

Diversity in Human Sexuality

Implications for Policy in Africa



© Academy of Science of South Africa
May 2015
ISBN 978-0-9922286-9-9

Published by:
Academy of Science of South Africa (ASSAf)
PO Box 72135, Lynnwood Ridge, Pretoria, South Africa, 0040
Tel: +27 12 349 6600 • Fax: +27 86 576 9520
E-mail: admin@assaf.org.za

Reproduction is permitted, provided the source and publisher are appropriately acknowledged.

The Academy of Science of South Africa (ASSAf) was inaugurated in May 1996. It was formed in response to the need for an Academy of Science consonant with the dawn of democracy in South Africa: activist in its mission of using science for the benefit of society, with a mandate encompassing all fields of scientific enquiry in a seamless way, and including in its ranks the full diversity of South Africa's distinguished scientists.

The Parliament of South Africa passed the Academy of Science of South Africa Act (Act 67 of 2001), as amended, which came into operation on 15 May 2002.

This has made ASSAf the official Academy of Science of South Africa, recognised by government and representing South Africa in the international community of science academies.

Diversity in Human Sexuality: Implications for Policy in Africa
is endorsed by the Uganda National Academy of Sciences





Content

List of Figures.....	3
List of Acronyms	4
Foreword.....	6
Acknowledgements.....	7
Executive Summary.....	9
1 Introduction and Background	13
1.1 Terms and Concepts used in this Report.....	16
1.2 Understanding Sexual Orientation.....	19
1.3 Ethical and Human Rights Considerations.....	21
2 What is the Evidence that Biological Factors Contribute to Sexual and Gender Diversity? To what Degree is the Wide Diversity of Human Sexualities Explained by Biological Factors?	25
2.1 Family Studies.....	26
2.2 Twin Studies	27
2.3 Genetic Linkage and Full Genome Studies.....	30
2.4 Epigenetics: Early Evidence and Promising New Leads	31
2.5 Evolution and Genetics	33
2.6 Choice and Immutability	34
2.7 Pervasiveness and Frequency	35
2.8 Neurohormonal and Other Biomedical Theories: The State of the Science in 2015.....	38
3 Do Environmental Factors such as Upbringing and Socialisation Explain the Diversity of Human Sexuality?	41
3.1 The Development of 'Homosexuality' as a Category/Condition	41
3.2 Prominent Theories about the Role of Upbringing and Parenting in the Development of Same-Sex Orientation.....	42

4 Is there Any Evidence for Same-Sex Orientations being ‘Acquired’ through Contact with Others, i.e. through “Social Contagion”?45

5 What Evidence is there that Any Form of Therapy or ‘Treatment’ can Change Sexual Orientation? 49

6 What Evidence is there that Same-Sex Orientations Pose a Threat of Harm to Individuals, Communities, or Vulnerable Populations such as Children? 53

7 What are the Public Health Consequences of Criminalising Same-Sex Sexual Orientations, and Attempting to Regulate the Behaviour/ Relationships Related to Some Sexualities Orientations?..... 56

8 What Research can be Conducted to Address the Most Critical Unanswered Scientific Research Questions Regarding the Diversity of Human Sexualities and Sexual Orientations in Africa? 61

9 Conclusion 62

9.1 Role of Biological Factors62

9.2 Role of Environmental Factors63

9.3 Acquisition of Sexual Orientation through Social Contagion63

9.4 Change of Same-Sex Orientation through Therapy63

9.5 Threat Posed by Same-Sex Individuals63

9.6 Public Health Consequences of Criminalising Same-Sex Orientations:64

References 65

Appendix 1: Biographies of Panel Members 83

Appendix 2: Resolution on Protection against Violence and Other Human Rights Violations against Persons on the Basis of their Real or Imputed Sexual Orientation or Gender Identity 88

Appendix 3: Glossary 91

List of Figures

Figure 1:	Global legal status of same-sex relationships in 2014 (UNAIDS, 2014).....	14
Figure 2:	Breaking through the binary: gender explained using continuums (Killermann, 2014)	17
Figure 3:	Continuum of sexual orientation (The Kinsey Institute http://www.kinseyinstitute.org/research/ak-hhscale.html).....	20
Figure 4:	Graph depicting relationship between gay and lesbian friendly societies and GDP output	47

List of Acronyms

AAAS	American Association for the Advancement of Science
ACHPR	African Commission on Human and Peoples' Rights
AIDS	Acquired Immune Deficiency Syndrome
amfAR	The Foundation for AIDS Research
APA	American Psychological Association
ASSAf	Academy of Science of South Africa
AU	African Union
CAPRISA	Centre for the AIDS Programme of Research in South Africa
CFAR	Centre for AIDS Research
CPTN	Critical Path for TB Drug Regimens
DDT	Dichlorodiphenyltrichloroethane
DNA	Deoxyribonucleic acid
DST	Department of Science and Technology
FBO	Familial birth order
GDP	Gross domestic product
HIV	Human Immunodeficiency Virus
HPTN	HIV Prevention Trials Network
HSRC	Human Sciences Research Council
HVTN	HIV Vaccines Trial Network
ICD	International Classification of Diseases
IMPAACT	International Maternal Paediatric and Adolescent AIDS Clinical Trials
IOM	Institute of Medicine
JHU	Johns Hopkins University
JHSPH	Johns Hopkins School of Public Health
KZN	KwaZulu-Natal
LGB	Lesbian, gay, bisexual
LGBT	Lesbian, gay, bisexual, transgender
LGBTI	Lesbian, gay, bisexual, transgender and intersex
LGBTQ	Lesbian, gay, bisexual, transgender, queer
MatCH	Maternal, Adolescent and Child Health
MSF	<i>Médecins Sans Frontières</i>
MRC	Medical Research Council
MSM	Men who have sex with men
NARTH	National Association for Research and Therapy of Homosexuality

List of Acronyms

NGO	Non-governmental organisation
NIH	National Institutes of Health
NRF	National Research Foundation
PAHO	Pan-American Health Organisation
PEPFAR	President's Emergency Plan for AIDS Relief
PHRU	Perinatal HIV Research Unit
PsySSA	Psychological Society of South Africa
SA	South Africa
SANEF	South African National Editors' Forum
SAGD	Sexual and gender diversity
SANAC	South African National AIDS Council
SASOP	South African Society of Psychiatrists
SAYAS	South African Young Academy of Science
SCE	Stressful childhood experiences
SMUG	Sexual Minorities Uganda
SOCE	Sexual orientation change efforts
SOGI	Sexual orientation and gender identity
SSA	Same-sex attraction
STI	Sexually transmitted infections
TB	Tuberculosis
UCLA	University of California Los Angeles
UCT	University of Cape Town
UK	United Kingdom
UKZN	University of KwaZulu-Natal
UN	United Nations
UNAS	Uganda National Academy of Sciences
UNICEF	United Nations Children's Fund
UNICRI	United Nations Interregional Crime and Justice Research Institute
UP	University of Pretoria
US	United States
USA	United States of America
USAID	United States Agency for International Development
WHO	World Health Organisation
WSW	Women who have sex with women

Foreword

The Academy of Science of South Africa (ASSAf) is mandated to provide evidence-based science advice to government and other stakeholders on matters of critical national importance. The study has followed the traditional Academy consensus study methodology in which a panel of experts, guided by the panel chair, undertakes the study on a voluntary basis. The advantage of this multi-perspective approach is that it is free of partisan interest.

Thirty-eight of fifty-three African nations criminalise homosexuality, thereby imposing varying degrees of legislative restrictions on sexual desires and practices, and on the fulfilment of the human rights of individuals. Furthermore, the stigmatisation and criminalisation of homosexuality has made public health interventions, particularly with respect to HIV prevention and treatment, difficult to implement effectively. This consensus study, led by ASSAf, was undertaken in collaboration with the Uganda National Academy of Sciences and is endorsed by that academy. The study panel was led by two co-chairs and comprised experts from Africa and abroad drawn from various disciplines. Considering the intense debate and interest that the topic of same-sex sexual orientation and gender identities has elicited, this study will provide much needed clarity on key points on the subject. It is hoped that this report will be widely disseminated on the continent and beyond, and that the findings and recommendations will inform policymakers.

I thank the members of the study panel and the authors of the report, as well as the staff of the Academy, for the valuable work that they have done, and acknowledge the great care and attention with which they carried out their task.

Professor Daya Reddy
President: Academy of Science of South Africa

Acknowledgements

The Academy of Science of South Africa (ASSAf) gratefully acknowledges the following individuals and organisations for their valuable contributions and collaborative efforts that have led to the successful production of this report:

- Professor Daya Reddy, the President of ASSAf and the Council for their support throughout the project.
- The Uganda National Academy of Sciences (UNAS) for collaborating in the undertaking of this study.
- The Rockefeller Foundation and the African Science Academy Development Initiative, a programme of the US National Academy of Sciences that was established in 2004 with a grant from the Bill and Melinda Gates Foundation.
- The members of the consensus study panel for their time, commitment, enthusiasm and contributions to the report.
- The peer reviewers who gave valuable input that led to the enhancement of the final report.
- Professor Harry Dugmore for his relentless hard work in researching, handling and incorporating all comments and authoring the report.
- The copy editor, Ms Patricia Scholtz and Seriti Printing for attention to detail and production of the report.
- The staff of the Academy, in particular, Professor Roseanne Diab, Ms Phyllis Kalele and Ms Henriette Wagener for their contributions and support throughout the project.

Professor Glenda Gray and Professor Jerry Coovadia
Panel Co-chairs



Executive Summary

Although two-thirds of countries in the world no longer outlaw lesbian, gay, bisexual, transgender and intersex (LGBTI) relationships, same-sex relationships are still illegal in 76 countries. In the recent past, new laws have been passed in Russia, India, Nigeria, Burundi, Cameroon and Uganda and are being contemplated in other countries to further prohibit same-sex relationships or the so-called 'promotion of homosexuality'. There is evidence that such new laws precipitate negative consequences not just for LGBTI persons and communities, but also for societies as a whole, including the rapid reversal of key public health gains, particularly in terms of HIV and AIDS and other sexual health programmes, increases in levels of social violence, some evidence of reduced economic growth, and the diversion of attention from sexual and other violence against women and children.

Partly because those arguing in favour of criminalising sexual and gender diversity have made explicit appeals to science, this report examines the extent to which science supports any of the arguments that proponents of these new laws make. Drawing on recent scientific evidence and, where possible, on systematic reviews, the report seeks to provide an up-to-date overview of the state of the current biological, socio-psychological, and public health evidence and assess how this supports, or contests, the key arguments made in favour of new laws. This report considers the following questions:

1. What is the evidence that biological factors contribute to sexual and gender diversity? To what degree is the wide diversity of human sexualities explained by biological factors?
2. Do environmental factors such as upbringing and socialisation explain the diversity of human sexuality?
3. Is there any evidence for same-sex orientation being 'acquired' through contact with others, i.e. through 'social contagion'?
4. What evidence is there that any form of therapy or 'treatment' can change sexual orientation?
5. What evidence is there that same-sex orientations pose a threat of harm to individuals, communities, or vulnerable populations such as children?
6. What are the public health consequences of criminalising same-sex sexual orientations and attempting to regulate the behaviour/relationships related to some sexualities?
7. What are the most critical unanswered scientific research questions regarding the diversity of human sexualities and sexual orientations in Africa?

Global bodies, such as the World Health Organisation (WHO) declassified homosexuality as an illness or disorder in 1990 and there is now a wide global consensus among scientists that homosexuality is a normal and natural variation of human sexuality without any inherently detrimental health consequences. In this context governments have a duty to consider scientific perspectives and draw on the most current scientific knowledge when creating policy and enacting laws. In terms of sexual orientation, significant and even path-breaking research in a variety of fields has taken place in the recent past. Much of this research is not widely known to policymakers yet, nor is it in the public domain. This report aims to bring the most recent replicated and respected global research to the attention of policymakers.

Examining the biological factors, including genetic, neurohormonal and other factors, the report concludes that contemporary science does not support thinking about sexuality in a simple binary opposition of hetero/homosexual and normal/abnormal. Rather, it favours thinking in terms of a range of human variation, very little of which can justifiably be termed abnormal. As variation in sexual identities and orientations has always been part of a normal society, there can be no justification for attempts to 'eliminate' LGBTI from society. Efforts should rather be focused on countering the belief systems that create hostile and even violent environments for those who are made to feel alienated within societies that privilege male power across political, social and family domains.

The panel concludes that there is substantial biological evidence for the diversity of human sexualities and for sexual orientations in particular. Studies have found significant linkage between male sexual orientation and regions of the X chromosome, though the exact manner in which gene expression impacts on sexual orientation remain to be determined. Familial patterns with regard to same-sex orientation, particularly in men suggest a strong likelihood of biological elements. In addition, although limited in number, some pedigree studies, tracing thousands of female relatives of heterosexual and homosexual men, found convincing evidence that female relatives of homosexual men have increased fecundity, i.e., on average, they bear more children compared to female relatives of heterosexual men. This may provide a key to the major evolutionary paradox of presumed reduced fecundity because of the relatively high prevalence of same-sex-attracted men in every society.

Although less well studied, there is also considerable evidence for a biological component for same-sex orientation in women and for bisexuality.

Socio-behavioural research demonstrates unequivocally that both heterosexual and homosexual men feel that they have/had no choice in terms of their sexual attraction. The majority of women who experience same-sex attraction also express a lack of a sense of choice in their sexual orientation, although there is evidence for much greater fluidity in sexual orientation among women of all sexual orientations.

The study explores – and finds lacking – evidence to support the contention that the way parents bring up their children, or the relationships formed between children and parents, impact on sexual orientation. While family environment may shape other elements of sexuality and the way sexuality is expressed, and while construction of gender and sexual identities have strong social and cultural components, there is little evidence that orientation is directly correlated to family upbringing.

This report explores but could find no evidence that sexual orientation can be acquired through contact with LGBTI persons. Instead, the panel found substantial evidence that

tolerance of same-sex orientation not only benefited LGBTI persons but impacted positively on public health, civil society and long-term economic growth in societies across the spectrum of economic development. 'Peer pressure', although a powerful influencer of young people's behaviour, has not been shown to influence same-sex activity or the development of same-sex sexual or bisexual orientations.

The panel explores a wide variety of sources and studies and could find no evidence linking LGBT sexual orientation or transgender people with the 'recruitment' of young people through childhood sexual abuse. Given the high prevalence of childhood sexual abuse in Africa, the protection of all children should be paramount. As there is no evidence that adult sexual orientation is correlated with abuse in childhood, this false connection should no longer be used to justify the marginalisation of LGBTI persons.

This study finds abundant and robust evidence that more repressive environments increase minority stress and impact negatively on LGBTI health. There is overwhelming evidence that this has a direct impact on the general population's health, particularly in terms of HIV and AIDS, tuberculosis (TB) and other sexually transmitted infections (STI) reduction efforts. There are no known positive impacts on public health because criminalisation cannot stop people from feeling same-sex attractions and expressing same-sex orientations. Such legislation also cannot stop same-sex or bisexually-orientated people from having relationships, sexual and otherwise, with the wider population in any society.

The study explores and could find no evidence that same-sex orientation can be changed through 'conversion' or 'reparative' therapy. It highlights that 50 years of research have not found same-sex attraction to be inherently pathological or a malady of any kind. Studies have also not been able to show any particular social harm of consensual relationships between adults, nor any negative impact on broader communities. Given the documented dangers of such therapy and its direct conflict with medical ethics, these interventions are contra-indicated. Further, recognising the ineffectiveness of conversion therapy, we recommend the wide dissemination of this information especially to health professionals across Africa and beyond.

The study suggests that African health professionals and their associations should adopt affirmative stances towards LGBTI individuals. Psychosocial interventions and support particularly for adolescents are recommended to facilitate the adjustment of same-sex-orientated persons to the stress, stigma, shame and discrimination they may face and to affirm their choices and orientations.

