, gender non-conforming participants

Anxiety, gender non-conforming people (GAD-7)

Mild
(73)
43%

Moderate
(24)
14%

No symptoms
(50)
30%

Severe
(22)
13%
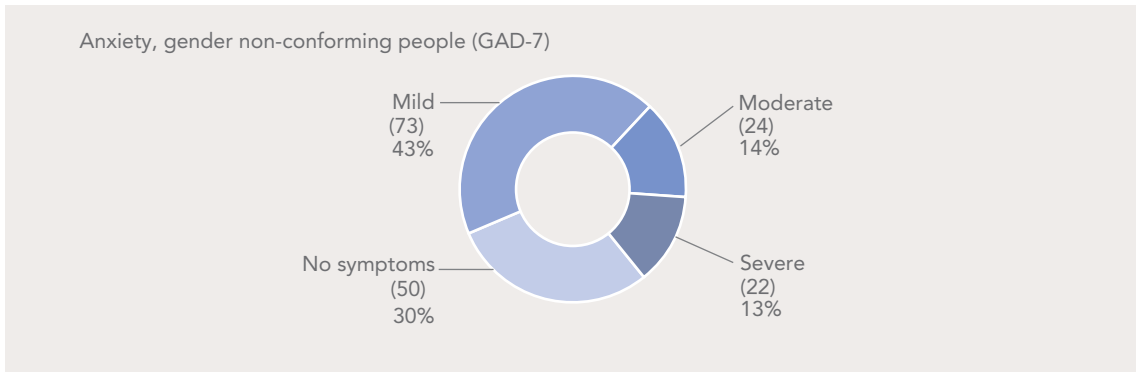
Suicidality

Figure 52 shows how many transgender women had ever thought about ending their life. Almost half (46%) had thought about ending their life at least once at some point in their life, and one in six (17%) had thought about ending their life in the previous year. Among transgender men, 45% had thought about ending their life at least once at some point in their life, and one in five (20%) had thought about ending their life in the previous year (Figure 53). Among gender non-conforming participants, almost three in five (58%) had thought about ending their life at least once at some point in their life, and one in four (25%) had thought about ending their life in the previous year (Figure 54).

FIGURE 52: Suicidal ideation, transgender women

Suicide ideation, transgender women

■ No thoughts of suicide
■ Thoughts of suicide, but not in the last year or unknown when
■ Thoughts of suicide in the last year

(197)
54%

(166) 46%

(103)
29%

(63)
17%
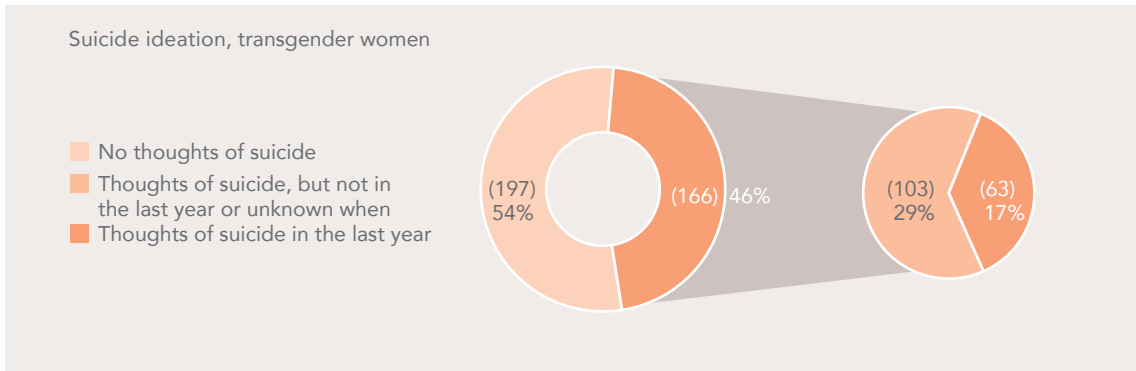
FIGURE 53: Suicidal ideation, transgender men

Suicide ideation, transgender men

■ No thoughts of suicide
■ Thoughts of suicide, but not in the last year or unknown when
■ Thoughts of suicide in the last year

(143)
55%

(116) 45%

(64)
25%

(52)
20%
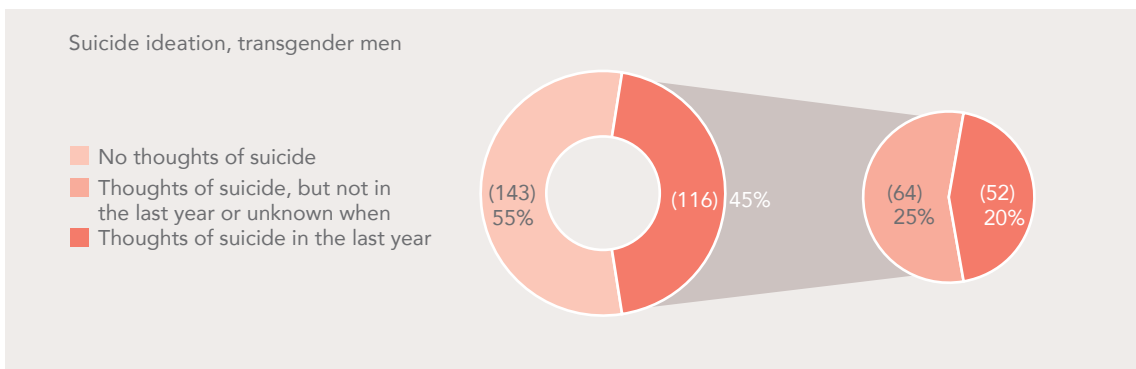
FIGURE 54: Suicidal ideation, gender non-conforming participants

Suicide ideation, gender non-conforming people

- No thoughts of suicide
- Thoughts of suicide, but not in the last year or unknown when
- Thoughts of suicide in the last year

(74) 42%   (101) 58%

(57) 33%   (44) 25%
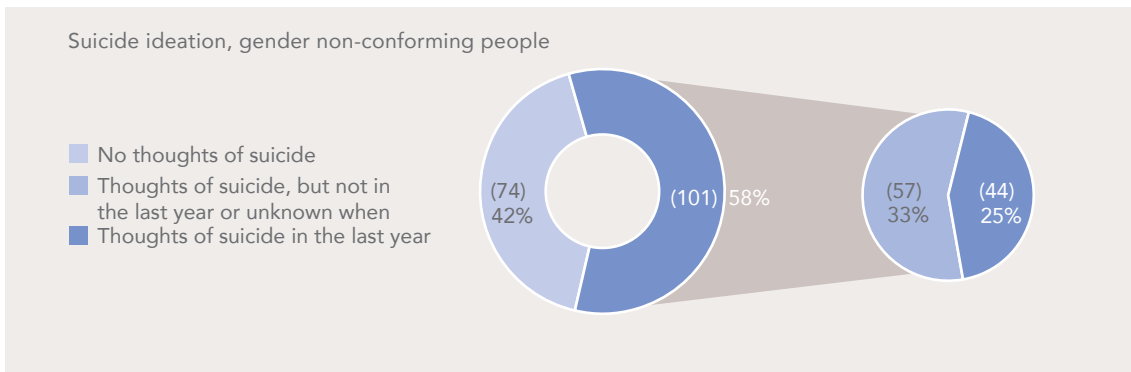
More than one in three transgender women (37%) had attempted suicide at least once at some point in their life, and one in six (17%) in the previous year (Figure 55). This level of suicide attempts among transgender women in our sample was higher than findings from an international systematic review (37% in our sample, compared to 31% in the systematic review (Herbst *et al.*, 2008).

Among transgender men, one in three (32%) had attempted suicide at some point in their life, and one in seven (14%) in the previous year (Figure 56). Among gender non-conforming participants, almost half (46%) had attempted suicide at least once at some point in their life, and one in six (17%) in the previous year (Figure 57).

FIGURE 55: Suicide attempts, transgender women

Suicide attempts, transgender women

- No attempts of suicide
- Attempted suicide, but not in the last year or unknown when
- Attempted suicide in the last year

(229) 63%   (131) 37%

(71) 20%   (60) 17%
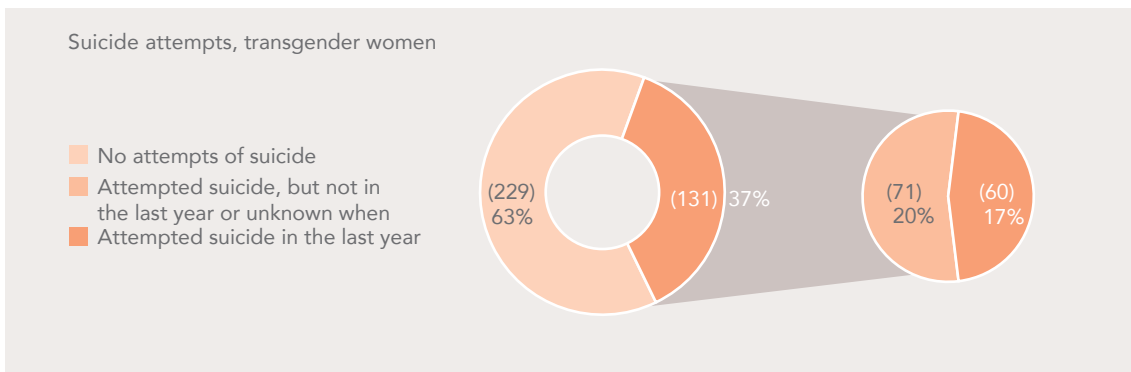
FIGURE 56: Suicide attempts, transgender men

Suicide attempts, transgender men

- No attempts of suicide
- Attempted suicide, but not in the last year or unknown when
- Attempted suicide in the last year

(172) 68%   (82) 32%

(45) 18%   (37) 14%
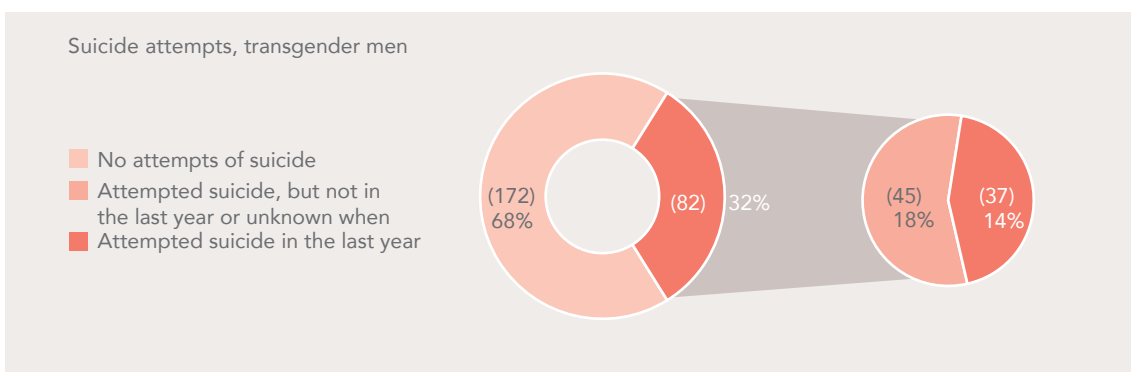
FIGURE 57: Suicide attempts, gender non-conforming people

Suicide attempts, gender non-conforming people

■ No attempts of suicide
■ Attempted suicide, but not in
   the last year or unknown when
■ Attempted suicide in the last year

(93) 54%   (79) 46%   (50) 29%   (29) 17%
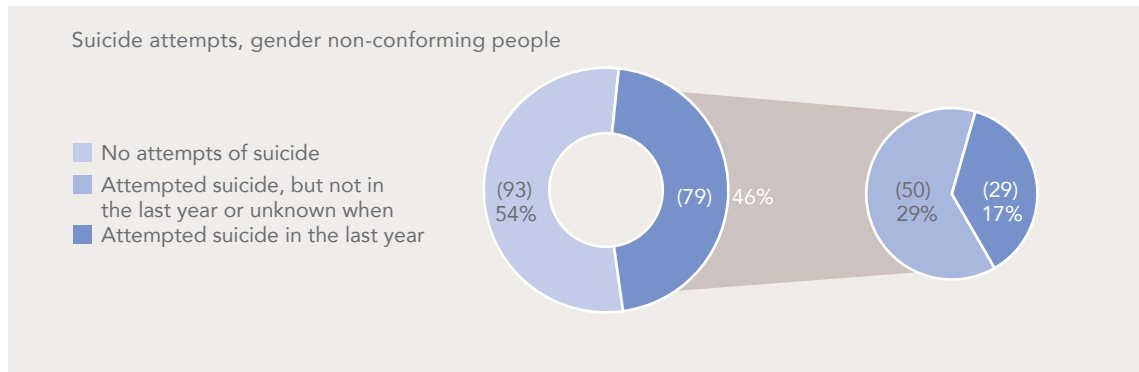
Alcohol use

Figure 58 and Figure 59 show the levels of alcohol use among transgender and gender non-conforming participants. More than half of transgender women drank alcohol at a level that had risks for their health: one in four (23%) drank hazardous amounts of alcohol, one in ten (11%) harmful amounts, and one in five (19%) showed signs of alcohol dependence. Among transgender men, one third drank alcohol at hazardous of harmful levels, and one in six (18%) showed signs of alcohol dependence. Among gender non-conforming people, one in five (20%) showed signs of alcohol dependence.

