Are we doing alright?

Realities of violence, mental health and access to healthcare related to sexual orientation and gender identity and expression in Zambia

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

ALEX MÜLLER, KRISTEN DASKILEWICZ AND THE SOUTHERN AND EAST AFRICAN RESEARCH COLLECTIVE ON HEALTH (SEARCH)

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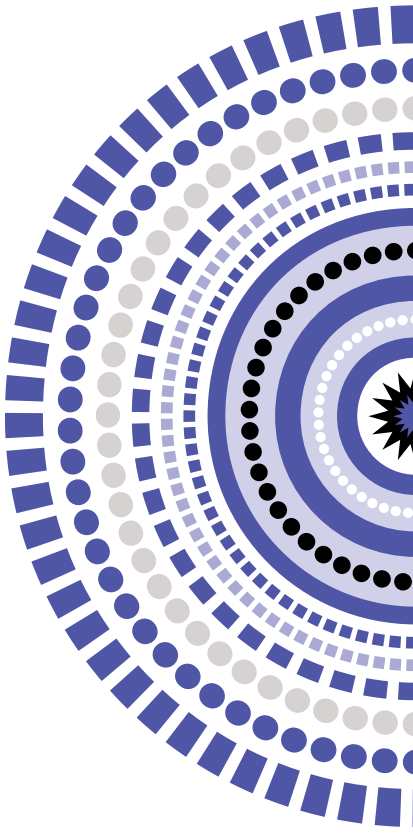


The SEARCH Collective

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

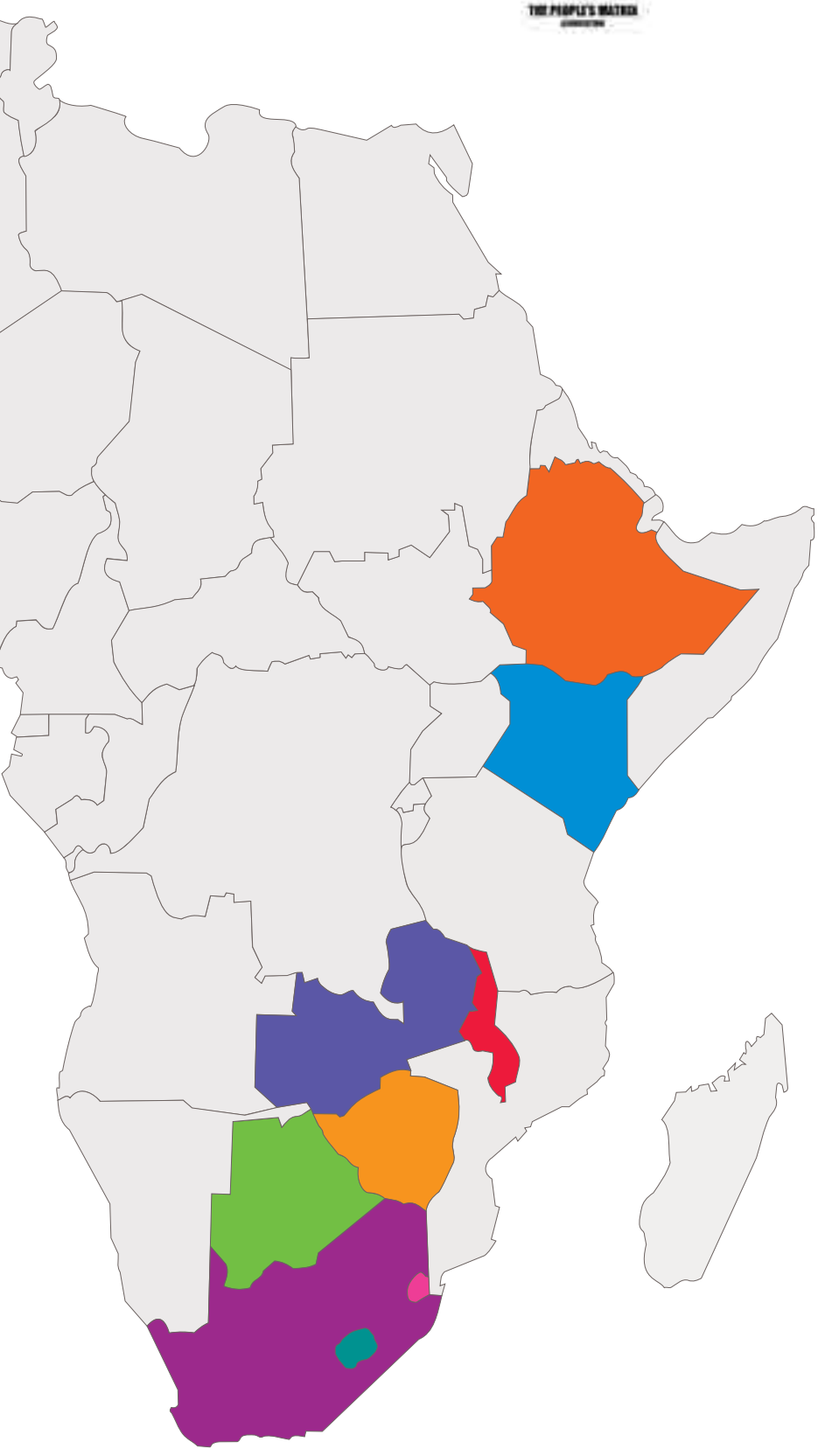
Gender Health and Justice Research Unit, University of Cape Town

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

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This work has truly been the product of queer labour, and whilst the report documents the manifold challenges faced by LGBTI people in East and Southern Africa, it is equally testament to our mutual care, our resilience, resourcefulness and agency.

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LIST OF ACRONYMS

ACHPR	African Commission for Human and People's Rights
AOR	Adjusted odds ratio
AUDIT	Alcohol Use Disorders Identification Test
CBPR	Community-based participatory research
CEDEP	Centre for the Development of People
CES-D10	10-item Centre for Epidemiological Studies Depression Scale
CI	Confidence interval
COC	Cultuur en Ontspanningscentrum (Center for Culture and Leisure)
DSM	Diagnostic and statistical manual of mental disorders
DUDIT	Drug Use Disorders Identification Test
EDMS	Electronic Data Management System
GAD-7	Generalized Anxiety Disorder 7-item scale
GALZ	Gays and Lesbians of Zimbabwe
GATE	Global Action for Trans* Equality
GHJRU	Gender Health and Justice Research Unit
GNC	Gender non-conforming
HCT/ HIV VCT	HIV voluntary testing and counselling
ICD	International Classification of Disease
LGBT	Lesbian, Gay, Bisexual and Transgender
LGBTI	Lesbian, Gay, Bisexual and Transgender and Intersex
MSM	Men who have sex with men
NGLHRC	National Gay and Lesbian Human Rights Commission
NGO	Non-governmental organisation
n	Sample size
p	p value
SGM	Sexual and gender minority
SOGI	Sexual orientation and gender identity
SOGIE	Sexual orientation and gender identity and expression
SRC	Sexual Rights Centre
STI	Sexually transmitted infection
TBZ	Trans Bantu Zambia
UCT	University of Cape Town
US	United States
WHO	World Health Organization
WSW	Women who have sex with women

REPORT SUMMARY

This report presents research findings on the mental health and well-being of lesbian, gay, bisexual, transgender and intersex (LGBTI) people in Zambia. 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. 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 nine countries of this study, 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).

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.

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.

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 four 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 specific country under consideration: Zambia. We first describe the socio-political context in which LGBTI people live. We then describe the research findings: first we describe the group of participants, then we describe the findings on health-seeking behaviour. We then describe the findings on experiences of violence, and after that describe the mental health outcomes of depression, anxiety, alcohol use, drug use, tobacco use and suicidality. When describing these findings, we compare our findings to what we know from studies with LGBTI people in other parts of the world, and to what we know about the general population in the specific country that the study was conducted in. Following this, we present an overview of the mental health outcomes for each specific population: for lesbian women, for gay men, for bisexual women and men, as well as for transgender people (including transgender women, transgender men and gender non-conforming people). This serves as an easy reference for anybody interested in population-specific health concerns. The forth section of the report provides recommendations for governments, non-governmental organisations, academic researchers and international and national donors. In the appendices, we provide more detailed information about our methodology, and include the survey instrument.

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, very few participants identified themselves as "intersex." 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 social support

We asked three questions about participants' social support: "Who do you go to when you need someone to talk to about problems in your life?", "Who in your life knows that you are LGBTI?", and "Of those, who have you told yourself about being LGBTI?" We combined the last two questions, to have an indicator of whether participants are 'out' in their social context.

Health-seeking behaviour and access to healthcare

We developed a number of general questions to ask about what kind of healthcare participants used, and where. Additionally, we adapted questions about experiences of discrimination in healthcare from other studies with LGBTI people (Bazargan and Galvan, 2012; Cruz, 2014; Calton, Cattaneo and Gebhard, 2015).

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 IN ZAMBIA

Sexual orientation, gender identity and expression in Zambia

Despite becoming independent from Britain in 1964, Zambia retained the parts of the British colonial penal code that criminalised 'carnal knowledge against the order of nature' in sections 155 to 158 of the Penal Code (the 'sodomy law'). Listed under 'unnatural offences', they are widely interpreted to criminalise same-sex activity ('sodomy'), with a punishment of 14 years to life in prison. Attempting to engage in 'sodomy' is also a crime, punishable by 7-14 years in prison. The Zambian Penal Code further prohibits "indecent practices between persons of the same Sex" for which adults could serve 7-14 years in prison. If "indecent practices" are committed by a minor under the age of 16, they could instead be sentenced to community service or ordered to undergo counselling (Global Legal Research Centre, 2014). Section 158(1) addresses any 'male' who commits "gross indecency", and Section 158(2) is repeated to specifically address any 'female' who does, which means that these sections of apply to both men and women who have sex with people of the same sex or gender (Carroll and Itaborahy, 2015).

Unlike other countries in the region, Zambia enforces these sections of the Penal Code and police regularly make arrests under the 'sodomy law', and additionally uses other sections of the penal code to justify arrests of sexual and gender minority people (Phiri, 2016). For example, in 2014, two men were arrested and charged under the sodomy law for being in a relationship. In 2015, two men were arrested for kissing in public, and charged with 'causing a public nuisance'. In 2018, police called for the arrest of two women who had posted pictures of themselves being in a relationship on social media. In 2018, police also arrested another two men under the 'sodomy law' (Phiri, 2016). In 2013, a human rights activist was arrested after he appeared on a TV programme, where he spoke about the need to recognise the rights of LGBTI individuals. He was charged with the offence of soliciting in a public space for immoral purposes[4]. Often, such arrests are widely publicised in the media, which further incites homo- and transphobic sentiments in the wider public.

4 Lusaka Times, February 2014

According to a study undergone by the organisation Friends of Rainka, the criminalisation of same-sex sexual activity is a liability for many transgender and intersex individuals who – while not personally identifying as gay or lesbian – often are perceived to be homosexual (Johnston, 2014). Thus, transgender people are also arrested and charged under Sections 155-158 ("carnal knowledge against the order of nature"). For example, a transgender woman was arrested for, charged and found guilty of 'sodomy' in 2015. Additionally, Section 378 of the Penal has been used to arrest transgender people on charges of "impersonation", suggesting that transgender people "falsely represent themselves to be some other person" (Phiri, 2016).

Although Zambia is a signatory of the Banjul charter, which enshrines freedom from discrimination, there is no national anti-discrimination provision to protect individuals from being discriminated against on the basis of their sexual orientation and/or gender identity. Zambia frames sexual and gender diversity as 'un-Christian' and 'un-African'. The Zambian constitution declares that the country is a 'Christian nation', which the country's politicians and media use to discriminate against and demonise sexual and gender minority people (Phiri, 2016). In the past, Zambia has also justified its discriminatory stance against sexual and gender minorities with its right to sovereignty, especially against criticism that it perceives to emanate from 'Western' countries (Phiri, 2016).

The influence of American-style evangelical churches in Zambia, which has increasingly dominated Christian religious practice in the country, is an especially relevant obstacle in terms of public attitudes as well as cultures, which inform legal and policy environments. In 1980, there were 515,000 (9%) evangelical Christians in Zambia, which rose to 800,000 (12,6%) in 1990 and leapt to 2.2 million (25%) in 2000 (Grossman, 2015). There is also evidence that religious leaders in Zambia are urging the public to take the law into their own hands, calling for mob retaliation against LGBTI people (DiDiRi Collective, 2013).

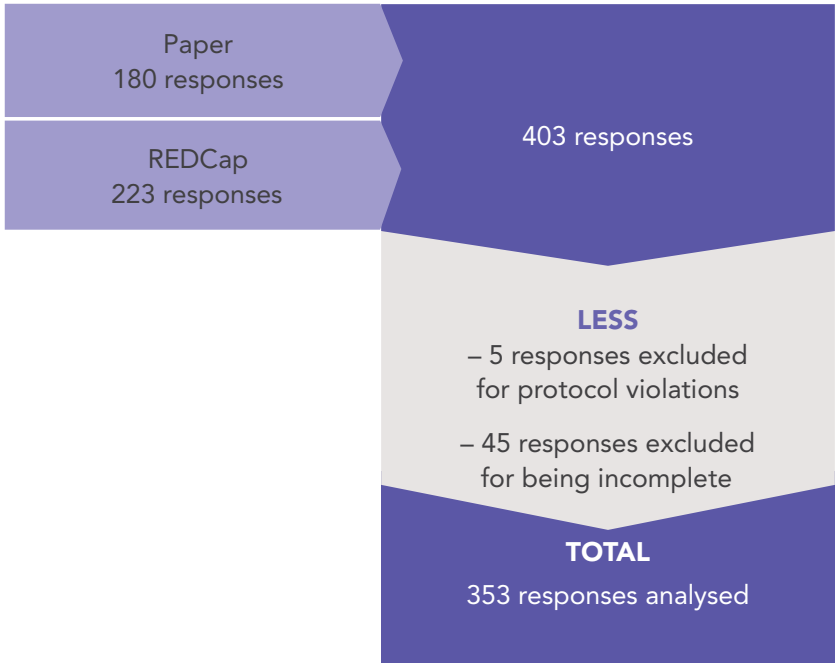
Against this legal and social context, lesbian, gay, bisexual and transgender persons in Zambia experience frequent human rights violations, including discrimination in and denial of healthcare, arbitrary arrests, violence and intimidation by community members, police and state officials, and no freedom of association (Phiri, 2016).

The study population: sample characteristics

In Zambia, we collected survey data both on paper and online, through REDCap, an electronic data management system. Participants filled out surveys by themselves (self-administration) or with the assistance of a fieldworker (fieldworker-administration).

On paper, a total of 180 surveys were filled out through three partner organisations. An additional 223 Zambian surveys were collected through REDCap. Of these 403 responses, 5 violated the research protocol (protocol violations) because they either did not document informed consent, or the respondent was not eligible (for example not 18 years old or older). Surveys with these violations were excluded from our final sample in analysis. Some participants began the survey but did not completely fill it out. We decided to exclude anyone who did not reach the 'outcomes' section of the survey. For this reason, an additional 45 participants were excluded from the sample, leaving a final sample of 353 participants for analysis (Figure 1).

FIGURE 1: Zambia participant sample



We do not report on the number of participants who were approached for participation but who declined or were ineligible. These participants did not fill out the survey.

We therefore analysed 353 participant responses from Zambia. Of these, 245 (70%) filled out the survey on their own, and 106 (30%) filled it out with the help of a fieldworker (for 2 participants, this information was missing). Half of the surveys were answered on paper and half were answered on REDCap. When REDCap was used, this was sometimes with a fieldworker using a tablet for data collection and sometimes through online recruitment where participants filled out the survey themselves by accessing the survey website. Different methods of data collection were used by different partner organisations (Table 4). As the link to the survey on REDCap was shared on Facebook and other social media, not all REDCap responses could be linked to a partner organisation (Table 4).

TABLE 4: Methods of data collection among Zambian partner organisations

Data collection method (n=351)									
Partner organisation	Paper, fieldworker -administered		Paper, self-administered		REDCap, fieldworker -administered		REDCap, self-administered		
	n	%	n	%	n	%	n	%	TOTAL
Friends of Rainka	9	4.57	37	18.78	57	28.93	94	47.72	197
Trans Bantu Association	31	52.54	26	44.07	1	1.69	1	1.69	59
The Lotus Identity	8	8.89	62	68.89	0	0.00	20	22.22	90
Other	0	0.00	0	0.00	0	0.00	5	100.00	351

Sociodemographic characteristics

Table 5 shows detailed information about participants' demographics (characteristics of the sample). The average (mean) and median age was 26 years, with the youngest participant being 18 years old, and the oldest 47 years old. All participants identified as black. Just over half of participants lived in urban areas (55%), 37% lived in peri-urban areas (urban outskirts) and 7% lived in a rural area. The majority of participants listed Christianity as their faith (81%).

TABLE 5: Sociodemographic characteristics

	n	%
Age group (n=350)		
18-24	133	38.00
25-34	190	54.29
35-54	27	7.72
What type of area do you live in? (n=351)		
Urban	195	55.56
Semi-urban/Peri-urban	130	37.04
Rural	26	7.41
Religious beliefs* (n=351)		
African tradition	4	1.14
Islam	8	2.28
Christianity	285	81.20
Rastafarianism	7	1.99
Not religious	45	12.82
Other	4	1.14

*More than one answer possible

Sexual and gender diversity / sexual orientation and gender identity

Because only people who identified as lesbian, gay, bisexual or any other non-heterosexual sexual orientation (sexual minorities), and/ or people who identified as transgender, gender queer, non-binary or any other non-cisgender gender identity were allowed to participate in the survey, every participant was a sexual minority and/or gender minority. To determine participants' specific sexual orientations and gender identities, we asked a range of questions on sexual and emotional attraction, sexual behaviour, sexual identity, gender identity, sex classification at birth and legally assigned sex/gender. Participants' responses reflect the vast diversity of sexual and gender identity (for example, see Table 6).

TABLE 6: Participants' self-identification of sexual orientation and gender identity

Participant self-identified sexual orientation	Participant self-identified gender identity							
	Woman	Man	Trans woman	Trans man	GNC*	Other	Missing data	Total
Lesbian	46	8	4	9	8	1	0	76
Bisexual	22	34	0	1	2	0	0	59
Gay	30	123	12	1	10	2	0	178
Heterosexual	0	8	6	8	2	0	0	24
'Transgender'	0	1	4	2	0	1	0	7
Other	4	1	0	0	2	0	0	8
Missing data	0	0	0	0	0	0	1	1
Total	102	175	26	21	24	4	1	353

* GNC: gender non-conforming.

Table 6 describes how participants responded when asked how they identify their sexual orientation and gender identity, and therefore describes 'self-identification.' These are the terms that participants chose as most fitting to describe their sexual orientation and gender identity.

It should be noted that in Table 6, we did not categorise participants based on same-sex sexual experiences or the sex they were assigned at birth. Thus, Table 6 reflects only how people self-identified, and does not take into account, for example, people who identify as heterosexual but have had same sex/gender sexual relations, or who identify as man or woman, but were assigned a different sex at birth. A total of 7 participants (2% of the sample) wrote that they identify their *sexual orientation* as 'transgender', which is widely understood to be a gender identity. We have illustrated this mismatch by listing 'transgender' within quotation marks in the list of sexual orientations.

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 examine experiences of violence and mental health outcomes. To create these categories, we in some instances re-coded the way participants self-identified. This was to consider the additional information provided by other items in the survey. We describe the process of re-coding in the section 'Measuring sexual orientation and gender identity' in the previous section of this report.

Sexual minorities

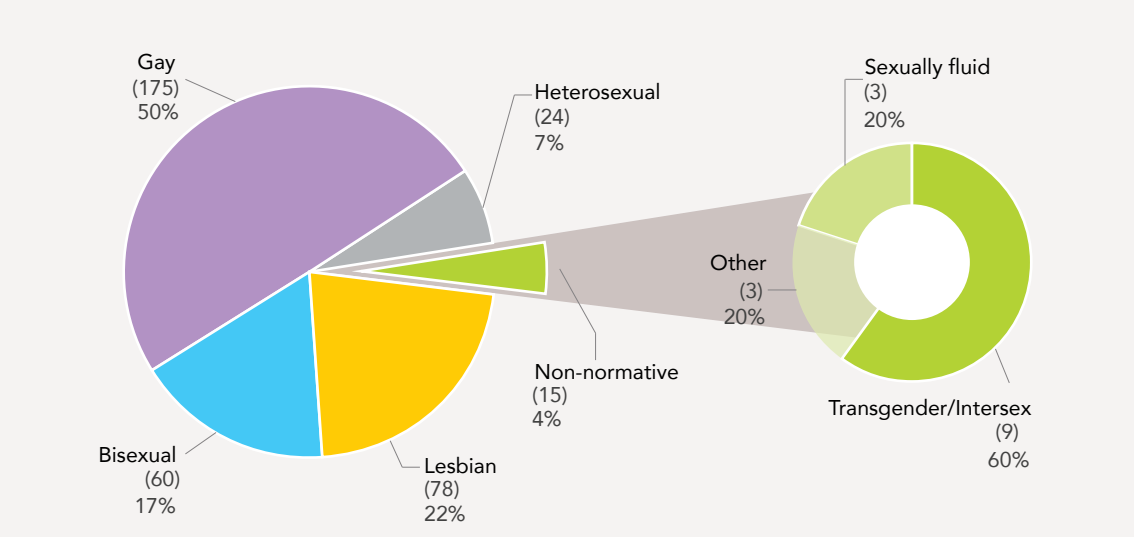
We considered anyone who did not identify as heterosexual to be a sexual minority (see Table 6 and Figure 2), as well as anyone who had not had sex in the past year but was exclusively sexually attracted to people of the same sex/gender or had had sexual experiences exclusively with a partner or partners of the same sex or gender in the past year, even if they self-identified as heterosexual (n=1). In the existing HIV literature, these participants are referred to as 'men who have sex with men' (MSM), or 'women who have sex with women' (WSW) (Young and Meyer, 2005;

Baral *et al.*, 2009). We decided to use the term sexual minority and not MSM or WSW for two reasons: (1) MSM and WSW are used in research on sexual behaviour and sexual health, and have been criticised for focusing too much on the sexual behaviour of people, while neglecting their relationships, communities and social networks; (2) the alternative term 'sexual minority' highlights people's social marginalisation due to non-normative sexual orientation or sexual practice. Given that our research is about people's mental health and well-being and does not ask about sexual behaviour or sexual health, 'sexual minority' is more appropriate to highlight the effect of minority status on mental health, well-being, vulnerability to violence and marginalisation in healthcare.

In total, 328 participants (93%) were sexual minorities.

Figure 2 displays participants' sexual orientations. Participants who were classified as gay, lesbian and bisexual made up the majority of the sample. Seven per cent of participants identified as heterosexual (note that these participants all identified as a gender minority, so as transgender women, transgender men or gender non-conforming). Eleven per cent of participants had identified as a range of other sexual orientations (for example as sexually fluid or 'transgender'). This 'non-normative' category is heterogeneous (full of different identities). Figure 2 breaks down the composition of the 'non-normative' sexual orientation category. Anyone who listed two or more sexual orientations was also recorded under 'non-normative'.

FIGURE 2: Participants' sexual orientations



Gender minorities

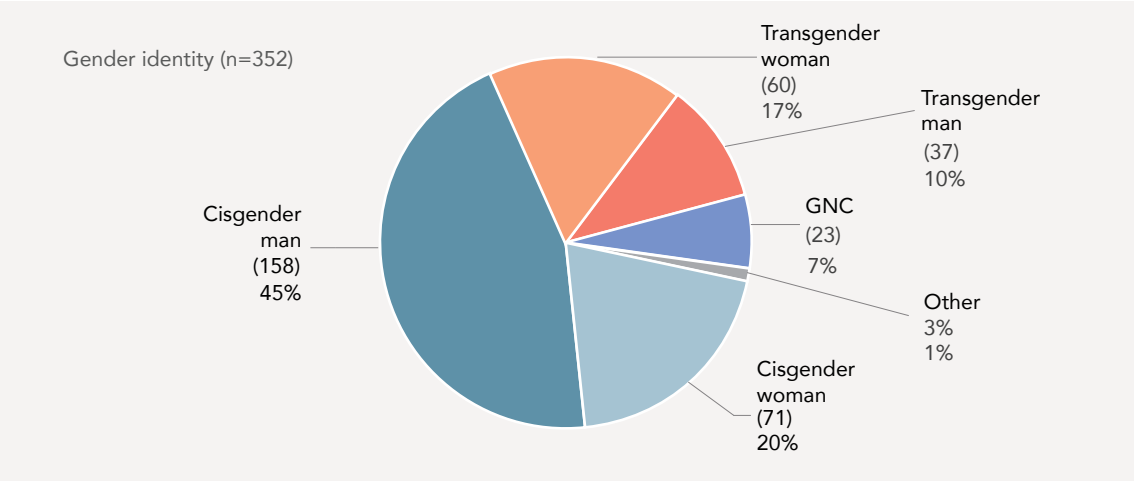
In order to identify gender minority participants, we asked two questions: How did participants self-identify their gender identity (see Table 6), and what sex was assigned to participants at birth. Based on these parameters, we defined gender minority participants as:

1. those who self-identified as transgender women, transgender men, gender non-conforming (GNC) or other; and
2. those whose gender identity was different from the sex assigned to them at birth (n=47, 13%).