This report concludes that almost all of the recent scientific research regarding human sexualities needs to be much more widely disseminated and discussed in public, and should indeed be drawn upon by policymakers when contemplating new legislation.



Introduction and Background

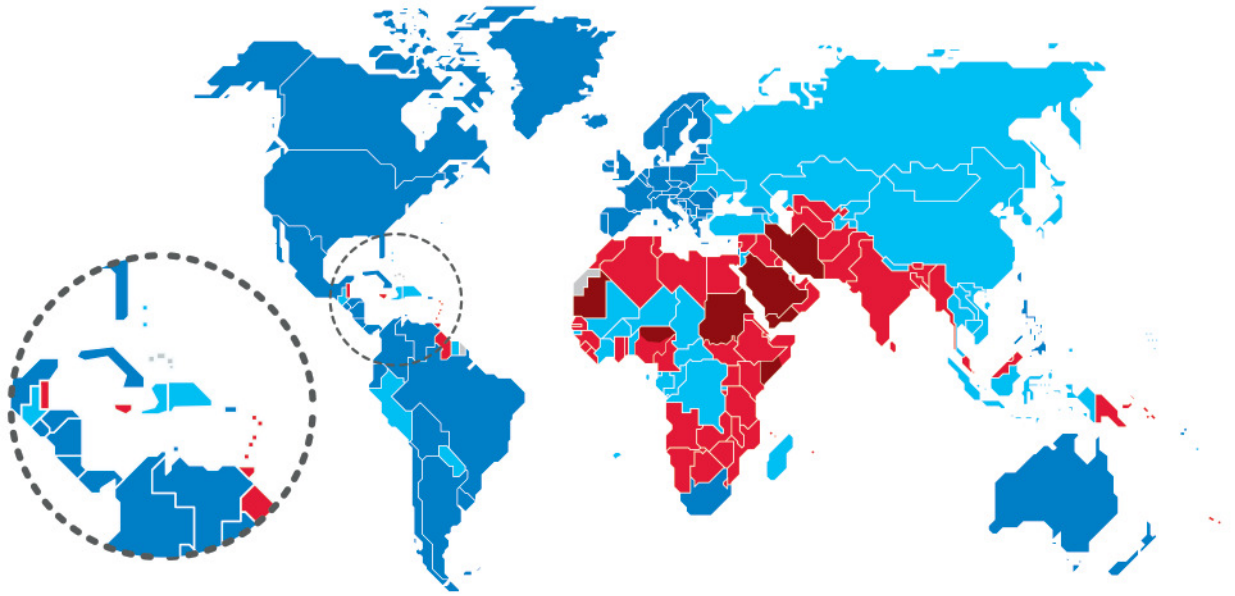
In countries of both the global South and North, and in economies developing and developed, there is an accelerating recognition of the wide range of natural variation in human sexuality, sexual orientations and gender identities. There has been an associated expansion of rights, including affirming, in law and social discourse, the right of lesbian, gay, bisexual, transgender and intersex (LGBTI) people to have relationships and to have those relationships recognised and protected by the state.

Two-thirds of countries in the world no longer outlaw LGBTI relationships. As recently as the year 2000, no country recognised marriages between people of the same gender. By February 2015, 18 countries now allow and recognise such marriages, as do 37 states in the United States of America (USA).¹ However, same-sex relationships are still illegal in 76 countries (Nell and Shapiro, 2013). Seven countries retain statutory death penalties for same-sex activities including, in Africa, Somalia, Mauritania and parts of Nigeria and Sudan (Amnesty International, 2013) (Figure 1). In the past three years, new laws have been passed in Russia, India, Nigeria, Burundi, Cameroon and Uganda – and are being contemplated in other countries – that create further prohibitions on same-sex relationships. Many of these new laws move beyond the criminalisation of sex 'acts' to outlawing the 'promotion' of homosexuality, with broad definitions of what such promotion of homosexuality might entail (Kretz, 2013).

Some sections of these laws are aimed directly at non-government organisations (NGOs), health service providers and rights organisations that advocate for greater inclusivity and fairness in societies (Beyrer, 2012). Many of these laws, contrary to the global movement towards greater inclusivity and acceptance of LGBTI individuals, seek to isolate, expose and prosecute anyone whose sexual orientation is not heterosexual (Kretz, 2013).

Partly in response to these laws, the African Commission on Human and People's Rights (ACHPR) adopted a resolution in May 2014 calling for all African states "to ensure that human rights defenders work in an enabling environment that is free of stigma, reprisals or criminal prosecution as a result of their human rights protection activities, including the rights of sexual minorities; and strongly urges states to end all acts of violence and abuse, whether committed by state or non-state actors, including by enacting and effectively applying appropriate laws prohibiting and punishing all forms of violence including those targeting persons on the basis of their imputed or real sexual orientation or gender identities, ensuring proper investigation and diligent prosecution of perpetrators, and establishing judicial procedures responsive to the needs of victims" (ACHPR, 2014).

¹ Countries that have legalised marriage between two people of the same gender are (in chronological order of legalisation) Netherlands (2001), Belgium (2003), Spain (2005), Canada (2005), South Africa (2006), Norway (2009), Sweden (2009), Portugal (2010), Iceland (2010), Argentina (2010), Mexico (2010) Denmark (2012), Brazil (2013), France (2013), Uruguay (2013), New Zealand (2013) United Kingdom (2014), Finland (2015) and Luxembourg (2015).



PROTECTED
65

The number of countries where adult consensual same-sex sexual conduct laws are in place such as anti-discrimination and anti-hate legislation, equal marriage, adoption, etc.

LEGAL
117

The number of countries where adult consensual same-sex sexual conduct is not a criminal offence.

*Note: The Russian Federation has adopted legislation which reportedly prohibits public expression or distribution of information deemed to be condoning or supportive of same-sex sexual orientation.

ILLEGAL
76

The number of countries where adult consensual same-sex sexual conduct is criminalised or where lesbian, gay, bisexual and transgender people have been criminally prosecuted under other laws on the basis of their sexual orientation.

- Afghanistan
- Algeria
- Angola
- Antigua and Barbuda
- Bangladesh
- Barbados
- Belize
- Bhutan
- Botswana
- Brunei Darussalam
- Burundi
- Cameroon
- Comoros
- Dominica
- Egypt
- Eritrea
- Ethiopia
- Gambia
- Ghana
- Grenada
- Guinea
- Guyana
- India
- Iraq
- Jamaica
- Kenya
- Kiribati

- Kuwait
- Lebanon
- Liberia
- Libya
- Malawi
- Malaysia
- Maldives
- Mauritania
- Mauritius
- Morocco
- Mozambique
- Myanmar
- Namibia
- Nauru
- Nigeria
- Oman
- Pakistan
- Papua New Guinea
- Qatar
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Samoa
- Saudi Arabia
- Senegal
- Seychelles

DEATH
7

The number of countries where adult consensual same-sex sexual conduct is illegal and punishable by death.

- Iran (Islamic Republic of)
- Mauritania
- Nigeria (12 northern states)
- Saudi Arabia
- Somalia (southern parts)
- Sudan
- Yemen



Figure 1: Global legal status of same-sex relationships in 2014 (UNAIDS, 2014).

Although arguments for these new laws have been made mainly on 'moral' and political grounds, public health arguments have also been advanced. The five most common arguments are:

- Homosexuality is socially 'contagious' and that people, especially children and teenagers, are 'recruited' into same-sex orientations.
- One of the means of such recruitment into homosexuality is adult-to-child sex (paedophilia) and that, as such, stringent laws are needed to 'safeguard children' and 'protect families'.
- Homosexuality 'reproduces itself' in such a 'recruiting' manner because there is no biological basis or 'innateness' for homosexuality.
- Homosexuality is 'unnatural' and, following from this, same-sex sexual acts present health dangers to those who participate in such practices and, by extension, to the general public health, including spreading HIV. New legal prohibitions will thus improve public health.
- As a 'condition' that is neither 'biological' nor 'innate', homosexuality is 'taught and learned' and is therefore something that can be prevented and unlearned. To promote this unlearning and prevent 'recruitment' from taking place, those with same-sex orientations should be offered – or forced – into some form of 'corrective' therapy, and the 'promotion' of sexual and gender diversity should be criminalised and outlawed.

The proponents of these laws also argue that new and tougher laws are now needed because 'new' practices – such as using money to entice children in schools – have emerged that may have accelerated the recruitment of children into homosexuality as part of a growing "international gay agenda" (Seitz-Wald, 2014; Thoreson, 2014).

In addition to these arguments, same-sex orientation – or indeed any deviance from a narrowly defined heterosexuality – has been characterised as 'un-African' (Sandfort and Reddy, 2013; Vincent, 2014) by those who support these laws. Those backing the new laws have argued that same-sex relationships were either unknown or very rare before colonialism, and are still much rarer in African countries today compared to other countries; in this view, same-sex desires and practices are Western imports (HumanRightsWatch, 2008).

This consensus report will assess the veracity of these claims. Drawing mostly on recent scientific evidence and on systematic reviews or structured literature reviews, the report seeks to provide an up-to-date overview of the state of the current biological, socio-psychological, and public health evidence and assess how this supports, or contests, the key arguments made in favour of new laws.

Partly because those arguing in favour of criminalising some sexual orientations have made explicit appeals to science and say that science supports their arguments, the Academy of Science of South Africa, in collaboration with the Uganda National Academy of Sciences, undertook a consensus study on various aspects of sexual and gender diversity. A panel of 13 scholars, drawn from a wide disciplinary spectrum, was assembled to examine the extent to which science supports any of the arguments that proponents of these new laws make. (The composition of the panel is presented in Appendix 1.)

This report assesses the current global understanding of the key scientific issues involved. The panel considered the following questions:

1. What is the evidence that biological factors contribute to sexual and gender diversity? To what degree is the wide diversity of human sexualities explained by biological factors?
2. Do environmental factors such as upbringing and socialisation explain the diversity of human sexuality?
3. Is there any evidence for same-sex orientation being 'acquired' through contact with others, i.e. through 'social contagion'?
4. What evidence is there that any form of therapy or 'treatment' can change sexual orientation?
5. What evidence is there that same-sex orientations pose a threat of harm to individuals, communities, or vulnerable populations such as children?
6. What are the public health consequences of criminalising same-sex sexual orientations and attempting to regulate the behaviour/relationships related to some sexualities?
7. What are the most critical unanswered scientific research questions regarding the diversity of human sexualities and sexual orientations in Africa?

1.1 Terms and Concepts used in this Report²

The concept of 'sexuality', 'sexual orientation', and categories such as 'homosexuality', 'heterosexuality' and 'bisexuality', mean different things in different societies at different times. That is why social scientists maintain that these terms and concepts are *socially constructed*. Historically, same-sex acts, between men and between women, have occurred in all societies (Adam *et al.*, 1987; Greenberg, 1990; Cantu *et al.*, 1999; Halperin, 2000; Herdt, 1996, 1997; Roscoe and Murray, 1997). As the 2014 Ugandan Presidential Scientific Committee on Homosexuality concluded: "All studies of human sexuality in all races throughout the world and through human history have documented the presence of homosexuality" (Act, 2014).

Sexual acts were separated from identity until recently. Most colonial era laws criminalised only homosexual acts by men, but until the late 19th century, sexual acts were not linked to a 'type' of person thought likely to commit such acts (Amnesty International, 2013; Cheney, 2012; Sandfort and Reddy, 2013). The idea of 'homosexuality' and 'homosexuals' as well as heterosexuality and heterosexuals as 'types' of person or groups of people is a modern development (Foucault, 1990).

These terms were initially conceptualised by medical doctors, psychiatrists, and educators who began to describe the 'doing' of same-sex acts as 'disordered' or pathological in some way. In the Victorian era, in particular, some scientists first came to see homosexuality as an abnormal psychopathy. This became a widely held view in the first half of the 20th century (Crozier, 2000; Foucault, 1990; Herdt, 1997). Medical associations and scientific bodies throughout the world have since changed their views and strongly disavowed the idea that same-sex attraction is a defect or biological 'malfunction'. As this

² Please see an additional glossary of key terms in Appendix 3.

report shows, global bodies, such as the WHO declassified homosexuality as an illness or disorder in 1990. Most major organisations of health professionals in the global North have also done so, as have many organisations in the global South, such as – to cite just two examples – the Psychological Association of the Philippines in 2011 and the Hong Kong Psychological Society in 2012.³ The WHO, as well, has made its global position clear: “In none of its individual manifestations does homosexuality constitute a disorder or an illness and therefore it requires no cure” (PAHO, 2009).

There is now wide global consensus among scientists that homosexuality is a normal and natural variation of human sexuality without any inherently detrimental health consequences.

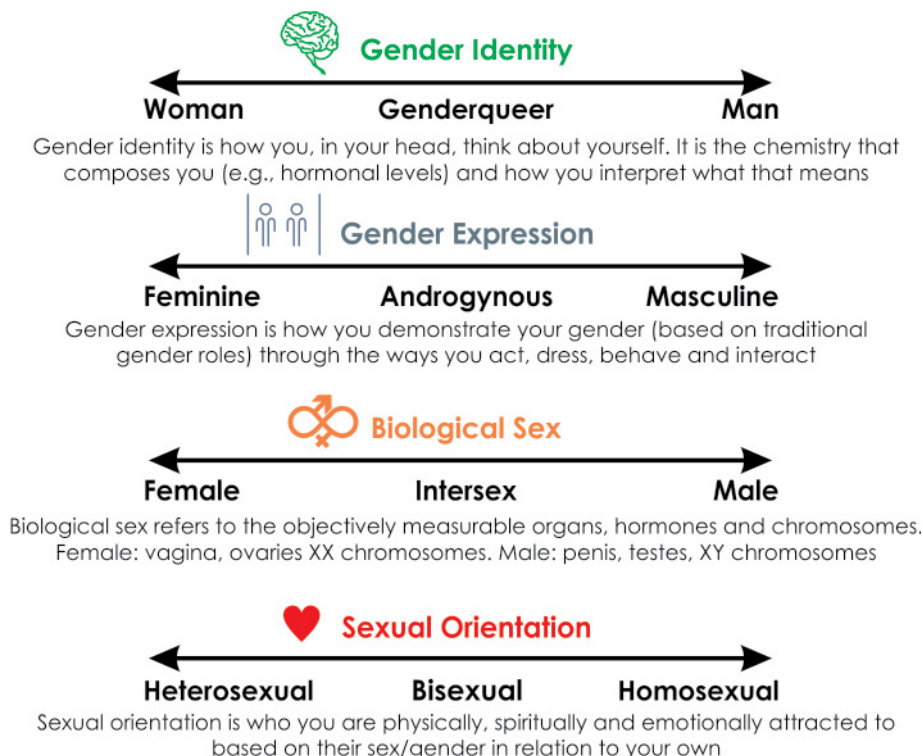


Figure 2: Breaking through the binary: gender explained using continuums (Killermann, 2014).

Biological sex, gender, gender identity, sexual orientation, and sexual behaviour are all distinct concepts and categorisations. In public discourse and in policy discussions, these terms are often conflated. It is vital for better policy that there is a clear understanding about how scientists and academics distinguish between these categories (Figure 2). The WHO and other organisations provide the following definitions:

³ In recent years, more sexual orientation-affirming health-care practices have emerged in South Africa, as evidenced by the position statement on homosexuality by the South African Society of Psychiatrists (SASOP) (2005) and the Psychological Society of South Africa (PsySSA) for psychology professionals working with sexual and gender diversity (PsySSA, 2013).

Biological sex is defined by primary and secondary sexual characteristics identified at birth. 'Sex' refers to the biological and physiological characteristics that define men and women.