FIGURE 58: Alcohol use, transgender participants

Alcohol use, transgender women (AUDIT)

Some use (76) 23%
Hazardous (78) 23%
Harmful (37) 11%
Not drinking (80) 24%
Dependence (65) 19%

Alcohol use, transgender men (AUDIT)

Some use (60) 23%
Hazardous (50) 19%
Harmful (32) 12%
Not drinking (71) 28%
Dependence (45) 18%
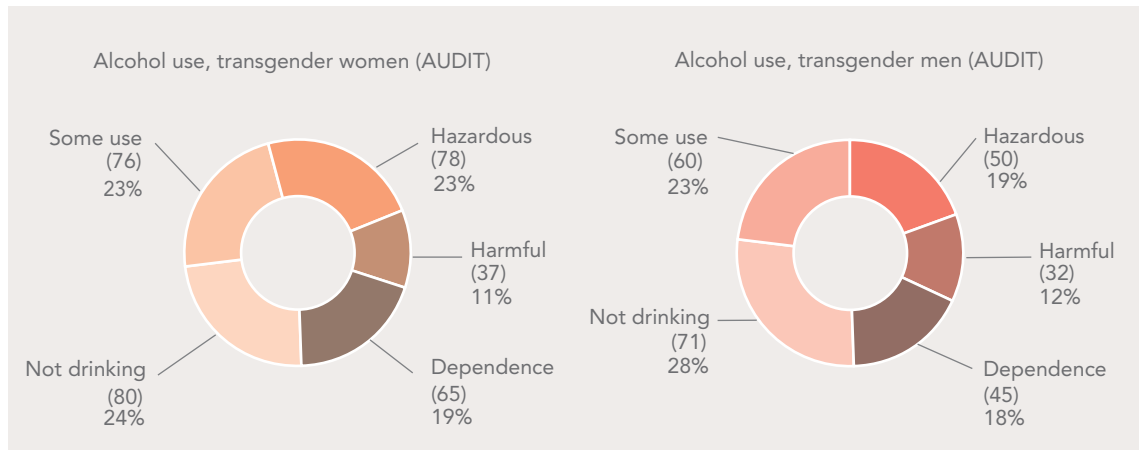
FIGURE 59: Alcohol use, gender non-conforming people

Alcohol use, gender non-conforming people (AUDIT)

Some use (53) 32%
Hazardous (36) 22%
Harmful (17) 10%
Not drinking (27) 16%
Dependence (34) 20%
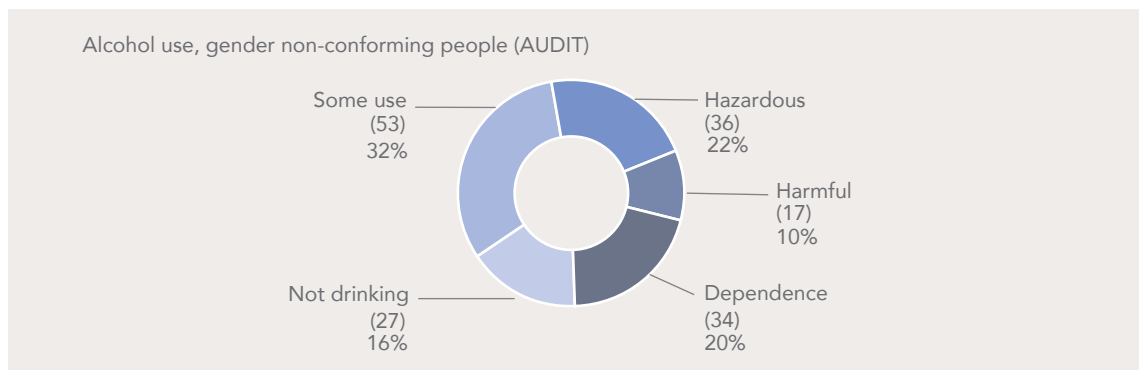
Drug use

One in six (17%) of transgender women and transgender men used drugs at a level that was harmful to their health (Figure 60). An additional 5% of transgender women and 2% of transgender men showed signs of drug addiction. Among gender non-conforming participants, more than one in four (28%) used drugs at harmful levels, and on 4% showed signs of addiction (Figure 61).

FIGURE 60: Drug use, transgender participants

Drug use, transgender women

No drug use
(250)
73%

Some use
(19)
5%

Harmful use
(57)
17%

Drug
dependence
(17)

Drug use, transgender men

No drug use
(193)
76%

Some use
(12)
5%

Harmful use
(42)
17%
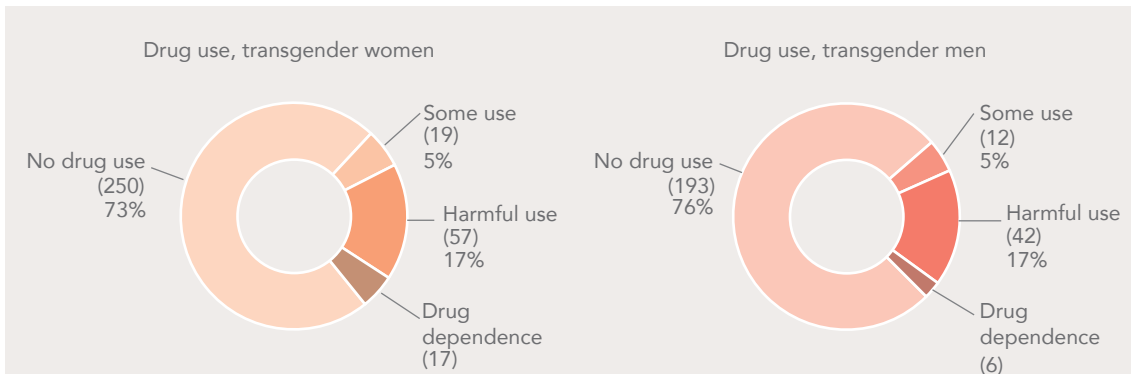
Drug
dependence
(6)

FIGURE 61: Drug use, gender non-conforming people

Drug use, gender non-conforming people
(DUDIT)

No drug use
(89)
54%

Some use
(24)
14%

Harmful use
(46)
28%

Drug dependence
(6)
4%
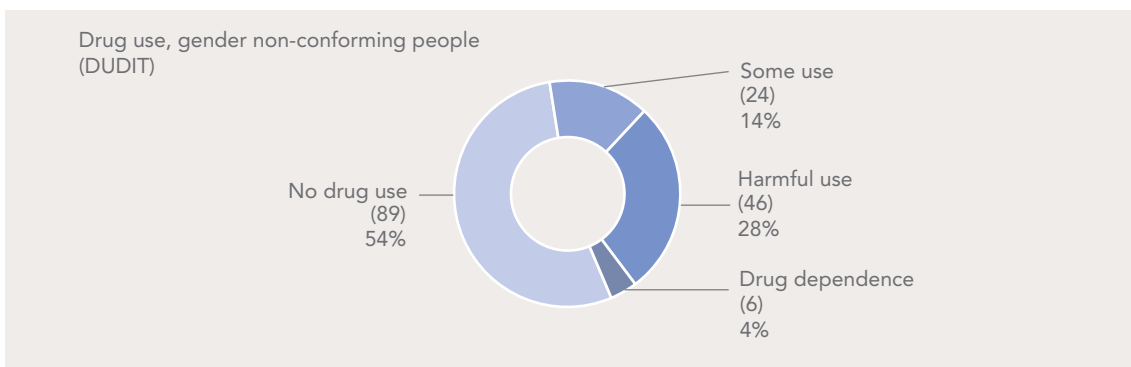
Tobacco use

Two in five transgender women and transgender men reported that they smoke tobacco (42% and 40% respectively; see Figure 62). One in five (21%) transgender women and one in seven (15%) transgender men smoke every day. Among gender non-conforming people, half smoke tobacco, and one in five smoke every day (Figure 63).

FIGURE 62: Tobacco use, transgender participants

Tobacco use, transgender women

Some days
(76)
21%

Not at all
(205)
58%

Everyday
(73)
21%

Tobacco use, transgender men

Some days
(66)
25%

Not at all
(158)
60%

Everyday
(39)
15%
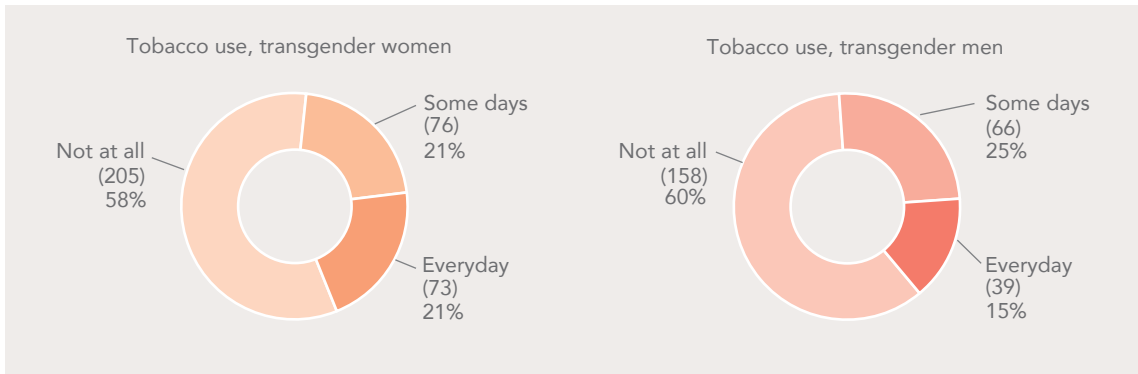
FIGURE 63: Tobacco use, gender non-conforming people

Tobacco use, gender non-conforming people

Some days
(54)
30%

Not at all
(90)
50%

Everyday
(36)
20%
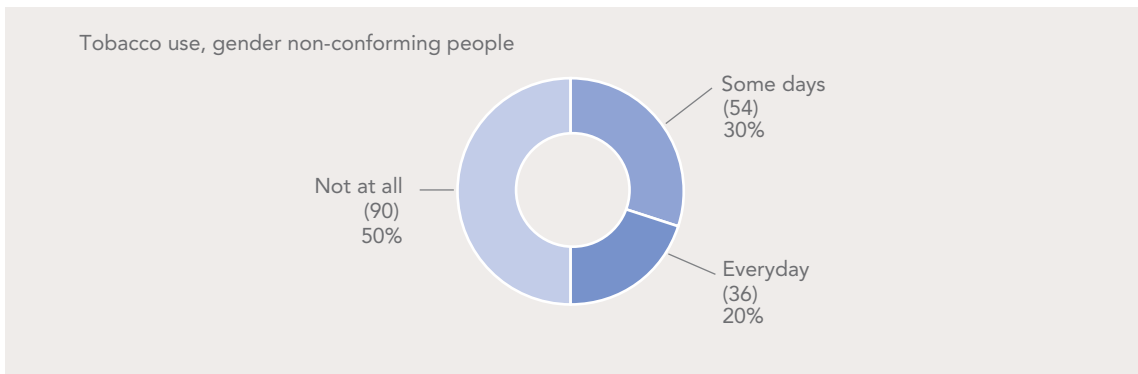
Violence outcomes by sexual orientation and gender identity

In this section, we give an overview of the findings about experiences of violence disaggregated by sexual orientation and gender identity. These figures show that transgender women and gender non-conforming people, in particular, had experienced high levels of violence – although violence was high across the whole sample.