In total, 123 participants (35%) were gender minorities.

For this report, we considered those whose reported gender identity was different from the sex assigned to them at birth to be transgender women and men, as appropriate. Figure 3 displays participants' gender identities.

FIGURE 3: Participants' gender identity



Three participants identified their gender identity as 'other', and entered the following: 'non-binary,' 'stud' and 'gender non-conforming and intersex.' We did not analyse the group of 'other' gender identities on its own. For more information about how we recorded sexual orientation and gender identity, see 'Sexual orientation and gender identity measurement' in the Methods of this report.

Socioeconomic circumstances

Table 7 details participants' socioeconomic status. For many key outcomes in this report, we report statistics for gender minority participants as a subgroup of the overall sample. We use this approach to highlight times when gender minority people, in comparison to cisgender people, may be particularly vulnerable due to stigma and persistent socio-economic disparities. It is important to remember though that the cisgender people in our sample are all sexual minorities, so are likely to experience stigma and/or discrimination based on their sexual orientation.

TABLE 7: Social and financial capital, by gender identity

Overall sample (n=353)			**Gender minority participants (n=123)**		
	n	%	n	%	p
Housing type	(n=350)		(n=122)		
Categorical					0.003*
House	194	55.43	75	61.48	
Apartment	136	38.86	35	28.69	
Shanty/shack	11	3.14	8	6.56	
Mobile house	9	2.57	4	3.28	

Overall sample (n=353)			Gender minority participants (n=123)		
	n	%	n	%	p
Binary					0.016*
Informal	20	5.71	12	9.84	
Formal	330	94.29	110	90.16	

Housing security	(n=351)		(n=122)		
Owns home	25	7.12	13	10.66	0.157
Rents home	171	48.72	55	45.08	
Shares housing without paying	155	44.16	54	44.26	

Highest completed level of education	(n=352)		(n=122)		
Categorical					0.020*
No formal education	5	1.42	3	2.46	
Primary education	35	9.94	19	15.57	
Secondary school	183	51.99	60	49.18	
Post-secondary school/ University diploma or degree	129	36.65	40	32.79	
Binary					0.003*
No formal/primary education	40	11.36	22	18.03	
Secondary or post-secondary	312	88.64	100	81.97	

Employment	(n=351)		(n=121)		0.082
No employment	171	48.72	53	43.80	
Formal employment	100	28.49	32	26.45	
Informal employment	80	22.79	36	29.75	

Sufficient money for basic needs	(n=350)		(n=121)		0.280
No	192	54.86	71	58.68	
Yes	158	45.14	50	41.32	

Has medical aid	(n=170)		(n=122)		
No	265	75.50	97	79.51	0.195
Yes	86	24.50	25	20.49	

*Chi square/Fisher's exact test p-value significant, at $p<0.05$

Ninety-four percent of participants lived in housing or apartments (formal, stable housing structures) and 6% lived in shacks or mobile homes (informal, unstable, or transient housing). No Zambian participants lived on the street. Housing security was poor: only 7% of participants owned their own home, while almost half of participants rented (48%) and another 44% lived in shared housing without paying rent (for example with family or friends). Gender minority participants were significantly more likely to live in informal housing than cisgender participants ($p<0.05$).

Levels of education were reported as high in the overall sample: 89% had completed secondary education and over a third of all participants had completed a post-secondary educational degree (for example, a tertiary degree or a post-secondary diploma; 37%). We saw a difference between cisgender and gender minority participants: almost one in five gender minority participants did not finish secondary school (18%). This was a significant difference between cisgender and gender minority participants.

Many participants were in financially precarious situations: almost half did not have a paid job (49%). By comparison, the unemployment rate in the Zambian general population, according to the World Bank, was 8% in 2017[5]. One in four participants (23%) held informal jobs, without contracts. More than half of participants (55%) said they did not have enough money to cover their basic needs.

Only a quarter of participants (25%) had private health insurance (medical aid).

Social support and being 'out'

To measure social support, we asked participants who they go to when they need to talk about life problems. We also asked who in their life knows about their sexual orientation and gender identity as a way of quantifying how 'out' they are. A description of these responses is in Table 8.

TABLE 8: Social support and being 'out'

	Overall sample (n=353)		Gender minority participants (n=123)		
	n	%	n	%	p
Who they go to for support	(n=319)		(n=114)		
Current partner(s)	153	47.96	63	55.26	0.046*
Family member(s)	98	30.72	40	35.09	0.184
Friend(s)	244	76.49	88	77.19	0.807
Person/people living with	62	19.44	19	16.67	0.341
Healthcare provider(s)	28	8.78	14	12.28	0.102
Co-worker(s)	43	13.48	21	18.42	0.056
Person/people living nearby	18	5.64	7	6.14	0.782
LGBTI organisations	122	38.24	57	50.00	0.001*

5 World Bank: Unemployment, total (% of total labour force; modelled ILO estimate) based on the ILOSTAT database. Accessed 06 November 2018; https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS?name_desc=true

	Overall sample (n=353)		Gender minority participants (n=123)		
	n	%	n	%	p
Who knows their SOGIE	(n=320)		(n=114)		
Current partner(s)	189	59.06	72	63.16	0.289
Family member(s)	196	61.25	91	79.82	<0.001*
Friend(s)	287	89.69	106	92.98	0.146
Person/people living with	133	41.56	57	50.00	0.025*
Healthcare provider(s)	77	24.06	40	35.09	0.001*
Co-worker(s)	96	30.00	49	42.98	<0.001*
Person/people living nearby	93	29.06	46	40.35	0.001*
LGBTI organisations	237	74.06	94	82.46	0.013*

*Chi square/Fisher's exact test p-value significant, at $p<0.05$

Generally, participants reported low levels of reaching out to others for support, with the exception of reaching out to friends. More commonly, others did know the participants' sexual orientation, gender identity and expression if they were friends, family members or partners. Participants were less likely to talk about their sexual orientation or gender identity to healthcare providers, co-workers or people living nearby. In most instances, gender minority participants were more likely than cisgender participants to report that others knew their sexual orientation or gender identity. This was a statistically significant difference. Because we only asked about who knows their sexual orientation or gender identity, but not whether participants had disclosed it themselves, it might be that gender minority participants are less likely to 'pass', and thus have more people assume that they are a gender minority.

One in four participants (24%) said that their healthcare provider knew their sexual orientation or gender identity. Among gender minority participants, it was one in three (35%).

LGBTI organisations were an important source of support: three quarters of all participants were out to LGBTI organisations, and over one third (38%) said organisations were a source of support. This means that LGBTI organisations were the third most important source of support after friends and partners, and before family members. Among gender minority people, the role of LGBTI organisations was even more important: four out of five gender minority participants (82%) were out to an organisation, and half (50%) go to an LGBTI organisation for support.

Health-seeking behaviour

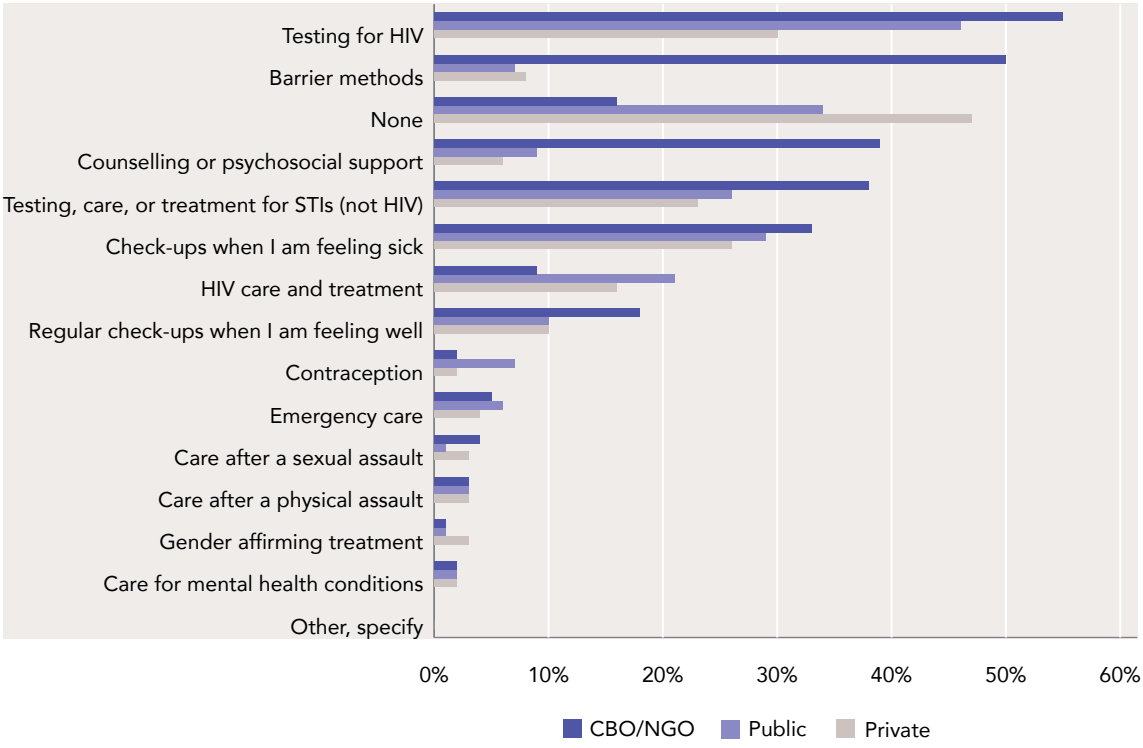
We asked participants what health services they had sought in the previous year, and where they had gone for these services. Twenty-five percent of participants had private health insurance.

Figure 4 shows health services, in the order of most accessed in the previous year to least accessed, as well as what kind of provider was used – NGOs (in blue), public healthcare facilities (in orange), or private health care facilities (in grey). Most often, participants had accessed healthcare

for voluntary HIV counselling and testing, or when they were feeling sick. Non-governmental organisations were the most important source of healthcare for most health concerns in the past year: most participants had gone to NGOs for counselling and testing related to HIV (55%) and other sexually transmitted infections (38%) and to access barrier methods (50%). NGOs seemed to play a particularly important role for participants who sought psychosocial support: 39% of participants had gone to an NGO for counselling in the past year. By comparison, only 9% of participants had sought counselling at a public health facility, and 6% at a private health facility.

Very few participants had accessed gender affirming care at NGOs or health facilities. We explore this further in the following section.

FIGURE 4: Health-seeking behaviour in previous year



Gender affirming care

In addition to asking all participants about their general health-seeking behaviour, we also asked gender minority participants about their access to, and use of gender affirming practices. Participants' gender affirming practices are shown in Table 9. These findings are important because gender affirming practices such as binding[6] 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.

6 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.

Almost half of gender minority participants who were assigned female at birth said that they used some form of binding (45%). More than one third of gender minority participants who were assigned male at birth said that they tucked (37%). One in five gender minority participants (19%) used hormones for gender affirmation.

TABLE 9: Gender affirming practices

Gender affirming practices among gender minority participants (n=123)		
	n	%
Binding (among those assigned female at birth, n=51)	23	45.10
Tucking (among those assigned male at birth, n=68)	25	36.76
Hormones (n=119)	23	19.33

Access to gender-affirming care impacts the level of hormone use among gender minority participants. Therefore, Table 9 may not reflect the number of participants who want and need to use hormones but cannot access them. 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 10 shows that access to both hormonal and surgical gender affirmation was low: only 15% of gender minority participants had access to hormone treatment, and fewer than one in fourteen (7%) had access to surgical procedures.

TABLE 10: Access to gender affirming care

Access to gender-affirming care for gender minority participants (n=123)		
	n	%
Access to hormones (n=94)	14	14.89
Access to surgical procedures (n=95)	7	7.37

Twenty-three gender minority participants said they use hormones (Table 9). Given that only 14 participants said that they have access to hormones from public or private health facilities (Table 10), at least 9 gender minority participants use hormones without getting them from healthcare providers. This means that more than one third of gender minority participants who use hormones (39%) do so without medical supervision.

Discrimination in healthcare

We asked participants about experiences of discrimination in health facilities, and how such experiences might have impacted their health-seeking behaviour. We examined experiences of discrimination or fear of discrimination in the overall sample and among gender minority participants. Table 11 describes these differences by these categories.

TABLE 11: Healthcare access and discrimination

	Overall sample (n=353)		Gender minority[7] participants (n=123)		
	n	%	n	%	p
Disclosed SOGIE to healthcare provider	(n=342)		(n=119)		
Yes	119	34.80	57	47.90	<0.001*
Has tried to hide SOGIE-related health concern from healthcare provider	(n=334)		(n=118)		
Yes	133	39.82	57	48.31	0.021*
Have you been treated disrespectfully because of your SOGIE?	(n=342)		(n=119)		
Categorical					<0.001*
Never	160	46.78	32	26.89	
Rarely	50	14.62	14	11.76	
Sometimes	105	30.70	52	43.70	
Often	27	7.89	21	17.65	
Binary					<0.001*
No (Never)	160	46.78	32	26.89	
Yes (Rarely/Sometimes/Often)	182	53.22	87	73.11	
Have you been called names or insulted in a health facility because of your SOGIE?	(n=342)		(n=120)		
Categorical					<0.001*
Never	225	65.79	53	44.17	
Rarely	38	11.11	18	15.00	
Sometimes	56	16.37	33	27.50	
Often	23	6.73	16	13.33	
Binary					<0.001*
No (Never)	171	77.38	53	44.17	
Yes (Rarely/Sometimes/Often)	50	22.62	67	55.83	
Have you been denied healthcare because of your SOGIE?	(n=343)		(n=120)		
Categorical					<0.001*
Never	280	81.63	80	66.67	
Rarely	30	8.75	15	12.50	

7 Gender minority refers to all participants who were transgender, gender non-conforming or 'other' gendermidentities

	Overall sample (n=353)		Gender minority[7] participants (n=123)		
	n	%	n	%	p
Sometimes	28	8.16	23	19.17	
Often	5	1.46	2	1.67	
Binary					<0.001*
No (Never)	280	81.63	80	66.67	
Yes (Rarely/Sometimes/Often)	63	18.37	40	33.33	

*Chi square/Fisher's exact test p-value significant, at p<0.05

Just over a third of participants (35%) had told a healthcare provider about their sexual orientation and/ or gender identity. Almost one in five participants had been denied healthcare (18%) because of their sexual orientation and/or gender identity, and 23% reported being called names or being insulted by healthcare staff at some point.

It is important to highlight the disparity in discrimination between the gender minority and cisgender participants in our sample. Gender minority participants were significantly more likely to experience discrimination in every category we measured (p<0.05). Notably, over half had experienced name calling in healthcare facilities (56%) and a third had been denied care (33%).

Participants' sexual orientation and gender identity also directly influenced healthcare, as 40% of all participants reported trying to hide a health concern related to their sexual orientation or gender identity from a healthcare provider.

Little has been previously documented about healthcare access for sexual and gender minority people in Zambia. Qualitative evidence from Zambia suggests that a lack of training on sexual orientation and gender identity for healthcare providers may be part of the reason for the experiences of discrimination that participants have reported here (Müller *et al.*, 2018).

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 12 shows the findings for participants overall, and for gender minority participants.

Past research across the world has shown that LGBTI people are vulnerable to violence (Blondeel *et al.*, 2018). In summary, our findings confirm that this is also the case in Zambia, where LGBTI people are particularly vulnerable to physical violence. It is noteworthy that gender minority participants experienced significantly more verbal harassment, physical violence and sexual violence compared to cisgender participants. In the following subsections, we discuss the different forms of violence (verbal, sexual and physical) in detail.

TABLE 12: Harassment and violence, overall sample and by gender identity

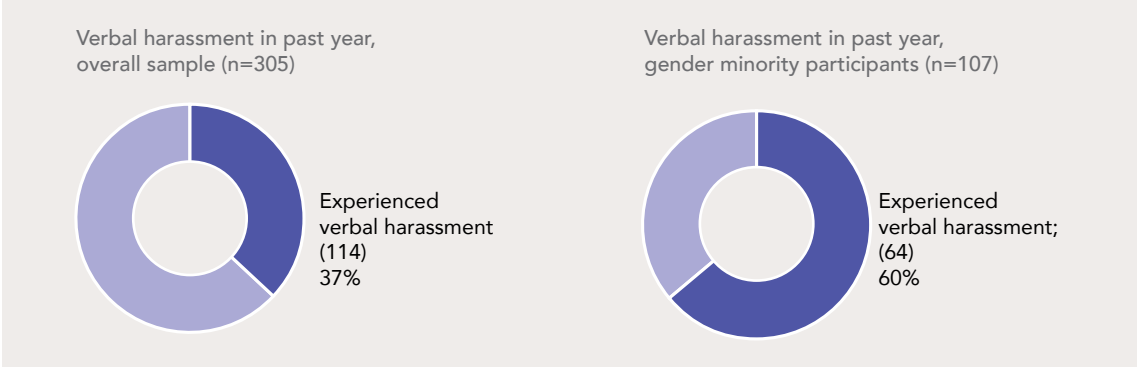
	Overall sample (n=353)		Gender minority participants (n=123)		
	n	%	n	%	p
SOGIE-related verbal harassment					
Experienced in lifetime	(n=316)		(n=113)		
	221	69.94	96	84.96	<0.001*
Experienced in past year	(n=305)		(n=107)		
	114	37.38	64	59.81	<0.001*
Sexual violence					
Experienced in lifetime	(n=317)		(n=113)		
	109	34.38	57	50.44	<0.001*
Experienced in past year	(n=315)		(n=112)		
	51	16.19	24	21.43	0.047*
Physical violence					
Experienced in lifetime	(n=317)		(n=113)		
	169	53.31	72	63.72	0.005*
Experienced in past year	(n=315)		(n=112)		
	86	27.30	45	40.18	<0.001*

*Chi square/Fisher's exact test p-value significant, at p<0.05

Verbal harassment

Seventy percent of participants – more than two thirds – had experienced verbal harassment due to their sexual orientation and/or gender identity or expression at some point in their life, and more than one third (37%) in the previous year (Figure 5). This number was much higher for gender minority participants: 85% of gender minority participants had experienced verbal harassment at some point in their life, and more than half (60%) in the previous year.

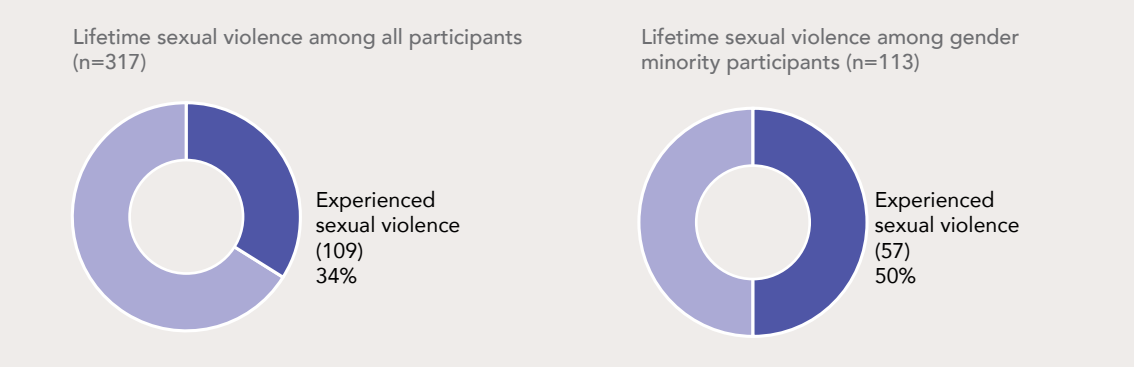
FIGURE 5: Verbal harassment, past year



Sexual violence

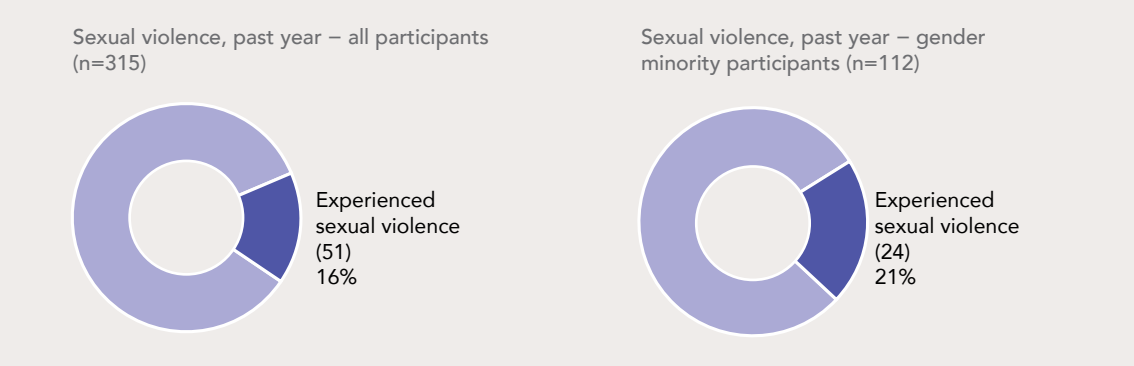
More than one in three participants (34%) were survivors of sexual violence (Figure 6). Among gender minority participants, it was one in two (50%).

FIGURE 6: Sexual violence, lifetime



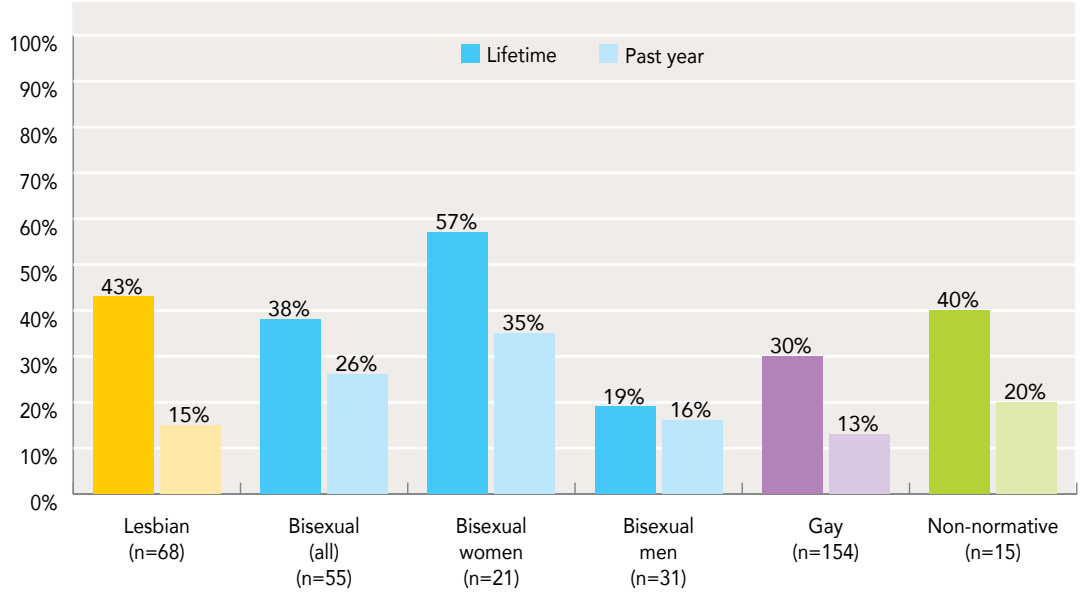
Of the overall participant group, more than one in seven participants (16%) had experienced sexual violence in the previous year (Figure 7). Of gender minority participants, it was more than one in five (21%).

FIGURE 7: Sexual violence, past year



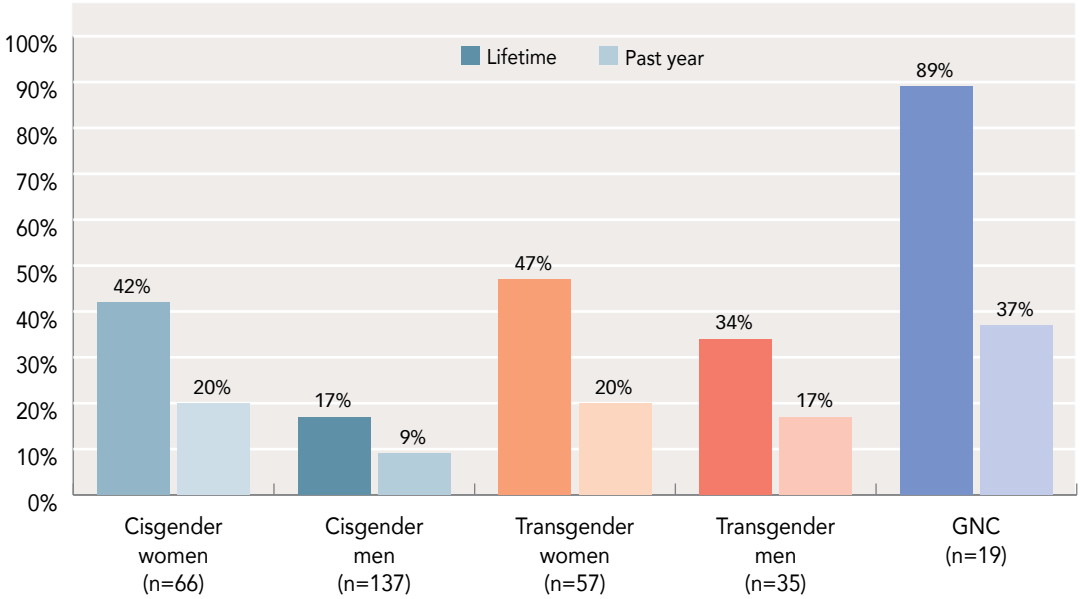
When disaggregated by sexual orientation and gender identity (see Figure 8 and Figure 9, and the section on lesbian, bisexual and gay health), we found that 43% of lesbian women had experienced sexual violence in their lifetime (15% in the past year). Of all participants who identified as gay men, one in three (30%) had experienced sexual violence in their lifetime, and 13% in the previous year. Of all bisexual participants, one in three (38%) had experienced sexual violence in their lifetime, and one in four (26%) in the past year. Notably, bisexual women experienced much higher levels of sexual violence than bisexual men: over half (57%) in their lifetime (compared to 19% of bisexual men); and more than one in three (35%) in the past year (compared to 16% of bisexual men). Participants with non-normative sexual orientations had experienced levels of sexual violence similar to lesbian women.