Sexuality refers to a human's capacity for sexual feelings and includes sexual orientation, sexual identity, social gender roles and sexual activity. Sexuality is an integral part of all persons, a basic need, and an aspect of being human. Sexuality includes eroticism, pleasure, intimacy and reproduction.

Gender refers to the socially constructed roles, behaviours, activities, and attributes that a given society considers appropriate for men and women. To put it another way: 'Male' and 'female' are sex categories, while 'masculine' and 'feminine' are gender categories (PAHO, 2009).

Sexual orientation is primarily about attraction and is demarcated mostly by the sex of those to whom one is attracted. The focus of sexual orientation is the biological sex of a person's actual or potential relationship partners – and this can be people of the same sex as the individual, of the other sex, or of either sex (Diamond, 2014; Feinstein *et al.*, 2014; Seto, 2012). This attraction can be felt as a romantic, emotional, affectionate or sexual attraction, as well as some combination of these.

Sexual behaviour refers to participation in sexual acts that might or might not be related to sexual orientation or be normative for a particular gender. People, for instance, in same-sex physical locations, like mine compounds (a single-sex hostel for migrant mine workers), might participate in a same-sex sexual act, but may not consider this having any impact on their heterosexual orientation.

LGBTI: An abbreviation referring to lesbian, gay, bisexual, transgender and intersex persons. "LGB" are sexual orientations, while "T" is a gender identity and "I" is a biological variant. They are clustered together in one abbreviation due to similarities in experiences of marginalisation, exclusion, discrimination and victimisation in a heteronormative and heterosexist society, in an effort to ensure equality before the law and equal protection by the law (PsySSA Position Statement, 2013).

It is important to note, as the PsySAA outlined in their position statement, "the possible differences between persons who claim these labels or to whom these labels may be assigned ought not to be trivialised. Their respective issues, experiences and needs may in fact differ significantly and in several respects. In solidarity with the activist position regarding this matter, however, in this document, reference is made to LGBTI and distinctions among the diversity of identities that exist are minimised" (PsySSA Position Statement, 2013).

For other important terms used in this report, please see the Glossary in Appendix 3.

1.2 Understanding Sexual Orientation

A key part of sexuality is sexual orientation. Psychologists describe sexual orientation as an “enduring disposition” that starts with something that a person becomes aware of, or ‘discovers’, in childhood. In most people, this orientation remains a core part of their being for all of their lives (IOM, 2011). Some psychologists use the terms ‘fantasies’, ‘longings’ or ‘attachments’ in addition to the idea of ‘attraction’ to capture what is meant by orientation (LeVay, 2010).

Sexual orientation has a number of different dimensions (Vrangalova and Savin-Williams 2014). Sexual orientation has implications for identity formation and how people come to see themselves in social contexts (Victor *et al.*, 2014). Dimensions of sexual orientation include:

- * **Attraction** (or desire), where sexual orientation is an enduring pattern of experiencing sexual or romantic feelings for men, women, transgender persons, or some combination of these groups.
- * **Behaviour**, where sexual orientation refers to an enduring pattern of sexual or romantic activity with men, women, transgender persons, or some combination of these groups.
- * **Personal identity** where sexual orientation is claimed as a personal identity, or a conception of the self, based on one's deep pattern of sexual and romantic attractions and behaviours toward men, women, or both sexes.
- * **Social (or collective) identity**, where sexual orientation can be felt and expressed as a sense of membership in a social group based on a shared sexual orientation and a linkage of one's self-esteem to that group.

The codification of terminology for the spectrum of sexual attraction, initially developed by Alfred Kinsey, was based on the idea of a **continuum of sexual orientation** (Figure 3). At first, it was mostly based on sexual behaviour, i.e. on what people did, rather than on what people felt. The Kinsey scale, also known as the Heterosexual–Homosexual Rating Scale, developed the terminology and popularised three main categories of sexual orientation (Bailey, 2009; IOM, 2011; Rullo *et al.*, 2014; Savin-Williams, 2014):

- **Heterosexuality** – for individuals who identify as, for example, “straight” or whose sexual or romantic attractions and behaviours focus exclusively or mainly on members of the other sex.
- **Homosexuality** – for individuals who identify as, for example, “gay”, “lesbian”, or “homosexual” or whose attractions and behaviours focus exclusively or mainly on members of the same sex.
- **Bisexuality** – for individuals who identify as, for example, “bisexual” or whose sexual or romantic attractions and behaviours are directed at members of both sexes to a significant degree.

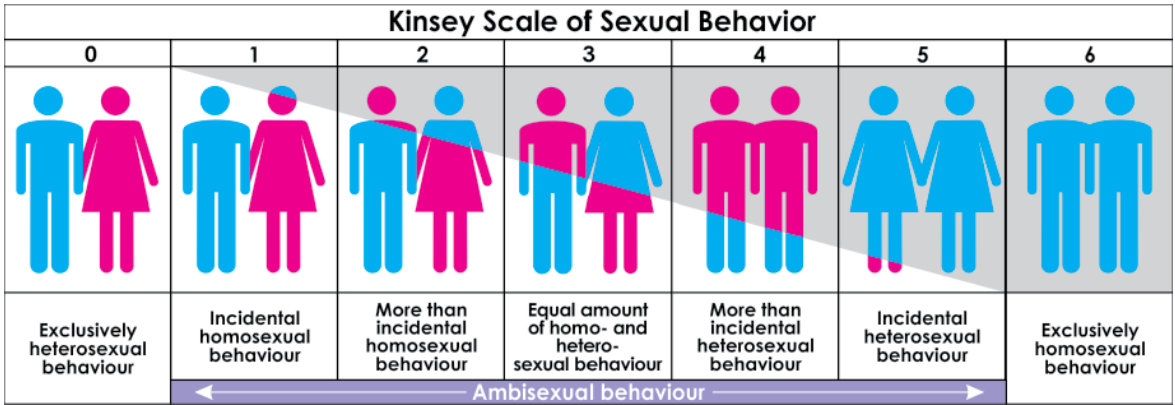


Figure 3: Continuum of sexual orientation (The Kinsey Institute <http://www.kinseyinstitute.org/research/ak-hhscale.html>).

Some people strongly assert no attraction to any sex, maintaining “asexuality” as their sexual orientation (Bogaert, 2006).

There is substantial debate about whether male and female sexual orientations can be understood in the same way (Reiter, 1989). According to one study, “among the most robust conclusions arising from research on sexual orientation over the past several decades has been the fact that female and male sexual orientation represents strikingly different phenomena, characterised by different developmental courses, different underlying determinants, and different phenomenological manifestations” (Diamond, 2008). For men, orientation is arguably more ‘categorical’ and regarded as more able to ‘propel’ men towards a particular chosen disposition, whereas there is significant evidence that sexual orientation is less categorical, more ‘fluid’ and changeable in women (Diamond, 2012; Diamond 1995; Dillon *et al.*, 2011; Farr *et al.*, 2014; Savin-Williams, 2014; Worthington *et al.*, 2002).

Transgender and intersex as clinical categories are not classified as sexual orientations. These terms can describe gender identities or, in the case of intersex, refer to people whose sexual anatomy, reproductive organs, and/or chromosome patterns do not fit the typical biological definition of male or female.

This report focuses primarily on sexual orientation and on the concept of sexual and gender diversity (SAGD). It thus includes transgender and intersex people, partly because intersex and transgender people also face severe social stigma and legal discrimination, as lesbians, gays and bisexuals do. It should be noted that there is substantial scientific literature about transgender and intersex individuals and communities, and of the particular complexities of these categorisations; this report does not draw on these literatures.

Other terms, such as men who have sex with men (MSM) and women who have sex with women (WSW) are also used in this report. These are usually used when the sexual orientation of a studied population is not necessarily known, but the sex acts being studied are known. MSM as a category may include individuals who are homosexual in orientation, or they may be heterosexual.

1.3 Ethical and Human Rights Considerations

In addition to considering biological, psychological and public health evidence, this report also argues that human rights and ethical considerations need to come to the fore in any discussion of these new laws. The key question is: do people have the right to express and live out the sexual orientation they develop, especially if it can be shown that their orientation harms neither the individuals concerned, nor the societies they inhabit? In other words, do states anywhere have the right to regulate attraction between consenting adults, and the expression of that attraction(Coleman, 2008)?

A similar debate to this has occurred before in a different context: colonial regimes in Africa and other parts of the world, and the apartheid regime in South Africa, for example, made sexual relationships and marriage across what they called 'race-lines' illegal. They justified those laws with arguments that such 'cross-colour' sex was 'unnatural' and a hazard to public health. These racist laws made 'miscegenation' – sexual relations between 'races' – a crime because such relationships were held to be 'against nature' and that the 'natural order of things' demanded that everyone stick to their own ethnic and racial groups.

These arguments were also, in their day, justified by appeals to science and 'scientific evidence'. Even in the present day, there are those who continue to argue that there is scientific evidence that 'mixed' couples result in families that are less cohesive and less conducive to bringing up children because of alleged harms of 'mixing' races, as well as ethnic or religious groups.

Yet, there is no evidence that couples of different races produce family outcomes any different to those outcomes where both parents are from the same ethnic or racial group.

As this report confirms, and particularly in Sections 6 and 7, science has long shown that there is no reliable evidence that homosexuality causes harm, either to the participating individuals or to society. Indeed, recent science, including large-scale comparative studies, shows that all the harms associated with same-sex orientation derive from hostile social climates that discriminate and persecute any sexuality that does not adhere to the heteronormative standards of a particular society, a hostility that the new anti-homosexuality laws explicitly encourages.

African lawmakers in particular are frequently concerned not only with individual human rights, but also with the well-being of communities. African communitarians have long held that all members of a community are to be considered, and consulted, in establishing what is best for the community. In believing that heterosexuality is the human default, and LGB persons are wilfully undermining it, however, lawmakers treat LGB citizens not as constituents to be consulted, but automatically as threats to the 'natural' functioning of communities.

As this report notes, however, the best scientific evidence suggests that heterosexuality is not a human default wilfully deviated from, but simply the most prevalent among a naturally occurring diversity of sexualities. A number of African cultures have traditionally accommodated this diversity within the political community, recognising people with a

wide range of sexual orientations, identities, and practices as members of the community whose well-being is a part of the communal well-being (Cantu *et al.*, 1999; Gevisser and Cameron, 1995; Herdt, 1997; SMUG, 2014). If, as this report finds, the latter account is a better description of communities, then lawmakers have reason to very seriously consider the harm to LGBTI community members by stigmatisation, minority stress, and criminalisation as harms to their communities.

As the body of evidence showing that all sexual orientations are biologically based, largely innate and mostly unchangeable has grown, and as older landmark studies have been recently replicated, many societies have changed their laws, policies and social practices. These changes have been spearheaded by political mobilisation and activism for LGBTI rights in many countries, but key to this has been the conviction that policy and laws need to be shaped by well-researched and widely accepted scientific findings. As the report outlines, systematic reviews that cover, in total, hundreds of studies, in many countries, find, for example, no evidence for the 'contagious' nature of homosexuality, nor any relationship between homosexuality and paedophilia, nor any evidence that sexual orientations can be changed. There are now thousands of biomedical and other studies that demonstrate that same-sex orientation is a regular and frequent variation of human sexuality.

Scientific methodology ensures that claims can be rigorously tested and evidence mounted for and against any elements of policy and law. 'Scientific' means the public presentation of internally coherent hypotheses and theories, together with empirical evidence. This process has to be open and exposed to peer criticism through publication in reputable science journals or presentations at academic conferences. Such research has to be shown to be subject to sustained monitoring and evaluation, and is also subject, before it becomes accepted, to additional testing and attempts at replication.

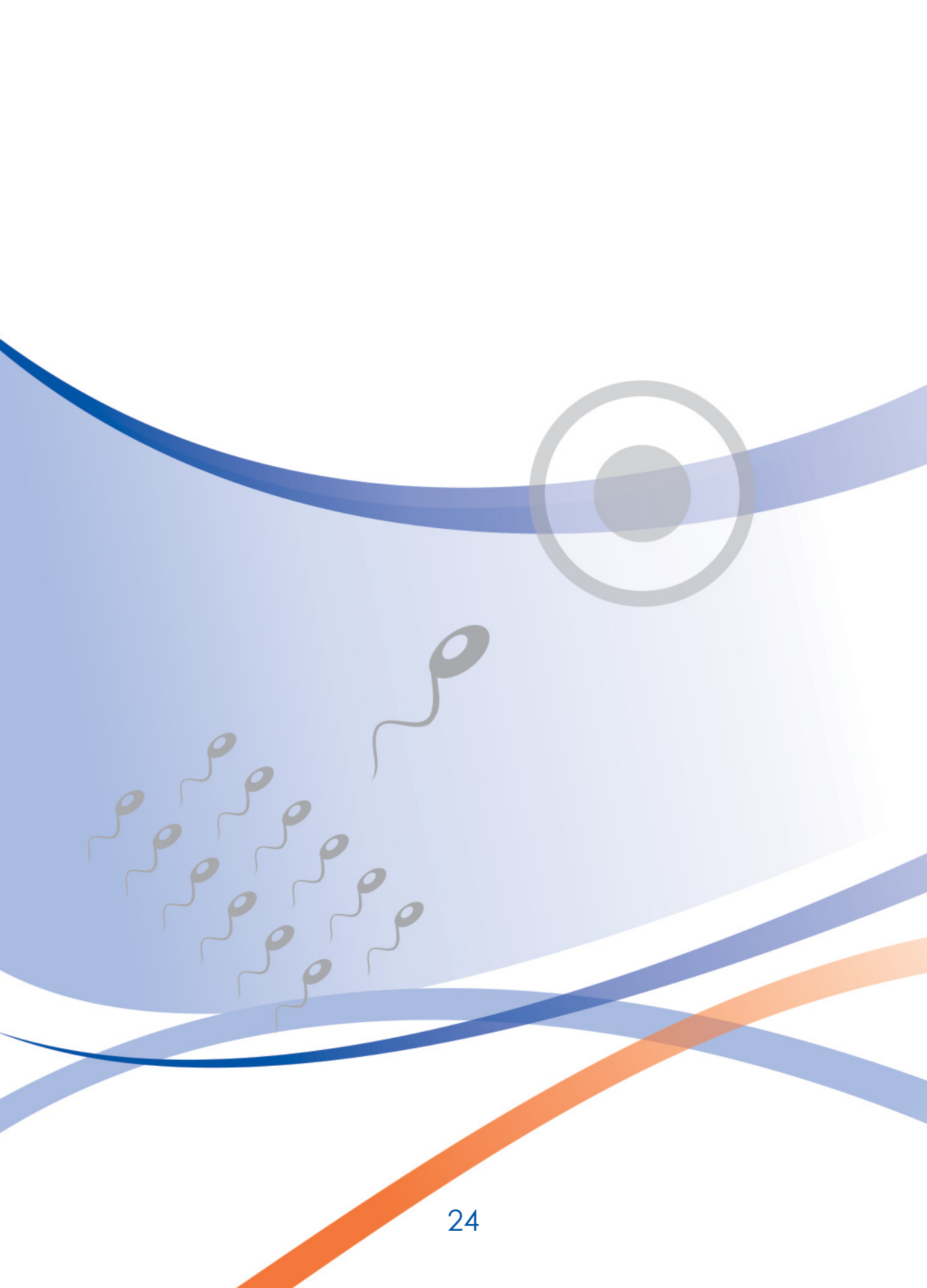
As such, governments have a duty to consider scientific perspectives and draw on the **most current scientific knowledge** when creating policy and enacting laws. In terms of sexual orientation, significant and even path-breaking research in a variety of fields has taken place in the recent past. Much of this research is not widely known to policymakers

yet, nor is it in the public domain. Part of the aim of this report is to bring the most recent replicated and respected global research to the attention of policymakers.