Figure 64 and Figure 65 show the levels of sexual violence experienced by participants in their lifetime and in the past year, disaggregated by sexual orientation and gender identity. Whilst at least one third of sexual minority participants had experienced sexual violence, it is noteworthy that among transgender women and gender non-conforming people, it was more than half. Two in five lesbian women (40%), almost half of bisexual women (48%), and more than one in three gay men (36%) had experienced sexual violence at some point in their life. More than half of transgender women (54%), two in five transgender men (41%) and almost three in five gender non-conforming people (56%) had experienced sexual violence in their lifetime. In the past year, one in three transgender women (30%), and one in four transgender men and gender non-conforming people (24% and 25% respectively) had experienced sexual violence.

FIGURE 64: Sexual violence, by sexual orientation
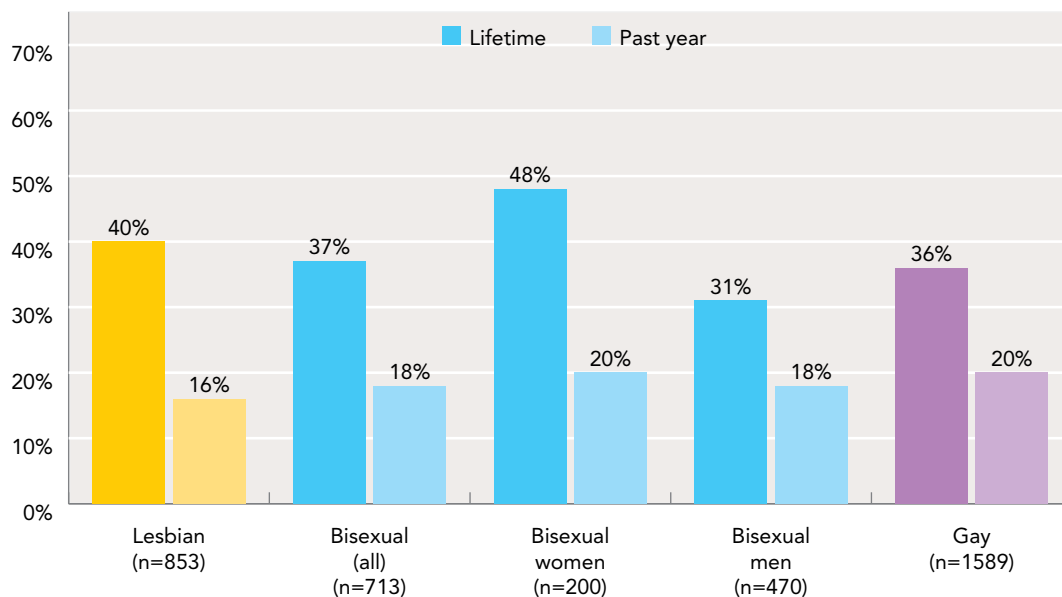
FIGURE 65: Sexual violence, by gender identity
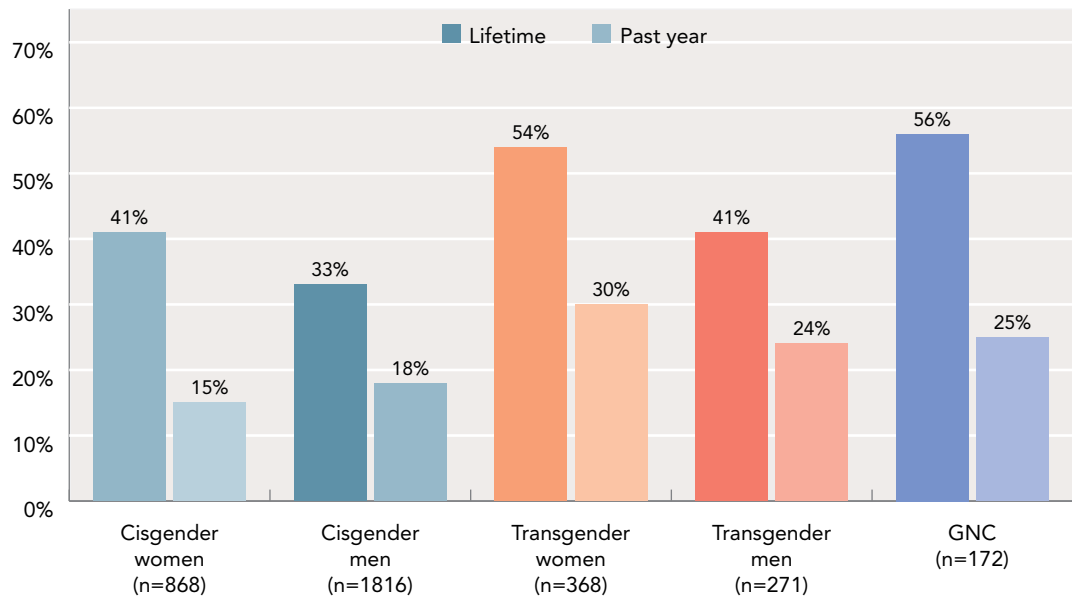
The findings for physical violence are similar (Figure 66 and Figure 67). Again, the levels of having experienced physical violence, both in their lifetime and in the past year, are high for participants of all sexual orientations and gender identities, but particularly high among bisexual women, transgender women and gender non-conforming people.

These findings confirm what we know from other parts of the world: that sexual and gender minority people are at high risk for violence (Blondeel et al., 2018).

FIGURE 66: Physical violence, by sexual orientation
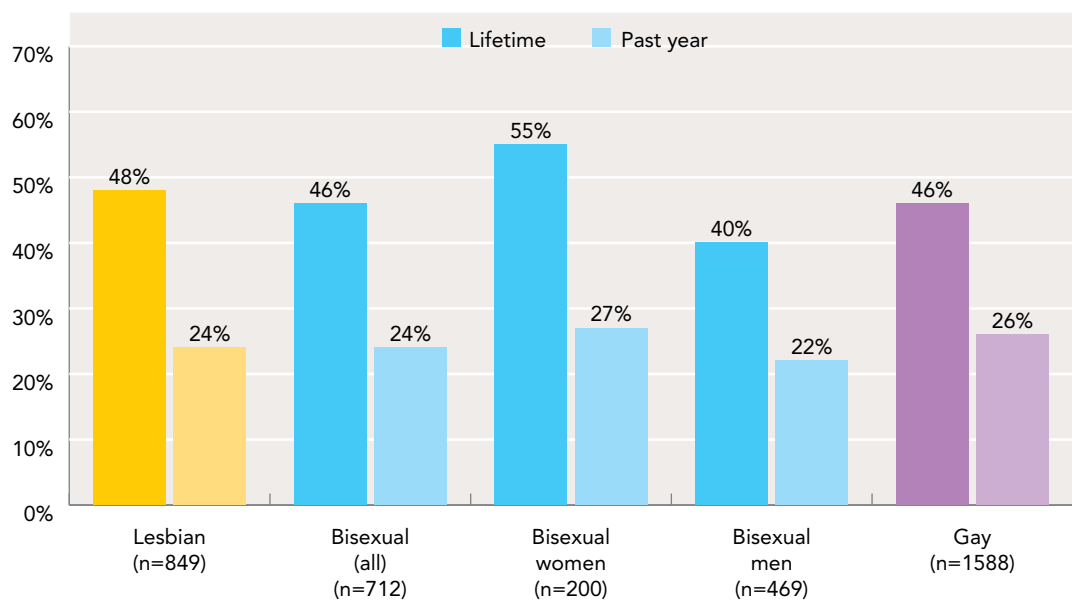
FIGURE 67: Physical violence, by gender identity
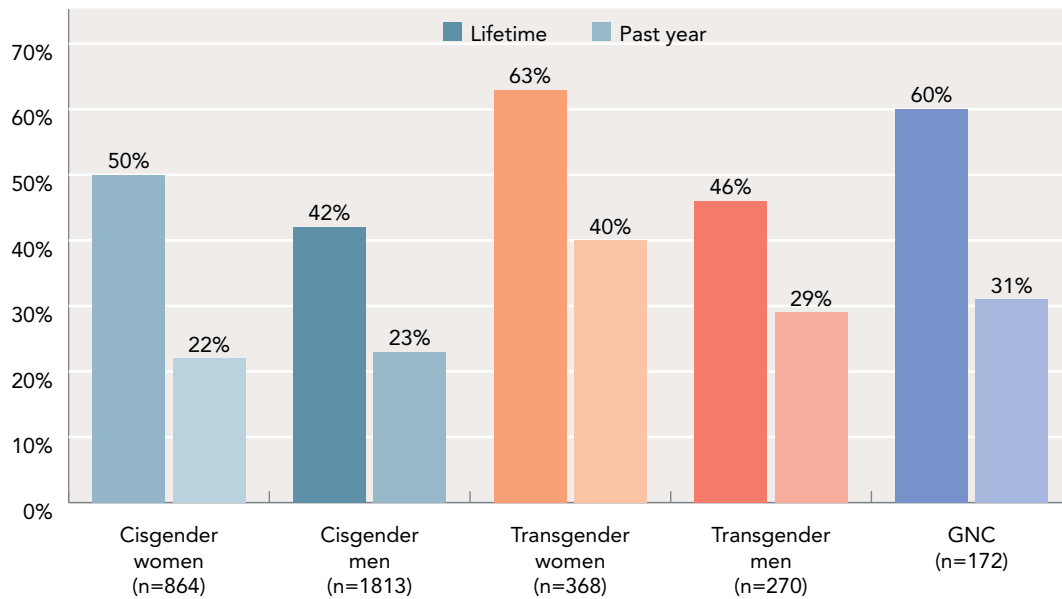
Mental health outcomes by sexual orientation and gender identity

Figure 68 to Figure 73 show the mental health outcomes for depression, anxiety and suicide attempts, disaggregated by sexual orientation and gender identity. The first figure of each pair shows the outcome disaggregated for all lesbian participants, all bisexual participants as well as bisexual women and bisexual men, and all gay participants. The second figure disaggregates the outcome by gender identity for cisgender women participants, cisgender men participants, transgender women, transgender men and gender non-conforming people. These findings serve as easy reference for a comparison between participants of different sexual orientations and gender identities. Overall, they highlight that the levels of depression and anxiety were high for participants of all sexual orientations and gender identities, but particularly high for lesbian and bisexual women, as well as for transgender women and gender non-conforming people. The same pattern can be observed for suicide attempts: one in three lesbian and bisexual women had attempted suicide in their lifetime (32% and 34% respectively), as well as one in three transgender women and men (36% and 32%), and almost every second gender non-conforming participant (46%).

This is in line with findings about the mental health of sexual and gender minority people from other parts of the world (Plöderl & Tremblay, 2015). It highlights how adverse social contexts, such as living with violence and SOGIE-related stigma and discrimination, negatively impact the health and well-being of sexual and gender minority people (Hendricks & Testa, 2012; Meyer, 2003; Meyer 1995).