FIGURE 8: Sexual violence, by sexual orientation



Transgender women, transgender men and gender non-conforming people had experienced more sexual violence than cisgender participants (see Figure 9). Nine out of ten (89%) gender non-conforming participants, and half (47%) of transgender women had experienced sexual violence in their lifetime.

FIGURE 9: Sexual violence, by gender identity



Compared to the general population, the sexual and gender minority participants in our study experienced much higher levels of sexual violence. The 2013 Zambian Demographic and Health Survey (DHS), conducted among the general population (assumed to be cisgender and heterosexual), found that 17% of Zambian women had experienced sexual violence at some point in their lives, and 10% had experienced violence in the past year (Central Statistical Office (CSO)

[Zambia], Ministry of Health (MOH) [Zambia], 2014). This means that compared to women in the general population, lesbian women in our sample experienced 2,5 times more sexual violence; transgender women almost 3 times more sexual violence, and bisexual women experienced more than 3 times more sexual violence in their lifetime. Our findings also show that gender non-conforming people may experience more than 5 times more sexual violence than women in the general population; transgender men twice as much, and gay men more than 1,5 times as much sexual violence than women in the general population. The DHS used another methodology to measure experiences of violence (different questions and sample), and this could be the reason for some of the differences between the DHS results and our findings. However, the differences between our sexual and gender minority participants and the DHS findings from women in the general population are so vast that it is very unlikely that they are due to the different methodology. It is also noteworthy that the level of sexual violence experienced by our sexual and gender minority participants in the past year is the same as the sexual violence that Zambian women in the general population have experienced at any point in their life.

There are no other studies on experiences of sexual violence among sexual and gender minority people in Zambia. But findings from other Southern African countries corroborate our findings that the experiences of sexual violence among sexual and gender minority people are high. For example, among women who have sex with women in four Southern African countries, one third (31%) had experienced sexual violence in their lifetime (Sandfort *et al.*, 2015). Our findings suggest that in Zambia, this might be even higher, because almost half of lesbian participants had experienced sexual violence. Nath (2011) makes the important point that in Southern Africa, this risk of sexual violence is strongly influenced by gender expression, with butch lesbians being particularly at risk. However, lesbian women are not the only sexual minorities at risk of sexual violence. Among men who have sex with men in Lesotho, one in ten (10%) said that they had been raped (Baral *et al.*, 2011). Our findings suggest that in Zambia, this number might be higher because one in three gay participants (30%) had experienced sexual violence.

While we do not have data specifically from Zambia, the South African Love Not Hate Campaign found that about one in ten (11%) of transgender participants had 'been sexually assaulted or raped' in the two previous years (OUT LGBT Well-being, 2016). This number is not disaggregated further, for example into trans women and trans men. In the United States, the 2015 United States Transgender Survey showed that nearly half of transgender people (47%) have been sexually assaulted at some point in their lifetime, and one in ten (10%) have been sexually assaulted in the previous year (James *et al.*, 2016a). Our findings suggest that the levels of sexual violence experienced by transgender people in Zambia is at least as high as in the US.

Our study did not collect data on the prevalence of sex work among participants. However, existing evidence shows that gender minority people, including in Zambia, are more likely to participate in sex work due to systemic, institutional and interpersonal discrimination that limits their access to education and work opportunities (Sausa, Keatley and Operario, 2007; Nadal, Davidoff and Fujii-Doe, 2014; The Other Foundation, 2016). For example, one in five participants (19%) in the 2015 United States Transgender Survey engaged in sex work for money, food, a place to sleep, or other goods or services (James *et al.*, 2016b). In a South African study, transgender participants also spoke about exchanging sex with money or gifts during key informant interviews

about access to sexual health services (Stevens, 2012). The higher risk of experiencing violence among sex workers, and the fact that gender minorities may be more likely to do sex work, may account in some part for the extremely high prevalence of sexual violence, as well as other forms of violence in our study.

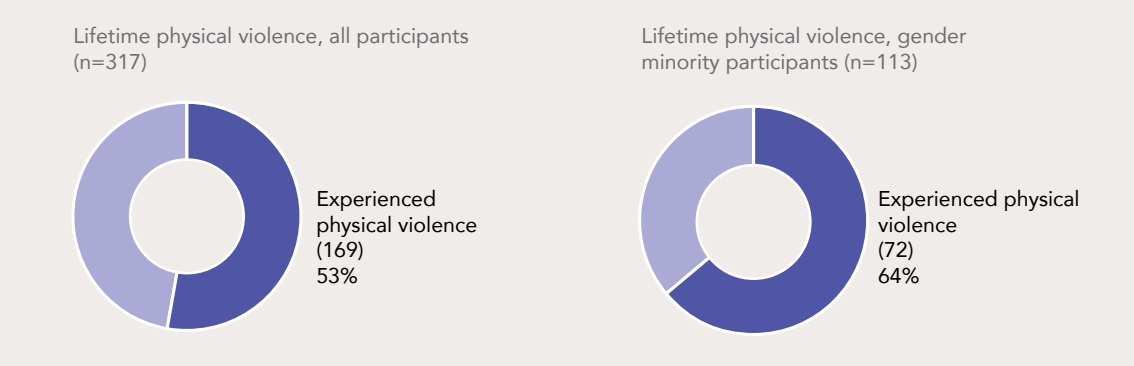
It is quite likely, however, that our findings are still under-estimated – as recent research suggests (Müller and Meer, 2018), bias-motivated sexual violence against lesbian women can culminate in homicide. Because including data on deceased sexual and gender minority people was beyond the scope of this study, our findings might therefore underestimate the prevalence of bias-motivated sexual violence.

On the whole, our findings point out that a significant amount of sexual and gender minority people in Zambia are survivors of sexual violence. 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). There is thus a need for LGBTI affirming counselling and psychosocial support, as well as medico-legal and court preparation services, should survivors decide to report, and cases be brought to trial.

Physical violence

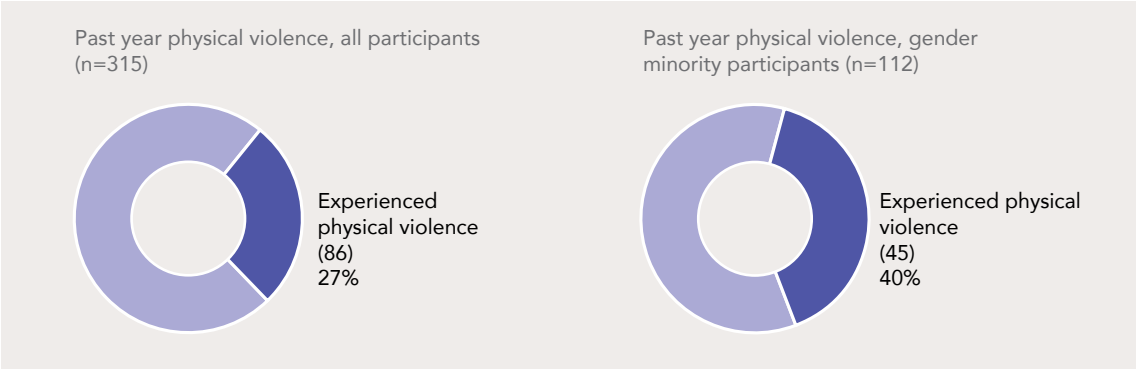
More than half of the participants in our study (53%) had experienced some form of physical violence at some point in their lives (Figure 10). Among gender minority participants, it was almost one third (64%).

FIGURE 10: Physical violence, lifetime



In the year prior to answering the survey, one in four participants (27%) had experienced physical violence (Figure 11). Among gender minority participants, it was more than one in three participants (40%).

FIGURE 11: Physical violence, past year



Sexual minority participants of all sexual orientations experienced similar levels of physical violence (Figure 12): more than half had experienced physical violence at some point in their life, between 52% (gay men) and 60% (participants with non-normative sexual orientations). In the year prior to our study, one in four lesbian and gay participants (24% and 27% respectively), and more than one in three bisexual participants had experienced physical violence. Similar to the findings on sexual violence, bisexual women had experienced more physical violence than bisexual men: in their lifetime, 57% of bisexual women had experienced physical violence (compared to 45% of bisexual men), in the past year, it was 38% of bisexual women (compared to 32% of bisexual men).

FIGURE 12: Physical violence, by sexual orientation

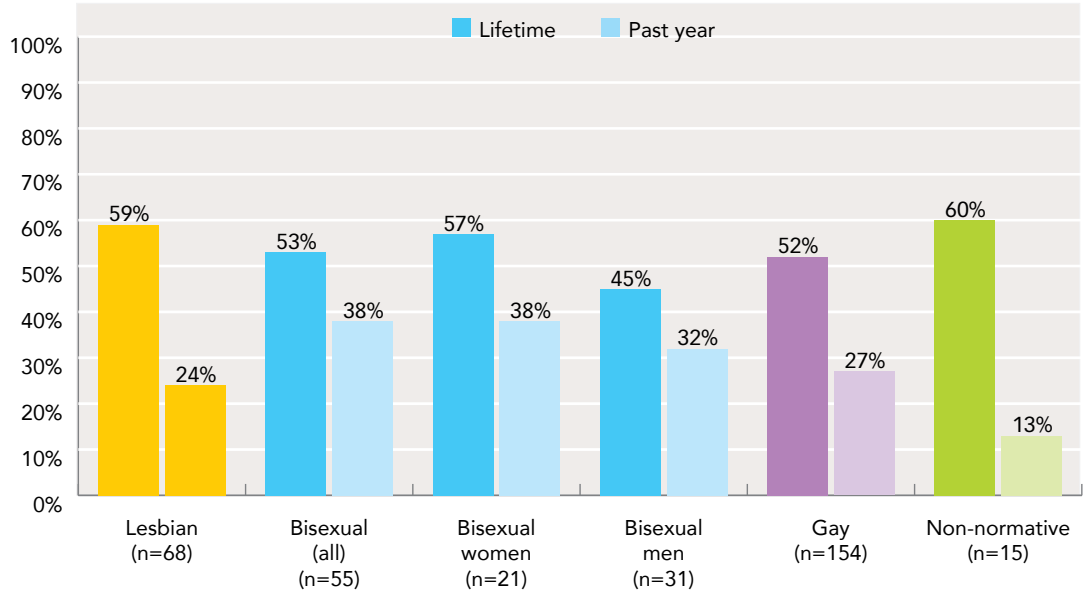
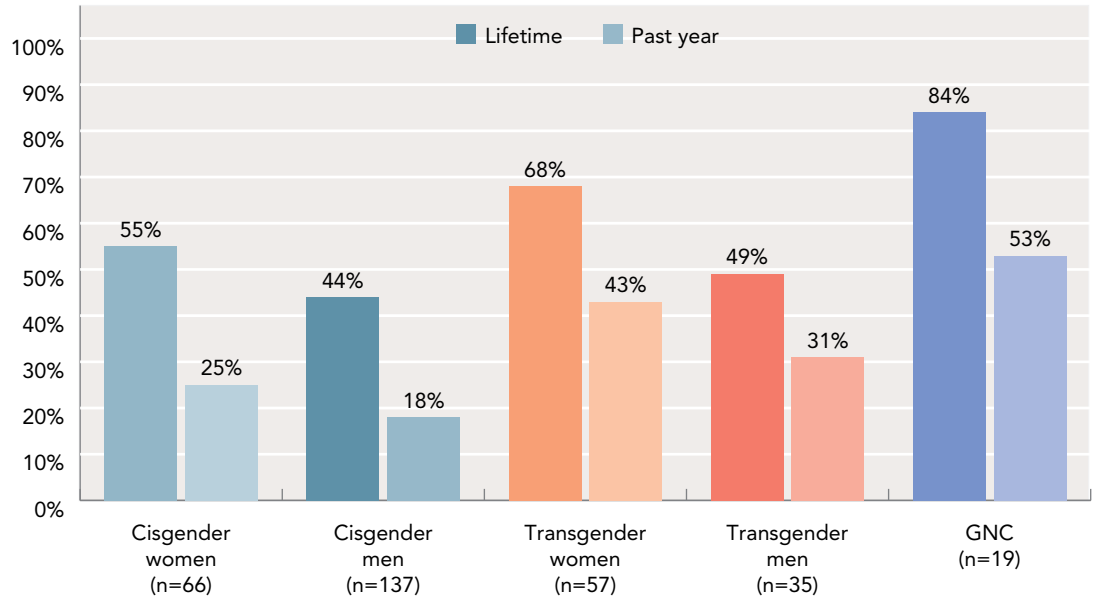


Figure 13 shows that gender minority participants experienced high levels of physical violence than cisgender participants. For example, more than four in five gender non-conforming people (84%) and more than two-thirds of transgender women (68%) had experienced physical violence in their lifetime – compared to 55% of cisgender, sexual minority women. Among transgender men, almost half (49%) had experienced physical violence in their lifetime, and one in three (31%) in the past year.

FIGURE 13: Physical violence, by gender identity



Compared to the general population, the sexual and gender minority participants in our study had experienced higher levels of physical violence. In the 2013 Demographic and Health Survey, 43% of Zambian women said that they had experienced physical violence since the age of 15, and 37% said they had experienced physical violence in the past year. This means that among the lesbian women in our study, 16% more had experienced physical violence compared to women in the general Zambian population. Among transgender women, it was 25% more.

The levels of physical violence among sexual and gender minority people in our Zambian study are not only higher than the levels of violence among the general Zambian population, they are also higher than the levels of violence among sexual and gender minority populations elsewhere in the world. For example, in Virginia, USA, 27% of transgender people participating in a community-based survey said they had experienced physical violence in their lifetime (Bradford *et al.*, 2013). In our Zambian study it was 64% of gender minority participants. In a study among transgender women who have a history of sex work, also done in the US, 51% of participants said they experienced physical violence in their lifetime (Nemoto, Bödeker and Iwamoto, 2011). In our Zambian study, 68% of transgender women had experienced physical violence.

Evidence suggests that transgender people are more vulnerable to violence if they experience more discrimination in their everyday lives (Bradford *et al.*, 2013). As our findings have shown, the gender minority participants in our study often live in financially precarious situations and have limited access to healthcare and socio-economic opportunities. While gender minority people worldwide may be more at risk for financial instability—for example, due to discrimination in employment—gender minority people in Zambia may be particularly at risk due to the particular socioeconomic context. This might be one explanation why the levels of physical violence among our study's transgender participants are much higher than in the US.

Figure 13 also shows that within the group of gender minority participants, gender non-conforming people and transgender women have experienced the highest levels of physical violence in our sample (84% among gender non-conforming people, 68% among transgender women, compared

to 49% among transgender men). This suggests that perhaps more than gender minority status, non-conforming gender expression, and thus, being identifiable as a gender minority, places people at risk. Bockting and colleagues (Bockting *et al.*, 2013b), drawing on Kuiper & Cohen-Kettenis (Kuiper and Cohen-Kettenis, 1988), argue that passing as the opposite gender might be easier for transgender men than transgender women, and outlines that this might mean that transgender women more often experience the negative effects of being visible. Gender non-conforming people and transgender women might be less able to 'pass' than even transgender men (and transgender men might be somewhat shielded from transphobic violence through being more likely to 'pass'). This comports with Nath's argument (Nath, 2011) that homophobic sexual violence is motivated by non-conforming gender expression (which then *assumes* a non-conforming sexual orientation). While our findings clearly show that the levels of violence experienced by both gender minority and cisgender people in Zambia are very high, we caution against only using sexual minority or gender minority categories to determine who is at risk for violence. These categories alone do not adequately demonstrate the diversity of non-conforming gender expression that puts people at risk for violence by 'revealing' one's (assumed) sexual orientation or gender identity.

Perpetrators of violence

We asked participants who the perpetrators of violence were. Table 13 shows the details of this analysis. There are a few important observations, which we will describe in the following sections.

Intimate partner violence

First, we found high levels of intimate partner violence among participants. One in five participants (19%) said that they had been sexually assaulted by an intimate partner of any gender. Among gender minority participants, one in four (24%) said they had been sexually assaulted by an intimate partner.

One in three participants had been physically assaulted by an intimate partner (35%). This number was significantly higher among gender minority participants, where two out of five (42%) had been physically assaulted by an intimate partner.

Our study confirm findings from a representative national survey in the United States that found that levels of sexual and physical intimate partner violence are high among sexual minority men and women (Walters, Chen and Breiding, 2013).

TABLE 13: Perpetrators of lifetime sexual and physical violence

	Overall sample (n=353)		Gender minority participants (n=123)		
	n	%	n	%	p
Sexual violence					
Intimate partner					
	(n=315)		(n=112)		
	61	19.37	27	24.11	0.093
Someone known (not intimate partner)					

	Overall sample (n=353)		Gender minority participants (n=123)		
	n	%	n	%	p
	(n=314)		(n=110)		
	66	21.02	37	33.64	<0.001*
Stranger					
	(n=311)		(n=110)		
	27	8.68	16	14.55	0.004*
Someone lived with (intimate partner or other)					
	(n=309)		(n=110)		
	47	15.21	22	20.00	0.063
Physical violence					
Intimate partner					
	(n=316)		(n=113)		
	110	34.81	48	42.48	0.028*
Someone known (not intimate partner)					
	(n=310)		(n=108)		
	122	39.35	61	56.48	<0.001*
Stranger					
	(n=308)		(n=107)		
	57	18.51	33	30.84	<0.001*
Someone lived with (intimate partner or other)					
	(n=310)		(n=110)		
	82	26.45	40	36.36	0.003*
Participant felt any lifetime sexual or physical violence was linked to being LGBTI					
	(n=184)		(n=80)		
Yes	154	83.70	71	88.75	0.098

*Chi square/Fisher's exact test p-value significant, at p<0.05

Stranger violence

Second, we found that sexual and physical violence by strangers was high among all participants, but particularly and significantly higher among gender minority participants. Fifteen percent of gender minority participants had experienced sexual violence by a stranger (compared to 5% of cisgender people), and one in three (31%) gender minority participants had experienced physical violence by a stranger (compared to 12% of cisgender participants).

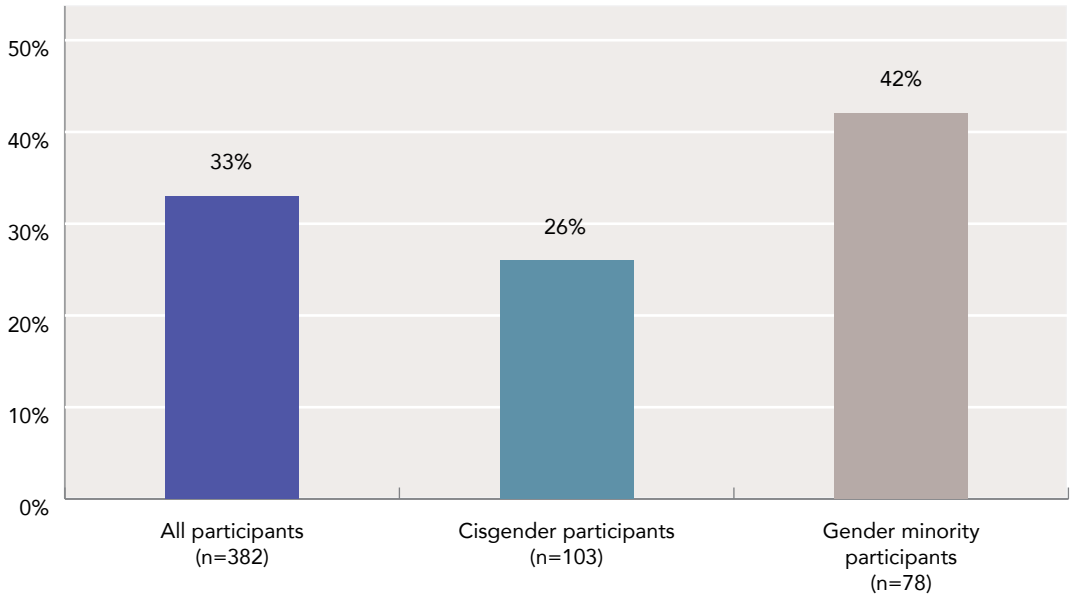
SOGIE-motivated violence

Third, more than four out of five participants (84%) felt that the violence they experienced was linked to their sexual orientation and/or their gender identity and expression. Among gender minority participants, this was even higher: 89% of participants. While we cannot verify the motivation of the perpetrator(s), these findings contribute to the social context of violence motivated by sexual orientation or gender identity. Violence that is motivated by someone's sexual orientation or gender identity sends a message to all LGBTI people (Breen and Nel, 2011). This is detrimental to LGBTI people's mental health and well-being, as we will show in the coming sections of this report.

Impact of violence

We asked participants who had experienced sexual or physical violence in their lifetimes about three signs of post-traumatic stress. We classified participants who experienced all three symptoms as showing signs of post-traumatic stress. One third (33%) of all participants who had experienced violence showed signs of post-traumatic stress. The percentage among gender minority people was significantly higher: 42% of all gender minority participants showed signs of post-traumatic stress (as compared to 26% of cisgender participants; $p<0.05$).

FIGURE 14: Signs of post-traumatic stress



Participants who experienced any sexual or physical violence in the last year were asked about whether they reported it to the police, and if they had sought medical care (Table 14). Only about one in ten participants (12%) had reported to the police. Less than one third of participants (30%) had gone to a healthcare provider for care. This might well be because of people's previous experiences with police or healthcare providers: three in four participants (75%) said that when they did report, they felt treated with less respect because of their sexual orientation or gender identity.

TABLE 14: Reporting violence-for those who experienced sexual assault or physical assault in the last year

	Overall sample (n=353)		Gender minority participants (n=123)		
Experienced violence in previous year	**(n=97)**		**(n=48)**		
Sought medical care	(n=93)		(n=46)		
	28	30.11	16	34.78	0.252
Reported to police	(n=93)		(n=46)		
	11	11.83	8	17.39	0.108
Felt treated with less courtesy for being LGBTI	(n=32)		(n=19)		
Categorical					0.111
Never	8	25.00	2	10.53	
Rarely	5	15.63	3	15.79	
Sometimes	7	21.88	5	26.32	
Often	12	37.50	9	47.37	
Binary					0.032*
No (Never)	8	25.00	2	10.53	
Yes (Rarely/Sometimes/Often)	24	75.00	17	89.47	

*Chi square/Fisher's exact test p-value significant, at p<0.05

Mental health outcomes

Mental health outcomes in the overall sample

Table 15 provides an overview of the mental health outcomes in the overall sample of participants. Additionally, the table also shows these mental health outcomes among all gender minority participants. Each of these health outcomes are described in further detail in the subsections below.

TABLE 15: Overall mental health outcomes

	Overall sample (n=353)		Gender minority[8] participants (n=123)		
	n	%	n	%	p
Depression (CES-D-10)	(n=321)		(n=112)		0.003*
Classified as not depressed	156	48.60	42	37.50	
Classified as depressed	165	51.40	70	62.50	

8 Gender minority refers to all participants who were transgender, gender non-conforming or 'other' gender identities

	Overall sample (n=353)		Gender minority[8] participants (n=123)		
	n	%	n	%	p
Anxiety (GAD-7)	(n=315)		(n=114)		
Categorical					0.689
No signs of anxiety	150	47.62	49	42.98	
Signs of mild anxiety	108	34.29	42	36.84	
Signs of moderate anxiety	42	13.33	17	14.91	
Signs of severe anxiety	15	4.76	6	5.26	
Binary					0.483
No/mild anxiety	258	81.90	91	79.82	
Moderate/severe anxiety	57	18.10	23	20.18	
Suicidality					
Suicidal ideation, lifetime	(n=320)		(n=112)		
	191	59.69	69	61.61	0.584
Suicidal attempts, lifetime	(n=317)		(n=110)		
	166	52.37	62	56.36	0.281
Suicidal ideation, past year	(n=308)		(n=106)		
	42	13.64	16	15.09	0.515
Suicidal attempts, past year	(n=315)		(n=107)		
	60	19.05	29	27.10	0.007*
Alcohol use	(n=318)		(n=114)		
Categorical					0.001*
No alcohol use	29	9.12	7	6.14	
Some alcohol use	58	18.24	12	10.53	
Hazardous use	76	23.90	27	23.68	
Harmful use	52	16.35	30	26.32	
Alcohol dependence	103	32.39	38	33.33	
Binary					0.001*
No/some alcohol use	87	27.36	19	16.67	
Hazard/Harm/ dependence	231	72.64	95	83.33	

	Overall sample (n=353)		Gender minority[8] participants (n=123)		
	n	%	n	%	p
Drug use	(n=321)		(n=112)		
Categorical					0.840
No drug use	243	75.70	84	75.00	
Some drug use	25	7.79	9	8.04	
Harmful drug use	41	12.77	16	14.29	
Drug dependence	12	3.74	3	2.68	
Binary					0.887
No/some drug use	268	83.49	93	83.04	
Harmful use/ dependence	53	16.51	19	16.96	

Tobacco use	(n=327)		(n=117)		0.255
Doesn't smoke at all	174	53.21	57	48.72	
Smoke some days	104	31.80	44	37.61	
Smoke everyday	49	14.98	16	13.68	

There is relatively limited data on the levels of mental health and well-being among the general population in Zambia. Where we can, we will compare our findings to general population findings. Regardless of the comparison to the general population, however, our findings show that the levels of depression, anxiety and substance use in our sample of sexual and gender minority participants were high.