There is reason for urgency too because as this report outlines, where new laws are passed and where the repression of LGBTI communities increases, there is evidence of a rapid onset of negative consequences not just for LGBTI persons and communities but also for societies as a whole. These include, but are not limited to:

- the reversal of key public health gains, particularly in terms of HIV and AIDS and other sexual health programmes;
- higher levels of social violence;
- reduced economic growth;
- diversion of attention from sexual and other violence against women and children.

A key consequence of discrimination and abuse of LGBTI individuals and groups is the violation of many of their fundamental human rights, as outlined in United Nation's articles in the Universal Declaration of Human Rights, 10 December 1948. The panel draws on the centrality of science in the protection of these human rights as also envisaged by the resolution passed by the African Commission on Human and Peoples' Rights in May 2014 and titled "Resolution on Protection against Violence and Other Human Rights Violations against Persons on the Basis of Their Real or Imputed Sexual Orientation or Gender Identity" (ACHPR, 2014). This resolution is reproduced in full in Appendix 2.



2. What is the Evidence that Biological Factors Contribute to Sexual and Gender Diversity? To what Degree is the Wide Diversity of Human Sexualities Explained by Biological Factors?

Scientists have long debated the relative contribution of inherited traits compared to the influence of the environment on human physiological make-up (the way our bodies are) and our psychological dispositions and temperaments (the way we think and feel). Working out the contribution of inherited biology *versus* upbringing is always complex, and is even more so for sexualities and sexual orientation.

A leading theory relating biology to sexual orientation is the neurohormonal theory of sexual orientation, articulated most fully in a 1987 paper by Ellis and Ames (Ellis and Ames, 1987). This approach was grounded in a thorough review of hormonal impact on sexual dimorphism (how a species becomes male or female biologically, before birth) and on hormonal influence on sexual behaviours in animals. The core idea suggested is that sex hormones and especially testosterone have a direct impact on developing brains *in utero* and in particular on the limbic system and primitive parts of the brain. As science had already shown by the time this paper was published in 1987, and confirmed in multiple studies since, the limbic system is where much human behaviour and emotion is located in the brain. This theory specifically suggests that the higher order areas of the brain – where we think and where language is developed and used – have little or no direct relationship to the development of sexual orientation (Ellis and Ames, 1987; Weill, 2009).

This theory, and the evidence in many fields that has accumulated to support it, remains a significant challenge to views that suggest there is some 'choice' regarding sexual orientation, particularly in men. Whatever the exact interactions are between biology and society, there is, by 2015, a considerable scientific consensus that sexual orientation is felt as something both innate (i.e. inherent and inborn) and immutable (i.e. irreversible and unchangeable) for most people. So it is not chosen in the sense of a conscious choice, as implied by those who talk of a 'lifestyle' choice, like some might choose a course of study, or the choice to wear a particular style of clothing and so on. The neurohormonal theory suggests that predispositions for all sexual orientations are created before birth, in the first six months *in utero* under the direction of various hormones (Ellis and Ames, 1987). The theory suggests that the type of hormone, its timing and concentration are influenced either by genetics, or in some cases by environmental stress on mothers during pregnancy or by various immunological factors, which in turn influences predispositions to particular sexualities.

The theory and other hypotheses related to it further outline both what might cause changes to hormone levels or uptake *in utero* (including genetic factors), and also predict what kind of impact this might have, not just on sexual orientation, but on other traits. It moves away from suggesting that there is a 'right' or 'normal' orientation and argues for a more complex and nuanced understanding of how the basis for all sexual orientations develops before birth.

None of these means that actual orientations are not constructed socially; every culture is different and there is no 'global' heterosexuality. How one is a 'man' or a 'woman' differs across cultures and across history.

Since the late 1980s, evidence for a strong biological role in predisposing sexual orientations, including same-sex orientations, has come from rapid advances in human genetics, developmental biology and other biomedical fields. The following sections review the various studies that have advanced current understanding of human sexuality and sexual orientation and the reasons for the diversity of orientation found in all societies.

2.1 Family Studies

It is generally accepted that the propensity for heterosexuality is genetically inherited because it is the driving force for reproduction and therefore strongly selected for. However, the actual biological mechanisms – the way in which this genetic force of biology determines or translates into sexual orientation and sexual behaviour – are largely unknown. In addition, the expression of heterosexuality is strongly influenced by social and cultural forms and systems. This is also true for non-heterosexual orientations.

Primary indicators of whether behaviours have some genetic component usually come from noticing patterns of either physical or psychological traits that cluster in families. Through family studies, which look at aggregations of clustering of traits in families, certain deductions can be made about the relative contribution of nature and nurture. In some families there are strong patterns of certain traits, and many of these traits that are shared with previous generations of relatives within the same family.

Seeing patterns of occurrence for a particular trait – that are different from the average rates in the general population – is the start to understanding not just the relative contribution of genes and environmental factors in that occurrence, but also of delineating the areas of possible interaction between genes and environmental factors. A useful example is height. Average height in families is strongly inherited and relative tallness or shortness clusters in families. Like most traits, there is also some environmental influence: in countries with generally adequate levels of nutrition and low levels of poverty, height has been shown to have a heritability of about 90%. In societies with poor overall nutrition, and higher levels of poverty, the heritability factor for height is only about 60% (Silventoinen *et al.*, 2000; Visscher, 2008). In other words, genes account for at least half of the cause of a person's or family group's relative height, and environment accounts for less than half, in the many populations studied so far (Visscher, 2008).

It is important to note that height is not patterned by a single gene but shaped by many different genes: the inheritance is multifactorial. Many genes interact with many different environments scenarios, (both *in utero* and in childhood), impacting on ultimate average (and individual) height (Silventoinen *et al.*, 2000).

Family studies have found significant patterns in terms of variations in sexual orientation. Studies have shown that not only are same-sex-orientated men likely to have a higher number of older brothers compared with heterosexual men, they are also likely to have a larger number of brothers who are also homosexual (Pillard *et al.*, 1981; Pillard and Weinrich, 1986). One study showed that if a family had one person who identified as a

homosexual male, there was an 18% to 25% likelihood that one of this person's brothers would also be homosexual (in the control group in this study, a heterosexual individual's chance of having a gay brother was 4%.) (Pillard *et al.*, 1981; Pillard and Weinrich, 1986). Other studies found that while the 'usual' ratio of girls to boys is about 100:106 in most families, for gay men, the ratio is between 126 to 131 brothers for every 100 sisters (Blanchard *et al.*, 1995; Diamond, 2014). The authors of one of the studies concluded: "...male homosexuality is substantially familial. Brothers of male homosexuals were about four times more likely to be homosexual than were brothers of heterosexual controls, although this familiarity could be due to genetic or shared environmental determinants" (Pillard and Weinrich, 1986, p. 1090).

Equally clearly, although not as statistically significant, a number of studies show that lesbian women have, on average, more lesbian sisters, compared to heterosexual women (Bailey and Benishay, 1993; Pattatucci and Hamer, 1995). In addition, a number of studies have also found there is some birth order effect in male homosexuality: the more elder brothers a man has, the greater the chance was that he would be homosexual (Blanchard *et al.*, 1995; Blanchard and Zucker, 1994; Bogaert and Skorska, 2011; Bogaert, 2003; Vanderlaan *et al.*, 2014).

There are a number of methodological issues that can confound family studies: researchers struggle to show definitively, for example, that particular family members have particular sexual orientations. Using the subject's own rating and estimation of relative's sexual orientation can skew a result, although most researchers introduce techniques to reduce the impact of possible confounding factors (Mustanski *et al.*, 2002).

Although a variety of theories have been developed to explain these patterns, and some of these theories have been empirically tested, there is as yet no accepted explanation for the birth order effect, nor for the other family patterns detected for both female and male same-sex orientation (Blanchard *et al.*, 1995; Bogaert and Skorska, 2011).

For male homosexuality, most of these patterns – birth order, greater number of brothers and other factors – have been found in studies even when boys are not raised together due to family separations, via adoptions or other factors (Blanchard, 2001; Dawood *et al.*, 2009; Miller, 2000). For some scholars, this familial birth order (FBO) effect is "one of the most reliable epidemiological variables ever identified in the study of sexual orientation" (Blanchard, 1997). Nevertheless, other studies, including a recent large-scale study, have found a weaker FBO impact (Kishida and Rahman, 2015).

Overall, these studies suggest that there is a heritable aspect to male homosexuality and, somewhat less strongly, also for female homosexuality. But family studies do not provide a way of separating out those factors that might be genetic from those that might be environmental.

2.2 Twin Studies

Twin studies give scientists a way to better separate those differences seen in family studies into genetic and environmental components. As is outlined below, once this is ascertained, further studies can be – and have been – done at the level of molecular genetics, including genetic linkage studies and genome-wide association studies, where specific genes that might influence human sexual orientation are sought.

Identical twins share the same DNA and studies of their physiological and developmental similarities and differences as they grow up have been foundational to understanding the impact of genes on human development and the possible influence of genes on human behaviour. For twins, both the prenatal and postnatal (early years of life) environments can be assumed to be very similar but not necessarily identical.⁴ If certain traits appear often in fraternal twins (compared to all non-twin populations) and then appear even more often in identical twins, this boosts the case that such traits have a significant heritable component.

In other words, if identical twins have exactly the same trait, 100% of the time, (and non-identical fraternal twins only have that particular trait 50% of the time) it can be assumed that such traits are strongly or even exclusively genetic, with very little environmental influence. If both twins share the same trait, they are said to be concordant for that trait; if they don't, they are said to be discordant for that trait. By looking at concordance rates in non-identical twins for a particular trait, and comparing these concordance rates to those in identical twins (which should be roughly about double the rate of concordance) inferences can be drawn about the heritability of particular genetic contributions to particular traits.

Studies in the past two decades have found statistically significant rates of concordance for sexual orientation in identical twins. These studies have confirmed a likelihood of a heritable aspect for both male and female homosexuality (Bailey *et al.*, 2000; Bailey and Pillard, 1995; Boomsma *et al.*, 2002; Dawood *et al.*, 2009; Johnson *et al.*, 2009). Early twin studies found a range of between 30% to 75% concordance for identical male twins (i.e. that both twins were either homosexual or heterosexual), and about half that rate of concordance – about 30% – for non-identical male twins (Whitam *et al.*, 1993). These patterns and clusters also hold true even when twins, or siblings, grow up in different families (i.e. when they are reared apart) (Whitam *et al.*, 1993).

When the concordance rates of non-identical twins are compared with identical twins, those in identical twins are about double the rate of non-identical twins. This is to be expected as identical twins share double the number of genes (i.e. 100%), compared to non-identical twins, who only share 50% of their genetic material. A pioneering study in 1991 found this doubling of concordance rates when comparing identical to non-identical twins (52% compared to 22% concordance) (Bailey and Pillard, 1991). A 1993 study found concordance rates of 65% for identical twins, compared to 30% for non-identical twin boys (Whitam *et al.*, 1993). The concordance rate for same-sex-orientated female identical twins was even higher (75%) and also more than double the rate for non-identical twins (Bailey and Benishay, 1993; Whitam *et al.*, 1993).

Many early studies of twins and same-sex attraction had methodological weaknesses related particularly to the selection of the sample population and often relied on small samples. To address these issues, a number of much larger studies of twins and sexual orientation have been carried out in the USA (Kendler *et al.*, 2000), Australia (Bailey *et al.*, 2000), and in Sweden (Långström *et al.*, 2010) using national population registers for their samples.

⁴ The idea that non-shared environment, or that which impacts on children and their upbringing that is not shared by siblings outside of family, has a large impact in the difference between siblings, whether twins or not, is important in twin studies. Such non-shared environments can be *in utero* or as part of upbringing. The key point is that what is NON-shared has been shown to make much more of a difference than that which IS shared (Turkheimer and Waldron, 2000).

The Kendler study from the USA drew on a random sample of 4 000 people. It found that where one of a pair of identical twins was homosexual, there was a one in three chance that the second twin would also be homosexual (Kendler *et al.*, 2000). The study's authors concluded: "By no means is sexual orientation genetically determined but clearly genes are playing some role by interacting with a range of environmental factors" (BBC, 2000).

The Australian twin study (Bailey *et al.*, 2000) looked more directly at sexual orientation, and found "consistent evidence that familial factors influence sexual orientation and two related traits, childhood gender non-conformity and continuous gender identity. It was difficult, in general, to disentangle genetic and shared environmental contributions to the familial variance, though childhood gender nonconformity was significantly heritable in both sexes" (Bailey *et al.*, 2000). This finding – that actual behaviour, and in this case, childhood gender non-conformity – had a heritable component, made the Australian twin research a landmark study in human sexuality.

The Swedish study (Långström *et al.*, 2010) examined sexual orientation in a less direct manner, obtaining information via a questionnaire about recent 'sex acts' or the number of lifetime same-sex partners. Using various statistical methods, the study suggests that a 'genetic effect' of some kind is likely to account for about one-third of any explanation of same-sex attraction in the (male) groups studied (Långström *et al.*, 2010). The same study also suggested that some 'genetic effect' could account for about 18% of the factors that 'cause' same-sex attraction in twin girls/women. The study warns that "although wide confidence intervals suggest cautious interpretation, the results are consistent with moderate, primarily genetic, familial effects, and moderate to large effects of the non-shared environment (social and biological) on same-sex sexual behaviour" (Långström *et al.*, 2010).

The importance of these findings from twin studies cannot be over-emphasised. The fact that concordance for sexual orientation is not 100% is often seized upon by those who deny a biological basis for homosexuality. Therefore these high concordance rates (and the approximate doubling of concordance rates when comparing identical to non-identical twins in both men and women) demand a coherent scientific explanation. The approach, as outlined below, that has the most comprehensive explanation and matches the data consistently, centres on a heritable component to sexual orientation, i.e. a genetic component that operates *in utero*, and interacts with both the shared and non-shared environment, both *in utero* and in upbringing.⁵

These studies have strongly suggested a maternal pathway for the heritability of whatever genetic factors are at work because much of the clustering observed, regarding, for example, greater than average numbers of male siblings (for gay men), and the birth order effect, seem to 'pass on' via the mother's family lines.

⁵ A wide variety of other explanations including social have tried to explain the data from family studies, but all have been disproved and discarded over the past 20 years (Blanchard, 1997). Psycho-social explanations – such as the idea that later born children might develop a feeling of inadequacy compared to older siblings and this somehow led to same-sex orientation, or the idea that with each additional son, a father's attention is somehow attenuated and therefore the son gets less masculinising influence – have been carefully considered and all have been more or less completely debunked, i.e. little or no evidence has been found to support them.

Another idea, that some mothers, hoping in vain for daughters, might treat later sons more like girls, or that as there are more and more children, parents start to allow gender roles (like boys helping with the washing of dishes!) to be more fluid within the family, have also been found to have no empirical support. The idea that younger children in big families are just 'more open' to sexual experimentation has also been disproved. Blanchard, in a comprehensive review of Birth order and familial effects, outlines these, and many other psycho-social explanations that have not stood up to close scientific scrutiny. (Blanchard, 1997).

2.3 Genetic Linkage and Full Genome Studies

The indication that if there is a genetic component for same-sex orientation, it would most likely be found on the X chromosome, was first explored empirically in 1993 by Dean Hamer and his colleagues who identified a potentially causative region, Xq28, on the X chromosome in homosexual men. This similarity was found in 33 out of 40 gay brothers examined (Hamer *et al.*, 1993).

At the time – in the early 1990s – this was the strongest evidence ever found for a genetic component of same-sex orientation in men. This study was the first to look directly at DNA in humans in this way. But the study did not identify a specific gene (there are 4 million base pairs just in the small region of the X chromosome examined, and several hundred genes are located in that area) and no one then, or now, working in genetic research expects there to be a single gene that influences sexual orientation.