FIGURE 68: Depression, by sexual orientation

	Lesbian (n=853)	Bisexual (all) (n=711)	Bisexual women (n=200)	Bisexual men (n=468)	Gay (n=1593)
	51%	46%	58%	41%	46%
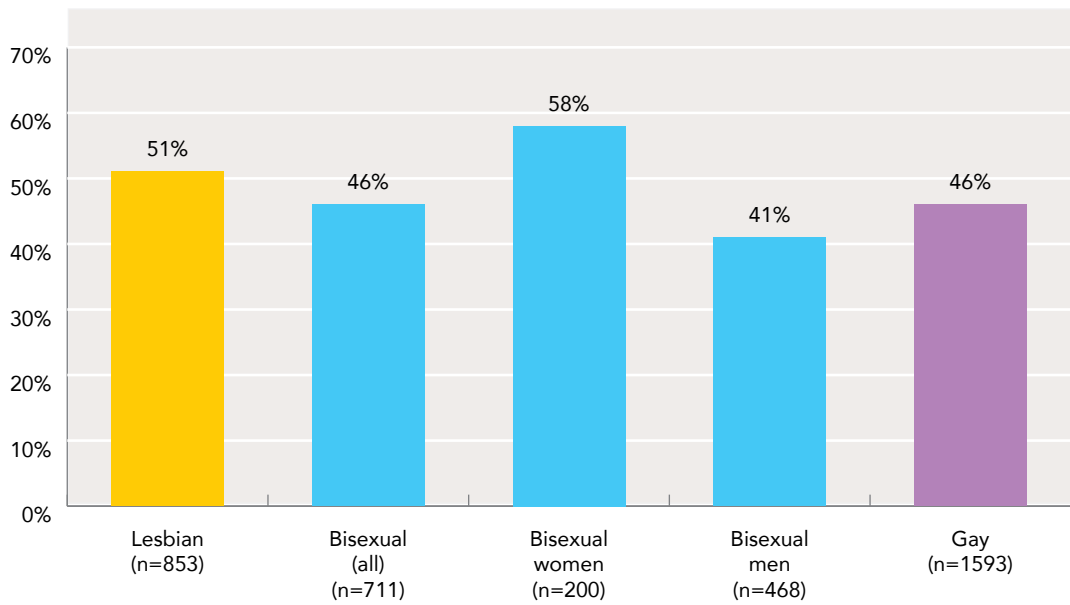
FIGURE 69: Depression, by gender identity

	Cisgender women (n=868)	Cisgender men (n=1816)	Transgender women (n=371)	Transgender men (n=266)	GNC (n=174)
	53%	43%	56%	50%	60%
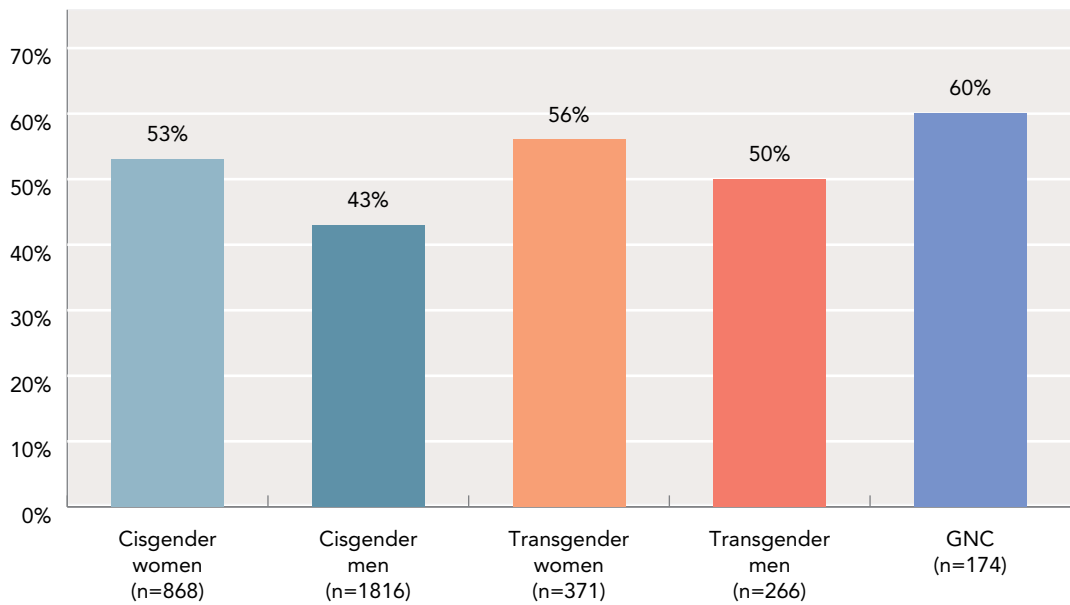
FIGURE 70: Anxiety, by sexual orientation
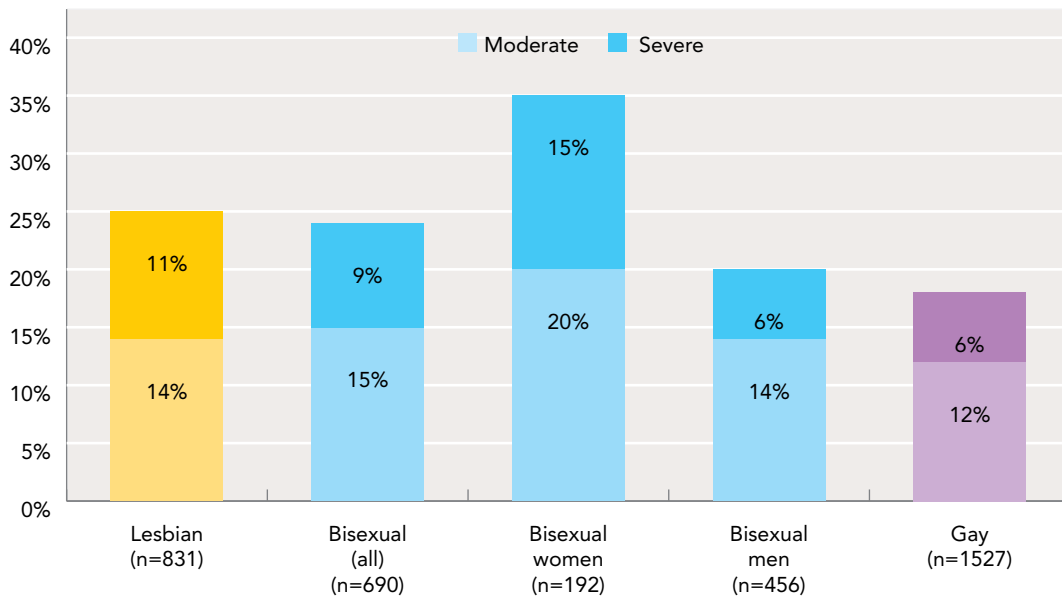
FIGURE 71: Anxiety, by gender identity
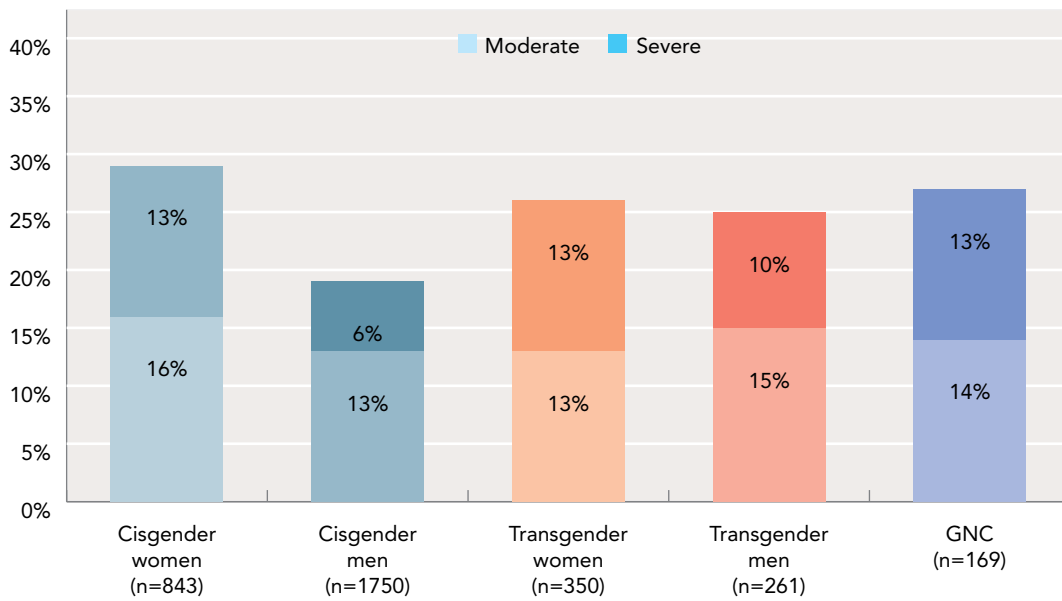
FIGURE 72: Suicide attempts, by sexual orientation

Legend: Lifetime | Past year

- Lesbian (n=821): Lifetime 33%, Past year 13%
- Bisexual (all) (n=691): Lifetime 26%, Past year 9%
- Bisexual women (n=195): Lifetime 34%, Past year 26%
- Bisexual men (n=453): Lifetime 23%, Past year 10%
- Gay (n=1533): Lifetime 29%, Past year 13%
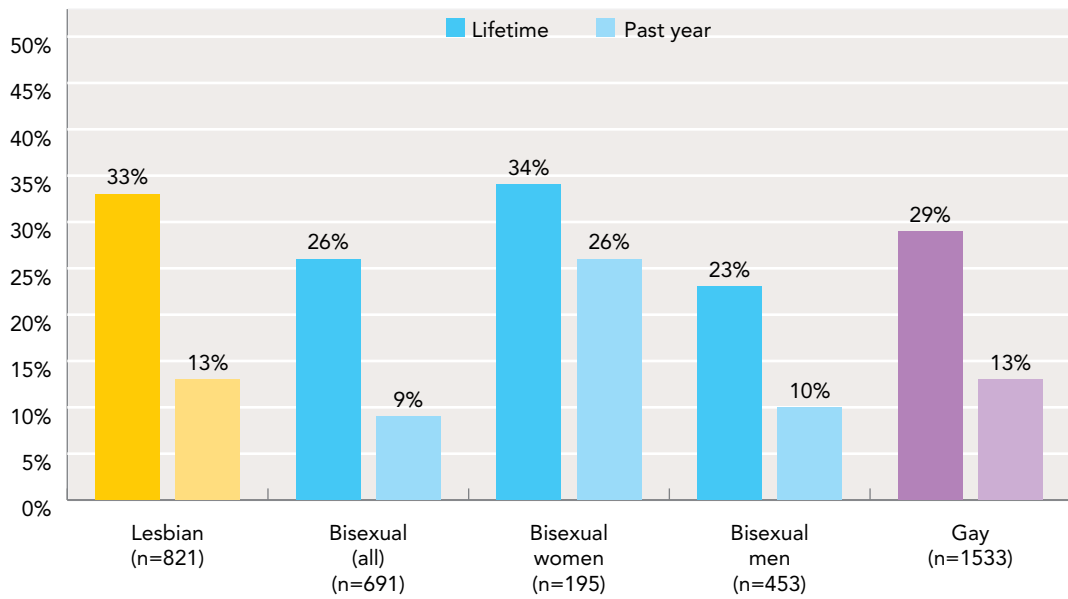
FIGURE 73: Suicide attempts, by gender identity

Legend: Lifetime | Past year

- Cisgender women (n=836): Lifetime 31%, Past year 20%
- Cisgender men (n=1752): Lifetime 26%, Past year 13%
- Transgender women (n=360): Lifetime 36%, Past year 18%
- Transgender men (n=254): Lifetime 32%, Past year 22%
- GNC (n=172): Lifetime 46%, Past year 27%
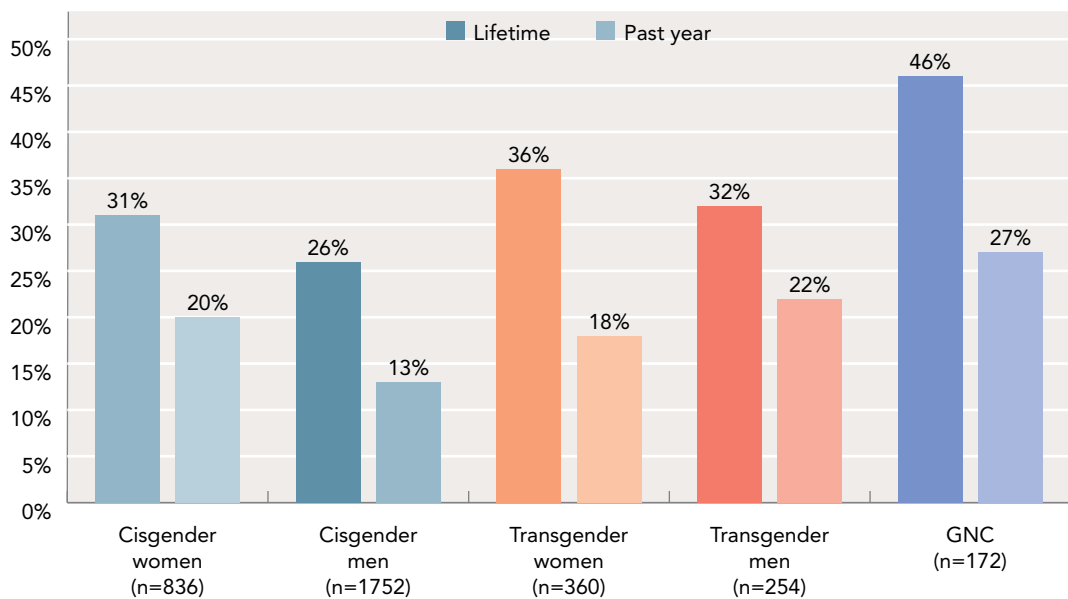
Figure 74 to Figure 79 show details of substance use, also disaggregated by sexual orientation and gender identity. Overall, the levels of substance use were high, and highest among transgender women and gender non-conforming people, followed by lesbian and bisexual women: for example, more than half of transgender women and gender non-conforming people drank alcohol at levels that were bad for their health (Figure 75).