Depression

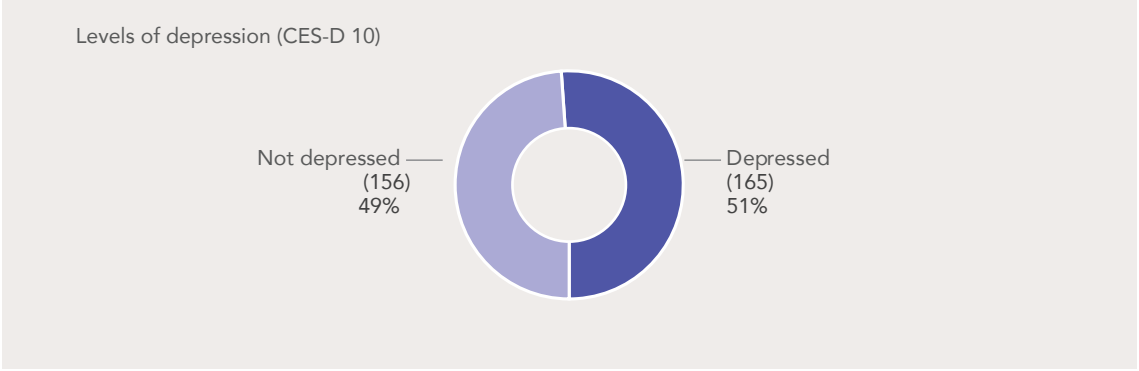
We used the instrument CES-D 10, a 10-item *Center for the Epidemiological Studies of Depression Short Form* to measure depression. It is widely used to screen for signs of depression in primary care settings, and is often used for research on the prevalence of depression. It is important to keep in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

Based on the CES-D 10, more than half of our participants (51%) were classified as currently depressed (Figure 15).

Data about depression among the general population in Zambia is scarce. Based on estimates by the Global Burden of Disease study (2015), the prevalence of depressive disorders in Zambia is 4% (World Health Organization, 2017). Other research from Zambia suggests that HIV and/or tuberculosis (TB) status may increase depression. Using the gold standard measure of the MINI short structured diagnostic interview, they found 11% of patients had major depressive disorder (Van Den Heuvel *et al.*, 2013). It is possible that using a measure like the CES-D 10 would have yielded a higher "prevalence" in this population, as scales like the CES-D 10 are used as a screening tool and are less accurate than the gold standard. However, our data suggests that the

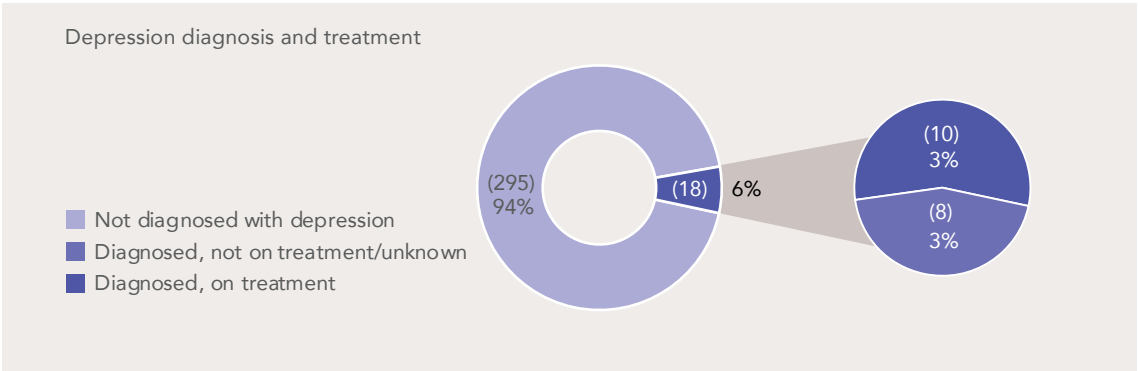
level of depression among the sexual and gender minority people in our sample is much higher than that among the Zambian general population, and higher than among Zambians living with TB and/or HIV.

FIGURE 15: Level of depression in overall sample



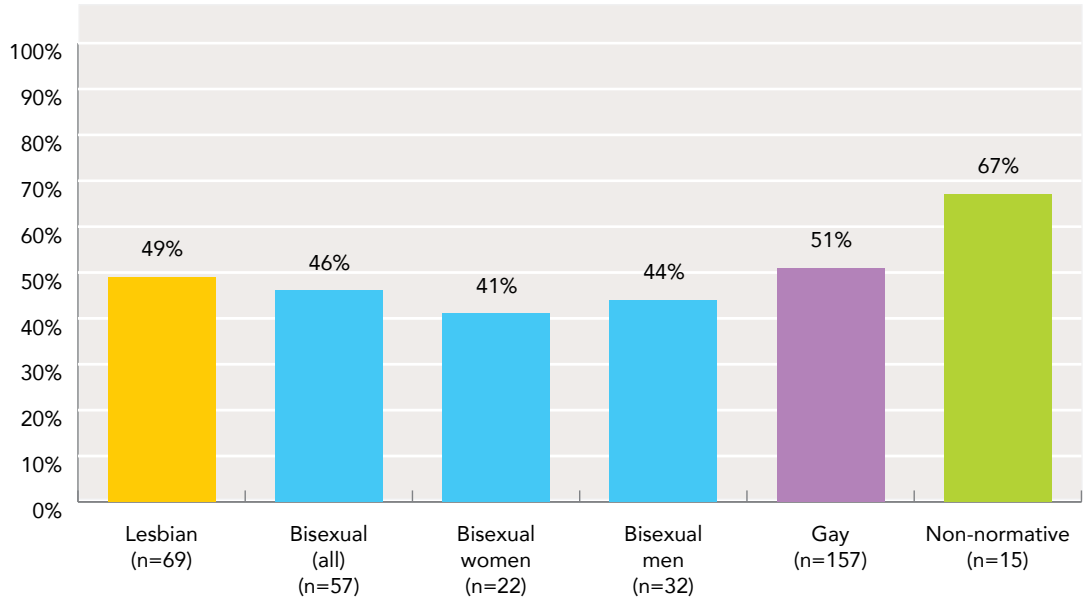
Despite the high CES-D 10 scores, only 6% of participants said that they had previously been diagnosed with depression (Figure 16). Of those, half were receiving treatment at the time of filling out the survey (3% of all participants). When we looked at this in comparison to the participants' CES-D scores, 90% of those showing signs of depression had never been told by a healthcare provider that they have clinical depression. This suggests that there may be a large percentage of sexual and gender minority people who have not received diagnoses and treatment that could help them manage their symptoms of depression.

FIGURE 16: Depression diagnosis and treatment



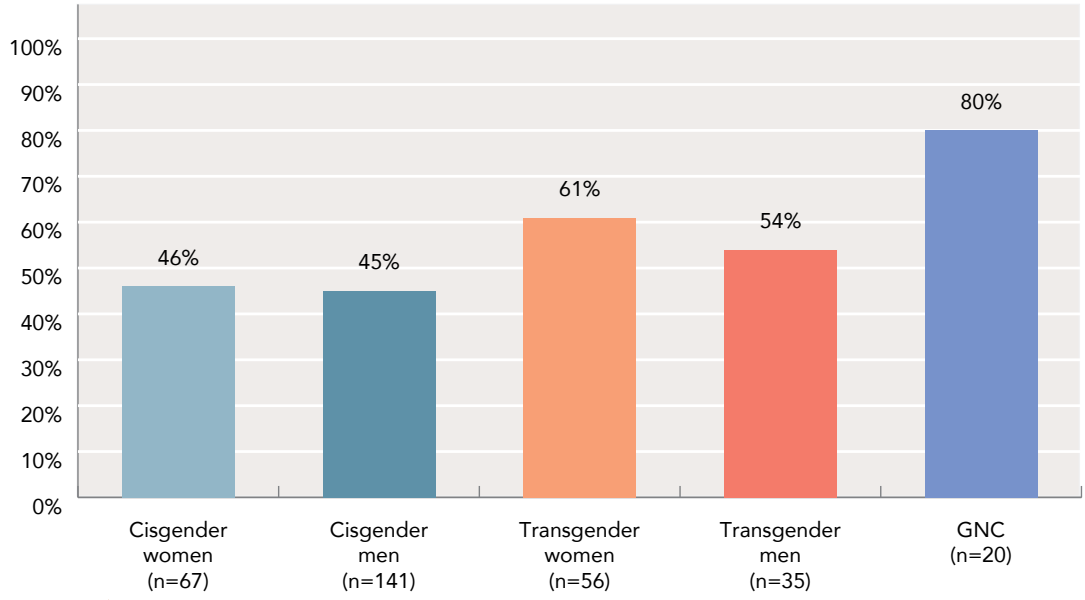
When we looked at participants' depression levels by sexual orientation, we observed only minor differences among the various groups. Participants with 'non-normative' sexual orientation had the highest level at 67%, however, they are only 15 participants, making interpretation limited.

FIGURE 17: Depression, by sexual orientation



Gender minority participants were significantly more likely to have signs of depression than cisgender participants (Table 15; 63% compared to 45%, $p<0.05$). Gender non-conforming participants and transgender women had the highest levels of depression in our sample (80% and 61%, respectively).

FIGURE 18: Depression by gender identity

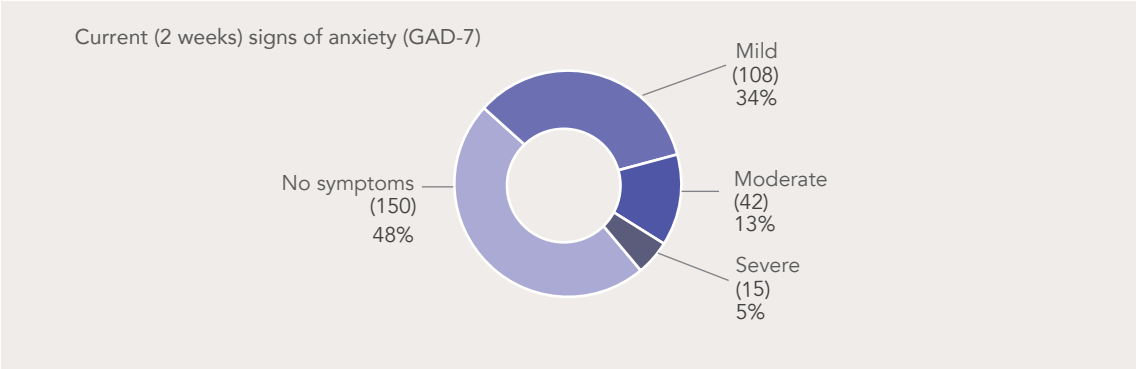


Anxiety

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

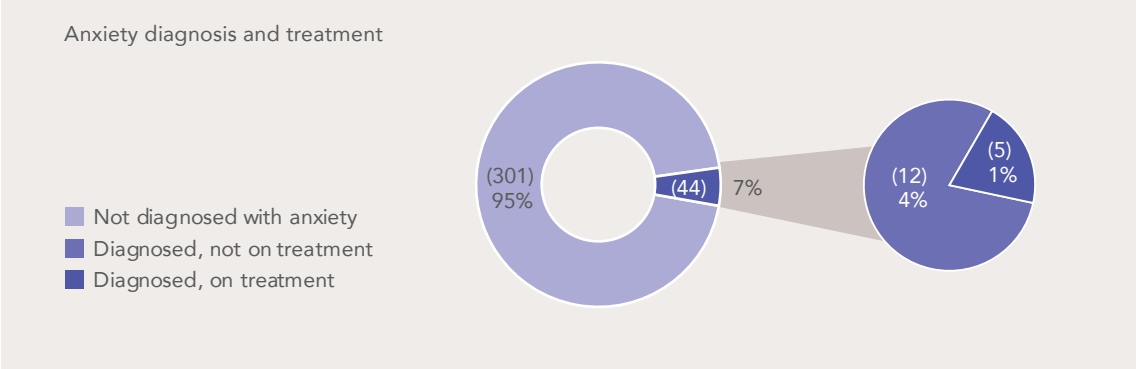
of severe anxiety. The GAD-7 score should not be taken as a definitive diagnosis of anxiety in participants, but an assessment of current symptoms. According to the anxiety scores, just over half of participants (52%) had experienced some anxiety in the last two weeks (see Figure 19). Five per cent of participants reported signs of severe anxiety.

FIGURE 19: Current signs of anxiety, overall sample



We also asked participants if they had ever been diagnosed with anxiety. Overall, 5% of participants said that they had previously been diagnosed by a healthcare worker with clinical anxiety. Less than half of participants who said they had been diagnosed were receiving treatment at the time of filling out the survey (Figure 20). Most of the participants with symptoms of severe anxiety had never been told by a doctor that they have clinical anxiety (12 participants of the 15 classified with severe anxiety symptoms, 20%). This suggests that sexual and gender minority Zambians with anxiety symptoms (and possibly anxiety disorders) are not accessing the healthcare that they need.

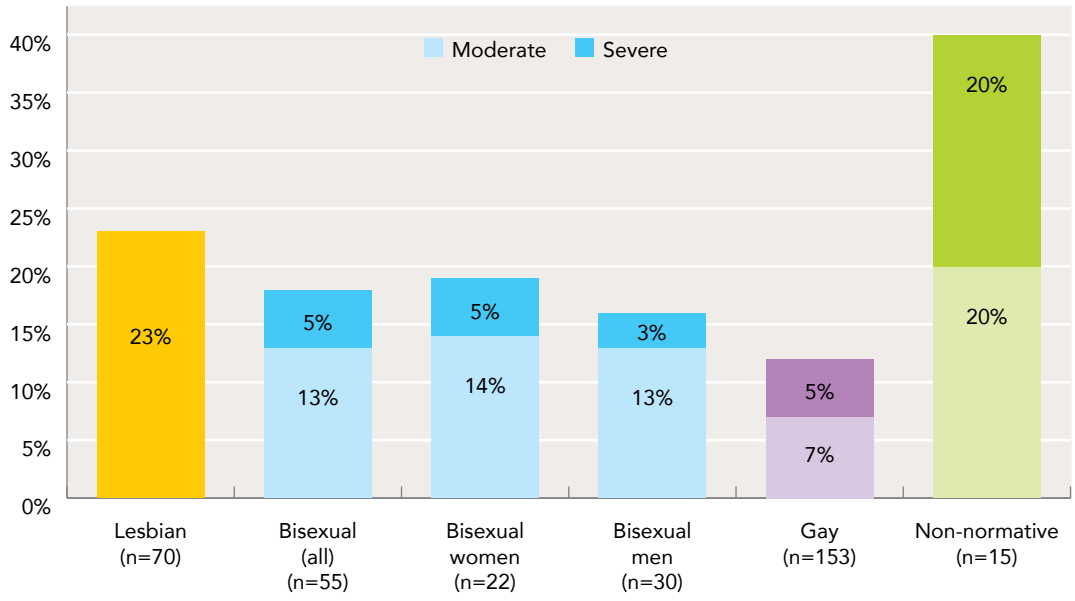
FIGURE 20: Participants previously diagnosed with anxiety & their treatment



According to the Global Burden of Disease study (2015), the prevalence of anxiety disorders in Zambia is 3% (World Health Organization, 2017). Our findings suggest that sexual and gender minority people in Zambia may be more likely to have anxiety than cisgender, heterosexual people. However, in another study with Zambians living with HIV and/or TB, 31% were found to have at least one anxiety disorder (Van Den Heuvel *et al.*, 2013). This finding was quite a bit higher than our findings, yet may be attributed to higher levels anxiety among people living with HIV and/or TB. Some sub-groups in our sample had levels of anxiety of 30% or higher, such as transgender men (30%; Figure 21) and those with 'non-normative' sexual orientation (40%; Figure 22).

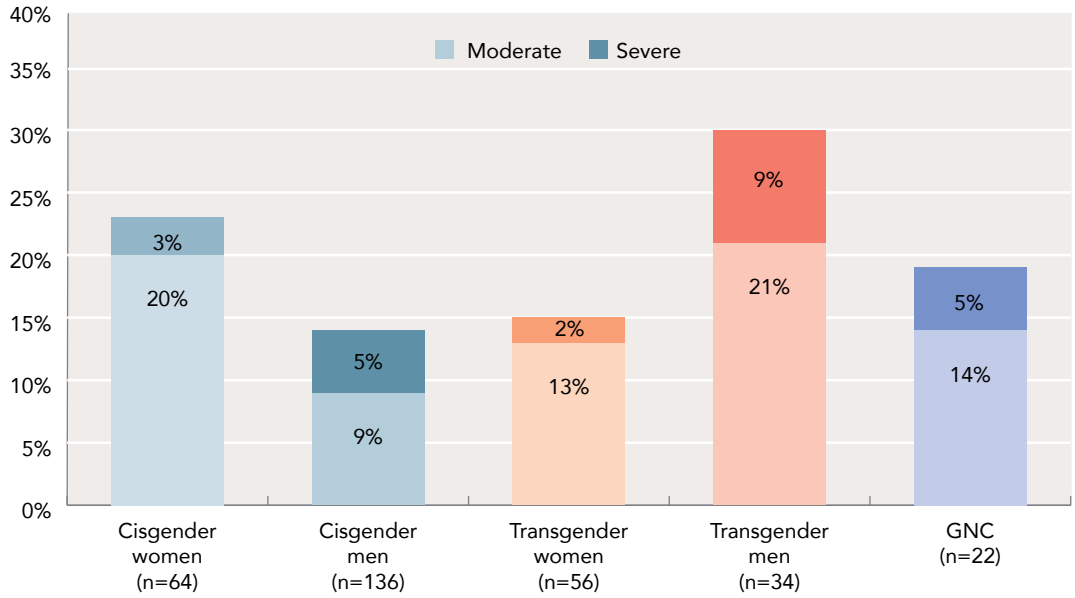
We observed some differences in anxiety levels by sexual orientation. Like with depression, those with 'non-normative' sexual orientation had the highest anxiety levels (40%). The small number of people with 'non-normative' sexual orientation in our sample makes it difficult to know whether this association holds in the greater population. Lesbian participants had the next highest level of anxiety, at 23% (Figure 21).

FIGURE 21: Anxiety levels by sexual orientation



Gender minority participants did not appear to be more likely than cisgender participants to have anxiety. Transgender men, cisgender women, and gender non-conforming people had the highest levels of anxiety (30%, 23% and 19%, respectively; Figure 22).

FIGURE 22: Anxiety levels by gender identity

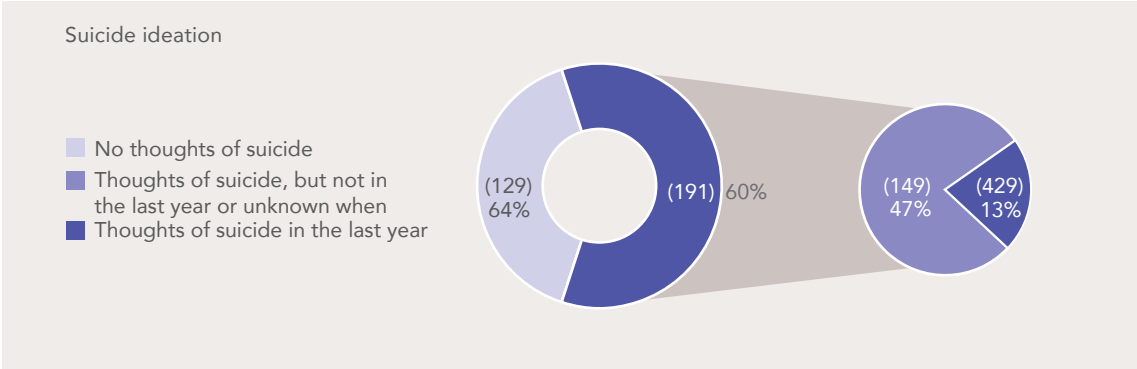


Suicidality

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).

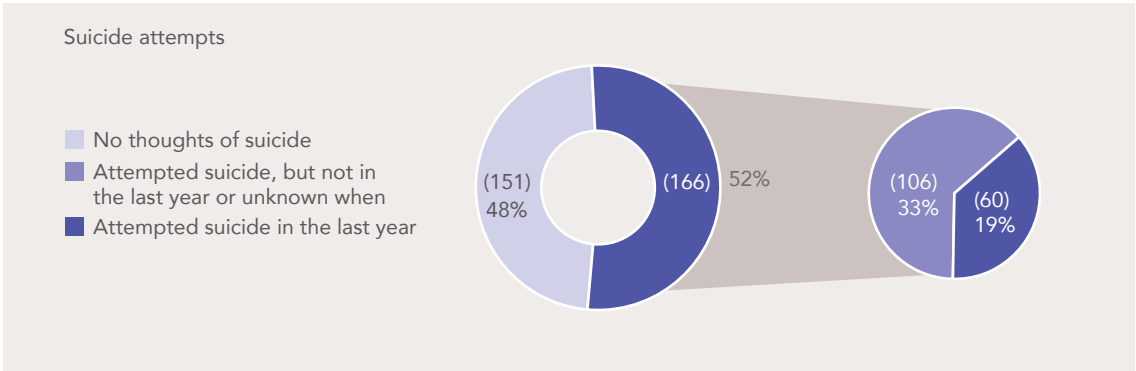
Figure 23 shows how many participants had ever thought about ending their life. The majority of participants (60%) had thought about ending their life at least once at some point in their life. Of those who had thought about it, almost a quarter (23%) had thought about ending their life in the previous year.

FIGURE 23: Suicidal ideation



More than half of participants (52%) had tried to end their life at some point in their lives. Almost one in five participants (19%) had tried to end their life in the past year (Figure 24).

FIGURE 24: Suicide attempts, lifetime and previous year

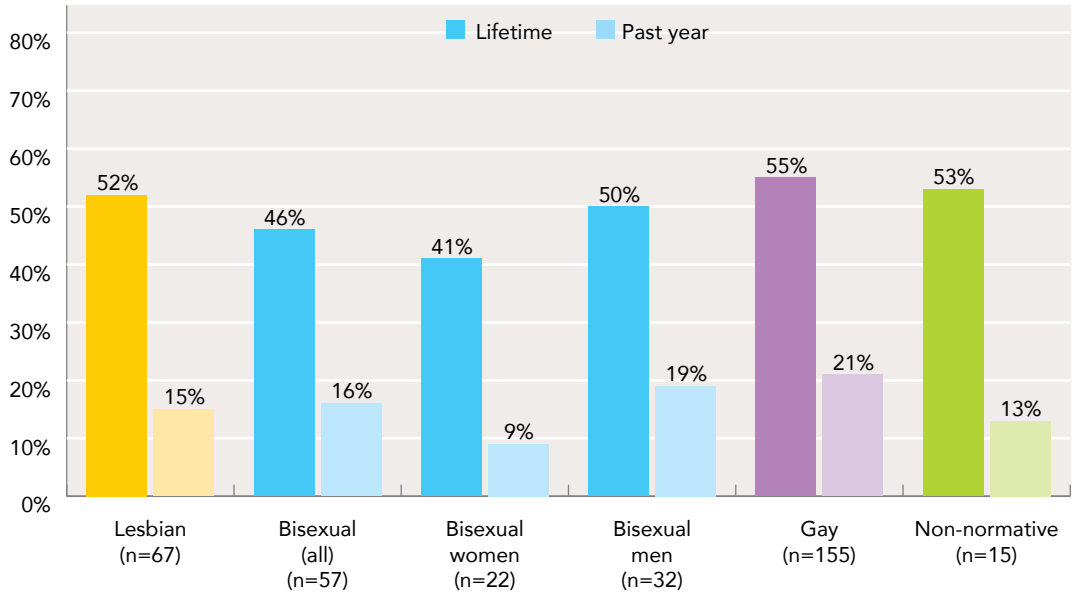


A systematic review conducted by King and colleagues (2008) highlights the higher risk of suicidality that sexual minority people experience, though only studies from North America, Europe and Australasia were eligible to be included (further highlighting the need for research on the African continent). Their meta-analysis suggests that sexual minority people have about twice the risk of attempting suicide compared to non-sexual minorities (King *et al.*, 2008).