The authors of this study did not claim to have found a 'gay gene' *per se*, but they did claim to have found strong associational evidence for the existence of genetic marker patterns (and the region in which they are located) that seem to be unique to at least a sub-set of gay brothers. Subsequent research studied a new group of gay brothers and found a very similar result (Hu *et al.*, 1995).

Linkage studies look for similarities in chromosomes across population groups with a particular trait. Full-genome scans go further; they attempt to scan the entire genome of a large number of different individuals. In 2005, this new technique was used to partially confirm the findings of Hamer *et al.* (1993), and other studies that demonstrated a genetic component to same-sex orientation (Mustanski *et al.*, 2005). Significantly, the 2005 study also found other possible linkages in other chromosomes (Jannini *et al.*, 2015).

Although the field has not been well funded in the USA (and very rarely funded outside of the USA) and while subsequent studies did not replicate the results exactly, more recent studies have confirmed the findings of the landmark studies of the 1990s. This replication is significant. Of great importance is a recent study (published in late 2014) that found two regions of linkage, or similarity, drawing on a much larger set of 409 gay brothers. These linkages are the pericentromeric region on chromosome 8 and, as Hamer and his team had found in 1993, in the Xq28 region of the X chromosome (Sanders *et al.*, 2014). This confirmation of the 1990s studies, and the new finding of other linkages, creates a strong empirical basis for asserting a genetic role in the heritability of same-sex attraction, at least in men.

While none of the studies 'proves' that areas of the chromosomes identified as patterned actually influence sexual orientation, nor suggest biological pathways for the 'translation' of this genetic influence into behaviour, the results are suggestive of a strong association. The authors of the 2014 study concluded:

“While our study provides further evidence for early (pre-natal) biological influences on variation in male sexual orientation, we also emphasise that genetic contributions are far from determinant but instead represent a part of the trait's multifactorial causation, both genetic and environmental... Taken in context with previous work, [we] suggest that genetic variation in each of these regions

contributes to development of the important psychological trait of male sexual orientation" (Sanders *et al.*, 2014).

2.4 Epigenetics: Early Evidence and Promising New Leads

A relatively new field, epigenetics, demonstrates that it is possible for same-sex orientation to be 'genetic' in nature, while at the same time also being affected by the intrauterine and extrauterine environments. Epigenetics also provides a plausible and testable explanation as to why there is discordance in identical twins regarding not just their sexuality, but other traits as well.

Epi-marks 'dictate' the activity or inactivity of certain genes. In a sense they switch a particular gene 'on' or 'off'. They may also control the timing of the production of hormones through chemical and molecular changes. The epi-mark model predicts that a predisposition to homosexuality may be created by "trans-generational epigenetic inheritance" (Rice *et al.*, 2012). This occurs when one or more 'stronger-than-average' epi-marks that impact on sexual orientation – but not on secondary-sex characteristics – carry over to future generations in an opposite-sex descendent manner.

Epi-marks are usually completely erased from generation to generation (Rice *et al.*, 2012). A new hypothesis has been developed that suggests a mechanism by which some of these epi-marks can escape erasure and may then be passed down to the next generation (Rice *et al.*, 2012). If this happens, an 'opposite sex' impact might occur over generations: the very same epi-marks that promoted the development of masculine features, for example, if then passed on by a man to his future daughter, may make her oversensitive to testosterone. Similarly, women might pass on to their sons an under-sensitivity to testosterone trait (Rice *et al.*, 2012).

This model provides, for the first time, a biologically plausible manner in which some kind of predisposition to same-sex orientation could be inherited i.e. it provides a way to explain more fully the familial patterns that have been repeatedly identified in twin and other family studies over the past five decades. As evidence supporting the hypothesis continues to emerge, recent studies have shown that even identical twins have very different 'epigenetic profiles', even though their core genetic make-up is identical (Rice *et al.*, 2012).

One particular epigenetic study is highly suggestive of a strong genetic link between a mother's genetic make-up and the sexual orientation of her sons. The study found that for most women, although they have two X sex chromosomes, one X chromosome is randomly 'switched off' or inactivated (Bocklandt *et al.*, 2006). However, some mothers of homosexual men have what is described as an 'extreme skewing' of X chromosome inactivation. Thirteen percent of mothers with one homosexual son had this extreme skewing, and for those mothers who had two homosexual sons, 23% had this extreme skewing.

Of course many mothers of homosexual sons had no such skewing, but in a random population of mothers with no gay sons, such extreme skewing is only seen 4% of the time (Bocklandt *et al.*, 2006). The preponderance of skewing, then, implies that there is some genetic element that explains this relationship between some mothers and their

homosexual sons. This is further confirmation of an element of genetic heritability, and also indicates that it is likely to be heritable through maternal, i.e. X chromosome-linked pathways.

Although 'incomplete erasure of epigenetic imprinting' is currently a theoretical model, it is based on experimental findings in many non-human species. Epi-marks have been shown to influence not just hormonal receptivity and sensitivity but, through differentiated responses, to impact directly on humans and non-human species in whom erasure of epi-marks occurs at a non-trivial frequency (Rice *et al.*, 2012).

An additional explanation that may have some impact on the biological basis of same-sex attraction may be endocrine disruptors. Endocrine disruptors can include pharmaceuticals, dioxin and dioxin-like compounds, polychlorinated biphenyls, dichlorodiphenyltrichloroethane (DDT) and other pesticides, and plasticisers such as bisphenol A (Blumberg *et al.*, 2011). These 'disruptors' are found in many everyday products, including plastic bottles, metal food cans, detergents, food, toys, cosmetics and pesticides (Blumberg *et al.*, 2011).

Such disrupters have been shown to have a direct influence on sexual dimorphism *in utero* and may be implicated in the development of various conditions such as congenital adrenal hyperplasia. These substances have been shown to have estrogenic, androgenic, anti-estrogenic or/and anti-androgenic activity (Bergman *et al.*, 2013; Skinner *et al.*, 2011). Critically, they have been shown to affect embryogenesis, early childhood development and puberty and to have a clear and direct impact on male and female fertility. These endocrine disruptors may also impact on the production, transmission or reception of androgens in the uterus, and thus impact on the development of those areas of the brain thought to be associated with sexual functioning and sexual orientation (Bergman *et al.*, 2013; Bourguignon *et al.*, 2009).

Endocrine disruptors have been introduced in animal research and trans-generational inheritance of different traits has been observed, the cause of which can be directly traced to the disruptor (Bergman *et al.*, 2013). Of course, it would be unethical to carry out such trials in humans. Thus, there is some evidence that environmental chemicals may have some influence on sexual orientation (Winneke *et al.*, 2014).

Overall, the surge in recent confirmatory studies, large-scale family and twin studies, new developments in full genome scanning research, rapid advances in epigenetic theory and empirical studies of epigenetics, have reached the stage where there is no longer any doubt about the existence of a substantial biological basis to sexual orientation. Other fields – including brain morphology and endocrinology – are confirming and deepening our understanding of what this biological basis is. Male and female same-sex orientation may develop through different biological pathways, and always in the context of particular human cultures and social conditions.

Just as there are many ways to be heterosexual, there are many homosexualities, and many different identities within what has often incorrectly been seen as a monolithic gay or lesbian (or bisexual) identity or singular set of behaviours.

2.5 Evolution and Genetics

A common argument against the heritability of same-sex attraction is that same-sex relationships do not drive human reproduction; such orientations, if genetic, would not be selected for and would eventually 'die out'. There would have to be some 'compensating factors' for genetic inheritance to be plausible in terms of the selection of genes that best promote the reproductive and survivability of the species. Recent studies have found such compensating factors. From the mid-1980s onwards, a number of studies have found that female relatives of gay men have a greater 'fecundity' – i.e. they have more children – on average, when compared to women who do not have gay male relatives (Jannini *et al.*, 2015)

This does not fully explain how same-sex orientation might be genetic at root, but it has provided the first explanation of a mechanism through which what appears to be an apparently self-limiting effect might in fact be compensated by an increase in the number of offspring in a particular family lineage. To clarify, in a ground-breaking study in 2004, researchers, working with a sample of about 100 heterosexual men and 100 homosexual men, set out to analyse the birth rates of as many of their relatives as could be traced. More than 4 500 relatives were analysed. The study found that female relatives of homosexual men had more children compared to heterosexual men.

From this study (Camperio-Ciani *et al.*, 2004), it is clear that some factor/s in the genetic make-up of these relatives was contributing to both the homosexuality of some of the male members of these families and to the greater fertility of some of the women relatives of these homosexual men. The authors concluded: "genetic factors that are partly linked to the X chromosome and that influence homosexual orientation in males are not selected against because they increase fecundity in female carriers, thus offering a solution to the Darwinian paradox and an explanation of why natural selection does not progressively eliminate homosexuals" (Camperio-Ciani *et al.*, 2004; Lemmola and Camperio-Ciani, 2009).

A newer study has confirmed these findings (and disproved the idea that there might also be an increase in the number of children that the relatives of homosexual men have on the paternal side). The greater number of children per woman effect was found only among female relatives. The authors of this study concluded: "our data confirmed a sexually antagonistic inheritance partly linked to the X chromosome that promotes fecundity in females and a homosexual sexual orientation in males" (Lemmola and Camperio-Ciani, 2009).

This 'balancing selection hypothesis' and these studies need much wider replication, among different population groups and perhaps also in bigger samples. As suggestive as these findings are, science, at present, is unable to show conclusively what causes sexual orientation, or why and how both opposite and same-sex orientation comes about. Summarising these findings, Dr Qazi Rahman, a prominent scientist involved in sexuality and sexual orientation research, emphasises "we are not looking for a single 'gay gene' or a single environmental variable which could be used to 'select out' homosexuality – the factors which influence sexual orientation are complex. And we are not simply talking about homosexuality here – heterosexual behaviour is also influenced by a mixture of genetic and environmental factors" (Schlatter and Steinback, 2015).

What is clear is that much of the scientific research of the past three decades is pointing in the same direction: there is now greater certainty that there are both strong biological and some social factors, interacting in ways that are yet to be completely elucidated, and these factors create sexual orientations, including same-sex orientations. What is also becoming more evident, as the next sections of this report discuss, are that because of this interaction between biology and social environment, sexual orientation is not felt as a choice by most people, and is also not changeable at will, regardless of what the inducements might be.

2.6 Choice and Immutability

Some argue that sexual orientation is not like race, nor like biological sex, both of which are held to be unambiguously 'biological' and something that no one can 'do anything about'. Discriminating against people on the basis of sex or race has had appalling and tragic consequences globally for thousands of years. Slavery, colonialism and apartheid for example, have all relied on notions of white superiority and black inferiority, and all were challenged historically on scientific, as well as ethical and moral grounds.

Proponents of new laws against same-sex relationships often argue that the key difference between discriminating on the basis of sex or race, and discriminating on the basis of sexual orientation, is that same-sex orientation is chosen rather than biological (or, alternatively, when this argument is debunked, that same-sex orientation is forced onto people by homosexual 'recruiters', usually through forced molestation). People making these arguments usually also believe that same-sex attraction is a pathology and an illness of some kind, i.e. both that it can be 'cured' and that it is inferior to heterosexuality and threatening to heterosexuality.

As is explored in other sections, these positions have no scientific validity. Sexual orientation is akin to race and biological sex in that, for most people, heterosexual or otherwise, **sexual orientation is not a choice in any meaningful sense of the word.**

There is no known difference between the subjective 'innateness' or 'immutability' experienced between those with opposite-sex attraction and those with same-sex or both-sex attractions, i.e. all the evidence points to the subjective experience of this early 'noticing' of sexual attraction as being very similar, regardless of where a person might be on the spectrum of sexual orientation (McClintock and Herdt, 1996). Where studies have been conducted, people – whether homosexual, bisexual or heterosexual – have stated that they feel they have had little or no sense of choice about their sexual orientation, either at the time of first becoming aware of it or in the present. As one scholar described it, "most people discover rather than choose their sexual interests" (Quinsey, 2003).

This early 'setting in' is part of the reason people mostly feel they have 'no choice' in their sexual orientation. A recent USA-based study, for example, found that 88% of gay men and 68% of lesbians reported that they believed they had 'no choice' regarding their sexual orientation, while another 7% of gay men and 15% of lesbians reported feeling they had only a 'small amount of choice' (Herek *et al.*, 2010). Only 5% of gay men and 16% of lesbians felt they had a fair amount or a good deal of choice (Herek *et al.*, 2010). About 40% of bisexual men felt some degree of choice.

Most heterosexual people also feel they have no choice, and also report having 'noticed' or discovered their sexual orientation – opposite-sex attraction – at a relatively ear-

ly age (McClintock and Herdt, 1996). For most heterosexuals, there is thus also no sense of 'choosing'. This same 'early discovery' is true for most people with same-sex attraction or both-sex attraction (Savin-Williams and Vrangalova, 2013; Worthington *et al.*, 2002). This does not preclude, especially for women, the possibility of some shifts in sexual orientation at some points in life. However, for the vast majority of men and most women, there is a limited notion of choice and – as is explored in Section 5 – high degrees of 'immutability', i.e. little perceived possibility of change.

What is important in terms of recent work is that strong evidence has accumulated to suggest that sexual orientation in humans becomes established for most people earlier than had previously been thought. Studies suggest the initial stages of this 'discovery' occurs in mid-childhood and predates, for most, the onset of puberty, i.e. the sense of whom one is attracted to develops early in life and, for most, remains the dominant orientation for life. One study concludes, "Accumulating studies from the United States over the past decade suggest that the development of sexual attraction may commence in middle childhood and achieve individual subjective recognition sometime around the age of 10. As these studies have shown, first same-sex attraction for males and females typically occurs at the mean age of 9.6 for boys and between the ages of 10 and 10.5 for girls" (McClintock and Herdt, 1996).

This research is significant because it delinks sexual orientation partly from hormonal and other changes at puberty. Those who argue that boys and girls are 'recruited' into homosexuality, usually claim this happens at puberty or in the early teen years, but it is clear that by then most people already 'know' their sexual orientation, i.e. it is a dawning recognition that starts happening, for most people, before puberty.

This is not to downplay the socially distinctive ways in which sexual orientations are constructed in different societies, nor to say that there is no personal agency involved in the development of sexual identity or sexual orientation. It is important to assert – and current science supports this notion – that there are multiple pathways to a developed sexual orientation for both women and men, as a normal part of the range of human developmental variation.

This is also not to argue that because people feel they have no choice, sexual orientation 'must be' a biological phenomenon at root. It is rather to ask that when research shows that most people feel they have no control over a trait or predisposition that causes no harm to themselves or to others, what right does any government have to insist on changes to, or the suppression of, that trait?

2.7 Pervasiveness and Frequency

Globally, there is a lack of research into the prevalence and distribution of same-sex attraction, identity, and behaviour. The biological case outlined thus far, and the early onset and deep immutability of sexual orientation would suggest the high likelihood of similarities in the number of people with same-sex attraction across societies and across time. To the extent that this can be studied, this appears to be the case.

This is partially correct because research into human sexuality and sexual orientation is difficult to conduct; data are very uneven, partly due to the difficulty of asking the right

questions given vast differences in social constructions of both opposite-sex and same-sex attraction across societies. It is also due to strong negative attitudes and even taboos in many societies that inhibit people from disclosing their sexual orientation (Reddy *et al.*, 2009).

What a person feels (for example, in terms of attraction to others) and what a person claims as their identity or orientation might overlap and influence each other, but they are **not** the same thing. Asking people about their sense of identity or even what sex 'acts' they may have participated in at some point in their lives might not correlate with their current attractions/orientations, or indeed with their overall sense of their orientation/identity at a particular moment in time.