While alcohol, drug and tobacco use might be seen as rather harmless, their long-term health consequences are severe. For example, the World Health Organization estimates that globally, 12% of deaths among adults who are older than 30 are attributable to tobacco use (World Health Organization, 2012). This is because tobacco increases the risk of cancer, heart disease and lung

disease. Alcohol use is also associated with high rates of cancer and other liver diseases (Rehm et al., 2003). The high levels of substance use among sexual and gender minority people in our sample thus also increase their risk for these diseases in the medium to long term.

FIGURE 74: Alcohol use, by sexual orientation
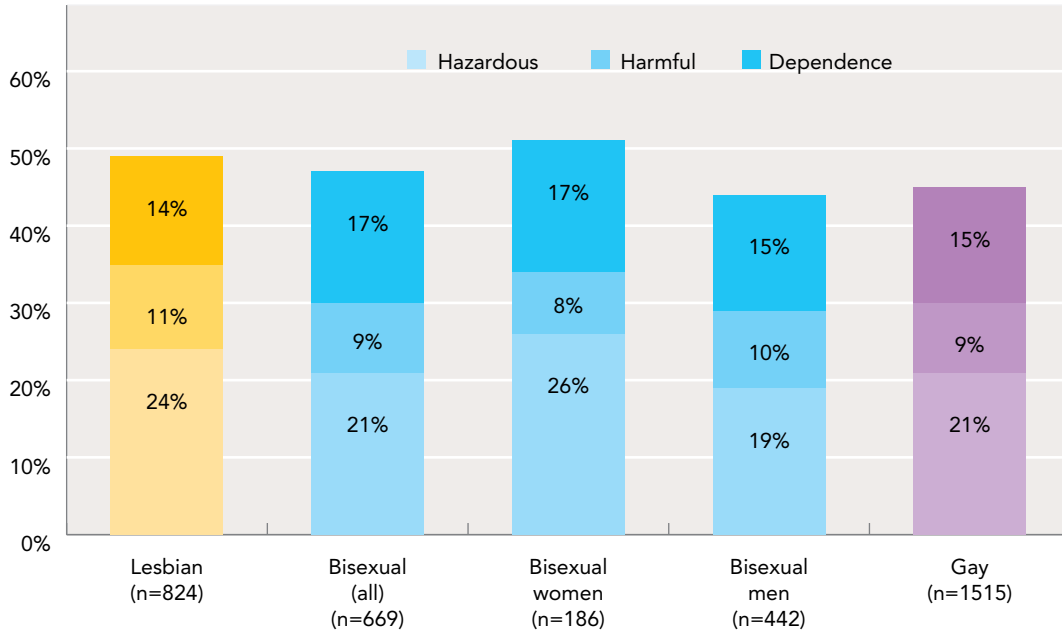
FIGURE 75: Alcohol use, by gender identity
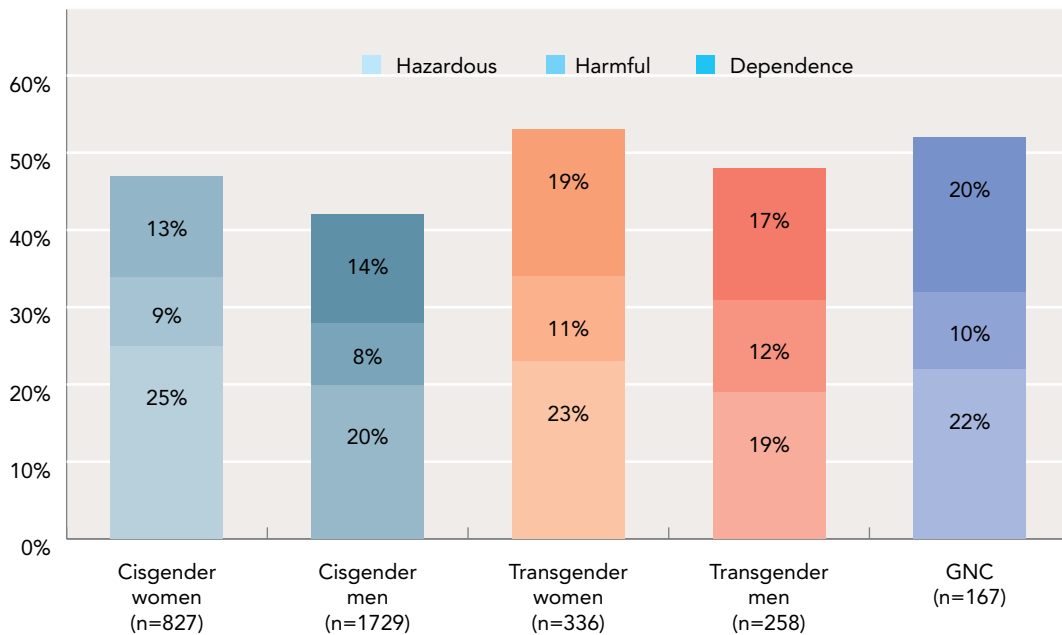
FIGURE 76: Drug use, by sexual orientation
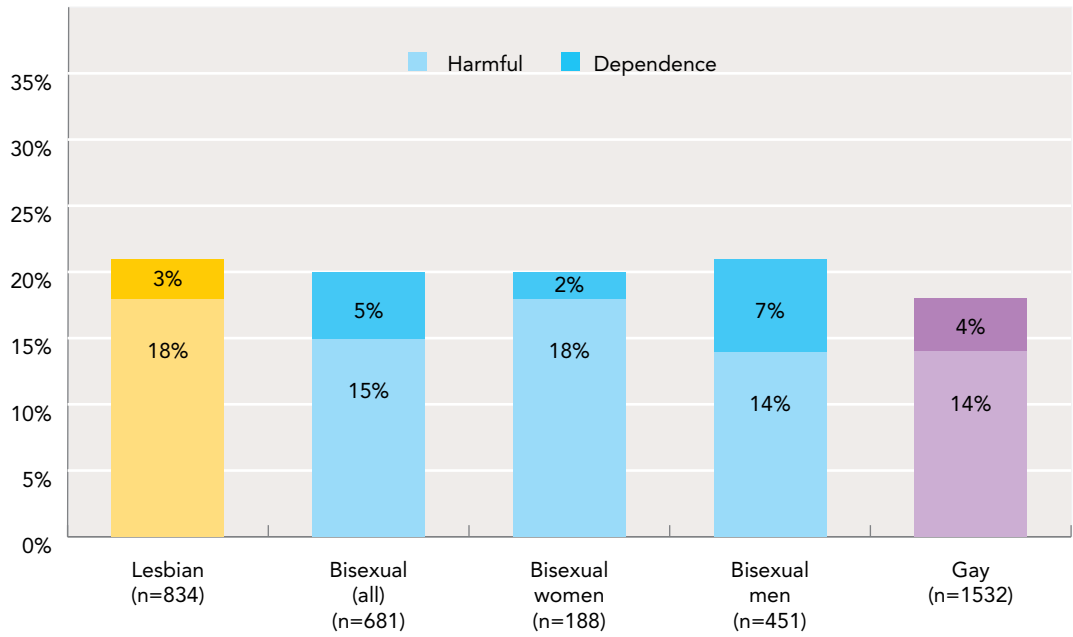
FIGURE 77: Drug use, by gender identity
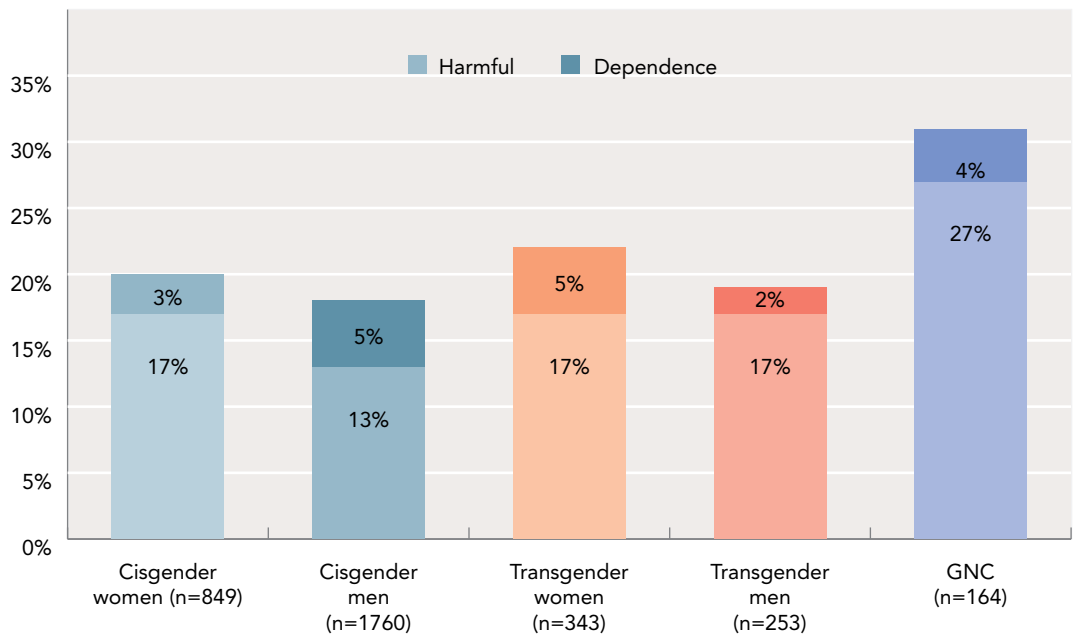
FIGURE 78: Tobacco use, by sexual orientation

Legend: Smoke some days ■ Smoke every day

	Lesbian (n=855)	Bisexual (all) (n=699)	Bisexual women (n=193)	Bisexual men (n=463)	Gay (n=1571)
Smoke every day	18%	19%	19%	19%	14%
Smoke some days	26%	22%	25%	21%	19%
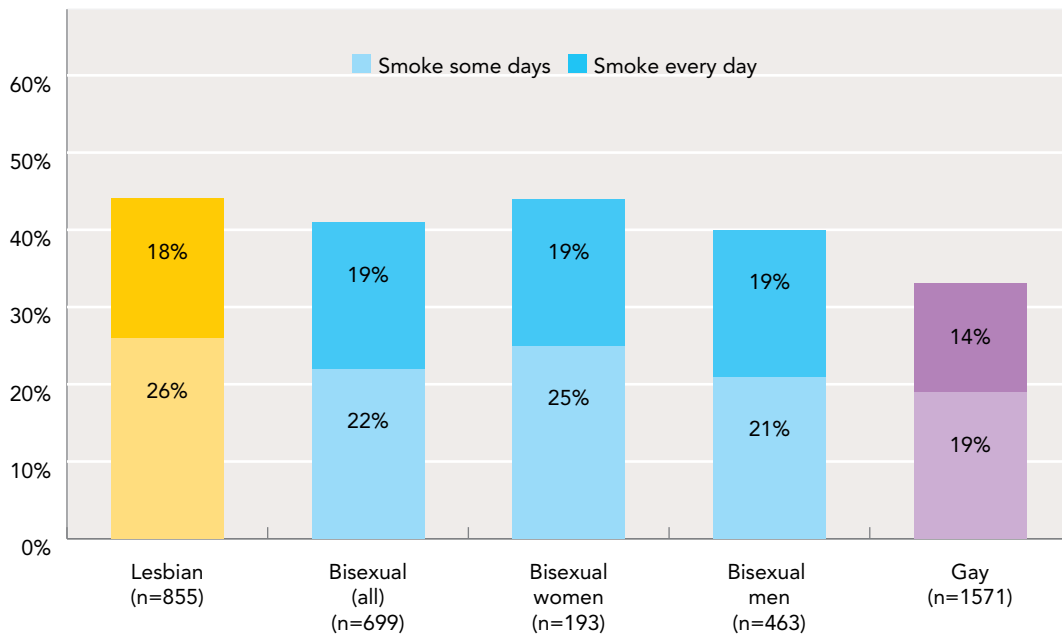
FIGURE 79: Tobacco use, by gender identity