When looking at suicide attempts by participants of different sexual orientations (Figure 25, see also Table 16, Table 17 and Table 18), we found that suicide attempts were high overall: more than half of lesbian women, gay men and participants with non-normative sexual orientation had attempted suicide in their lifetime. Gay and bisexual men had the highest levels of suicide

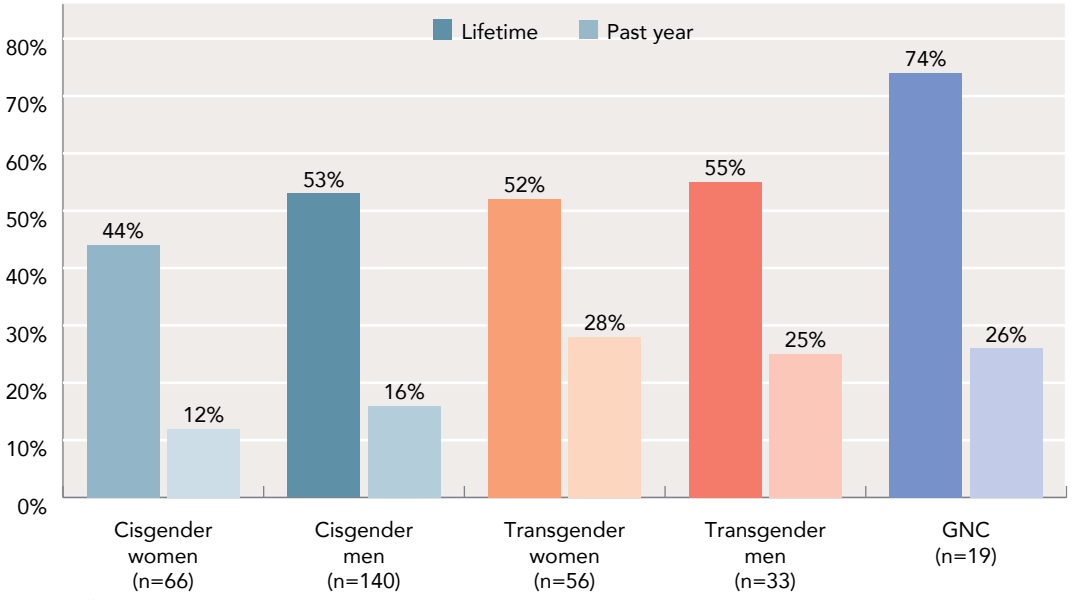
attempts in the year previous to the study: one in five gay and bisexual men (21% and 19% respectively) had attempted suicide in the past year.

FIGURE 25: Suicide attempts, by sexual orientation



When comparing cisgender and gender minority participants (Figure 26), we found that the levels of suicide attempts in the previous year was higher among gender minority people: one in four transgender women, transgender men and gender non-conforming people in our sample had attempted suicide the past year (28% of transgender women, 25% of transgender men and 26% of gender non-conforming people).

FIGURE 26: Suicide attempts, by gender identity



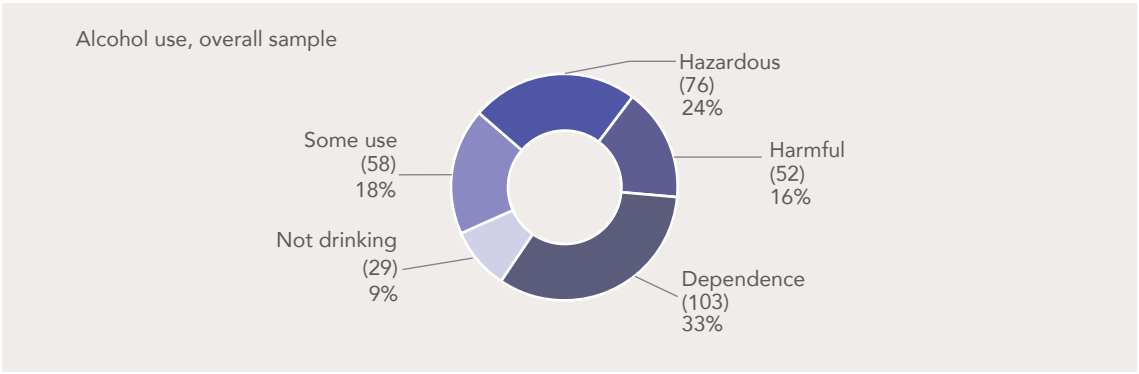
There are not many studies on suicidality among the Zambian general population. Two recent studies examined suicidality among Zambian women and men living with HIV (assumed to be heterosexual and cisgender). The first study found that among urban women living with HIV, 9% were thinking of suicide; among urban men living with HIV, it was 5% (Chipimo and Fylkesnes, 2009). The second study found that 3% of Zambians living with TB or HIV had attempted suicide (Van Den Heuvel *et al.*, 2013). Compared to these findings, the sexual and gender minority participants in our study showed much higher levels of thinking about and attempting suicide. The level of suicide attempts among the sexual and gender minority Zambians in our sample was more than 15 times that of suicide attempts among Zambians living with TB or HIV (52% in our overall sample versus 3% among Zambians living with HIV or TB). More sexual and gender minority people in our sample had thought about suicide in the past year alone than Zambians living with HIV at any point in their life (23% in our sample in the past year versus 9% of women with HIV/ 5% of men with HIV at any point in their life).

Examining the number of completed suicides among sexual and gender minority people in Zambia was beyond the scope of this research and limits the interpretation of our findings. However, our findings demonstrate that the levels of suicidality among sexual and gender minority Zambians are very high and require urgent support and intervention.

Alcohol use

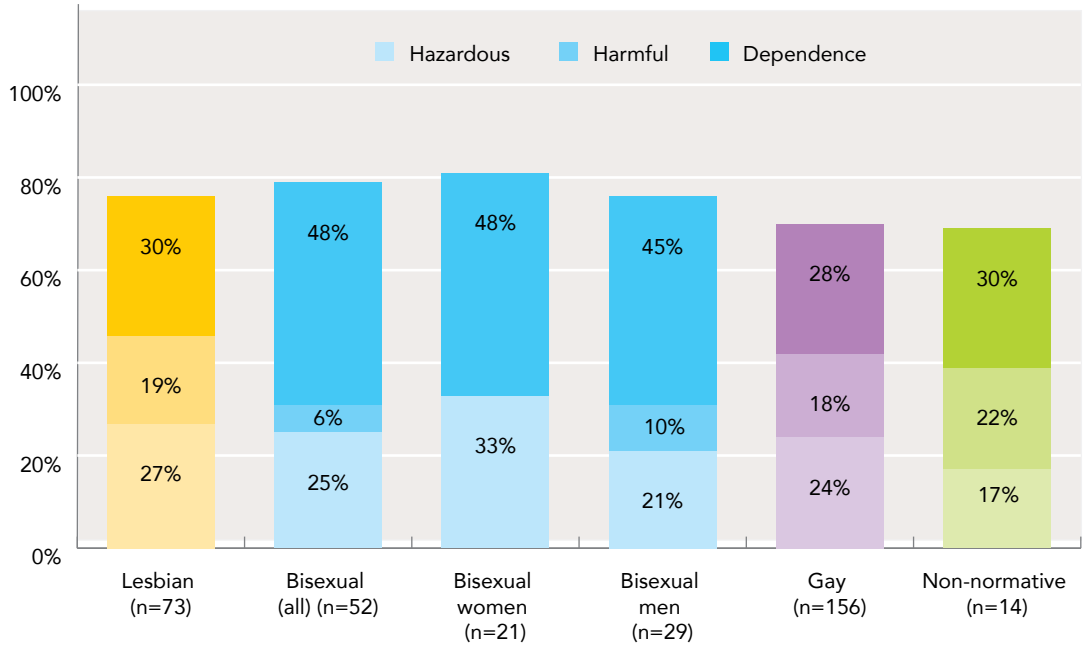
We used the 10-item AUDIT instrument to ask participants about how much alcohol they consume, and the impacts of their drinking on their lives. Figure 27 shows the levels of alcohol use in the overall sample. Nine out of ten (91%) participants drank alcohol, of which 73% drank at a level that may have health risks: 40% showed signs of hazardous or harmful alcohol use, and one third of all participants (33%) showed signs of alcohol dependence.

FIGURE 27: Alcohol use, overall sample



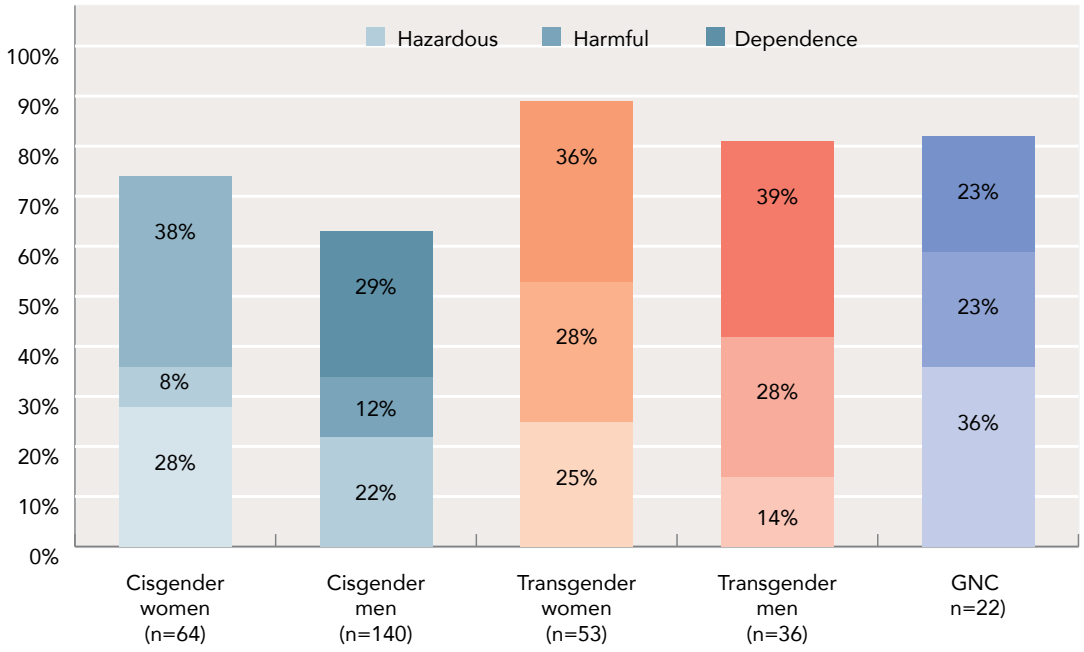
When looking at alcohol use by sexual orientation, hazardous/harmful/dependent use were high and similar across all sexual orientations (Figure 28, see also Table 16, Table 17 and Table 18). The levels of alcohol dependence were high: almost half of bisexual participants (48%) showed signs of alcohol dependence, as well as one in three (30%) of lesbian participants and one in four (28%) of gay participants.

FIGURE 28: Alcohol use by sexual orientation



When looking at alcohol use by gender identity (Figure 29 and Table 20), we found that while alcohol consumption was already high among cisgender participants, gender minority participants were even more likely to drink at a hazardous, harmful or dependent level ($p<0.05$). In our sample, nine out of ten transgender women (89%) drank alcohol at a level that was hazardous or harmful to their health or showed signs of alcohol dependence. Among transgender men and gender non-conforming people, it was four out of five (81% and 82%, respectively).

FIGURE 29: Alcohol use, by gender identity



It was difficult to find data on alcohol use in the general population of Zambia that used measures similar to the AUDIT, which makes the comparison of our findings difficult. One study that surveyed young people (age 10-24) found that 54% of male and 30% of female participants had ever drank alcohol. This would likely be an underestimate as the younger participants were less likely to report alcohol use (for example, 15% of male participants age 10-14 had ever drank alcohol), but may go on to drink alcohol when they become older (Magnani *et al.*, 2002). Those findings do suggest that alcohol use in Zambia is common. However, our findings show that alcohol use may be even higher among sexual and gender minority Zambians. Especially the extremely high levels of alcohol dependence in our sample (33%) is concerning.

Previous research from Zambia shows that people who have experienced violence are more likely to drink alcohol (Ngonga, 2016). Given the high levels of violence experienced by the participants in our study, this might be one of the explanations why alcohol use is so high.

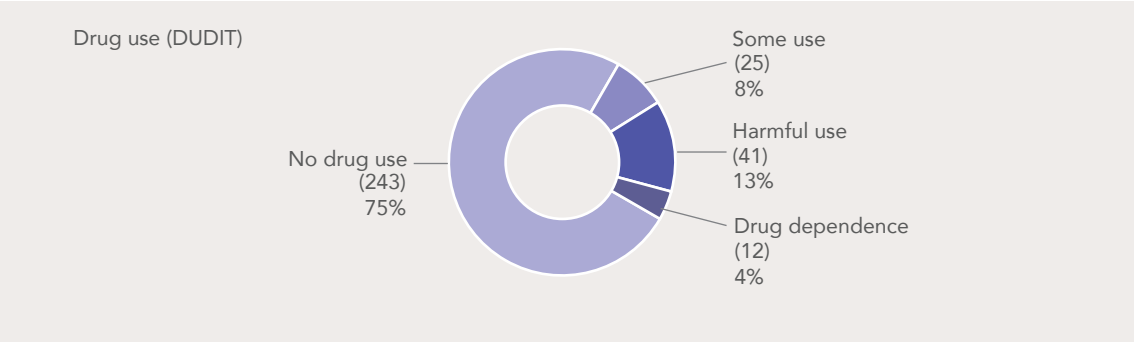
At present there is a lack of data that is disaggregated by sexual orientation and gender identity in research on alcohol use (Flentje, Bacca and Cochran, 2015). International evidence on alcohol use among sexual minority people is somewhat mixed, although a 2008 systematic review shows that sexual minority people have higher levels of drinking than their heterosexual counterparts, and that sexual minority women may have more harmful use than sexual minority men (King *et al.*, 2008). Our study confirms these findings for the Zambian context. In recent years, several new alcohol research studies have been done with gender minority people, but most have taken place outside of the African continent. A few North American studies suggest that gender minority people are more likely to have harmful drinking practices than cisgender people, and that 'gender minority stressors' (Gonzalez et al 2017) may be associated with elevated drinking habits (Coulter *et al.*, 2015; Scheim, Bauer and Shokoohi, 2016; Gonzalez, Gallego and Bockting, 2017). Our study compared cisgender people who are sexual minorities with gender minority people of a range of sexual orientations, and we observed that gender minority people were more likely to have harmful drinking practices. This confirms for Zambia what international literature has documented in other settings.

Our findings show that sexual and gender minority people in Zambia have very high levels of drinking alcohol, and high levels of drinking alcohol at levels that are harmful to their health. In comparison to data from the Zambian general population (which does not disaggregate by sexual orientation or gender identity), our findings suggest that of sexual and gender minority Zambians have higher levels of drinking alcohol than Zambians in the general population. This confirms for Zambia what we already know from other settings: that sexual and gender minority people have higher levels of alcohol use than their cisgender and heterosexual counterparts, mostly as coping mechanisms for minority stress in contexts of structural and social stigma, discrimination and marginalisation (Meyer, 2003; Hatzenbuehler *et al.*, 2014).

Drug use

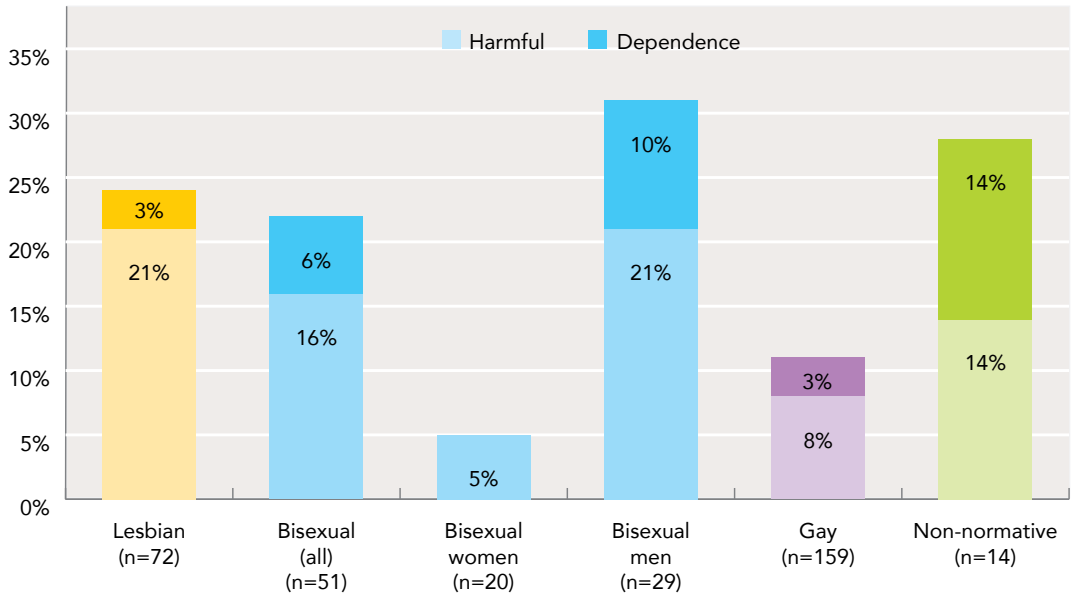
To measure levels of drug use among our sexual and gender minority sample, we used the DUDIT instrument (Figure 30). The majority of participants reported no drug use (75%), however, 17% of participants reported harmful levels of drug use, including drug dependence.

FIGURE 30: Drugs use levels in total sample



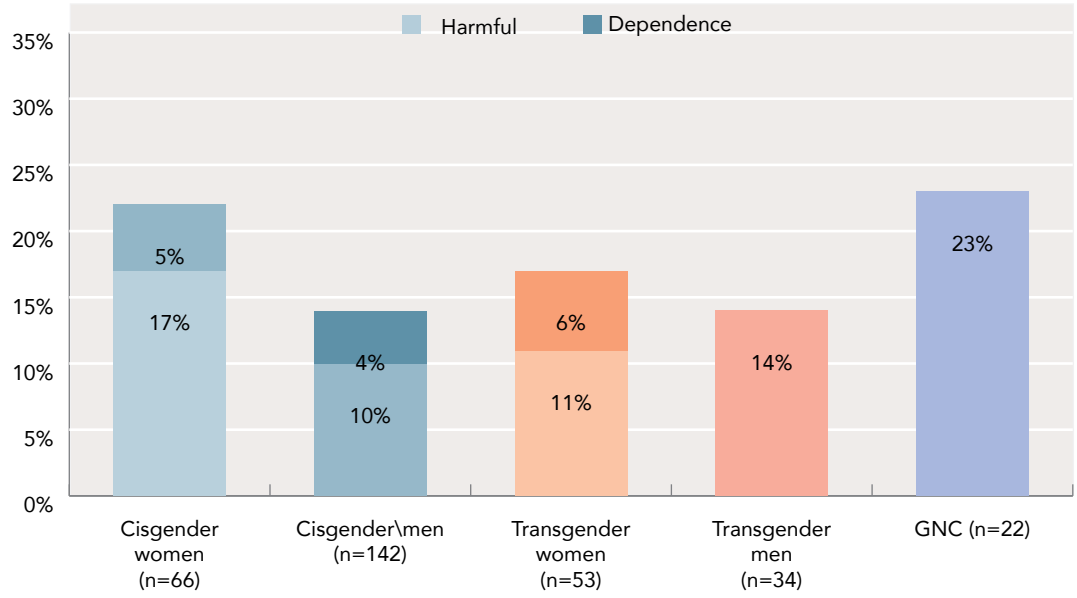
We saw some noticeable differences in drug use when examining sexual orientation and gender identity (Figure 31). Bisexual men had the highest level of harmful or dependent drug use, whereas bisexual women had the lowest (one in three bisexual men; 31% compared to 5% of bisexual women). However, these statistics were based on only 20 bisexual women and 39 bisexual men, which limits the meaningful interpretation of the difference. About one in four lesbian participants and participants with non-normative sexual orientations had harmful or dependent drug use (24% and 28%, respectively). One in ten gay participants had harmful or dependent use (11%).

FIGURE 31: Drug use, by sexual orientation



There were some observable differences in drug use by gender identity, though we found no difference between gender minority and cisgender participants that was statistically significant (Table 15, Figure 32). About one in four cisgender women and gender non-conforming participants had harmful or dependent drug use (22% and 23%, respectively).

FIGURE 32: Drug use, by gender identity



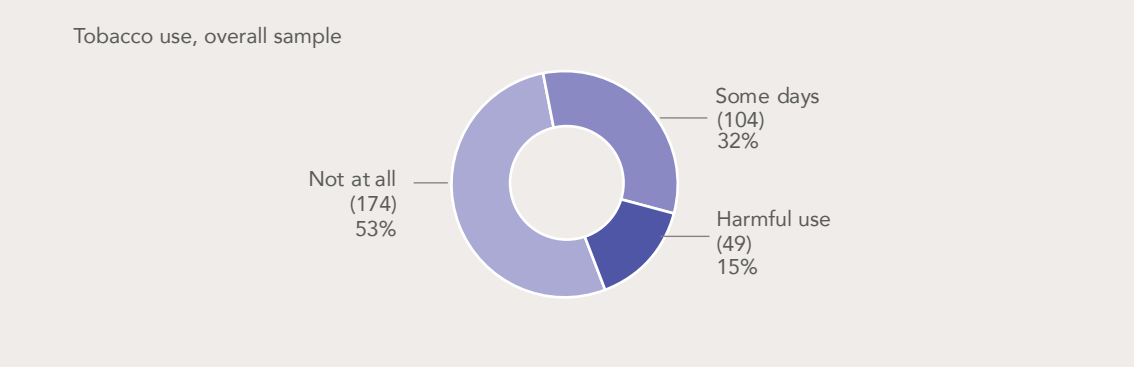
There are not a lot of estimates of drug use prevalence among the general Zambian population, which makes it difficult to compare our findings to the general population. One study of young people (age 10 to 24) found that 16% of male and 2% of female participants had ever used drugs, most of which was marijuana (Magnani *et al.*, 2002). This is likely an underestimate of what would be found in the Zambian adult population, as young people may only begin using drugs later in life. It is difficult, therefore, to say whether our finding that 25% of participants used drugs is similar or different to the broader Zambian adult population. However, research from other countries suggests that harmful drug use is more common among sexual and gender minority people than cisgender, heterosexual ones (Marshal *et al.*, 2008). The biggest risk factors for substance use among sexual and gender minorities were victimization, a lack of supportive environments, and psychological stress (Goldbach *et al.*, 2014) – which many of the participants in our study reported.

Regardless of whether the levels of drug use are higher or lower than in the general population, the fact that one in six sexual and gender minority people in our sample (17%) used drugs at a level that was harmful to their health means that Zambian sexual and gender minority people need support and drug use harm reduction programmes that are accessible and affirming of sexual and gender diversity.

Tobacco use

Forty-seven percent of all participants reported that they smoke tobacco. One in seven smoke every day (15%) and one in three only on some days (32%; Figure 33).

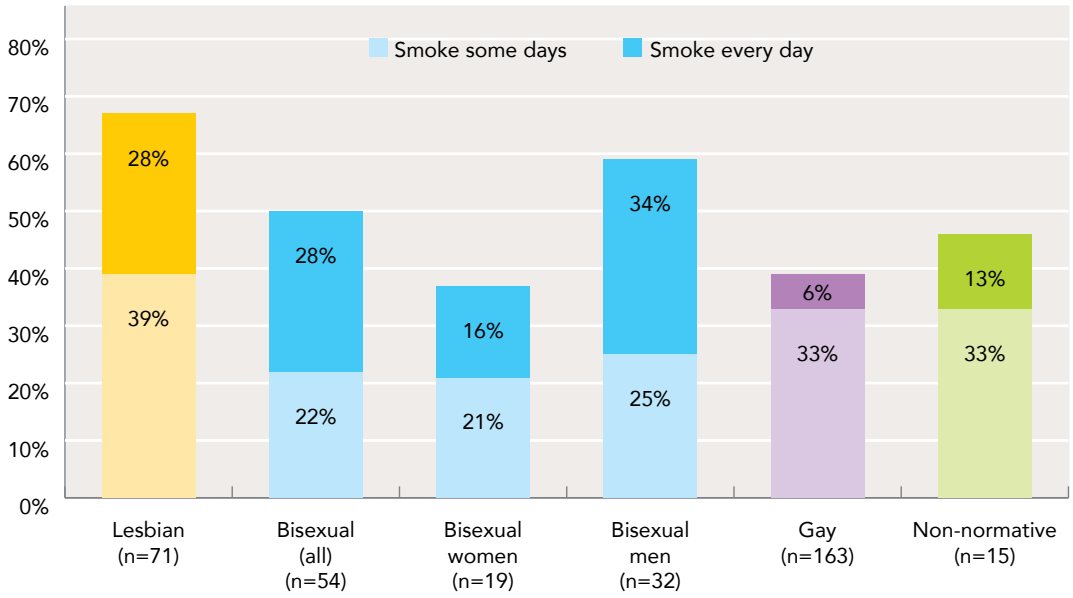
FIGURE 33: Participant tobacco use



Compared to recent prevalence data on smoking among Zambian adults in the general population, our findings were high. Among the general population, about 15% of adults smoke (World Health Organization, 2015). This means that the levels of smoking among sexual and gender minority Zambians are three times higher than among the general population (47% versus 15%).