Despite these limitations, some conclusions can be drawn. From research going back to the 1950s in many different countries, the proportion of a given population that assert a same-sex orientation or 'bisexuality' ranges from approximately 1.0% to approximately 7% for both men and women (Billy *et al.*, 1993; Dickson *et al.*, 2003; IOM, 2011; Michaels, 1996; Sell *et al.*, 1995). In some studies, higher proportions of people report some lifetime same-sex behaviour, even if they often do not claim a same-sex orientation (Cantor, 2012; Cromton, 2003; Grulich *et al.*, 2003; Herdt, 1997; Human Rights Watch, 2013a; IOM, 2011). When the proportions of those who assert an exclusive same-sex attraction are combined with those expressing bisexuality as their sexual orientation, and these numbers are combined with those who report some lifetime same-sex behaviours, overall prevalence rates increase.

Despite severe stigmatisation and, often, physical danger faced by those with same-sex orientation in many societies, a significant proportion of men and women assert same-sex attraction and seek romantic and sexual partnerships that accord with their desires and orientation. The persistence of this prevalence in the face of persecution is apparent in **all** African countries – and elsewhere – where data are available – and appears to hold true in the face of even extreme intolerance and violent sanction (Broqua, 2009; Cameron and Gevisser, 1995; Downie, 2014; Human Rights Watch, 2013b; Itaborahy and Zhu, 2014; Mkhize *et al.*, 2010; Roscoe and Murray, 1997; Herdt, 1997).

Of course, this makes estimating the portion of these populations who are lesbian, gay or bisexual (LGB) extremely difficult. There are thus few reliable and specific prevalence figures for individual African countries (and indeed, for most countries in the world). But historical records and ethnographies – evidence-based accounts, compiled by anthropologists, sociologists and historians – exist for many African countries (Cantu *et al.*, 1999; Epprecht, 2006; Halperin, 2000; Herdt, 1996; Roscoe and Murray, 1997). In addition, a great deal of recent research specifically examines the health of LGBTI populations in different African countries (Reddy *et al.*, 2009). In order to make such assessments, some research on the estimation of prevalence of those asserting a same-sex or bisexual orientation has been done.

Taken together, these studies suggest that the prevalence in most African countries is no different from other countries in the rest of the world. A recent systematic review of published and unpublished data on the prevalence of male-to-male sex in the total male population in middle and lower-income countries, calculated that the prevalence of men who have sex with men (MSM) in African countries is at least 2% (Cáceres *et al.*, 2008).

For the population of the USA, where questions of population proportions and prevalence of sexual orientation have been more intensively studied, arguably, than anywhere else in the world, earlier reviews of prevalence studies concluded that the rate of same-sex sex orientation in the USA is between 4% and 17% (Gonsiorek and Weinrich, 1991, in Eliason, 1996), depending on whether bisexual orientation is included and how same-sex orientation sexuality is defined (Chandra *et al.*, 2011; Chiang, 2009; Gates, 2011; Sell *et al.*, 1995). A new and very large study released in 2015, found that the percentage of people claiming an LGBT identity ranged from 2.6% to 6.2% across the 50 largest metropolitan areas in the USA (Newport and Gates, 2015a).

When other studies, from other countries, are added and reviewed, it is likely that at least 1.5% of men, of any given population, and at least 1% of women are mostly or exclusively attracted to people of their same sex (Herdt, 1997). Many more might be bisexual. Among all LGBT 'subgroups', the largest group, in most countries studied, tends to be bisexual women (Diamond, 2012; Farr *et al.*, 2014). Transgender and intersex people, coupled with asexual people, albeit estimated at less than 1% of any given population, add to these numbers.

This means, very roughly, that it is likely that about 5% of the world population is not heterosexual in orientation. Based on 2015 global population estimates of 7.2 billion people, this would suggest that between 350 million and 400 million people are not heterosexual. At least 50 million people who do not claim a heterosexual orientation live in African countries.

Due to stigma and social repression, as well as the methodological issues cited, these numbers represent the lowest plausible level of prevalence in different countries: there is the possibility that the actual numbers are higher and possibly even substantially higher. As the new Gallup study from the USA shows, some areas, and particular urban areas, might have significantly different prevalence statistics (Newport and Gates, 2015b).

There is thus no basis for the view that homosexuality is 'un-African' either in the sense of being a 'colonial import', or on the basis that prevalence of people with same-sex or bisexual orientations is any different in African countries, compared to countries on any other continent (Epprecht, 2006; Sandfort and Reddy, 2013). While there is no proof of prevalence differences in African countries, there is substantial evidence to the contrary. As the Ugandan Presidential Scientific Committee on Homosexuality panel concluded, in this regard: "Homosexual behaviour has existed throughout human history including in Africa... Homosexuality existed in Africa way before the coming of the white man" (SMUG, 2014).

The perception of lower prevalence in Africa (often cited by those promoting new laws) may be entirely due to victimisation, persecution and prosecution of LGBTI individuals in many African countries (Cantu *et al.*, 1999).⁶

⁶ From a different angle, historical research demonstrates the influential role that missionaries and academics, especially anthropologists and ethnographers, played in creating an image of Africa in which no same-sex behaviour existed, creating an image that continues to animate intellectual and political debates (See Epprecht, 2004; Epprecht, 2008).

2.8 Neurohormonal and Other Biomedical Theories: The State of the Science in 2015

Since the late 1980s, evidence that supports the key contentions of the neurohormonal theory has built up in a number of areas. There has been a great deal of research into various factors causing hormonal fluctuations in utero, in either hormone production or in uptake, maternal stress factors, and research into various endocrine disruptors. The evidence for the role of all of these has deepened, although much work still needs to be done (Dawood *et al.*, 2009; Mustanski *et al.*, 2002; Ngun *et al.*, 2011; Ngun and Vilain, 2014).

In addition, because hormones exert their influence by regulating gene expression in their target tissue, it was predicted by the neurohormonal theory that neuroanatomical and neurophysiological differences in the brain might be found depending on sexual orientation. Various studies now show such differences in three brain regions (Bao and Swaab, 2011; LeVay, 2010; Savic *et al.*, 2010; Swaab, 2008; Swaab, 2004). These neuroanatomical differences provide suggestive evidence that the anatomy of the brain of some gay men is skewed in a female direction (Bailey *et al.*, 2014; Bao and Swaab, 2011).

Other studies have shown that some people of both sexes with same-sex attraction also have more nerve connections in the amygdala region of the brain (Savic and Lindström, 2008). This is a part of the brain that developed early in human evolution, so it is highly unlikely that environmental factors could account for these differences, unless one invokes the role of epigenetics. Some studies, furthermore, show differences, depending on stated sexual orientation, between responses to certain pheromones (including pheromones related to sexual stimulation (LeVay, 2010).

Furthermore, a large number of studies also demonstrate that other anatomical features are also influenced by sexual orientation. For example, women and men who assert same-sex attraction are significantly more likely to be left-handed or be able to use both hands equally well (ambidextrous) compared to 'straight'/heterosexual men (Lippa, 2003; LeVay, 2010). There is good evidence that the hand preferred for use is decided before birth, i.e. prenatally, and the higher correlation between handedness and same-sex orientation suggests a biological link and the need for a biological explanation (Lalumière *et al.*, 2000; LeVay, 2010).

Other evidence from studies of cognitive processes and various tests, for example, the 3D 'mental rotation' of objects, and many tests for verbal fluency show gender and sexual-orientation biases (Gooren and Byne, 2009; Neave *et al.*, 1999; Qazi Rahman and Koerting, 2008; Roughgarden, 2009). These traits exhibit some 'gender shifting (LeVay, 2010) for at least some people with same-sex orientation: i.e. lesbian women perform at similar levels to 'straight' men, while gay men perform at similar levels to 'straight' women.

The past two decades in particular have seen an accumulation of evidence regarding the biological basis and expression of sexual orientation (Jannini *et al.*, 2015). As is normal with scientific endeavour this has not been linear; there have been null results, non-replication of key studies, refinement of core tenets of theory, and some new sub-hypotheses in response to evidence, but overall, the evidence is stronger than ever for some kind of neurohormonal basis to differences in human sexuality and sexual orientation.

The panel concludes that contemporary science does not support thinking about sexuality in a simple binary opposition of hetero/homosexual and normal/abnormal. Rather, it favours thinking in terms of a range of human variation, very little of which can justifiably be termed abnormal. As variation in sexual identities and orientations has always been part of a normal society, there can be no justification for attempts to 'eliminate' LGBTI from society. Efforts should rather be focused on countering the belief systems that create hostile and even violent environments for those who are 'othered' within 'heteronormative' societies.

The panel further concludes that there is substantial biological evidence for the diversity of human sexualities and for sexual orientations in particular. Studies have found significant linkage between male sexual orientation and regions of the X chromosome. This particular region on the X chromosome is also associated with other elements of sexual development. These findings, initially published in 1993 and confirmed in 2014, directly associate a particular trait (same-sex orientation) to genetic material for at least some same-sex-attracted men. The mechanisms through which gene expression impacts on sexual orientation remain to be determined. Although less well studied, there is also considerable evidence for a biological component for same-sex orientation in women.

Family and twin studies, including recent large-scale and methodologically robust research, demonstrate familial patterns with regard to same-sex orientation, particularly in men. In addition, pedigree studies, tracing thousands of female relatives of heterosexual and homosexual men, found convincing evidence that female relatives of homosexual men have increased fecundity, i.e., on average, they bear more children compared to female relatives of heterosexual men. This may provide a key to the major evolutionary paradox of reduced fecundity because of homosexual men. These pedigrees, moreover, confirm the X-linked pattern initially observed in the early 1990s.

A genetic component to same-sex orientation, at least in men (with suggestive evidence for women), is consistent and has been replicated in different studies. There has been a steady accumulation of evidence and there are coherent, biological plausible theories, and in particular the neurohormonal theory that connect various approaches to the research of sexualities.

Socio-behavioural research also clarifies the high percentage of heterosexual and homosexual men who feel that they have/had no choice in terms of their sexual attraction. The majority of women who experience same-sex attraction express similar views in their lack of choice in their sexual orientation, although there is evidence for much greater fluidity in sexual orientation among women.

The panel recommends future research as follows:

1. Familial studies and genetic research should be conducted in as diverse a range of African countries as possible to better describe sexual diversity and orientation in both individual countries and continentally.
2. Socio-behavioural and anthropological research into sexual orientation should be encouraged at institutions of higher learning in more African countries.
3. Standardised population-based studies to evaluate further the prevalence of sexual diversity should be encouraged in as many African countries as possible.
4. Population studies of physical sex, gender identity and sexual orientation in settings in which known endocrine disruptors are prevalent should be encouraged.



3. Do Environmental Factors such as Upbringing and Socialisation Explain the Diversity of Human Sexuality?

From the mid-20th century onwards, same-sex orientation came to be seen by some scientists as a psychological and social 'abnormality' induced by either poor parenting styles or some kind of childhood trauma (Crozier, 2000; Halperin, 2000; Hoffman and Knight, 2007). These hypotheses have been tested by scientists from a variety of disciplines, especially in the fields of physiology and psychiatry. As this section outlines, the evidence does not support the idea that homosexuality or bisexuality is 'deviant' and that same-sex orientation is particularly influenced by upbringing, parenting styles, or other post-birth 'environmental' factors.

3.1 The Development of 'Homosexuality' as a Category/Condition

As outlined in Section 1, same-sex attraction and behaviour/acts have been recorded in all societies with a written history -- and in many societies through oral tradition (Halperin, 2000; Herdt, 1997). Over the millennia, different societies have taken diverse stances, ranging from outright acceptance, to acceptance with some forms of regulation, to indifference, to punishing and outlawing same-sex behaviour (Boswell, 2005; Greenberg, 1988; Herdt, 1997; Traub, 2001; Wozniak, 2010).

For much of human history, there was little idea that non-conformity to whatever social-sexual norms were in place in a particular society at a particular time required an 'explanation'. Sexuality was regulated, in most societies, by religion or religiously-infused cultural beliefs (Foucault, 1978; Parker, 2009). This changed only 150 years or so ago, in the late 19th century and in the early 20th century, as mostly European scientists started to 'categorise' people participating in particular sexual 'acts' as belonging to a distinctive class of people, later termed homosexuals. This classification led to the search for social and psychological explanations of homosexuality and a search for 'causes' and 'cures'. Although many of the early theorists believed there was at least some biological component to same-sex orientation, psychologically-based theories suggesting a social basis for homosexuality became more and more prominent. These notions served, for example, as the basis for Freud's theories of psychosocial development becoming prominent in psychological sciences by the early 20th century (Crozier, 2000; Lingiardi and Capozzi, 2004; Person, 2005).

In Africa, historical accounts of same-sex attraction and/or same-sex acts show that before colonialism, same-sex practices were common and not generally a taboo in the way that colonialism defined and made them (Cantu *et al.*, 1999; Epprecht, 2006; Herdt, 1997; Sandfort and Reddy, 2013; Semugoma *et al.*, 2012). Traditional societies in Africa and elsewhere developed ways of ordering same-sex attractions and behaviour (and indeed, all behaviour) but, as outlined above, it was during the height of imperialism and colonisation that more precise 'definitions' of sexual orientations were developed, and the punishment, both legal and extra-judicial, of non-normative behaviour started to occur in earnest (Amnesty International, 2013; Cantu *et al.*, 1999; Human Rights Watch, 2013c; Halperin, 2000; Herdt, 1996, 1997).

These new approaches and new moralities in 19th century Europe fed into a missionary-driven assault on many African social and sexual mores, including varied socio-sexual practices like polygamy, sex before or outside of marriage, and the prohibition of various social customs and traditional arrangements (Comaroff and Comaroff, 1986; Hoad, 2006; Tamale, 2013).

It is one of the ironies of contemporary Africa that in the past, although regulated by communities, African societies across the continent historically were, with few exceptions, much more tolerant and accepting of non-normative sexualities and behaviours than those who colonised them (Epprecht, 2004; Hoad, 2006; Murray, 2002; and Cantu *et al.*, 1999). Then, as now, and in African society as much as anywhere else, same-sex practices did not necessarily mean an expression of a sexual orientation, nor preclude opposite-sex acts and relationships. For example, in many traditionally masculine settings such as initiation ceremonies, age-cohorts, 'tribal' militias and, later on, with the advent of colonialism, in the mining industry or in colonial prisons, large numbers of men practised some same-sex activities without necessarily feeling they were 'homosexual'. On the contrary, many of these men maintained a categorical *heterosexual orientation and worldview* (Moodie and Ndatshe, 1994; Hoad, 2006; Tamale, 2011).

The same was and is also true of women. More than 30 different African societies record marriage or other formal relationships between women, as well as different forms of cross-dressing and role-swopping. These include societies and cultures in Kenya, Sudan, Cameroon, Nigeria, Lesotho, South Africa and many others (Hoad, 2006; IOM, 2011; Nell and Shapiro, 2013; Poteat *et al.*, 2014; Reddy *et al.*, 2009; Sandfort and Reddy, 2013). Although these women-to-women relationships often include physical intimacy, the participants did not and do not always consider such relationships 'sexual', precisely because of the absence of male involvement (Morgan and Wieringa, 2005; SMUG, 2014). In other words, many of the women who participate in these same-sex practices do not consider themselves lesbians, and most maintain relationships with men (many of whom are absent for long periods of time due to the migrant labour system still operational in southern Africa) (Morgan and Wieringa, 2005; Murray, 2002).

Thus, same-sex orientation, as practised and understood, or as 'performed' differs widely in different societies and cultures. Part of the search for explanations or 'causes' has focused on parenting styles and the impact of familial relationships, and this remains a common – but incorrect – set of explanations for diversity in sexualities in contemporary societies.