Legend: Smoke some days ■ Smoke every day

	Cisgender women (n=862)	Cisgender men (n=1797)	Transgender women (n=354)	Transgender men (n=263)	GNC (n=180)
Smoke every day	18%	16%	21%	15%	20%
Smoke some days	24%	18%	21%	25%	30%
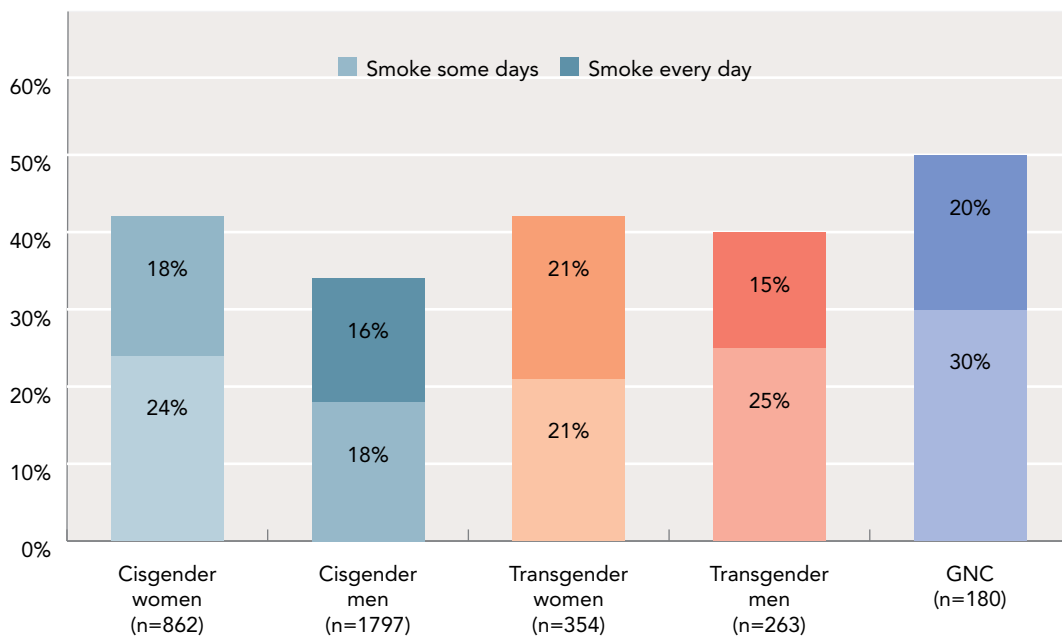
LIMITATIONS

This study has some limitations that should be kept in mind when reading the findings of this report.

First, because we recruited through organisations, we were likely to have participants who are already receiving some kind of services through these organisations. This means that the levels of mental health problems that we report might be higher than in a general sample of LGBTI people (Hendricks and Testa, 2012). We have tried to limit this potential over-estimation by also recruiting participants online, which in other studies has shown to reduce the over-estimation (Rosser *et al.*, 2007b). It is important to keep in mind, however, that even if the levels of mental health problems reported here are higher than among other LGBTI populations, they nevertheless present the current need for mental health support that our community partner organisations encounter through the services they offer.

Second, surveys that ask survivors of violence to report their experiences are likely to produce higher violence estimates than police-recorded administrative data. This is because often, violence is not reported to the police (which our findings confirm). Surveys with survivors of violence deal with incidents that not necessarily match the legal definition of a violent crime. Although data from surveys with survivors of violence are likely to elicit better disclosure of experiences of violence than data from police records, they can also be subject to undercounting, because some survivors may be reluctant to speak about their experiences. We have tried to reduce this potential under-estimation by collecting data through community partner organisations, with which many participants have a trustful relationship.

Third, we were faced with challenging decisions in how to categorise the diversity and complexity of sexual orientation and gender identity for the quantitative analysis. Based on the participatory methodology of this research, we used an in-depth discussion with South African partner organisations about the best way to do the categorisations. For example, a challenging decision was determining who should be included in the "lesbian" sexual orientation category. Although we considered categorising all transgender women who identified as gay to be "lesbian," upon examination of these participants sexual behaviour and attraction, we noted that most gay transgender women strictly have sex with, and are attracted to, men. We therefore drew on sexual behaviour to make some coding decisions. We acknowledge that this may limit or bias our findings about lesbian people. We have worked to describe our methodology openly to allow for interpretation and critique of these findings.

Fourth, this is an exploratory study. Neither of our two sampling methods allow us to draw inferences beyond the constituency population, meaning we are not able to make predictions about larger LGBTI populations across the country or region. The findings from our study are therefore not representative of all LGBTI people in the participating countries. You will also see that in this report, which aggregates findings for the entire East and Southern African region, we do not discuss our findings against findings from the general population. This is due to the fact that most general population health data is disaggregated by country, so we do not have regional data available, and hence we cannot do these comparisons. You will find comparisons to general population data in the reports for each specific country.

Last, it is difficult to compare findings on LGBTI people's health across studies nationally and internationally. This is because there is currently no standardized measure of measuring or identifying sexual orientation and gender identity. As others have observed (Bradford *et al.*, 2013), the "lack of a standardized methodology to measure self-reported experiences of direct discrimination, lack of psychometric measures regarding validity or reliability of instruments, potential reporting biases and measurement error, and variability in assessing chronic and acute exposures, as well as intensity, duration, and frequency of exposure" (Krieger, 1999) limit the current research evidence that we have on topics of discrimination and mental health.

CONCLUSION

Despite the limitations, our study is the first cross-sectional study to describe levels of mental health specifically among sexual and gender minority people in East and Southern Africa. It shows that LGBTI people are experiencing high levels of verbal harassment, physical and sexual violence. LGBTI people, regardless of their specific sexual orientation or gender identity, have high levels of depression, anxiety, suicidality, and substance use. The findings from our study confirm that in East and Southern Africa, as described in other parts of the world (Meyer, 2003; Hatzenbuehler *et al.*, 2014; Plöderl and Tremblay, 2015), social exclusion, marginalisation and stigma due to non-normative sexual orientation and/ or gender identity has a negative impact on the mental health and wellbeing of people who identify as lesbian, gay, bisexual, transgender or intersex.

In 2014, the African Commission for Human and People's Rights (ACHPR) passed Resolution 275, which calls for the protection from violence based on real or perceived sexual orientation and gender identity and proposes specific obligations for African states (ACHPR, 2014). At a joint dialogue of the ACHPR, the Inter-American Commission on Human Rights and the UN, participants concluded that: "[d]ata and evidence is critical to understand the extent and gravity of violations and to advocate for the adoption of measures to prevent, address and redress human rights violations faced by [sexual and gender minorities]" (ACHPR, 2016). The findings from our study provide such data for East and Southern Africa, and evidence the seriousness of the rights violations against Africans who identify as sexual or gender minorities, as well as the health consequences. This report provides an overview for the entire region, and we recommend that these findings be read together with the nine reports that focus on detailed findings from each study country: Botswana, eSwatini, Ethiopia, Lesotho, Kenya, Malawi, South Africa, Zambia and Zimbabwe.

When we disaggregated our findings by sexual orientation and gender identity, we found that compared to participants who are cisgender, gender minority participants showed higher rates of mental health concerns and had experienced more violence. This confirms existing literature that highlights the specific mental health risks and exposure to violence that are linked to gender identities that are not considered 'the norm' – transgender identities and gender non-conformity (Winter *et al.*, 2016). Among the heterogeneous group of sexual minorities, bisexual women showed the worst mental health outcomes. Among the heterogeneous group of gender minorities, transgender women and gender non-conforming people face the highest mental health risks and risks of violence.

The findings from our study demonstrate the urgent need for mental health services that are affirming of sexual and gender diversity and are provided without sexual orientation and gender identity-related stigma, prejudice and discrimination. It is clear that affirming and non-judgmental mental healthcare services for sexual and gender minority people are as important as HIV-related health services. This is not just to improve mental health and wellbeing, but also to support efforts to decrease the vulnerability to HIV.

We invite you to read the nine country reports for a more detailed analysis and discussion of our findings. In the country reports, you will find a comparison of the health outcomes of our sexual and gender participants in relation to the general population, as well as recommendations for various stakeholders, including government, civil society organisations, healthcare providers, researchers and donors.

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GLOSSARY OF TERMS RELATED TO SEXUAL ORIENTATION, GENDER IDENTITY AND EXPRESSION

Bisexual	People who are emotionally, romantically and/or sexually attracted not exclusively to people of one particular gender; attracted to both men and women.
Cisgender	Denoting or relating to a person whose sense of personal identity and gender corresponds with the sex assigned to them at birth.
Gay	A person who is emotionally, romantically and/or sexually attracted to persons of the same gender.
Gender expression	External appearance of one's gender identity, usually expressed through behaviour, clothing, haircut or voice, and which may or may not conform to socially defined behaviours and characteristics typically associated with being either masculine or feminine.
Gender identity	One's innermost concept of self as man, woman, a blend of both or neither – how individuals perceive themselves and what they call themselves. One's gender identity can be the same or different from their sex assigned at birth.
Gender minority	Gender minority refers to transgender and gender non-conforming/gender diverse people whose gender identities or gender expressions fall outside of the social norms typically associated with the sex assigned to them at birth.
Gender non-conforming	A broad term referring to people who do not behave in a way that conforms to the traditional expectations of their gender, or whose gender expression does not fit neatly into a category.
Intersex	Intersex is an umbrella term for individuals who are born with sex characteristics that are, according to the typical understanding in society, either female and male at the same time, or not quite female or male, or neither female or male. This diversity can be related to chromosomes, hormones or anatomical features, and is not pathological.
Heterosexual	A person who is emotionally, romantically and/or sexually attracted to persons of the opposite gender.
Lesbian	Term used to describe female-identified people attracted romantically, sexually, and/or emotionally to other female-identified people.
LGBT, LGBTI	An acronym that refers to lesbian, gay, bisexual, transgender (and intersex if the 'I' is included) people. Often used together to refer to a shared marginalisation because of sexual orientation, gender identity and expression (and diversity of sex characteristics).
Sex assigned at birth	The assignment and classification of people as male, female, intersex, or another sex assigned at birth, often based on physical anatomy at birth and/or karyotyping.

Sexual activity	Sexual activity which includes sexual acts and sexual contacts, is the manner in which humans experience and express their sexuality.
Sexual attraction	Sexual attraction is attractiveness on the basis of sexual desire or the quality of arousing that interest. It is inherent to a person, and not a choice.
Sexual identity	Sexual identity is how someone thinks of him/herself in terms of to whom he/she is romantically or sexually attracted.
Sexual minority	A group whose sexual identity, orientation or practices differ from the majority of the surrounding society.
Sexual orientation	An enduring emotional, romantic, sexual or affectional attraction or non-attraction to other people. It is inherent to a person, and not a choice. Sexual orientation is not the same as gender identity.
Transgender	An umbrella term for people whose gender identity and/or expression is different from cultural expectations based on the sex they were assigned at birth. Being transgender does not imply any specific sexual orientation. Therefore, transgender people may identify as straight, gay, lesbian, bisexual, etc.
Transgender man	A person who identifies as a man, but was assigned a female sex at birth.
Transgender woman	A person who identifies as a woman, but was assigned a male sex at birth.