In our sample, about one in three lesbian women and bisexual men smoked (67% and 59%, respectively; Figure 34, see also Table 16, Table 17 and Table 18). Bisexual women and gay men had the lowest levels, yet these were still more than double the level of smoking in the general adult population in Zambia (37% and 39%, as compared to 15% among the general population).

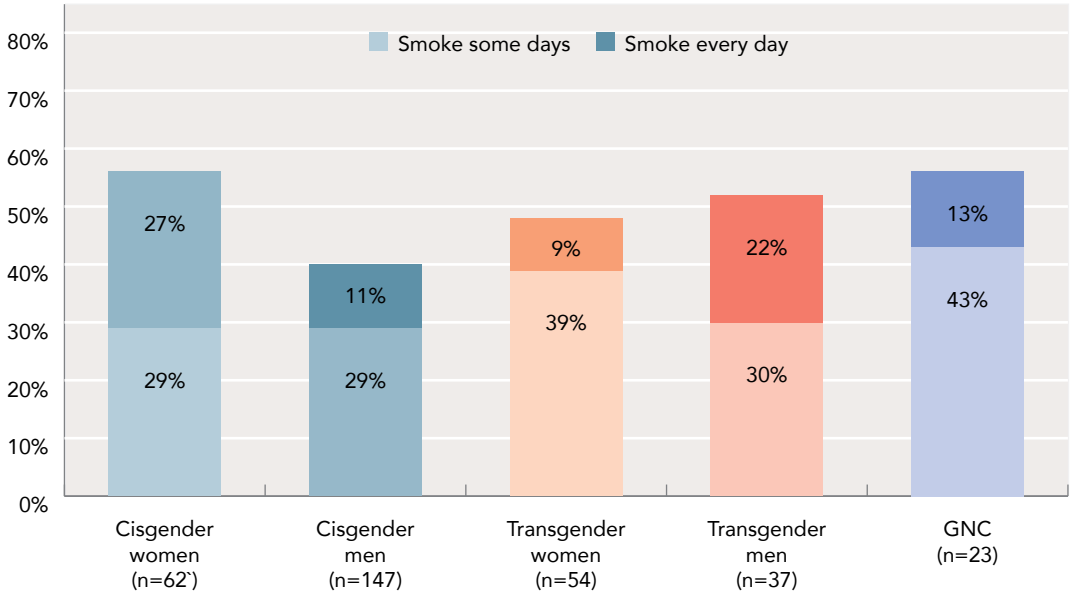
FIGURE 34: Tobacco use by sexual orientation



In Zambia, the use of tobacco in the general population is highly gendered: data from the World Health Organisation shows that about a quarter of men (the majority of whom are presumably cisgender and heterosexual) smoke, compared to 4% of women (World Health Organization, 2015). However, in our sample, we found that sexual minority, cisgender women smoked more than sexual minority, cisgender men (56% compared to 40%; Figure 35). About half of transgender

women and transgender men smoked (48% and 52%, respectively), and more than half of gender non-conforming people smoked (56%).

FIGURE 35: Tobacco use by gender identity



International data shows that sexual and gender minority people have much higher rates of smoking tobacco than cisgender, heterosexual people (Blosnich, Lee and Horn, 2013; Lee *et al.*, 2014). Our findings confirm these international findings for the Zambian context. While tobacco use might be seen as rather harmless, its long-term health consequences are severe: 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. The high levels of tobacco use among sexual and gender minority people in Zambia also increase their risk for these diseases in the medium to long term.

Experiences of violence, mental health and well-being of lesbian participants

Lesbian participants include any person of any gender who self-identified their sexual orientation as 'lesbian', cisgender women who identified as 'gay' and transgender women who self-identified as 'gay' and had sex with or were attracted exclusively to women. There were 78 lesbian participants in the sample.

FIGURE 36: Gender identity of lesbian participants

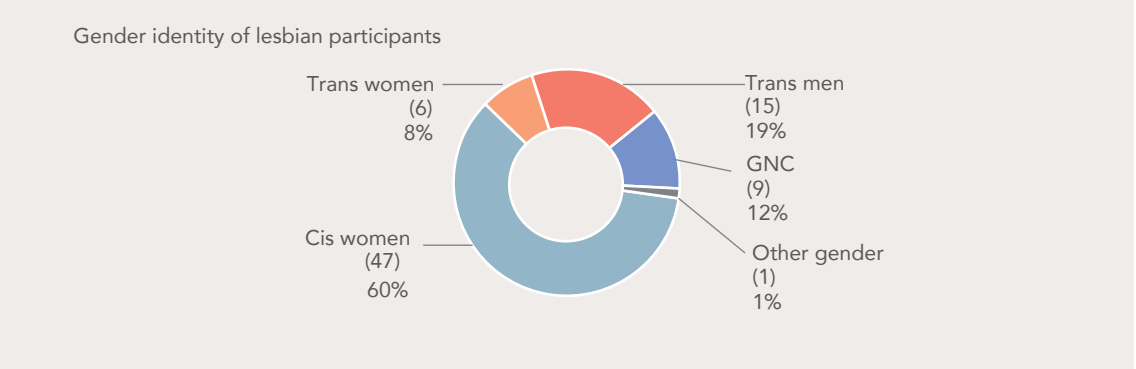


Table 16 shows the study findings for lesbian participants. About half of lesbian participants were classified as depressed (49%), and almost one in four (23%) showed signs of anxiety that may require evaluation by a medical professional. Over half (52%) had attempted suicide in their lifetime. Over three quarters (77%) used alcohol in a harmful way and almost one in four (24%) used drugs in a harmful way. More than two thirds (68%) used tobacco. Over a third (38%) said that they had been verbally harassed for their sexual orientation or gender identity in the past year. In their lifetime, three in five (59%) had experienced physical violence, and two in five (43%) had experienced sexual violence. One in five (21%) had experienced sexual violence by an intimate partner, and one in three (34%) physical violence by an intimate partner.

TABLE 16: Health outcomes and experiences of violence of lesbian participants

	n	%
Depression		
Depressed (based on CES-D 10) (n=69)	34	49.28
Ever been diagnosed with depression (n=68)	4	5.88
Of these, currently treated for depression (n=4)	1	25.00
Anxiety (n=70)		
Categorical		
Participants with no signs of anxiety	29	41.43
Participants with signs of mild anxiety	25	35.71
Participants with signs of moderate anxiety	16	22.86
Participants with signs of severe anxiety	0	0.00

	n	%
Binary		
No/mild anxiety	54	77.14
Moderate/severe anxiety	16	22.86
Ever been diagnosed with anxiety (n=71)	4	5.63
Of these, currently treated for anxiety (n=4)	1	25.00

Suicidality		
Suicidal ideation, lifetime (n=68)	36	52.94
Suicide attempt, lifetime (n=67)	35	52.24
Suicidal ideation, past year (n=66)	8	12.12
Suicide attempt, past year (n=67)	10	14.93

Alcohol use (n=73)		
Categorical		
No alcohol use	5	6.85
Some alcohol use	12	16.44
Hazardous use	20	27.40
Harmful use	14	19.18
Alcohol dependence	22	30.14
Binary		
No/some alcohol use	17	23.29
Hazard/Harm/ dependence	56	76.71

Drug use (n=72)		
Categorical		
No drug use	48	66.67
Some drug use	7	9.72
Harmful drug use	15	20.83
Drug dependence	2	2.78
Binary		
No/some drug use	55	76.39
Harmful use/ dependence	17	23.61

	n	%
Tobacco use (n=71)		
Don't smoke at all	23	32.39
Smoke some days	28	39.44
Smoke everyday	20	28.17
Verbal harassment for being LGBTI		
In lifetime (n=68)	50	73.53
Past year (n=64)	24	37.50
Sexual violence		
In lifetime (n=68)	29	42.65
Past year (n=67)	10	14.93
Physical violence		
In lifetime (n=68)	40	58.82
Past year (n=66)	16	24.24
Intimate partner, lifetime		
Sexual violence (n=68)	14	20.59
Physical violence (n=67)	23	34.33

Experiences of violence, mental health and well-being of gay participants

Gay participants include all cisgender and transgender men who self-identified as gay, as well as transgender women who self-identified as gay and were attracted to and had sex with men (transgender women who self-identified as gay but were exclusively attracted to or having sex with women were not included here—see the previous section on the health of lesbian participants). There were 175 gay people in the sample.

FIGURE 37: Gender identity of gay and other men who have sex with men

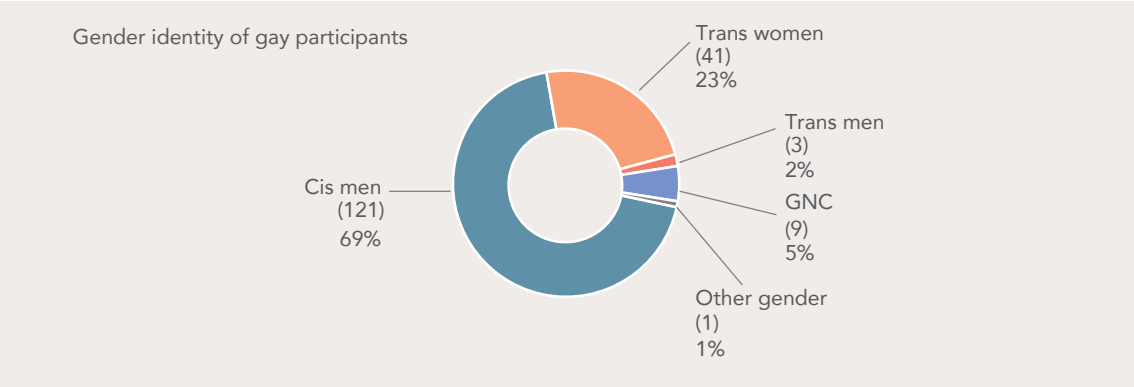


Table 17 shows the study findings for gay participants. Over half of them were classified as depressed (51%), and one in ten (11%) showed signs of moderate or severe anxiety. Nearly two-thirds (63%) had attempted suicide in their lifetime. Sixty-nine percent used alcohol in a harmful way, and one in ten (10%) used drugs in a harmful way. Almost half (49%) used tobacco. In their lifetimes, 72% said that they had been verbally harassed for their sexual orientation or gender identity, half (52%) had experienced physical violence, and almost a third (30%) had experienced sexual violence. One in seven (16%) had experienced sexual violence by an intimate partner, and almost one in three (30%) physical violence by an intimate partner.

TABLE 17: Health outcomes and experiences of violence of gay participants

	n	%
Depression		
Depressed (based on CES-D 10) (n=157)	80	50.96
Ever been diagnosed with depression (n=153)	8	5.23
Of these, currently treated for depression (n=8)	6	75.00
Anxiety (n=153)		
Categorical		
Participants with no signs of anxiety	80	52.29
Participants with signs of mild anxiety	56	36.60
Participants with signs of moderate anxiety	10	6.54
Participants with signs of severe anxiety	7	4.58

	n	%
Binary		
No/mild anxiety	136	88.89
Moderate/severe anxiety	17	11.11
Ever been diagnosed with anxiety (n=156)	8	5.13
Of these, currently treated for anxiety (n=7)	3	42.86
Suicidality		
Suicidal ideation, lifetime (n=156)	98	62.82
Suicide attempt, lifetime (n=155)	86	55.48
Suicidal ideation, past year (n=153)	19	12.42
Suicide attempt, past year (n=154)	32	20.78
Alcohol use (n=156)		
Categorical		
No alcohol use	14	8.97
Some alcohol use	34	21.79
Hazardous use	37	23.72
Harmful use	28	17.95
Alcohol dependence	43	27.56
Binary		
No/some alcohol use	17	23.29
Hazard/Harm/ dependence	56	76.71
Drug use (n=159)		
Categorical		
No drug use	137	86.16
Some drug use	6	3.77
Harmful drug use	12	7.55
Drug dependence	4	2.52
Binary		
No/some drug use	143	89.94
Harmful use/ dependence	16	10.06
Tobacco use (n=163)		
Don't smoke at all	100	61.35
Smoke some days	54	33.13
Smoke everyday	9	5.52

	n	%
Verbal harassment for being LGBTI (n=153)		
In lifetime	110	71.90
Past year	51	33.77
Sexual violence (n=154)		
In lifetime	46	29.87
Past year	20	12.99
Physical violence		
In lifetime (n=154)	80	51.95
Past year (n=154)	42	27.27
Intimate partner, lifetime		
Sexual violence (n=153)	24	15.69
Physical violence (n=154)	47	30.52

Experiences of violence, mental health and well-being of bisexual participants

Bisexual participants include any person who self-identified as bisexual. We provide overall numbers for all bisexual participants, as well as numbers for bisexual women (cis- and transgender women) and bisexual men (cis- and transgender men). There were 2 bisexual participants who identified as gender non-conforming, but this number of was too small to include for a meaningful analysis (Figure 38).[9]

FIGURE 38: Gender identity of bisexual participants

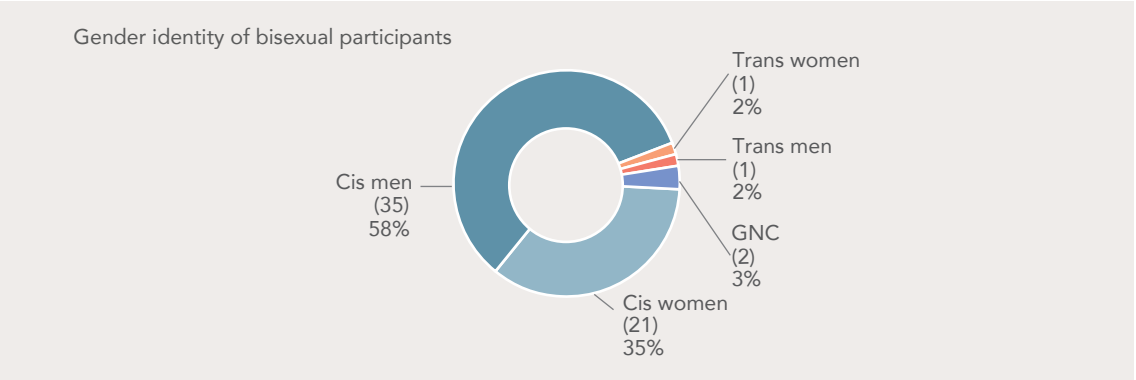


Table 18 shows the study findings for all bisexual participants, bisexual women and bisexual men. Close to half of all bisexual participants had signs of depression (45%), and 18% showed signs of anxiety. Almost half (46%) had attempted suicide in their lifetime. Four out of five (79%) used alcohol at a harmful level, and one in five (22%) used other drugs in a harmful way. Half (50%) used tobacco. Half (51%) said that they had been verbally harassed for their sexual orientation or gender identity, half (53%) had experienced physical violence, and over a third (38%) had experienced sexual violence. Almost one third (31%) had experienced sexual violence by an intimate partner, and almost half (45%) had experienced physical violence by an intimate partner.

We found almost no statistically significant differences between bisexual women and bisexual men, with the exception that bisexual women were significantly more likely to have thought about suicide in their lifetime. Bisexual women experienced higher levels of violence, including by intimate partners. This difference was not statistically significant, however.

9 Throughout this report, bisexual women and bisexual men as reported in Table 15 include both cisgender and transgender men and women.

TABLE 18: Health outcomes and experiences of violence of bisexual participants

	All bisexual people (n=60)		Bisexual women (n=22)		Bisexual men (n=35)		
	n	%	n	%	n	%	p
Depression							
Depressed (based on CES-D 10)	(n=57)		(n=22)		(n=32)		
	26	45.61	9	40.91	14	43.75	1.000
Ever been diagnosed with depression	(n=55)		(n=21)		(n=31)		1.000
	1	1.82	0	0.00	1	3.23	
Of these, currently treated for depression	(n=1)		(n=0)		(n=1)		
	1	100.00	0	0.00	1	100.00	
Anxiety	(n=55)		(n=22)		(n=30)		
Categorical							0.735
Participants with no signs of anxiety	30	54.55	10	45.45	18	60.00	
Participants with signs of mild anxiety	15	27.27	8	36.36	7	23.33	
Participants with signs of moderate anxiety	7	12.73	3	13.64	4	13.33	
Participants with signs of severe anxiety	3	5.45	1	4.55	1	3.33	
Binary							0.887
No/mild anxiety	54	77.14	18	81.82	25	83.33	
Moderate/severe anxiety	16	22.86	4	18.18	5	16.67	
Ever been diagnosed with anxiety	(n=54)		(n=21)		(n=31)		0.509
	2	3.70	0	0.00	2	6.45	
Of these, currently treated for anxiety	(n=2)		(n=0)		(n=2)		
	1	50.00	0	0.00	1	50.00	

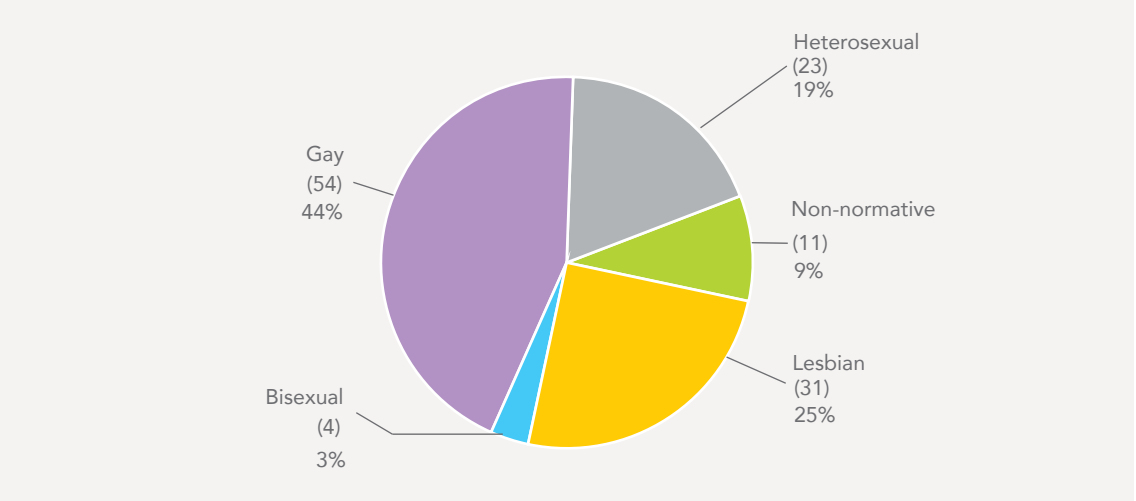
	All bisexual people (n=60)		Bisexual women (n=22)		Bisexual men (n=35)		
	n	%	n	%	n	%	p
Suicidality							
Suicidal ideation, lifetime	(n=57)		(n=22)		(n=32)		
	33	57.89	11	50.00	20	62.50	0.411
Suicide attempt, lifetime	(n=57)		(n=22)		(n=32)		
	26	45.61	9	40.91	16	50.00	0.585
Suicidal ideation, past year	(n=52)		(n=19)		(n=30)		
	6	11.54	4	21.05	0	0.00	0.018
Suicide attempt, past year	(n=56)		(n=22)		(n=31)		
	9	16.07	2	9.09	6	19.35	0.445
Alcohol use	(n=52)		(n=21)		(n=29)		
Categorical							0.613
No alcohol use	4	7.69	1	4.76	3	10.34	
Some alcohol use	7	13.46	3	14.29	4	13.79	
Hazardous use	13	25.00	7	33.33	6	20.69	
Harmful use	3	5.77	0	0.00	3	10.34	
Alcohol dependence	25	48.08	10	47.62	13	44.83	
Binary							0.668
No/some alcohol use	11	21.15	4	19.05	7	24.14	
Hazard/Harm/ dependence	41	78.85	17	80.95	22	75.86	
Drug use	(n=51)		(n=20)		(n=29)		
Categorical							0.110
No drug use	31	60.78	16	80.00	14	48.28	
Some drug use	9	17.65	3	15.00	6	20.69	
Harmful drug use	8	15.69	1	5.00	6	20.69	
Drug dependence	3	5.88	0	0.00	3	10.34	
Binary							0.026*
No/some drug use	40	78.43	19	95.00	20	68.97	
Harmful use/ dependence	11	21.57	1	5.00	9	31.03	

	All bisexual people (n=60)		Bisexual women (n=22)		Bisexual men (n=35)		
	n	%	n	%	n	%	p
Tobacco use	(n=54)		(n=19)		(n=32)		0.289
Don't smoke at all	27	50.00	12	63.16	13	40.63	
Smoke some days	12	22.22	4	21.05	8	25.00	
Smoke everyday	15	27.78	3	15.79	11	34.38	
Verbal harassment for being LGBTI							
In lifetime	(n=55)		(n=21)		(n=31)		
	28	50.91	12	57.14	14	45.16	0.572
Past year	(n=51)		(n=20)		(n=28)		
	15	29.41	6	30.00	8	28.57	1.000
Sexual violence							
In lifetime	(n=55)		(n=21)		(n=31)		
	21	38.18	12	57.14	6	19.35	0.008
Past year	(n=54)		(n=20)		(n=31)		
	14	25.93	7	35.00	5	16.13	0.178
Physical violence							
In lifetime	(n=55)		(n=21)		(n=31)		
	29	52.73	12	57.14	14	45.16	0.572
Past year	(n=55)		(n=21)		(n=31)		
	21	38.18	8	38.10	10	32.26	0.664
Intimate partner violence (lifetime)							
Sexual violence	(n=55)		(n=21)		(n=31)		
	17	30.91	9	42.86	6	19.35	0.066
Physical violence	(n=55)		(n=21)		(n=31)		
	25	45.45	10	47.62	12	38.71	0.523

Experiences of violence, mental health and well-being of gender minority participants

Gender minority participants include all participants who self-identified as transgender women, transgender men or gender non-conforming people. Additionally, it also includes all participants whose gender was different from the sex assigned at birth. Participants who selected 'other' gender identities and who were not cisgender are included in the overall number of gender minority people, but not reported as their own group due to their diversity and small numbers. Figure 39 shows the sexual orientations of gender minority participants.

FIGURE 39: Sexual orientation of gender minority participants



Gender affirming care

It is worthwhile repeating the findings on gender affirming practices (Table 19), as they relate directly to the health and well-being of transgender and gender non-conforming individuals. We asked gender minority participants about their access to, and use of gender affirming practices. To summarise the findings (detailed on page 33), almost half of gender minority participants who were assigned female at birth said that they used binders (45%), and more than one third of gender minority participants who were assigned male at birth said that they tucked (37%). One in five gender minority participants (19%) used hormones for gender affirmation.

TABLE 19: Gender affirming practices

Gender minority participants (n=123)		
	n	%
Binding (among those assigned female at birth, n=51)	23	45.10
Tucking (among those assigned male at birth, n=68)	25	36.76
Hormones (n=119)	23	19.33

Health outcomes

Table 20 shows the health outcomes for all gender minority people, as well as for transgender women, transgender men and gender non-conforming people. Overall, gender minority participants had experienced very high levels of violence, and showed high levels of mental health concerns, including suicidality and substance use. Compared to transgender men, gender non-conforming people and transgender women seemed to be more at risk for violence and mental health concerns.

Transgender women

Three in five transgender women were classified as depressed (61%), and 14% showed signs of moderate or severe anxiety. Over half (52%) had thought of suicide in their lifetime, and over half (52%) had attempted suicide in their lifetime. One in four (28%) had attempted suicide in the past year. Nine out of ten (89%) used alcohol at levels that were harmful to their health; more than one in three (36%) showed signs of alcohol dependence. 17% used drugs at harmful levels, and 48% used tobacco. 86% had experienced verbal harassment due to their gender identity, almost half (47%) had experienced sexual violence, and more than two third (68%) had experienced physical violence. A third (30%) had experienced sexual violence by an intimate partner, and 44% had experienced physical violence by an intimate partner.

Transgender men

Over half transgender men were classified as depressed (54%), and 29% showed signs of moderate or severe anxiety. Over two third (67%) had thought of suicide in their lifetime, and over half (55%) had attempted suicide in their lifetime. One in four (25%) had attempted suicide in the past year. Four out of five (81%) used alcohol at levels that were harmful to their health; more than one in three (39%) showed signs of alcohol dependence. 15% used drugs at harmful levels, and more than half (51%) used tobacco. Three quarters (77%) had experienced verbal harassment due to their gender identity, one third (34%) had experienced sexual violence, and almost half (49%) had experienced physical violence. One in ten (11%) had experienced sexual violence by an intimate partner, and one in three (34%) had experienced physical violence by an intimate partner.

Gender non-conforming people

Four in five gender non-conforming people (80%) were classified as depressed, and 18% showed signs of moderate or severe anxiety. Four in five (80%) had thought of suicide in their lifetime, and three quarters (74%) had attempted suicide in their lifetime. One in four (26%) had attempted suicide in the past year. Four out of five (82%) used alcohol at levels that were harmful to their health; 23% used drugs at harmful levels, and more than half (56%) used tobacco. Almost all (95%) had experienced verbal harassment due to their gender identity, nine out of ten (89%) had experienced sexual violence, and four out of five (84%) had experienced physical violence. On third (32%) had experienced sexual violence by an intimate partner, and over half (58%) had experienced physical violence by an intimate partner.