3.2 Prominent Theories about the Role of Upbringing and Parenting in the Development of Same-Sex Orientation

For male same-sex attraction, the key argument made by those proposing a social basis has to do with what have been characterised as problematic parental styles. The argument advanced is that gay men have 'distant' or somehow 'hostile' relationships with their fathers, and, conversely, very close relationships with their mothers (Seutter and Rovers, 2004). For lesbian same-sex attraction, the arguments mirror this, with 'harsh' and 'distant' mothers held to be a shaping factor, together with some exposure to 'discord' in relationships with fathers or other men. Any combination of these factors is held to pre-

dispose young women to same-sex orientation (Peplau and Garnets, 2000; Rosario and Schrimshaw, 2014).

Joseph Nicolosi, the American founder and former president of the National Association for Research and Therapy of Homosexuality (NARTH)⁷, whose work was and is quoted by some of the proponents of the new legislation in Africa, argues with reference to male homosexuality: "the connection between poor early father-son relationship and homosexuality is that during the critical gender-identity phase of development, the boy perceives the father as rejecting. As a result, he grows up failing to fully identify with his father and the masculinity he represents" (Joseph Nicolosi, 2009).

There are a number of obvious problems with this core contention for the 'cause' of both male and female homosexuality even though this approach remains the cornerstone of sexual orientation change efforts (SOCE), or so-called 'reparative' therapies that seek to 'cure' homosexuality globally. First, this relationship of a 'distant father' is common to many more men than those who express same-sex attraction. Heterosexual 'norms' or what social scientists have come to call 'heteronormativity' and patriarchal systems in many societies often do not encourage fathers to show affection to boy children in particular. 'Distant' relationships between sons and their fathers have not been shown to increase the number of gender non-normative men (Isay, 2009). Additionally, the vast majority of gay men with apparently poor father-son relationships have brothers who are heterosexual.

Other 'causes' of male homosexuality can include, according to those who make these kinds of arguments, "a mother who is actively disdainful of masculinity; childhood seduction by another male; peer labelling of the boy due to poor athletic ability or timidity; in recent years, cultural factors encouraging a confused and uncertain youngster into an embracing gay community..." (Nicolosi and Nicolosi, 2002). The addition of various other factors that also have an impact on millions of boys who do not develop an attraction to the same sex merely demonstrates the weakness of the core 'distant father'/dysfunctional upbringing theory as the causal basis for same-sex orientation.

As a number of recent academic studies point out, this argument about distant fathers, if there is an empirical basis to it, in terms of the life course of some gay men, might also 'reverse the causation' of such behaviour (Balthazart, 2012). If a boy or girl child shows early non-normative gender traits for example, this might 'cause' the father (or mothers) to be displeased or distant (Beckstead, 2012) and this dynamic might continue throughout the child's life. This 'inverse causality' argument is backed up by a number of studies that show that slightly higher numbers of gay men do in fact report having 'distant' relationship with their fathers, when compared to heterosexual men. If there is a pre-birth biological component to same-sex orientation, then some fathers might discern this in their children at a very young age, and may react consciously or unconsciously to the child, thus creating the distance that some studies have later observed (Isay, 2009).

⁷ The National Association for Research & Therapy of Homosexuality (NARTH) has recently changed its name to The Alliance for Therapeutic Choice and Scientific Integrity. Despite the change in name, the organisation's mission "to the service of persons who experience unwanted homosexual (same-sex) attractions (SSA)" remains unchanged.

Similar arguments are advanced for same-sex orientation in women and for bisexuality; these also cite family relationships. In the book *A Parent's Guide to Preventing Homosexuality*, it is stated that a woman may develop same-sex attraction because she is "gender-confused" due to "having been molested, or had an abusive father, leading to feelings that it is unsafe to claim her feminine identity" or having a mother that "appeared to the girl as either a negative or a weak identification object" (Nicolosi and Nicolosi, 2002).

These kinds of psychosexual arguments, some originating in Freudian conceptions of 'stages of infantile sexual development', have provided scientists with many testable hypotheses. Hundreds of studies have been undertaken in the past three decades, many explicitly aimed at testing these parental upbringing ideas. Summarised starkly, these studies have discredited all the [key] components of 'family upbringing' theories (Beckstead, 2012; Isay, 2009; Peplau and Garnets, 2000; Rosario and Schrimshaw, 2014). An overview article published in 2012, concluded:

"although male homosexuals overall may report poorer relationships with their fathers, family relationship patterns have not been found to implicate the development of homosexuality in either men or women. In contrast, evidence from a variety of experimental approaches validates the conclusion that biological mechanisms are the ones operating in the aetiology of a homosexual orientation" (Beckstead, 2012).

As the Royal College of Psychiatrists argued in 2007, and as cited in Section 1: "Despite almost a century of psychoanalytic and psychological speculation, there is no substantive evidence to support the suggestion that the nature of parenting or early childhood experiences play any role in the formation of a person's fundamental heterosexual or homosexual orientation" (Royal College of Psychiatrists, 2010), even though there is strong evidence that early childhood factors influence a number of features of later life, such as intelligence, educational outcomes and adult achievements.

Those proposing some social basis as the 'cause' of homosexuality suggest that, in addition to parenting, other 'social factors' may also be at work, through some kind of 'social contagion' (people coming into contact with LGBTI people), or through the deliberate 'recruiting' of young people into homosexuality through LGBTI individuals having forced sexual contact with children and young adults. As is explored in the sections below, there is also no scientific or evidentiary basis for these views.

The panel concludes that there is a lack of evidence to support the idea that the way parents bring up their children, or the relationships formed between children and parents, impact on sexual orientation. While family environment may shape other elements of sexuality and the way sexuality is expressed, and while construction of gender and sexual identities have social and cultural components, orientation is not directly correlated to family upbringing.

The panel affirms the position taken by the Royal College of Psychiatrists and notes that 'blaming' parents for their children's orientation (and stigmatising those orientations, and subjecting them to criminal sanction) cannot be supported by current global scientific consensus on the etiology, development or expression of non-heterosexual orientations.

4. Is there Any Evidence for Same-Sex Orientation being 'Acquired' through Contact with Others, i.e. through 'Social Contagion'?

In 1983, only 24% of all Americans reported that they 'knew somebody' who is gay, lesbian or bisexual. By 1998, this number had increased to 55%. By 2001, 73% of Americans said they knew at least one person with same-sex orientation. By 2013, the number of Americans who knew one or more gay people had increased to 87% of the total population (Dimock and Doherty, 2013; Herek, 1991; Masci *et al.*, 2013; Pew Research Centre, 2003). During this time, multiple surveys across the USA, as outlined in Section 1, certainly did not find any increases in the overall prevalence of people who said they were gay, lesbian or bisexual (Gates, 2011; Pew Research Centre, 2013). The idea that sexual orientation can be acquired because of greater contact with LGBTI people, or that societies that are tolerant of LGBTI people 'promote' some kind of 'uptake' of non-normative sexualities has no empirical basis in current science.

The Netherlands and Sweden, for example, long held to be examples of social and legal acceptance of LGBTI people, have no greater or even possibly lower 'prevalence' of LGBTI people (Adam *et al.*, 1987; Diamond, 2014). As one study found:

"Intuitively it seems reasonable to assume that if homosexuality was a practice readily moulded by culture, such behaviour would be more prevalent in societies that tolerate it most or punish it least. This hypothesis is not supported by the data available from Britain, Denmark, France, Japan, the Netherlands, Palau, the Philippines, Thailand, and the United States. In the relatively non-homophobic societies of Denmark, Palau, the Philippines, and Thailand, we find among the lowest rates of same-sex activity reported" (Diamond, 2014).

Many of the laws against 'homosexuality' discussed or passed recently in a number of African countries prohibit the 'promotion' of homosexuality. By extension, 'promotion' appears as an attempt to 'normalise' that which is seen as an aberration, although exactly how this promotion is defined is not always spelt out in clear legal terms. As one recent review found, what is particularly problematic about these new laws, beside the criminalisation of even innocuous same-sex behaviour such as 'hugs' between men, is that since many of the laws have:

"the inclusion of heavy punishment for mere pro-LGBT sentiments and actions, [means that the legislation] serves as a far more dangerous threat to long-term attempts to create the necessary structures in civil society that can foment a home-grown gay rights movement. ... it makes it difficult, if not impossible, for groups of LGBT activists to organise and advocate for fear of criminal penalties. Those who support gay rights, both in public and in private, would be severely hampered from speaking out, if not completely silenced" (Kretz, 2013).

Such 'anti-promotion' laws are not confined to Africa. Although Russia does not criminalise same-sex orientations or same-sex relationships *per se*, in 2013, the Russian government passed a law entitled "On Protection of Children from Information Harmful to their

Health and Development", which, it was reported, aimed to prevent children getting information that denigrated or denied 'Traditional Family Values'. Since the passing of the act, violence against gender non-conforming individuals has increased substantially in Russia (Stern, 2014). The same has been true of similar legislation passed or contemplated in Africa (Kretz, 2013).

The main stated concern of proponents of such legislation is the fear that acknowledging same-sex or bisexual orientation as a normal part of human sexual diversity somehow encourages young people and children to 'develop' same-sex orientations, or might encourage more people to engage in same-sex sex acts (Amnesty International, 2013; Downie, 2014; Kretz, 2013). There is no credible evidence from any scientific study to support this view. Instead, there is evidence that greater 'tolerance' or openness about human sexual variation and variety reduces stigma and violence against LGBTI people, and allows individuals to live more openly and to access health and other services more freely. This, in turn, has positive impacts on not just the health (and mental health) of LGBTI populations but on public health and civil society more generally.

As well, a recent important study also shows a relationship between long-term economic growth – and other broad social benefits – for societies that improve LGBTI rights. The study, which reviewed legal systems and economic performance of 39 countries found:

"On the most basic individual level, whether a country recognises the human rights of LGBT people determines the conditions in which they live and work, thereby greatly shaping their level of economic achievement. This study finds that in many countries, LGBT people commonly face exclusion from schools, jobs, and health care, and are subject to other harms, like violence and police abuse. All of these harms are human rights violations. In addition to violating human rights, depriving LGBT people of the ability to fully function in society means creating a group of individuals with low levels of educational attainment, productivity, life expectancy, and personal income, all of which are key factors in economic development" (Badgett, Nezhad, Waaldijk, and Rodgers 2014).

An additional study showed a significant result: in countries determined through a survey to be 'good place(s) for gays and lesbians' to live and work, there was a "close statistical correlation between tolerant attitudes towards gays and lesbians and economic output per person, the basic measure of economic development" (Florida, 2014) (Figure 4).

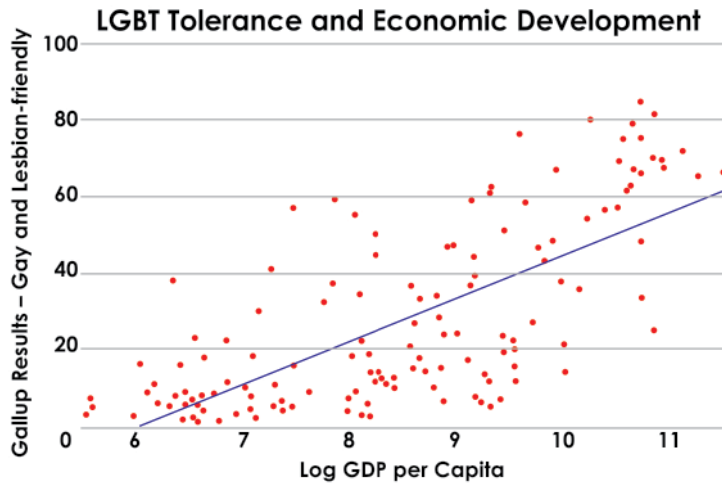


Figure 4: Graph depicting relationship between gay and lesbian-friendly societies and gross domestic product (GDP) output.

The cluster of locations near the bottom left of the graph indicates some relationship between low GDP with societies that are less tolerant of differences in sexual orientations. By contrast, on the upper right, economically successful countries are more accepting. Research in various fields demonstrates a connection between the social bias against lesbians and gays and low economic outputs (Badgett and Nezhad, 2014). Moreover, this study also found that there was some correlation between levels of ‘tolerance’ towards LGBTI people with higher levels of human development, entrepreneurship, lower levels of corruption, and greater levels of gender equality (Florida, 2014).

Not only is there strong evidence of the overall benefits to societies and individuals of encouraging greater tolerance and decriminalising same-sex orientation, other recent studies show that there is no evidence that ‘exposure’ or ‘contact’ with LGBTI populations exerts any sway on anyone’s sexual orientation – even in the most intimate surroundings. A recent study, for example, confirmed that while peer pressure is a powerful influencer of young people’s behaviour and such peer pressure can encourage young people, for example, to start having sex earlier than they might otherwise do, this influence did not extend to same-sex activity or the development of same-sex sexual orientation. The study importantly concludes that: “These results suggest that peer influence has little or no effect on the tendency toward heterosexual or homosexual attraction in teens, and that sexual orientation is not transmitted via social networks” (Brakefield, 2014).

Although it sounds like stating the obvious, studies such as this show that young people can be friends with LGBTI youngsters without fearing (or their parents fearing) that they will ‘catch’ same-sex attraction from their friends. Such ‘transmission’ of sexual orientation simply does not happen.

Additionally, initial studies have not shown that growing up in a gay family increases the likelihood of same-sex orientation among the children of lesbian or gay parents. Such studies suggest that same-sex parents are no more likely to ‘produce’ homosexual children than are heterosexual parents (Bailey *et al.*, 1995; Gartrell *et al.*, 2011; Golombok

and Tasker, 1996), although, not surprisingly, some evidence does show that children that are raised by same-sex parents are more open-minded about sexual mores in societies, and this possibly extends to their sexual behaviour (Drescher, 2014).

More and more countries allow LGBTI persons to raise biological or adopted children. Studies have not shown any ill effects on the children brought up in these families (Beer and Marnell, 2013). A systemic review in 2006 concluded:

“Despite considerable variation in the quality of their samples, research design, measurement methods, and data analysis techniques, the findings to date have been remarkably consistent. Empirical studies comparing children raised by sexual minority parents with those raised by otherwise comparable heterosexual parents have not found reliable disparities in mental health or social adjustment. Differences have not been found in parenting ability between lesbian mothers and heterosexual mothers. Studies examining gay fathers are fewer in number but do not show that gay men are any less fit or able as parents than heterosexual men” (Herek, 2006).

As the body of research has matured and grown, reviewers have more clearly indicated that few differences have been found and, where there are differences between families, these are mostly positive (Drescher, 2014; Perrin *et al.*, 2013; Short *et al.*, 2007).

The ‘social contagion’ notions espoused by proponents of new laws have no basis in reality: such contagion simply does not happen. There are no plausible sociological or psychological mechanisms through which individuals could acquire same-sex orientation and no empirical evidence for it happening. Those making and discussing laws that further criminalise same-sex orientations and activities using the justification of ‘protecting society’ have no evidence to support this justification.

The panel could find no evidence that sexual orientation can be acquired through contact with LGBTI persons. Instead, the panel found substantial evidence that tolerance of same-sex orientation not only benefited LGBTI persons but impacted positively on public health, civil society and long-term economic growth. Peer pressure, although a powerful influencer of young people’s behaviour, has not been shown to influence same-sex activity or the development of same-sex sexual or bisexual orientations.

5. What Evidence is there that Any Form of Therapy or 'Treatment' can Change Sexual Orientation?

Conversion therapy or sexual orientation change efforts (SOCE) that seek to alter sexual orientation has a controversial and chequered history (Beckstead, 2012; Drescher, 1998; Grace, 2008; IOM, 2011). For decades, dangerous physical methods, such as electroshock treatment and chemical castration, were used in some countries to 'cure' homosexuality. These were often forms of punishment (APA, 2009; Beckstead, 2012). Since the 1960s, therapeutic methods of various kinds have come to the fore, and there is now considerable evidence about their impact and assessment of their efficacy or lack thereof (APA, 2009).