GLOSSARY OF TERMS RELATED TO THE STATISTICAL ANALYSIS

Adjusted Odds Ratio (AOR)	A statistical value that measures how strong an association between two variables might be. Odds ratio is a measure of association between an exposure and an outcome. Adjusted odds ratio is an Odds ratio which is adjusted for potential confounding by other variables.
Community-based sampling	Community-based sampling is a sampling methodology in which the researchers take their study participants (sample) from the community in general.
Confidence interval (CI)	Confidence intervals help us determine what the real value of a statistically calculated value might be. A confidence interval gives an estimated range of values which is likely to include an unknown population parameter, the estimated range being calculated from a given set of sample data.
Demographics	Properties of an individual or sample that can be regarded as factual, often used to structure a research sample. These include for example age, gender, sex, social class, working status and geographic location.
Descriptive statistics	Descriptive statistics are brief descriptive coefficients that summarize a given data set, which can be either a representation of the entire or a sample of a population. Descriptive statistics are broken down into measures of central tendency and measures of variability.
Electronic Data Management System (EDMS)	An Electronic Data Management System (EDMS) is a software package designed to manage electronic information and records within an organization's workflow.
Logistic regression model	Logistic regression is used to obtain odds ratio in the presence of more than one independent variable. It is used to analyse the relationship between two and more variables.
Mean	Mean is the most commonly used measure of central tendency. There are different types of mean inclusive of: arithmetic mean, weighted mean, geometric mean, and harmonic mean. If mentioned without an adjective (as mean), it generally refers to the arithmetic mean, which is computed by adding all the values in the data set divided by the number of observations in it.
Multiple imputation	Multiple imputation is a general approach to the problem of missing data that is available in several commonly used statistical packages. It aims to allow for the uncertainty about the missing data by creating several different plausible imputed data sets and appropriately combining results obtained from each of them.
Online-based sampling	Online-based sampling is a sampling method from a population of individuals when the primary method of gathering the responses to a given survey comprising a set of questions contained in a questionnaire with the purpose of identifying the attitudes of the given population, is over the Internet.

p-value		The p-value or probability value is a statistical test to assess if what we can see in the data is there by chance. The smaller the p value, the less likely it is that what we see in the data is coincidental.
Pilot survey		A pilot survey is conducted with few individuals of the target population or the sample of a survey, in order to test and refine the survey instruments (questionnaire and instruction manual, data processing manual and programmes) before the main data collection starts across the target population or the full sample.
Prevalence		Prevalence refers to the total number of individuals in a population who have a disease or health condition at a specific period of time, usually expressed as a percentage of the population.
Protocol		A (research) protocol is a detailed document that describes the background, rationale, objectives, design, methodology, statistical considerations, and organization of a clinical research project.
Protocol violation		A divergence from the protocol that reduces the quality or completeness of the data, makes the Informed Consent Form inaccurate, or impacts a participant's safety, rights, or welfare.
Sample		In statistics, a sample refers to a set of observations drawn from a population.
Sample size		Sample size is the number of observations in a sample, often denoted with "n". It describes the number of participants who have filled out a survey, and whose answers have been taken into account when analysing the data.
Survey		A survey is an investigation about the characteristics of a given population by means of collecting data from a sample of that population and estimating their characteristics through the systematic use of statistical methodology.
Questionnaire administration		The process of asking questions and recording the answers.
	Self-administration	When the questionnaires are read and filled by the respondents themselves, the questionnaire administration is called self-administration.
	Fieldworker-administration	When a fieldworker read the questions to the participant, the questionnaire administration is called Fieldworker-administration.
Variable		A variable is a characteristic of a unit being observed which may assume more than one of a set of values, to which a numerical measure or a category from a classification can be assigned.
	Binary variable	A binary variable is a variable with only two values.
	Continuous variable	A continuous variable is a variable that has an infinite number of possible values.

APPENDIX: DETAILED METHODOLOGY

Measures: Sexual orientation and gender identity

Survey questions

In order to paint a nuanced picture of the participants' sexual orientation, we aimed to assess self-identified sexual identity, sexual attraction and sexual behaviour. We asked the following questions:

4. **Self-identified sexual identity** was assessed by asking participants "In terms of your sexual orientation, how do you identify?" (Options: Lesbian, Bisexual, Gay, Heterosexual, Asexual, "Other, specify")
5. **Attraction** was assessed by asking participants who they were sexually and emotionally attracted to (2 questions).
6. **Sexual activity** was assessed by asking participants about who they have had "sexual experiences with in the past year and their lifetime" (2 questions).

For attraction and sexual activity, the questionnaire gave participants a list of options from which they could select all that applied (Options: With women, with men, with trans women, with trans men, with gender non-conforming people, with intersex people, "I have not had sexual experiences", "Other, specify").

To measure a participant's gender identity, we combined three questions:
1. **Self-identified gender identity** was assessed by asking "In terms of your gender identity, how do you identify?" (Options: Woman, Man, Trans woman, Trans man, Gender non-conforming, "Other, specify").
2. We asked about **sex assigned at birth** (Options: Male, Female, Intersex)
3. Additionally, we asked what sex/ gender was recorded in the participant's identity document(s)

Categorisation for analysis

Throughout this report, we use categories of sexual orientation (lesbian, gay, bisexual, 'non-normative', and heterosexual) and gender identity (cisgender women, cisgender men, transgender women, transgender men and gender non-conforming people) to disaggregate the findings about experiences of violence and mental health outcomes. To create these categories, we in some instances had to re-code the way participants self-identified, based on the other information they provided in the questions about their sexuality and gender identity. Re-coding in these categories was done in the following ways:

Sexual orientation

- *Lesbian (and other women who have sex with women):* any participant who identified 'lesbian' as their sexual orientation; any cisgender woman who identified 'gay' as their sexual orientation; any transgender woman who identified as 'gay' and was sexually attracted to/has sex with women; any transgender man who identified as 'gay' and was sexually attracted to/has sex with women[5]; any cisgender or transgender woman who identified as 'heterosexual' but exclusively had sex with women in the past year; any cisgender or transgender woman who identified as 'heterosexual,' had not had sex with anyone in the past year and was exclusively sexually attracted to women; gender non-conforming people who identify as gay and have sex exclusively with women.

- *Gay (and other men who have sex with men):* Any transgender or cisgender man, gender non-conforming person, or 'other' gender identity who identified their sexual orientation as 'gay'; any transgender woman who identified as 'gay' and was sexually attracted to/has sex with men[6]; men who identified their sexual orientation as 'homosexual' or 'MSM'; any cisgender or transgender man who identified as 'heterosexual' but exclusively had sex with men in the past year; any cisgender or transgender man who identified as 'heterosexual,' had not had sex with anyone in the past year and was exclusively sexually attracted to men.

- *Bisexual*: any participant who identified as 'bisexual'.

- *Non-normative sexual orientation:* We were cognisant that the more widely used sexual orientations (lesbian, gay, bisexual) depend on the assumption of a gender binary: one can only classify their sexual orientation if one's own gender and one's partner's gender is either woman or man; ie. lesbian means that one identifies as a woman and is attracted to or has sex with other women (Better and Simula, 2015). If one's partner identifies as gender non-conforming, it is not possible to classify one's sexual orientation as lesbian (a woman attracted to women), gay (a man attracted to men) or bisexual (a woman or a man attracted to both men and women). For those participants whose sexual orientation transgressed the gender binary, and for participants who did not fit the gender binary needed to classify their sexual orientation as lesbian, gay or bisexual, we created a new category: that of 'non-normative' sex orientation. The 'non-normative' indicates that they could not be classified as any of the more widely used sexual orientations (lesbian, gay or bisexual). A lot of these participants had listed their sexual orientation as 'other' – including for example, queer or pansexual. Additionally, it includes participants who identified as 'heterosexual' and who reported having sex with people of more than one sex/gender in the past year.

- *Heterosexual:* any participant who identified as 'heterosexual' and had sex with only people of a different sex/gender in the past year.

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5   Transgender men who had sex with women and identified as heterosexual were grouped as 'heterosexual'. While grouping transgender men who identify as gay and who are attracted to and have sex with women as 'lesbian' does not completely accurately capture their self-defined identity, we felt it would have been even less accurate to group them with cisgender men who have sex with men

6   See previous footnote. Transgender women who had sex with men and identified as heterosexual were grouped as 'heterosexual'. While grouping transgender women who identify as gay and who are attracted to and have sex with men as 'gay' does not completely accurately capture their self-defined identity, we felt it would have been even less accurate to group them with cisgender women who have sex with women.

Gender identity

- *Transgender women:* Those who self-identified as trans women; those who self-identified as women and were assigned male at birth.
- *Transgender men:* those who self-identified as trans men; those who self-identified as men and were assigned female at birth.
- *Gender non-conforming:* those who self-identified as gender non-conforming, regardless of sex assigned at birth.

Measures: Mental health

CES-D 10: Depression

We used the instrument CES-D 10, a 10-item Center for the Epidemiological Studies of Depression Short Form to measure depression. It is widely used to screen for signs of depression in primary care settings, and is often used for research on the prevalence of depression. It is important to keep in mind, however, that we cannot diagnose people using the CES-D 10. In order to receive a definitive diagnosis of clinical depression, an individual needs to see a healthcare provider.

We followed the CES-D 10 instructions to categorise scores into a binary variable, using a cut-off score of 10, where participants with a CES-D 10 score of 10 or above were considered to have signs of depression and those with a score under 10 were classified as not having signs of depression. Additionally, we report only on participants who had no more than two missing values on the CES-D 10 items (Radloff, 1977). However, for logistic regression models including CES-D 10 as a covariate, the continuous variable of the CES-D 10 score was used and multiple imputation was used for missing values. For the logistic regression model where the CES-D 10 score was the outcome, the binary variable was used.

GAD-7: Anxiety

The Generalized Anxiety Disorder 7-item scale (GAD-7) uses seven scored Likert items that assess signs of anxiety in the last two weeks. We created a categorical variable with the following cut-off scores: score of 0 to 4 indicates no anxiety symptoms; score of 5 to 9 indicates mild anxiety symptoms; score of 10 to 14 indicates moderate anxiety symptoms; score of 15 or above indicates severe anxiety symptoms. We also created a binary variable using a score of 10 as a cut-off to compare no/mild anxiety with moderate/severe anxiety, which was used for the logistic regression model where GAD-7 score was the outcome (Kroenke, Spitzer and Williams, 2001; Spitzer *et al.*, 2006). We excluded participants who had missing data for any GAD-7 items from GAD-7 scoring. In logistic regression models in which GAD-7 was a covariate, we used the continuous GAD-7 score, and used multiple imputation to impute missing data.

AUDIT: Alcohol

The Alcohol Use Disorders Identification Test (AUDIT) uses 10 items to assess whether an individual's alcohol use is harmful. The questions ask about how often participants drink alcohol, how much, and how their alcohol use has impacted their life (e.g. "Have you or someone else been injured because of your drinking?"). Participants who do not drink have an AUDIT score

of 0. For those who do drink, we followed the AUDIT manual to create a categorical variable with the following cut-offs: score of 1 to 7 indicates non-hazardous alcohol use; score of 8 to 15 indicates hazardous use; score of 16 to 19 indicates harmful use; score of 20 and above indicates alcohol dependence. We excluded participants who had missing data for any AUDIT items from AUDIT scoring. For the logistic regression model where AUDIT was the outcome, we used a binary variable with a cut-off score of 8 (Barbor *et al.*, 2001). In logistic regression models in which AUDIT was a covariate, we used the continuous AUDIT score. We used multiple imputation to impute missing data for the regression models.

DUDIT: Drugs

The Drug Use Disorders Identification Test (DUDIT) is a scale with 11 items to assess harmful drug use. We created a categorical variable using the following categories, which are suggested by the DUDIT manual: score of 0 for those who do not do drugs; score of 1 to 5 for some drug use; score of 6 to 24 for harmful use; score of 25 and above indicates drug dependence (on one or more drugs) (Berman *et al.*, 2003). To create a binary variable, the DUDIT manual recommends different cut-off scores for men and women, and does not specify what to do in instances of gender minority people. Recognising the limitations of these recommendations for a study with gender diverse participants, we chose to use the higher cut-off score of 6, which the manual recommends for men, for participants of all genders. We used the binary variable with this cut-off point in the logistic regression model where DUDIT was the outcome. In logistic regression models in which DUDIT was a covariate, we used the continuous DUDIT score. We excluded participants who had missing data for any DUDIT items from DUDIT scoring, however we used multiple imputation to impute missing data in the regression models.

Signs of post-traumatic stress

We created a binary variable for signs of post-traumatic stress: those who said they experienced all three signs were categorised as having signs of post-traumatic stress; those who said they experienced one, two, or no signs were categorised as not having signs of post-traumatic stress. This binary variable was used when post-traumatic stress was included as a co-variate in logistic regression models.