TABLE 20: Health outcomes and experiences of violence of all gender minority participants, transgender women, transgender men and gender non-conforming participants

	All gender minority people (n=123)		Transgender women (n=60)		Transgender men (n=37)		GNC people (n=23)	
	n	%	n	%	n	%	n	%
Depression								
Depressed (based on CES-D 10)	(n=112)		(n=56)		(n=35)		(n=20)	
	70	62.50	34	60.71	19	54.29	16	80.00
Ever been diagnosed with depression	(n=108)		(n=53)		(n=33)		(n=20)	
	5	4.63	2	3.77	1	3.03	1	5.00
Of these, currently treated for depression	(n=5)		(n=2)		(n=1)		(n=1)	
	5	100.00	2	100.00	1	100.00	1	100.00
Anxiety	(n=114)		(n=56)		(n=34)		(n=22)	
Categorical								
Signs of anxiety	49	42.98	30	53.57	9	26.47	9	40.91
Signs of mild anxiety	42	36.84	18	32.14	15	44.12	9	40.91
Signs of moderate anxiety	17	14.91	7	12.50	7	20.59	3	13.64
Signs of severe anxiety	6	5.26	1	1.79	3	8.82	1	4.55
Binary								
No/mild anxiety	91	79.82	48	85.71	24	70.59	18	81.82
Moderate/severe anxiety	23	20.18	8	14.29	10	29.41	4	18.18
Ever been diagnosed with anxiety	(n=115)		(n=54)		(n=36)		(n=22)	
	6	5.22	3	5.56	1	2.78	1	4.55
Of these, currently treated for anxiety	(n=5)		(n=3)		(n=1)		(n=1)	
	2	40.00	1	33.33	0	0.00	1	100.00

	All gender minority people (n=123)		Transgender women (n=60)		Transgender men (n=37)		GNC people (n=23)	
	n	%	n	%	n	%	n	%
Suicidality								
Suicidal ideation, lifetime	(n=112)		(n=56)		(n=34)		(n=20)	
	69	61.61	29	51.79	23	67.65	16	80.00
Suicide attempt, lifetime	(n=110)		(n=56)		(n=33)		(n=19)	
	62	56.36	29	51.79	18	54.55	14	73.68
Suicidal ideation, past year	(n=106)		(n=54)		(n=31)		(n=19)	
	16	15.09	1	1.85	9	29.03	5	26.32
Suicide attempt, past year	(n=107)		(n=54)		(n=32)		(n=19)	
	29	27.10	15	27.78	8	25.00	5	26.32
Alcohol use	(n=114)		(n=53)		(n=36)		(n=22)	
Categorical								
No alcohol use	7	6.14	1	1.89	5	13.89	0	0.00
Some alcohol use	12	10.53	5	9.43	2	5.56	4	18.18
Hazardous use	27	23.68	13	24.53	5	13.89	8	36.36
Harmful use	30	26.32	15	28.30	10	27.78	5	22.73
Alcohol dependence	38	33.33	19	35.85	14	38.89	5	22.73
Binary								
No/some alcohol use	19	16.67	6	11.32	7	19.44	4	18.18
Hazard/Harm/ dependence	95	83.33	47	88.68	29	80.56	18	81.82
Drug use	(n=112)		(n=53)		(n=34)		(n=22)	
Categorical								
No drug use	84	75.00	41	77.36	29	85.29	12	54.55
Some drug use	9	8.04	3	5.66	0	0.00	5	22.73
Harmful drug use	16	14.29	6	11.32	5	14.71	5	22.73
Drug dependence	3	2.68	3	5.66	0	0.00	0	0.00
Binary								
No/some drug use	93	83.04	44	83.02	29	85.29	17	77.27

	All gender minority people (n=123)		Transgender women (n=60)		Transgender men (n=37)		GNC people (n=23)	
	n	%	n	%	n	%	n	%
Harmful use/ dependence	19	16.96	9	16.98	5	14.71	5	22.73

Tobacco use	(n=117)		(n=54)		(n=37)		(n=23)	
Don't smoke at all	57	48.72	28	51.85	18	48.65	10	43.48
Smoke some days	44	37.61	21	38.80	11	29.73	10	43.48
Smoke everyday	16	13.68	5	9.26	8	21.62	3	13.04

Verbal harassment for being LGBTI								
In lifetime	(n=113)		(n=57)		(n=35)		(n=19)	
	96	84.96	49	85.96	27	77.14	18	94.74
Past year	(n=107)		(n=54)		(n=32)		(n=19)	
	64	59.81	33	61.11	16	50.00	14	73.68

Sexual violence								
In lifetime	(n=113)		(n=57)		(n=35)		(n=19)	
	57	50.44	27	47.37	12	34.29	17	89.47
Past year	(n=112)		(n=56)		(n=35)		(n=19)	
	24	21.43	11	19.64	6	17.14	7	36.84

Physical violence								
In lifetime	(n=113)		(n=57)		(n=35)		(n=19)	
	72	63.72	39	68.42	17	48.57	16	84.21
Past year	(n=112)		(n=56)		(n=35)		(n=19)	
	45	40.18	24	42.86	11	31.43	10	52.63

Intimate partner violence								
Sexual violence	(n=112)		(n=56)		(n=35)		(n=19)	
	27	24.11	17	30.36	4	11.43	6	31.58
Physical violence	(n=113)		(n=57)		(n=35)		(n=19)	
	48	42.48	25	43.86	12	34.29	11	57.89

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.*, 2007). 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 do 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 sexual minority people. We have worked to describe our methodology openly to allow for interpretation and critique of these findings.

Forth, 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.

Last, it is difficult to compare findings on LGBTI people's health across studies nationally and internationally. This is because there is currently no standardised way 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 some limitations, our study is the first cross-sectional study to describe levels of mental health among lesbian, gay, bisexual, transgender and intersex people in Zambia. It shows that LGBTI people, regardless of their specific sexual orientation, gender identity or gender expression, have higher levels of depression, anxiety, suicidality, and substance use than the general population. LGBTI people are also more likely to experience verbal harassment, physical and sexual violence than the general population, and face sexual orientation- and gender identity-related barriers when trying to access healthcare.

The disaggregation of our findings shows 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).

The findings from our study confirm that in Zambia, as described in other parts of the world (Meyer, 2003; Hatzenbuehler *et al.*, 2014), social exclusion, marginalisation and stigma due to non-normative sexual orientation and/ or gender identity have a negative impact on the mental health and wellbeing of people who identify as lesbian, gay, bisexual, transgender or intersex. Specifically, the findings in our study show that lesbian, gay, bisexual, transgender and intersex people living in Zambia, including men who have sex with men and women who have sex with women, have a higher burden of mental health concerns than exists in the general population. This high burden of mental health concerns is, at least in part, due to experiences of violence, stigma, prejudice and discrimination at individual and institutional level. Sections 155, 156, 157 and 158 of the Penal Code of Zambia, which criminalise same-sex activity, codify sexual orientation and gender identity-related stigma, prejudice and discrimination into the Penal Code (Krieger, 1999), and are therefore likely to contribute to the high levels of mental health disorders among sexual and gender minority people living in Zambia, including men who have sex with men and women who have sex with women.

The findings from our study demonstrate the urgent need for 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 at least 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. The high levels of violence experienced by sexual and gender minority people in Zambia highlight the need for better access to justice (for people who decide to report such violence), and the need for non-judgmental support for sexual and gender

minority survivors of violence. Survivors of violence need to have access to mental health services to support them in coping with the consequences of the violent experience. Further, survivors of violence need support to report violence to state authorities, and to take such cases through the criminal justice system.

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 Zambia, and evidence the seriousness of the rights violations against Zambians who identify as sexual or gender minorities, as well as the health consequences.

RECOMMENDATIONS

Recommendations for national government

- Ensure that the healthcare needs of LGBTI people are reflected in national health policy
- Support the work of civil society organisations who provide services, including mental healthcare, for LGBTI populations;
- Improve access to mental health services for LGBTI populations:
    - Ensure that mental health services are affirming of sexual and gender diversity;
    - Ensure that mental health services are provided without sexual orientation and gender identity-related stigma, prejudice and discrimination;
    - We recommend following the guidelines on sexual and gender diversity published by the Psychological Association of South Africa;
    - Include mental health assessments, care and referrals if necessary into the HIV-related package of care for key populations.

- Build knowledge, skills and capacity within the public health sector to reduce sexual orientation and gender identity-related stigma, prejudice and discrimination in healthcare:
    - Provide mandatory sensitisation on sexual orientation, gender identity and expression, as well as values clarification, for healthcare providers at health facilities;
    - Provide continuous professional development education and training for healthcare providers to raise awareness of the mental health needs of LGBTI people in Zambia;
    - Include teaching on sexual orientation and gender identity-related health concerns into health professions education.

Recommendations for civil society organisations

- For LGBTI civil society organisations:
    - Provide affirming counselling services for LGBTI people, and actively raise funds for such services;
    - Recognise that staff at LGBTI civil society organisations may have experiences with violence, or mental health concerns, and prioritise interventions and programmes for staff well-being;
    - Include mental health as an important aspect of the health of LGBTI people in advocacy, programming and outreach work;
    - Build relationships and referral services with mental healthcare providers who are willing to provide LGBTI-affirming services.

- For civil society organisations providing services to survivors of violence:
    - Ensure that all staff, especially psychosocial and court support staff, are able to provide affirming services to LGBTI survivors of violence;

- Actively build links to LGBTI civil society organisations.

Recommendations for donors

- Provide funding for services, programming and advocacy work linked to mental health and sexual orientation, gender identity and expression;
- Raise awareness of the need for mental health services and education for LGBTI people with other donors;
- Ensure that funds for violence prevention and programming build programmes that are LGBTI inclusive

Recommendations for academics and researchers

- Work with civil society organisations to establish research priorities and thematic areas, and fully and meaningfully involve civil society organisations in research projects:
  - Follow existing guidelines on how to work with LGBTI populations in health-related research, for example the Guidelines for Conducting Participatory Social Research with Key Populations and Marginalised Communities (KP Reach, 2018).
  - Meaningfully include civil society organisations in the development of research proposals, including in budget items.

- Include demographic data on sexual orientation and gender identity and expression in population-based studies, in order to expand the knowledge base on sexual orientation, gender identity and expression and health.
- Conduct research, in partnership with civil society organisations, to further understand the mental health and well-being of LGBTI populations in Zambia.

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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 1: 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:

1. **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")
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").

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[10]; 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[11]; 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.

10 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.

11 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.[12]

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
Kenya	976

12 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.

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

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.

APPENDIX 2: QUESTIONNAIRE

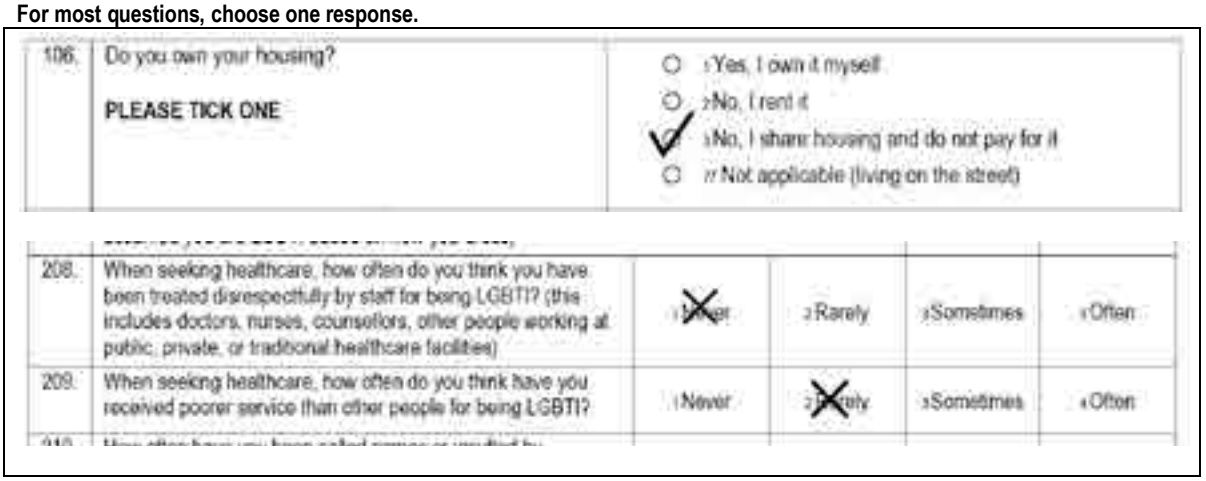
ZAMBIA—ENGLISH

Instructions for self-administration

You will complete this questionnaire by yourself. A fieldworker will review what the study is about and check that you are eligible and willing to be in the study.

Carefully complete this questionnaire. Check that you have completed every question.

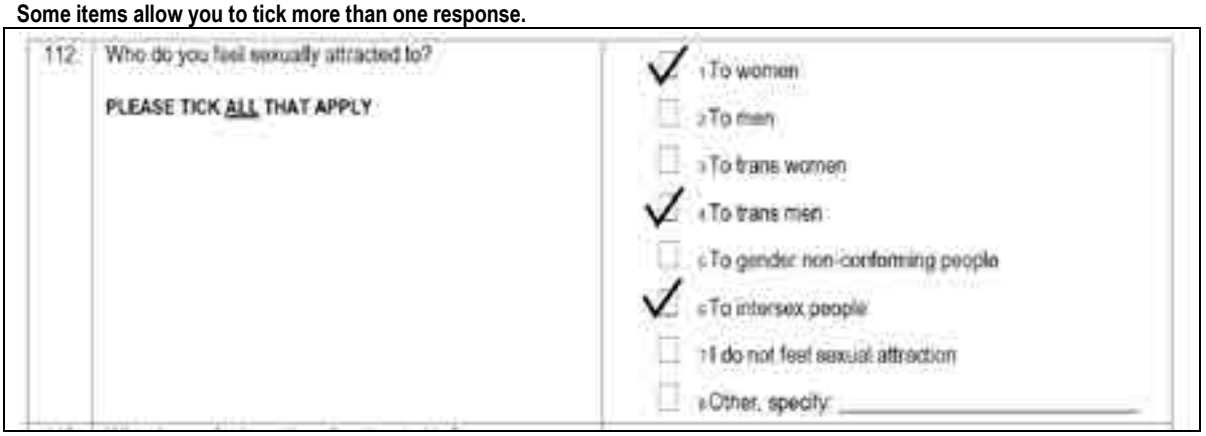
For most questions, choose one response.



106.	Do you own your housing? **PLEASE TICK ONE**	○ 1 Yes, I own it myself ○ 2 No, I rent it ✓ 3 No, I share housing and do not pay for it ○ 77 Not applicable (living on the street)

208.	When seeking healthcare, how often do you think you have been treated disrespectfully by staff for being LGBTI? (this includes doctors, nurses, counsellors, other people working at public, private, or traditional healthcare facilities)	1 Never	2 Rarely	3 Sometimes	4 Often
209.	When seeking healthcare, how often do you think have you received poorer service than other people for being LGBTI?	1 Never	2 Rarely	3 Sometimes	4 Often

Some items allow you to tick more than one response.



112.	Who do you feel sexually attracted to? **PLEASE TICK ALL THAT APPLY**	✓ 1 To women ☐ 2 To men ☐ 3 To trans women ✓ 4 To trans men ☐ 5 To gender non-conforming people ✓ 6 To intersex people ☐ 7 I do not feel sexual attraction ☐ 8 Other, specify: _____

Sometimes the same question is asked twice—once about the last 12 months and once about your whole lifetime (ever).

403.	Has anyone ever **insulted or verbally harassed** you because of being LGBTI?	a. In your life time?	1 Yes	2 No
		b. In the last 12 months?	1 Yes	2 No

Be sure to answer both questions. Remember that if you experienced something in the last 12 months, you have also experienced it in your lifetime.

If you make a mistake, make the correction clearly. Place one or two lines through the incorrect response and circle the correct response.

214.	Have you postponed or not tried to get needed healthcare when you were sick or injured because you could not afford it?	✗	✗

Questionnaire consent statement

The Gender Health and Justice Research Unit at the University of Cape Town, in partnership with COC Netherlands and community based organisations across 12 African countries, (Angola, Botswana, Kenya, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe) is surveying people who are/identify as LGBTI. We aim to develop a better understanding of mental health, wellbeing, and experiences of discrimination, in order to inform advocacy efforts for improved services.

For this survey, we use LGBTI to mean someone who is or identifies as *any* of the following: gay, lesbian, bisexual, pansexual, omnisexual, asexual, men who have sex with men (MSM), women who have sex with women (WSW), transgender, transsexual, transman, transwoman, non-binary trans, queer, genderqueer, gender diverse, gender non-conforming, intersex and body diverse.

Please fill out our quick survey to let us know about your experiences accessing healthcare, about your mental health and well-being, and your experiences with violence.

This survey should take about 20-30 minutes to complete. This survey is **anonymous**, meaning that we will not ask for your name or any other identifying information. What you share in this survey will be kept confidential.

At the end of this survey, we will include a list of resources in your country should you need someone to talk to about your mental health, wellbeing, or experiences of discrimination.

The outcomes of the survey will be used to inform agenda setting by the COC Netherlands and in-country partner organisations to plan advocacy efforts around improving access to services for LGBTI people, particularly mental health services. The findings of this study may be published in academic literature, in which case your answers will not be linked to any identifying information. We can email you a report with the outcomes of this survey. If you wish to receive this report, please contact the organisation that gave you this questionnaire or sent you the link.

Please do not hesitate to contact us if you have any questions. If you have questions about your rights as a research participant, please contact the Faculty of Health Sciences Human Research Ethics Committee, Room E52-54 Groote Schuur Hospital Old Main Building, Observatory 7925, phone +27 21 406 6338 or email shuretta.thomas@uct.ac.za.

To begin, please complete the eligibility questions below.

Thank you for your assistance.

Kind regards

Dr Alex Muller
Senior Researcher
Gender Health and Justice Research Unit
University of Cape Town
Falmouth Building, Entrance 1, Level 1, Room 1.01.5
(021) 406 6021
alexandra.muller@uct.ac.za

These questions should be completed by a fieldworker:

1. **Are you 18 years of age or older?**
   - ○ 1 Yes
   - ○ 0 No → NOT ELIGIBLE

2. **Do you identify as LGBTI (see above)?**
   - ○ 1 Yes
   - ○ 0 No→ NOT ELIGIBLE

3. **Do you currently live in Angola, Botswana, Kenya, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, or Zimbabwe?**
   - ○ 1 Yes
   - ○ 0 No→ NOT ELIGIBLE

This question should be *ticked by the participant*, but can be asked by a fieldworker:

4. **Do you agree to participate in this survey, based on the information outlined above? (this will be regarded as your informed consent to participate in this survey)**
   - ○ 1 Yes
   - ○ 0 No → NOT ELIGIBLE

5. **Are you completing the questionnaire by yourself?**
   - ○ 1 Yes (self-administered)
   - ○ 0 No (fieldworker administered)

The following question should be completed by the fieldworker.

6. **Has the participant answered yes to questions 1, 2, 3 and 4?**
   - ○ 0 No → Sign and STOP HERE. Explain to participant they are not eligible for the survey. Place this completed form in a secure place.
   - ○ 1 Yes → Sign and continue data collection per guidelines in the Fieldworker Manual.

Fieldworker signature: _____ Date: _____

Section 1a: Background

101.	How old are you?	**PLEASE WRITE YOUR AGE:** _____
102.	In which country do you currently live? **PLEASE TICK ONE**	○ 1 Angola ○ 2 Botswana ○ 3 Kenya ○ 4 Lesotho ○ 5 Malawi ○ 6 Mozambique ○ 7 Namibia ○ 8 South Africa ○ 9 Swaziland ○ 10 Tanzania ○ 11 Zambia ○ 12 Zimbabwe
103.	How did you hear about this study?	○ 30 Friends of Rainka (FoR) ○ 31 Tranz Bantu Association (TBZ) ○ 32 Lotus Identity
104.	How do you identify your race?	○ 1 Black ○ 2 White ○ 5 Other specify: _____
105.	In what type of housing do you currently live?	○ 1 House ○ 2 Apartment / flat ○ 3 Shanty / Shack ○ 4 Hotel ○ 5 Mobile house ○ 6 On the street

106.	Do you own your housing? **PLEASE TICK ONE**	○ 1 Yes, I own it myself ○ 2 No, I rent it ○ 3 No, I share housing and do not pay for it ○ 77 Not applicable (living on the street)
107.	What type of area do you live in?	○ 1 Urban ○ 2 Semi-urban/Peri-urban ○ 3 Rural
108.	On average, do you have enough money to cover your basic needs?	○ 1 Yes ○ 0 No
109.	Do you have a job for which you are paid?	○ 1 Yes, I have formal employment (I have an employment contract) ○ 2 Yes, I have informal employment (I am paid for work but do not have an employment contract) ○ 0 No, I do not have any work for which I am paid
110.	Which religion, if any, most closely aligns to your beliefs?	○ 1 African tradition ○ 2 Islam ○ 3 Christianity ○ 4 Rastafarianism ○ 5 Judaism ○ 6 I am not religious ○ 7 Other, specify: _____
111.	What is the highest level of education that you have completed?	○ 1 No formal education ○ 2 Primary education ○ 3 Secondary school (high school) ○ 4 Post-secondary school/University diploma or degree (tertiary)

112.	Who do you feel sexually attracted to? **PLEASE TICK ALL THAT APPLY**	☐ 1 To women ☐ 2 To men ☐ 3 To trans women ☐ 4 To trans men ☐ 5 To gender non-conforming people ☐ 6 To intersex people ☐ 7 I do not feel sexual attraction ☐ 8 Other, specify: _____
113.	Who do you feel emotionally attracted to? **PLEASE TICK ALL THAT APPLY**	☐ 1 To women ☐ 2 To men ☐ 3 To trans women ☐ 4 To trans men ☐ 5 To gender non-conforming people ☐ 6 To intersex people ☐ 7 I do not feel emotional attraction ☐ 8 Other, specify: _____
114.	In the last year, whom have you had sexual experiences with? **PLEASE TICK ALL THAT APPLY**	☐ 1 With women ☐ 2 With men ☐ 3 With trans women ☐ 4 With trans men ☐ 5 With gender non-conforming people ☐ 6 With intersex people ☐ 7 I have not had sexual experiences in the last year ☐ 8 Other, specify: _____
115.	In your lifetime, whom have you had sexual experiences with? **PLEASE TICK ALL THAT APPLY**	☐ 1 With women ☐ 2 With men ☐ 3 With trans women ☐ 4 With trans men ☐ 5 With gender non-conforming people ☐ 6 With intersex people ☐ 7 I have never had sexual experiences ☐ 8 Other, specify: _____

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116.	In terms of your sexual orientation, how do you identify? **PLEASE TICK ONE**	○ 1 Lesbian ○ 2 Bisexual ○ 3 Gay ○ 4 Heterosexual ○ 5 Asexual ○ 6 Other; please specify _____
117.	In terms of your gender identity, how do you identify? **PLEASE TICK ONE**	○ 1 Woman ○ 2 Man ○ 3 Trans woman ○ 4 Trans man ○ 5 Gender non-conforming ○ 6 Other; please specify:_____
118.	How was your sex classified at birth? **PLEASE TICK ONE**	○ 1 Female ○ 2 Male ○ 3 Intersex (persons born with sex organs/genitals that do not appear typically female or typically male)
119.	What is the legal sex/gender currently recorded in your identity document? **PLEASE TICK ONE**	○ 1 Female ○ 2 Male ○ 3 Intersex ○ 4 Unspecified ○ 5 Other; please specify:_____ ○ 77 I do not have an identity document

Section 1b: Gender expression

We would now like to know more about your gender expression. Indicate on a scale from 1 (not at all) to 5 (extremely) how masculine and feminine you think you are. We understand that being masculine or feminine is not natural or something you are born with, but we would like to know about how much you conform to society's expectations of what is masculine or feminine.

Place an X in one box that best describes your answer to each question.

120.	In general, how feminine do you think you are?	1 Not at all	2 A little	3 Somewhat	4 Very much	5 Extremely
121.	In general, how feminine do you behave in front of others?	1 Not at all	2 A little	3 Somewhat	4 Very much	5 Extremely
122.	In general, how feminine do you appear to others?	1 Not at all	2 A little	3 Somewhat	4 Very much	5 Extremely
123.	In general, how masculine do you think you are?	1 Not at all	2 A little	3 Somewhat	4 Very much	5 Extremely
124.	In general, how masculine do you behave in front of others?	1 Not at all	2 A little	3 Somewhat	4 Very much	5 Extremely
125.	In general, how masculine do you appear to others?	1 Not at all	2 A little	3 Somewhat	4 Very much	5 Extremely

	The following questions are about your use of some different gender-affirming practices. We understand that not everyone does these practices; however, we appreciate any information you are able to share with us, whether you do these practices or not.				
139.	Do you use hormones for gender affirming care ("transitioning")?	1 Yes, from a local private healthcare provider	2 Yes, from a local public healthcare provider	3 Yes, from another source	0 No
140.	Do you use any method of binding (binders, bandages, etc.)?			1 Yes	0 No
141.	Do you tuck (or use any method of hiding your penis)?			1 Yes	0 No

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Section 1c: Sexuality and self

Complete this section if you do not identify as heterosexual or asexual. **If you do identify as heterosexual or asexual, go to the next page.**

Place an X in one box that best describes your answer to each question.

Please answer these questions based on YOUR OWN feelings about yourself.