Sampling and enrolment

Decisions around sampling for LGBTI populations are complex, and impacted by a number of factors unique to this population and the specific country-context. Sampling is complicated by the following factors, as described by Meyer and Wilson (Meyer and Wilson, 2009):

- LGBTI populations are not easy to identify. Sexual orientation and gender identity are not fixed constructs, different people have different identities, and this is particularly important in contexts where Western concepts of L, G, B, T and I might not hold the same value for everybody. Further, many LGBTI people may not reveal their gender or sexual orientation, or seek assistance from LGBTI organisations, for fear of discrimination.
- LGBTI populations are hidden. For a sampling method that predicts larger, population-size trends, researchers need to know the overall population size, in our example, the overall number of LGBTI individuals in each country. This of course is impossible to determine,

both because of the previous point, and because sexual orientation and gender identity are not registered in national census data, thus making it impossible to obtain this information. This means that sampling methods that will allow us to make predictions about ALL LGBTI people in a certain context are impossible at this moment.

- Given that many partner organisations do not have definite numbers of their constituency population, it would be impossible for us to even make generalising predictions about any organisations' constituency population, for the same reasons outlined in the previous point (Meyer & Wilson, 2009).

Given these restrictions, we combined two sampling methods: community-based sampling and online-based sampling. We chose to combine these two sampling methods for two reasons:

- Hendricks and Testa (Hendricks and Testa, 2012) show that needs assessments and community-based samples, such as the one we used for our study, often reach especially vulnerable parts of sexual and gender minority populations. This means that the people who participate in community-based surveys, such as ours, are often disadvantaged in more than one way, and so face oppression on more than one level. This means that what we learn from community-based sampled studies can illustrate minority stress by reaching those who are most affected.

- However, Rosser and colleagues (Rosser *et al.*, 2007) have pointed out the limitations of community sampling, which may over-represent targeted problems. In our sample, this means that by sampling people who already access NGOs (arguably because they feel they need support), we might over-estimate the level of mental health problems among sexual and gender minority people more generally. Therefore, we have added online-based sampling to also reach people who do not access NGO services directly.[7]

The following table provides an overview of the number of participants in each country, as well as the number of participants enrolled by each organisation.

Partner organisation	Number of participants
Botswana	618
Bonela	223
LeGaBiBo	168
RIA	221
Other (filled out in Kenya but living in Botswana)	3
Ethiopia	198
Organisation 1	64
Organisation 2	119
Other (online)	15

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7   In some countries, the online response rate was poor, or partner organisations chose not to implement online data collection. This was for various reasons, including: poor access to internet, poor access to data collection devices and safety concerns about publicising a public survey link. We describe the country-specific use of the online survey in the Findings section.

Partner organisation	Number of participants
Kenya	976
Ishtar-MSM	183
Jinsiangu	76
Maaygo	181
Minority Women in Action	104
National Gay and Lesbian Human Rights Commission	215
PEMA	216
Other (online)	1
Lesotho	173
People's Matrix Association	173
Malawi	197
Centre for the Development of the People	196
Other (collected in Kenya, participant living in Malawi)	1
South Africa	832
Durban Lesbian and Gay Community and Health Centre	102
Gender Dynamix	166
OUT LGBT Well-Being	202
Triangle Project	256
Other (online)	106
eSwatini	103
Rock of Hope	102
Other (online)	1
Zambia	353
Friends of Rainka	197
TransBantu Zambia	59
The Lotus Identity	90
Other (online)	7

Partner organisation	Number of participants
Zimbabwe	346
Gays and Lesbians of Zimbabwe	178
Sexual Rights Centre	165
Other (online)	3
TOTAL	3,796

Data management

Once the partner organisations had finished collecting data, all questionnaires were sent to the GHJRU's offices at the University of Cape Town for data entry. Data were entered by trained research assistants, using the RedCap online survey tool.

Data quality

We undertook a number of steps to ensure that the quality of data was as high as possible. Questionnaires with good data quality are questionnaires that are completely filled out.

For the online survey: The REDCap online survey had checks for data quality in place. For example, skip/logic patterns were programmed into the survey. The online survey also prompted participants to fill out questions that they had accidentally left out.

For the paper survey: We trained fieldworkers to review all completed paper surveys before the participant who had filled it out left. This was so that the fieldworker could identify questions that the participant might have missed, or questions that the participant should not have answered, or questions where the participant had ticked more than one answer. Because the survey was totally anonymous, we could not go back to participants and ask them about questions they had not filled out, or questions that they had filled out incorrectly (where, for example, they had ticked two possible answers and we did not know which one was correct).

Once received at the GHJRU offices, we (the researchers) checked all surveys checked for quality. We trained people to enter the data, who would also identify unusual responses or errors in the data documented on the surveys. When necessary, we held meetings with the data enterer to decide on "data entry rules" for surveys where participants had ticked contradictory answers. We applied these data entry rules to all surveys.

In cases where the participants had not ticked yes to all eligibility questions, or where they had not ticked yes to say that the consented to participating, we did not enter the data from the survey and excluded the participant from the study.

Data cleaning

We used REDCap was used during the data cleaning process to update data in instances of data entry error. Following this, data was exported to Stata. We used Stata to examine patterns of missing and conflicting data. Unusual or unexpected responses that were identified in this process were checked against paper copies and amended as needed.

"Other, specify" responses were reviewed by the research team. We recorded decisions on how to code these write-in responses in the "data entry rules," which were applied to data from all countries. In instances of large numbers of the same "other" responses, we created new coding categories.

Conflicting data

In some instances, questions asked about the same experience twice: first about the experience in participants' lifetime, then in the last 12 months. For example:

	Has there ever been a period of time when you thought about committing suicide?	In your lifetime?	1 Yes	0 No
		In the last 12 months?	1 Yes	0 No

In some instances, participants entered a conflicting response; for example, saying that they had not thought about suicide in their lifetime, but had thought about it in the last 12 months. In some instances, they left the question about lifetime incomplete, but said they had thought about suicide in the last 12 months. During data cleaning, we made the decision to recode "lifetime" as "yes" in both these instances – so if a participant said they had experienced something in the past 12 months, by default they had also experienced it in their lifetime. This was done for all questions in the above format in the questionnaire.

Data analysis

All data from the online survey and paper survey were managed through REDCap at the University of Cape Town. Data cleaning was completed with REDCap and Stata15. Data analysis was conducted with Stata15.

Describing the data

The main aim of this research was to report prevalence of mental health concerns, healthcare access experiences, experiences of violence, social support and stigma among sexual and gender minority people in our sample.

For this reason, the majority of the report uses descriptive statistics to explain what the research participants reported. These findings should not be considered "representative" of the sexual and gender minority population in each country. However, as an exploratory, cross-sectional study we hope that our findings will reveal priority areas for future research and service delivery, considering the dearth of evidence on sexual and gender minority people's mental health and wellness on the continent.

Measuring associations

This study did not collect information from heterosexual, cisgender people. Because of this, our findings do not report on sexual and gender minority people as compared to their heterosexual, cisgender counterparts. In some instances we drew on peer-reviewed and grey literature in order to discuss our findings as compared to other populations.

In some instances, we report on interesting associations we found within our own sample. For example, we often examined differences between gender minorities and cisgender participants (where the cisgender participants are sexual minority people) and between black and white participants (where black refers to any participant who did not identify as white). For these comparisons, we started with using chi squared (or Fisher's exact) tests to assess raw associations between categories. The p-values for these tests are reported in tables throughout the Findings section of this report. P-values describe the statistical significance of the association, that is, the chances of whether the association we found is simply due to chance.

Logistic regression

In some instances, we used a tool called logistic regression to examine differences in outcomes within our sample. For example, in countries with large sample sizes, we used logistic regression to asses if there was a difference in depression level ('outcome') between cisgender and gender minority participants ('predictor') while also accounting for other factors.

Logistic regression is used when an outcome has multiple predictors (factors that may cause, prevent or contribute to the outcome). By using logistic regression, we are able to measure association between the outcome and multiple predictors at the same time. Logistic regression produces adjusted odds ratios (AORs), which measures the size of association between different predictors and the outcome.

In our logistic regression models, we included predictors that are known or suspected confounders ("third variables" that influence both a predictor and an outcome) or that are believed to otherwise influence the outcome. This inclusion is called 'adjustment', meaning that the AOR takes into account the effects of other predictors when describing the relationship between any one predictor and outcome.

Examining the AOR gives information about how predictors and outcomes were related in our sample. AORs greater than 1 mean that as the predictor increases, the odds of the outcome increases ("positively associated") and AORs less than 1 mean that as the predictor increases, the odds of the outcome decreases ("negatively associated").

P-values and confidence intervals add understanding about whether these findings are due to chance. A p-value is a measure related to probability. The confidence interval expresses a range in which we are "confident" that the true AOR exists. For this study, we used 95% confidence intervals for AORs—meaning that we are 95% confident that the 'true' association between the predictor and outcome lies within the confidence interval. A p-value of less than 0.05 indicates that there is a 'true' difference in the outcome as a predictor changes (while also accounting for the other predictors in the model).

Example
For example, in South Africa, we found that lifetime experience of sexual violence was associated with suicidal ideation in the last year (see in the South Africa section of this report):

Suicidal ideation (last year)	AOR	95% CI	p
No experience of sexual violence	-	Reference category	
Experienced sexual violence (lifetime)	2.05	1.29 – 3.26	0.003

We can interpret this table as follows:

- Reference category is "no experience of sexual violence" – this means that the predictor is "experienced sexual violence (lifetime)", which will be compared to "no experience of sexual violence" (the reference category)

- AOR of 2.05 – The odds of suicidal ideation in the last year are 2.05 greater in those who experienced lifetime sexual violence, in comparison to those who did not experience sexual violence, holding all other factors constant.

- 95% confidence interval of 1.29-3.26 – We are 95% confident that the AOR is between 1.29 and 3.26.

- p-value of 0.003 – The p-value is less than 0.05 (<0.05) which means we believe that there is a statistically significant difference in the AOR of suicidal ideation in the last year between those who have and have not experienced sexual violence in their lifetimes.

Missing data

Prior to beginning analysis, we examined patterns of missing data. Missing data was sometimes more common for specific variables than others.

Due to the anonymous nature of the questionnaire, we could not follow-up with participants to ask their response when a questionnaire item was incomplete. We recorded these in the database as missing data.

Missing data was more common in the "outcomes" section of the questionnaire, which came after demographics, and among those who completed the questionnaire online. We expect that some participants chose to end the survey early or where otherwise interrupted while completing the online survey. In analysis, we included only questionnaires (paper and online) in which the participant completed at least some items in the "outcomes" section.

Patterns of missing data were different between study countries, study sites, and between questionnaire items. After consideration, we decided to report descriptive statistics using only complete data (please note the sample sizes in the "Findings" of this report by locating the "n" for each table or figure). This is known as "complete case analysis."

For some measures of association, we utilised a method for dealing with missing data called multiple imputation. Multiple imputation is a statistical process with three steps: (1) imputation—statistical software is used to generate duplicate datasets in which the missing data has been replaced by calculated values ("imputations"), (2) analysis—each imputed data set is analysed separately, (3) pooling—the separate analyses are statistically pooled into one measure of association.

Multiple imputation is useful because it can help prevent bias that missing data can cause.

We decided not to apply multiple imputation while reporting on descriptive statistics, although this has been done by others elsewhere. Based on the designed purpose of multiple imputation, imputed data is not meant to truly replace or substitute the answer that would have been true for a participant. Rather, imputed data is used more like a place holder so that a statistical analysis can be stronger. For this reason, we felt that reporting imputed data in descriptive statistics would be misleading.

We used multiple imputation to account for missing data in all regression models. To multiply impute, we used predictive mean matching for continuous variables and categorical scale items (i.e. Likert scales) and logistic regression for binary variables. Predictive mean matching was a method designed for continuous data, but it has been suggested it can also be applied to categorical variables (Morris, White and Royston, 2014). We imputed only variables that were necessary for these analyses, as well as additional variables we felt might be associated with "missingness" of data. All variables relevant to the analyses were imputed, even when the amount of missing data was small.

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