126.	Sometimes I dislike myself for being a person who has (or wants) sex with people of the same sex.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
127.	I wish I was only sexually attracted to the opposite sex.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
128.	I am ashamed of myself for being sexually attracted to people of the same sex.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
129.	I feel that being attracted to people of the same sex is a personal weakness of mine.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
130.	If someone offered me the chance to be completely heterosexual, I would accept the offer.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
131.	Whenever I think about having sex with someone of the same sex, I feel bad about myself.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly

Section 1d: Gender identity and self

Complete this section if you identify as transgender, genderqueer, and/or gender non-conforming. **If you do not identify as transgender, genderqueer, and/or gender non-conforming, go to the next page.**

Place an X in one box that best describes your answer to each question.

Please answer these questions based on YOUR OWN feelings about yourself.

132.	Sometimes I dislike myself for being transgender, genderqueer, and/or gender non-conforming.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
133.	Sometimes I wish I wasn't transgender, genderqueer, and/or gender non-conforming.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
134.	I think about the fact that I am transgender, genderqueer, and/or gender non-conforming when I interact with people.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
135.	I feel that being transgender, genderqueer, and/or gender non-conforming is a personal weakness of mine.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
136.	If someone offered me the chance to be cisgender, I would accept the offer.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly

The following questions are about your access to gender-affirming treatments. We understand that not everyone chooses to use these treatments; however, we appreciate any information you are able to share with us about access, whether you use these treatments or not.

137.	Can you get hormones for transitioning from a local healthcare provider, if you need them?	1 Yes	0 No
138.	Can you get gender affirming surgery from a local healthcare provider, if you need it?	1 Yes	0 No

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Section 1e: Being intersex and self

Complete this section if you are intersex. **If you are not intersex, go to the next page.**

<u>Place an X in one box</u> that best describes your answer to each question.

Please answer these questions based on YOUR OWN feelings about yourself.

142.	Sometimes I dislike myself for being intersex.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
143.	Sometimes I wish I wasn't intersex.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
144.	I think about the fact that I am intersex when I interact with people.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
145.	I feel that being intersex is a personal weakness of mine.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
146.	If someone offered me the chance to not have been born intersex, I would accept the offer.	1 Disagree strongly	2 Disagree	3 Agree	4 Agree strongly
147.	How do you rate your healthcare providers' knowledge and skills on intersex healthcare?	4 Very good	3 Good	2 Poor	1 Very poor
148.	Has healthcare staff ever put your body on display for others to look at?			1 Yes	0 No

Section 2a: Health service use

The following questions will ask about your health service use at community-based organisations/non-governmental organisations, public services, private services, and indigenous or traditional healers or providers.

201.	Do you have private medical aid or health insurance?	1 Yes	0 No	
202.	For which health services have you accessed **community-based organisation or non-governmental organisation healthcare** in the last 12 months? **TICK ALL THAT APPLY** *(If you do not use community-based organisation or non-governmental organisation healthcare, tick "None" at the bottom)*	☐ 1 Regular check-ups when I am feeling well ☐ 2 Check-ups when I am feeling sick ☐ 3 Emergency care ☐ 4 Care after a sexual assault ☐ 5 Care after a physical assault ☐ 6 Testing for HIV ☐ 7 HIV care and treatment ☐ 8 Testing, care, or treatment for other sexually transmitted infections (STIs) (not HIV) ☐ 15 Counselling or psychosocial support ☐ 16 Care for mental health conditions ☐ 10 Barrier methods (condoms, dental dams or finger condoms) ☐ 11 Contraception (injection, pill, IUD/loop, implant) ☐ 12 Gender affirming treatment (hormones, surgery) ☐ 13 Other, specify: _____ ☐ 14 None		
203.	For which health services have you accessed **public health care (clinic/hospital)** in the last 12 months? **TICK ALL THAT APPLY** *(If you do not use public healthcare, tick "None" at the bottom)*	☐ 1 Regular check-ups when I am feeling well ☐ 2 Check-ups when I am feeling sick ☐ 3 Emergency care ☐ 4 Care after a sexual assault ☐ 5 Care after a physical assault ☐ 6 Testing for HIV ☐ 7 HIV care and treatment ☐ 8 Testing, care, or treatment for other sexually transmitted infections (STIs) (not HIV) ☐ 15 Counselling or psychosocial support ☐ 16 Care for mental health conditions ☐ 10 Barrier methods (condoms, dental dams or finger condoms) ☐ 11 Contraception (injection, pill, IUD/loop, implant) ☐ 12 Gender affirming treatment (hormones, surgery) ☐ 13 Other, specify: _____ ☐ 14 None		

204.	For which health services have you accessed **private health care (clinic/hospital)** in the last 12 months? **TICK ALL THAT APPLY** *(If you do not use private healthcare, tick "None" at the bottom)*	☐ 1 Regular check-ups when I am feeling well ☐ 2 Check-ups when I am feeling sick ☐ 3 Emergency care ☐ 4 Care after a sexual assault ☐ 5 Care after a physical assault ☐ 6 Testing for HIV ☐ 7 HIV care and treatment ☐ 8 Testing, care, or treatment for other sexually transmitted infections (STIs) (not HIV) ☐ 15 Counselling or psychosocial support ☐ 16 Care for mental health conditions ☐ 10 Barrier methods (condoms, dental dams or finger condoms) ☐ 11 Contraception (injection, pill, IUD/loop, implant) ☐ 12 Gender affirming treatment (hormones, surgery) ☐ 13 Other, specify: _____ ☐ 14 None
205.	For which health services have you accessed **indigenous or traditional healthcare or faith healing** in the last 12 months? **TICK ALL THAT APPLY** *(If you do not use indigenous or traditional healthcare or faith healing, tick "None" at the bottom)*	☐ 1 Regular check-ups when I am feeling well ☐ 2 Check-ups when I am feeling sick ☐ 3 Emergency care ☐ 4 Care after a sexual assault ☐ 5 Care after a physical assault ☐ 6 Testing for HIV ☐ 7 HIV care and treatment ☐ 8 Testing, care, or treatment for other sexually transmitted infections (STIs) (not HIV) ☐ 15 Counselling or psychosocial support ☐ 16 Care for mental health conditions ☐ 10 Barrier methods (condoms, dental dams or finger condoms) ☐ 11 Contraception (injection, pill, IUD/loop, implant) ☐ 12 Gender affirming treatment (hormones, surgery) ☐ 13 Other, specify: _____ ☐ 14 None

Section 2b: Health service barriers

Place an X in one box that best describes your answer to each question.

206.	Have you ever disclosed being LGBTI to a healthcare staff member? (this includes doctors, nurses, counsellors, other people working at public, private, or traditional healthcare facilities)			1 Yes	0 No
207.	Has a healthcare staff member ever made assumptions about your sexual orientation and/or gender identity? (for example, assumed you are LGBTI based on how you dress)			1 Yes	0 No
208.	When seeking healthcare, how often do you think you have been treated disrespectfully by staff for being LGBTI? (this includes doctors, nurses, counsellors, other people working at public, private, or traditional healthcare facilities)	1 Never	2 Rarely	3 Sometimes	4 Often
209.	When seeking healthcare, how often do you think have you received poorer service than other people for being LGBTI?	1 Never	2 Rarely	3 Sometimes	4 Often
210.	How often have you been called names or insulted by healthcare staff for being LGBTI? (this includes doctors, nurses, counsellors, other people working at public, private, or traditional healthcare facilities)	1 Never	2 Rarely	3 Sometimes	4 Often
211.	How often do you think healthcare staff has denied you a service because of being LGBTI? (this includes doctors, nurses, counsellors, other people working at public, private, or traditional healthcare facilities)	1 Never	2 Rarely	3 Sometimes	4 Often
212.	How often has healthcare staff threatened to call the police because you were LGBTI? (this includes doctors, nurses, counsellors, other people working at public, private, or traditional healthcare facilities)	1 Never	2 Rarely	3 Sometimes	4 Often
213.	Have you ever not told a healthcare staff member about a health need you have which is related to the fact that you are LGBTI? (for example, anal warts, sexual health advice for lesbian couples, gender-affirming treatment)			1 Yes	0 No

Section 2c: Impact of previous experiences on health-seeking behaviour

Place an X in one box that best describes your answer to each question.

214.	Have you postponed or not tried to get needed healthcare when you were sick or injured because you could not afford it?	1 Yes	0 No
215.	Have you postponed or not tried to get HIV testing because you could not afford it?	1 Yes	0 No
216.	Have you postponed or not tried to get STI testing or STI/HIV treatment because you could not afford it?	1 Yes	0 No
217.	Have you postponed or not tried to get needed healthcare when you were sick or injured because of disrespect or discrimination based on being LGBTI from doctors or other healthcare providers?	1 Yes	0 No
218.	Have you postponed or not tried to get HIV testing because of disrespect or discrimination based on being LGBTI from doctors or other healthcare providers?	1 Yes	0 No
219.	Have you postponed or not tried to get STI testing or STI/HIV treatment because of disrespect or discrimination based on being LGBTI from doctors or other healthcare providers?	1 Yes	0 No
220.	Have you ever hidden, or tried to hide, that you are LGBTI from a healthcare provider for fear of discrimination?	1 Yes	0 No
221.	Are you aware of a healthcare professional ever sharing that you are LGBTI with others without your permission?	1 Yes	0 No

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Section 3: Tobacco

3001.	Do you currently smoke tobacco every day, some days, or not at all?	2 Every day **(Go to 3004)**	1 Some days **(Go to 3002)**	0 Not at all (Go **to 3003)**
3002.	Have you smoked tobacco every day in the past?		1 Yes **(Go to 3004)**	0 No **(Go to 3004)**
3003.	In the past, have you ever smoked tobacco?	2 Yes, every day in the past **(Go to next section)**	1 Yes, some days in the past **(Go to next section)**	0 No **(Go to next section)**
3004.	On average, how many cigarettes do you currently smoke each day when you smoke?	Write the number per day: _____ ***Note: 1 pack = 20 cigarettes***		

Section 3a: Alcohol

Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest.

Place an X in one box that best describes your answer to each question.

301.	How often do you have a drink containing alcohol?	0 Never (**Go to next section**)	1 Monthly or less	(2) 2-4 times a month	(3) 2-3 times a week	(4) 4 or more times a week
302.	How many drinks containing alcohol do you have on a typical day when you are drinking?	(0) 1 or 2	(1) 3 or 4	(2) 5 or 6	(3) 7, 8 or 9	(4) 10 or more
303.	How often do you have six or more drinks on one occasion?	0 Never	1 Less than monthly	2 Monthly	3 Weekly	4 Daily or almost daily
304.	How often during the last year have you found that you were not able to stop drinking once you had started?	0 Never	1 Less than monthly	2 Monthly	3 Weekly	4 Daily or almost daily
305.	How often during the last year have you failed to do what was normally expected of you because of drinking?	0 Never	1 Less than monthly	2 Monthly	3 Weekly	4 Daily or almost daily
306.	How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	0 Never	1 Less than monthly	2 Monthly	3 Weekly	4 Daily or almost daily
307.	How often during the last year have you had a feeling of guilt or remorse after drinking?	0 Never	1 Less than monthly	2 Monthly	3 Weekly	4 Daily or almost daily
308.	How often during the last year have you been unable to remember what happened the night before because of your drinking?	0 Never	1 Less than monthly	2 Monthly	3 Weekly	4 Daily or almost daily
309.	Have you or someone else been injured because of your drinking?	0 No		2 Yes, but not in the last year		4 Yes, during the last year
310.	Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	0 No		2 Yes, but not in the last year		4 Yes, during the last year

Section 3b: Drugs

Here are a few questions about drugs. Please answer as correctly and honestly as possible.

By drugs, we mean any of the following:

Cannabis: Marijuana, Hash, Hash oil, Dagga

Amphetamines: Methamphetamine, Phenmetraline, Khat, Betel nut, Ritaline, (Methylphenidate)

Cocaine: Crack, Freebase, Coca leaves

Opiates: Smoked heroin, Heroin, Opium

Hallucinogens: Ecstasy, LSD (Lisergic acid), Mescaline, Peyote, PCP (angel dust), (Phencyclidine), Psilocybin, DMT (Dimethyltryptamine)

Solvents/inhalants: Thinner, Trichlorethylene, Gasoline/petrol, Gas, Solution, Glue

GHB and others: GHB, Anabolic steroids, Laughing gas (Halothane), Amyl nitrate (Poppers), Anticholinergic compounds

Tik or rocks

Place an X in one box that best describes your answer to each question.

311.	How often do you use drugs other than alcohol? (see list of drugs above)	0 Never (**Go to next section)**	1 Once a month or less often	(2) 2-4 times a month	(3) 2-3 times a week	(4) 4 times a week or more often
312.	Do you use more than one type of drug on the same occasion?	0 Never	1 Once a month or less often	(2) 2-4 times a month	(3) 2-3 times a week	(4) 4 times a week or more often
313.	How many times do you take drugs on a typical day when you use drugs?	(0) 0	(1) 1-2	(2) 3-4	(3) 5-6	(4) 7 or more
314.	How often are you influenced heavily by drugs?	0 Never	1 Less often than once a month	2 Every month	3 Every week	4 Daily or almost every day
315.	Over the past year, have you felt that your longing for drugs was so strong that you could not resist it?	0 Never	1 Less often than once a month	2 Every month	3 Every week	4 Daily or almost every day
316.	Has it happened, over the past year that you have not been able to stop taking drugs once you started?	0 Never	1 Less often than once a month	2 Every month	3 Every week	4 Daily or almost every day
317.	How often over the past year have you taken drugs and then neglected to do something you should have done?	0 Never	1 Less often than once a month	2 Every month	3 Every week	4 Daily or almost every day
318.	How often over the past year have you needed to take a drug the morning after heavy drug use the day before?	0 Never	1 Less often than once a month	2 Every month	3 Every week	4 Daily or almost every day
319.	How often over the past year have you had guilty feelings or a bad conscience because you used drugs?	0 Never	1 Less often than once a month	2 Every month	3 Every week	4 Daily or almost every day
320.	Have you or anyone else been hurt (mentally or physically) because you used drugs?	0 No		2 Yes, but not over the past year		4 Yes, over the past year
321.	Has a relative or a friend, a doctor, or a nurse, or anyone else, been worried about your drug use?	0 No		2 Yes, but not over the past year		4 Yes, over the past year

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Section 3c

Over the last 2 weeks, how often have you been bothered by the following problems?

322.	Feeling nervous, anxious, or on edge	0 Not at all (0-1 days)	1 Several days (2-6 days)	2 Over half the days (7-10 days)	3 Nearly every day (11-14 days)
323.	Not being able to stop or control worrying	0 Not at all (0-1 days)	1 Several days (2-6 days)	2 Over half the days (7-10 days)	3 Nearly every day (11-14 days)
324.	Worrying too much about different things	0 Not at all (0-1 days)	1 Several days (2-6 days)	2 Over half the days (7-10 days)	3 Nearly every day (11-14 days)
325.	Trouble relaxing	0 Not at all (0-1 days)	1 Several days (2-6 days)	2 Over half the days (7-10 days)	3 Nearly every day (11-14 days)
326.	Being so restless that it is hard to sit still	0 Not at all (0-1 days)	1 Several days (2-6 days)	2 Over half the days (7-10 days)	3 Nearly every day (11-14 days)
327.	Becoming easily annoyed or irritable	0 Not at all (0-1 days)	1 Several days (2-6 days)	2 Over half the days (7-10 days)	3 Nearly every day (11-14 days)
328.	Feeling afraid as if something awful might happen	0 Not at all (0-1 days)	1 Several days (2-6 days)	2 Over half the days (7-10 days)	3 Nearly every day (11-14 days)
329.	If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people?	0 Not difficult at all	1 Somewhat difficult	2 Very difficult	3 Extremely difficult
330.	Has a healthcare provider ever told you that you have clinical anxiety?			1 Yes	0 No **(Go to next section)**
330a.	If yes, are you current being treated for clinical anxiety (e.g. medication, therapy)?			1 Yes	0 No

Section 3d

Below is a list of some of the ways you may have felt or behaved. Please indicate how often you have felt this way **during the past week**.

331.	I was bothered by things that usually don't bother me.	0 Rarely or none of the time (less than 1 day)	1 Some or a little of the time (1-2 days)	2 Occasionally or a moderate amount of time (3-4 days)	3 All of the time (5-7 days)
332.	I had trouble keeping my mind on what I was doing.	0 Rarely or none of the time (less than 1 day)	1 Some or a little of the time (1-2 days)	2 Occasionally or a moderate amount of time (3-4 days)	3 All of the time (5-7 days)
333.	I felt depressed.	0 Rarely or none of the time (less than 1 day)	1 Some or a little of the time (1-2 days)	2 Occasionally or a moderate amount of time (3-4 days)	3 All of the time (5-7 days)
334.	I felt that everything I did was an effort.	0 Rarely or none of the time (less than 1 day)	1 Some or a little of the time (1-2 days)	2 Occasionally or a moderate amount of time (3-4 days)	3 All of the time (5-7 days)
335.	I felt hopeful about the future.	3 Rarely or none of the time (less than 1 day)	2 Some or a little of the time (1-2 days)	1 Occasionally or a moderate amount of time (3-4 days)	0 All of the time (5-7 days)
336.	I felt fearful.	0 Rarely or none of the time (less than 1 day)	1 Some or a little of the time (1-2 days)	2 Occasionally or a moderate amount of time (3-4 days)	3 All of the time (5-7 days)
337.	My sleep was restless.	0 Rarely or none of the time (less than 1 day)	1 Some or a little of the time (1-2 days)	2 Occasionally or a moderate amount of time (3-4 days)	3 All of the time (5-7 days)
338.	I was happy.	3 Rarely or none of the time (less than 1 day)	2 Some or a little of the time (1-2 days)	1 Occasionally or a moderate amount of time (3-4 days)	0 All of the time (5-7 days)
339.	I felt lonely.	0 Rarely or none of the time (less than 1 day)	1 Some or a little of the time (1-2 days)	2 Occasionally or a moderate amount of time (3-4 days)	3 All of the time (5-7 days)
340.	I could not "get going."	0 Rarely or none of the time (less than 1 day)	1 Some or a little of the time (1-2 days)	2 Occasionally or a moderate amount of time (3-4 days)	3 All of the time (5-7 days)
341.	Has a healthcare provider ever told you that you have clinical depression?			1 Yes	0 No **(Go to 342)**
341a.	If yes, are you current being treated for clinical depression (e.g. medication, therapy)?			1 Yes	0 No

Section 3e

342.	Has there ever been a period of time when you thought about committing suicide?	a. In your lifetime?	1 Yes	0 No
		b. In the last 12 months?	1 Yes	0 No
343.	Did you ever try to end your own life, whether or not you had thought about it ahead?	a. In your lifetime?	1 Yes	0 No
		b. In the last 12 months?	1 Yes	0 No

Section 3f: Social support

347.	Who do you go to when you need someone to talk to about problems in your life? **TICK ALL THAT APPLY**	☐ 1 Current partner(s) (at least one) ☐ 2 Family (at least one member) ☐ 3 Friends (at least one) ☐ 4 People I live with (at least one) ☐ 5 Healthcare providers (at least one) ☐ 6 People I work with (at least one) ☐ 7 People living nearby me (at least one) ☐ 8 LGBTI organisations ☐ 9 No one
348.	Who in your life knows that you are LGBTI? **TICK ALL THAT APPLY**	☐ 1 Current partner(s) (at least one) ☐ 2 Family (at least one member) ☐ 3 Friends (at least one) ☐ 4 People I live with (at least one) ☐ 5 Healthcare providers (at least one) ☐ 6 People I work with (at least one) ☐ 7 People living nearby me (at least one) ☐ 8 LGBTI organisations ☐ 9 No one
349.	Of those, who have **you** told yourself about being LGBTI? **TICK ALL THAT APPLY**	☐ 1 Current partner(s) (at least one) ☐ 2 Family (at least one member) ☐ 3 Friends (at least one) ☐ 4 People I live with (at least one) ☐ 5 Healthcare providers (at least one) ☐ 6 People I work with (at least one) ☐ 7 People living nearby me (at least one) ☐ 8 LGBTI organisations ☐ 9 No one

Section 4 Experience of violence

This is the last section of the questionnaire. **The following questions ask about your experiences with violence.**

401.	Are you aware of anyone ever revealing that you are LGBTI to others without your permission?			1 Yes	0 No
402.	Has anyone ever threatened to reveal that you are LGBTI to others without your permission?			1 Yes	0 No
403.	Has anyone ever **insulted or verbally harassed** you because of being LGBTI?		a. In your life time?	1 Yes	0 No
			b. In the last 12 months?	1 Yes	0 No
404.	Has an **intimate partner** (past or current) ever threatened to reveal that you are LGBTI to others without your permission?			1 Yes	0 No
405.	Has an intimate partner (past or current) ever made you feel worthless because of being LGBTI?			1 Yes	0 No
406.	Has an intimate partner (past or current) ever made you feel ashamed because of being LGBTI?			1 Yes	0 No
407.	Have you ever been coerced, pressured or forced into marriage?			1 Yes	0 No
408.	Have you ever been **sexually assaulted**	By an intimate partner of the same sex as you?	a. In your life time?	1 Yes	0 No
			b. In the last 12 months?	1 Yes	0 No
		By an intimate partner of a different sex than you?	c. In your life time?	1 Yes	0 No
			d. In the last 12 months?	1 Yes	0 No
		By someone you know (not an intimate partner but a neighbour, friend, family member, etc.)	e. In your life time?	1 Yes	0 No
			f. In the last 12 months?	1 Yes	0 No
		By a stranger	g. In your life time?	1 Yes	0 No
			h. In the last 12 months?	1 Yes	0 No
		By someone you live with? (an intimate partner or other person)	i. In your life time?	1 Yes	0 No
			j. In the last 12 months?	1 Yes	0 No
409.	Have you ever been **physically assaulted**	By an intimate partner of the same sex as you?	a. In your life time?	1 Yes	0 No
			b. In the last 12 months?	1 Yes	0 No
		By an intimate partner of a different sex than you?	c. In your life time?	1 Yes	0 No
			d. In the last 12 months?	1 Yes	0 No
		By someone you know (not an intimate partner but a neighbour, friend, family member, etc.)	e. In your life time?	1 Yes	0 No
			f. In the last 12 months?	1 Yes	0 No
		By a stranger	g. In your life time?	1 Yes	0 No
			h. In the last 12 months?	1 Yes	0 No
		By someone you live with? (an intimate partner or other person)	i. In your life time?	1 Yes	0 No
			j. In the last 12 months?	1 Yes	0 No

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If you answered yes to sexual or physical assault <u>in your life time</u>, please complete these questions:

	We know that our sexual orientation and gender identity is not always easily separated. However, please choose the best response to these last questions.		
413.	Do you think any of these incidents (sexual or physical assault) were motivated by your sexual orientation?	1 Yes	0 No
414.	Do you think any of these incidents (sexual or physical assault) were motivated by your gender identity?	1 Yes	0 No
415.	Do you think any of these incidents (sexual or physical assault) were motivated by your body being intersex or not typically female/typically male?	1 Yes	0 No
416.	Did any of these incidents result in flashbacks, nightmares, or reliving the event?	1 Yes	0 No
417.	Have you avoided situations or people who remind you of the incident(s)?	1 Yes	0 No
418.	Following the incident(s), have you felt jumpy, irritable, or restless?	1 Yes	0 No

If you answered yes to sexual or physical assault <u>in the last 12 months</u>, please complete these questions:

410.	If you have experienced physical or sexual assault in the last 12 months, have you **sought medical care** for it?				1 Yes	0 No
411.	If you have experienced physical or sexual assault in the last 12 months, have you **reported it to the police**?				1 Yes	0 No
412.	When seeking help for physical or sexual assault, how often do you think you have been treated with less courtesy than other people by police or healthcare staff for being LGBTI?	1 Never	2 Rarely	3 Sometimes	4 Often	5 I have not sought help for physical or sexual assault

Thank you for your time in completing this survey! Please take a moment to check you have completed all of the questions.

<u>Return this survey to the person who gave it to you when you are finished.</u>

Thank you for telling us about your experiences of mental health, drug/alcohol use, and violence. If you would like to talk to someone about these things, please contact one of the below organisations:

Organisation	Contact details
SHARPS	Contact person: Ken Email: kenbaksmutale@gmail.com Wellness services: support for drug users
Intra Health International	Contact person: Malekiado Phiri Email: mphiri@intrahealth.org Physical address; Plot No. 37988, First floor Lunsemfwa Road Kalundu Phone; +260 977 477 233 Wellness services: HIV information dissemination, HIV & STI screening

Friends of Rainka (FOR)	
Transbantu Association (TBZ)	
Lotus Identity	

For research staff use only:

I, the **fieldworker,** have reviewed this questionnaire for completeness and accuracy.

Fieldworker signature: _____ Date: _____

I, the **research coordinator (or designee)**, have reviewed this questionnaire for completeness and accuracy.

Coordinator/designee signature: _____ Date: _____

I, the **GHJRU research staff member**, have reviewed this questionnaire for completeness and accuracy.

GHJRU signature: _____ Date: _____

I, the **data enterer**, have completed data entry of this questionnaire and assigned a unique identifier.

Data enterer signature: _____ Date: _____