SOCE/conversion therapy assumes that either same-sex orientation is a malady that needs to be treated, or that some people want to change their orientation, and should thus be able to seek 'treatment' that will allow such changes (Beckstead, 2012; Haldeman, 2002). The notion that there is something 'wrong' with same-sex orientation in a scientific sense has been debunked and discredited for at least the last 50 years. From the 1950s onwards, landmark studies (funded by the National Institute of Mental Health in the USA, and led by psychologist Evelyn Hooker) directly tested the assumption that homosexuality was inherently linked with psychopathology (IOM, 2011). Based on her data, Hooker (1957) concluded that homosexuality is not inherently associated with psychopathology (Kimmel and Garnets, 2003). She also concluded that it should not even be regarded as a clinical entity, a conclusion that has received extensive support from subsequent empirical research over the next 50 years (Floyd and Szymanski, 2007; Kimmel and Garnets, 2003).

Subsequent research, eventually numbering hundreds of studies, has found no scientific basis for considering homosexuality a 'disorder' or an 'abnormality' (Haldeman, 2002; IOM, 2011). Large numbers of empirical studies have confirmed the core findings of this early research. The view that there is no psychopathology associated with same-sex attraction has become the consensus position of mainstream mental health professionals (and their organising bodies) in well over 100 countries across the world. Since the 1970s, dozens of national and international bodies, and in countries as diverse as Argentina, Uruguay, Germany, Russia, South Africa, Vietnam, Hong Kong Philippines, Denmark, Brazil, France, New Zealand, the USA and UK confirmed that same-sex or bisexual orientation is a normal part of human sexual variety and that same-sex orientation does not connote any psychological impairment nor any inability in social or work life nor any threat to other lifestyles or persons (Nel, 2014).

Furthermore, international bodies, including the WHO, have declared: "In none of its individual manifestations does homosexuality constitute a disorder or an illness and therefore it requires no cure" (PAHO, 2009). In 2014, a WHO working group called for the scrapping of so-called "homosexuality-related psychological disorders" in the work of clinicians. This is because there are still five such 'disorders', mostly relating to depression and other mood disorders in LGBTI people, that remain in the current edition of the International Classification of Diseases (ICD)(PAHO, 2009). The WHO working group has argued that there is no longer any empirical basis for understanding these as distinctive conditions,

related specifically and causally to same-sex orientation or bisexuality. The working group concluded: "It is not justifiable from a clinical, public health or research perspective for a diagnostic classification to be based on sexual orientation." The group has recommended that "these categories be deleted entirely" from future editions of the ICD (Cochran and Drescher, 2014).

Despite the evidence from a preponderance of peer-reviewed studies that homosexuality 'requires no cure', and is not something that is easily amenable to change, some groups and individual therapists, however, continue to offer 'conversion' or 'reparative therapy' (Beckstead, 2012). Conservative groups have always tried to portray the higher prevalence of some psychological problems among LGBTI individuals in many countries as 'proof' that same-sex orientation is somehow a mental disorder (Whitehead, 2009). There is no longer any evidence regarded as credible by scientists to substantiate such a claim. On the contrary, there is substantial evidence that most mental health issues (and physical health issues) of LGBTI people stem directly from the prejudice faced by LGBTI people in everyday life. This includes insults, bullying, rejection by family, and economic discrimination. These stigmatising and exclusionary experiences are very stressful for those who face them, and are particularly damaging for young people in the process of discovering their sexual orientation (Denton, 2012; Goldbach *et al.*, 2014; Pascoe and Smart Richman, 2009).

Understanding this prejudice as the root cause of most mental and physical health issues within LGBTI communities (and for others who might face discrimination, whether it be ethnic, xenophobic or racial) has led to the development of the 'minority stress model' (Denton, 2012; IOM, 2011). This model suggests that ostracisation and stigma do not produce 'ordinary' stress but create a chronic, deeply felt state of anxiety. A recent study by the Institute of Medicine (IOM) validated, after a broad analysis of the academic literature, the minority stress model. The study found research now demonstrates convincingly that "the higher prevalence of anxiety, depression, and substance use found among LGB as compared with heterosexual populations (is attributable) to the additive stress resulting from nonconformity with prevailing sexual orientation and gender norms (IOM, 2011).

In addition, two recent meta-analytic reviews, which drew on dozens of studies, have confirmed that social stress – caused by discrimination – substantially explains health disparities between population groups (Pascoe and Smart Richman, 2009; Schmitt *et al.*, 2014). A 2008 study entitled *Perceived Discrimination and Health: a Meta-analytic Review* concludes: "perceived discrimination has a significant negative effect on both mental and physical health. Perceived discrimination also produces significantly heightened stress responses and is related to participation in unhealthy and nonparticipation in healthy behaviours. These findings suggest potential pathways linking perceived discrimination to negative health outcomes" (Pascoe and Smart Richman, 2009).

A 2014 meta-review of a variety of different kinds of studies, entitled, *The Consequences of Perceived Discrimination for Psychological Well-being: A Meta-analytic Review* also confirmed these outcomes: "Overall, results support the idea that the pervasiveness of perceived discrimination is fundamental to its harmful effects on psychological well-being" (Schmitt *et al.*, 2014).

Despite more than 100 national psychological associations no longer viewing same-sex orientation as a malady of any kind, there are some organisations and therapists that still offer variants of SOCE. Because of discrimination as well as rejection by family or church, or negative experiences at school, some people with same-sex orientation attempt such therapy or are compelled to attempt it by their families.

A notable development, however, is that although some organisations continue to offer SOCE 'treatments', many prominent organisations have abandoned their efforts, and some have even disbanded in recognition of the overwhelming evidence (including their own evidence) that sexual orientations are not particularly malleable nor easily 'converted'. Exodus International, the largest coordinating body of so-called 'reparative' therapy globally, which represented 270 conversion organisations across 17 countries, took the decision to close down in 2014, partly in recognition of very low 'success rates' of the 'conversion therapy' offered by many of its affiliates. Alan Chambers, who was then President of Exodus International, said, on announcing the dissolution of Exodus International: "I am sorry for the pain and hurt many of you have experienced. I am sorry that some of you spent years working through the shame and guilt you felt when your attractions didn't change. I am sorry we promoted sexual orientation change efforts and reparative theories about sexual orientation that stigmatised parents" (Snow, 2013).

A systemic meta-review by the American Psychological Association (APA) of peer-reviewed scientific articles on conversion theory found no evidence that such SOCE are effective, but multiple studies have shown that these therapies cause harm, particularly to children and teenagers (APA, 2009; IOM, 2011). Negative consequences of conversion therapy include: measurably increased levels of self-hatred, depression, thoughts of suicide, long-term sexual dysfunction, increased anxiety or aggression, decreased self-esteem, social isolation, loss of family and spirituality⁸. The Pan-American Health Organisation (PAHO) (the regional office for the WHO), when examining these treatments, concluded, "there is no scientific evidence for the effectiveness of sexual re-orientation efforts. While some persons manage to limit the expression of their sexual orientation in terms of conduct, the orientation itself generally appears as an integral personal characteristic that cannot be changed. At the same time, testimonies abound about harms to mental and physical health resulting from the repression of a person's sexual orientation" (PAHO, 2009).

Globally, the danger of negative impacts on those undergoing SOCE is increasingly recognised as conflicting with the first principle of medical ethics: to do no harm. A recent meta-review stressed this result: "our best efforts may not be in trying to change possibly immutable aspects of sexuality but in trying to reduce the misunderstanding, discrimination, and hostility that exists within non-heterosexuals and their social situations" (Beckstead, 2012).

This more affirmative stance towards the diversity of human sexualities and the range of sexual orientations has become the approach of choice for psychological associations

⁸ Some studies suggest that some variants of SOCE do show not so much 'conversions' but some diminishment of sexual 'urges', reduced libido, and sexual activity (APA, 2009). A measure of increase, in some individuals, of a commitment to celibacy has also been documented. That a small number of men and women claim 'complete' sexual orientation 'conversion' does not prove these methods can 'work for the majority of even 'highly motivated' participants (APA, 2009).

in more than one hundred countries (APA, 2009; Haldeman, 2002; Hoffman and Knight, 2007; Nel, 2014; Victor *et al.*, 2014).

The panel concludes that there is no evidence that same-sex orientation can be changed through 'conversion' or 'reparative' therapy. Given the documented dangers of such therapy and its direct conflict with medical ethics, these interventions are contra-indicated. Further, recognising the ineffectiveness of conversion therapy, we recommend the wide dissemination of this information especially to health professionals across Africa and beyond.

Health professionals and their associations should adopt affirmative stances towards LGBTI individuals. Psychosocial interventions and support particularly for adolescents are recommended to facilitate the adjustment of same-sex-orientated persons to the stress, stigma, shame and discrimination they may face and to affirm their choices and orientations.

The panel recommends that further research be conducted in these areas:

1. Evaluation of the effectiveness of interventions for the support of same-sex-orientated individuals.
2. Development and testing of interventions for health professionals that facilitate safe access to health care for same-sex-orientated persons.

6. What Evidence is there that Same-Sex Orientations Pose a Threat of Harm to Individuals, Communities, or Vulnerable Populations such as Children?

As outlined in previous sections, the idea that homosexuality can be 'promoted' and 'new' homosexuals can be created or young people can be 'recruited' into homosexuality is not borne out by any credible empirical studies in any scientific field. There are usually two parts to this argument: first, that people 'become gay' because of early exposure to LGBT people (or through sexual contact with LGBT individuals), and, second, as this is the main way to 'become gay', LGBT persons organise, individually, or through some kind of conspiracy, 'recruitment drives' to 'lure' children into homosexuality. While both of these views equate homosexuality with paedophilia in different ways, this section focuses chiefly on the charge that LGBTI persons pose a threat to individuals and communities because they sexually abuse children and young people. This charge, like the social contagion claim, has been a key part of the narrative driving the introduction of laws prohibiting the 'promotion' or 'aiding and abetting' of homosexuality in a number of African countries.

There is no scientific evidence to support the view that LGBTI persons abuse children and young people. The origins of 'recruitment' into homosexuality as a set of ideas seem to stem from long-discredited (USA-based) research that high proportions of LGBTI people were sexually abused or in other ways traumatised in childhood (IOM, 2011; SMUG, 2014). While it is true that, on average, LGBTI people have experienced more stressful childhood experiences (SCE) (Schneeberger *et al.*, 2014), research shows that this is either unrelated to their sexual orientation, or may have been induced by early signs of gender non-conformity or early signs of 'difference'. In other words, the reason there are higher rates of reported SCE among LGBTI adults, when recalling childhood experience, is that these children faced early rejection, ridicule, stigmatisation by relatives and others in their social worlds (Schneeberger *et al.*, 2014).

Meta-studies show that even sexual assault, which some research shows occurs more frequently in the life histories of LGBTI men and women, is most often a consequence and a not a cause of sexual orientation (Lehavot *et al.*, 2012; Roberts *et al.*, 2013; Walker *et al.*, 2012; Wilson and Widom, 2010). The so-called 'corrective rapes' of black lesbians in contemporary South Africa illustrate that such violence is part of a discriminatory response to their sexual and gender non-conformity; it punishes their sexuality and has no influence on its constitution (Bennett *et al.*, 2010; Rothman *et al.*, 2014).

Causal links between the sexual abuse of children and adolescents and the development of their sexual orientation have been examined from multiple perspectives in a number of different fields and disproved. One of the largest meta-analytic studies found:

"Findings from this investigation provide tentative support for a relationship between childhood sexual abuse and same-sex sexual relationships, but this relationship appeared only for men... However, the data available in this study did not provide information about when same-sex sexual attractions first emerged and whether this predated or followed the sexual abuse. We also do not know what characteristics associated with the abuse (e.g., frequency, intensity, duration) might account for the relationship with adult sexual partnerships... While this

prospective evidence linking childhood sexual abuse to same-sex sexual partnerships in men suggests an increased likelihood, these findings do not suggest that same-sex sexual orientation is caused by child abuse" (Wilson and Widom, 2010).

Many countries across the globe have high rates of sexual assault, with young girls and adolescent women the main targets of such assaults, although a significant number of boys are also assaulted. Most of the perpetrators are heterosexual men. In the USA, for example, between 20% and 25% of girls, and 5% of boys have experienced some form of sexual abuse (Black, 2010). In more than 75% of these cases, those victimised knew their attacker and in many cases, these attackers were male relatives (Black, 2010).

Furthermore, exposure to sexual activity in childhood does not necessarily have an impact on adult sexual orientations. Prominent sexuality researcher Dr Qazi Rahman argued in 2005 that, "In humans, the extent of childhood or adolescent homosexual versus heterosexual activity does not appear to relate to eventual adult sexual orientation. Documented evidence regarding the situational or cultural 'initiation' of juvenile males into extensive same-sex experience (for example, in single-sex public schools in Britain or the obligatory homosexual activity required of young males in the Sambia tribe of New Guinea) does not result in elevated homosexuality in adulthood" (citing Bailey, 2003; Wellings *et al.*, 1994) (Rahman, 2005).

African countries also report very high levels of violence against women and girls (and against boys); some countries, such as South Africa, have some of the highest rates in the world (Barth *et al.*, 2013; Delano, 1998; Pereda *et al.*, 2009a, 2009b); but this does not correspond or translate into higher than average rates of same-sex sexual orientation.

Violence against women and children is devastating for the individual and the communities in which it takes place. It impacts even on life expectancy: a World Bank report suggests that women in developing countries lose, on average, 5% of their lifespans because of domestic abuse and rape (Heise *et al.*, 1994). From this evidence, it is clear that the number of adults who were sexually assaulted as children or young adults exceeds the number of people with same-sex orientation by many degrees of magnitude, in all countries studied (Stoltenborgh *et al.*, 2011). There is no proven connection, causal or otherwise, between same-sex orientation and child abuse (Barth *et al.*, 2013).

There are, however, well-studied and 'proven' correlations between childhood sexual abuse and other non-normative behaviour. For example, a study reports that "compared to those with no history of sexual abuse, young males who were sexually abused were five times more likely to cause teen pregnancy, three times more likely to have multiple sexual partners and two times more likely to have unprotected sex – in the USA" (Homma *et al.*, 2012). Similar correlations to same-sex orientation have not been found, or where they have been suggested, subsequent studies have not stood up to academic scrutiny (Roberts *et al.*, 2013).

Globally, the prevalence of sexual abuse of children has been estimated at about 20% of all children, when studies from 22 different countries were examined (Barth *et al.*, 2013). In other words, across the world, one in five children on average have been subjected to some form of sexual abuse while growing up (Barth *et al.*, 2013; Stoltenborgh *et al.*, 2011). The rate for African countries is estimated to be higher than this 'global' average, at over 30% (Mugambi and Morara, 2012; Stoltenborgh *et al.*, 2011). This African average is partly amplified by high rates of sexual abuse of children in South Africa. But even without South Africa's contribution to these continental average rates, the number of children who are sexually abused in Africa is exceptionally high (Lalor, 2004; Mugambi and Morara, 2012).

A key point that all studies emphasises: **almost all abusers of children are heterosexual men**. Many of the abusers are male relatives of these children. No evidence in any study supports the idea that men with same-sex attraction, or MSM, are responsible for the high rates of childhood sexual abuse in African countries or in other countries (Barth *et al.*, 2013; Roberts *et al.*, 2013; Stoltenborgh *et al.*, 2011). Furthermore, in many of the countries that are invested in passing anti-'homosexual' legislation, the epidemic of sexual violence against girls and women of all ages has not been adequately addressed.

Paedophilia is a real condition and paedophiles are a real danger to children (Amnesty International, 2013; Nell and Shapiro, 2013; Seto, 2012; SMUG, 2014). However, a number of studies have shown that the vast majority of paedophiles do not have an 'adult' sexual orientation. Paedophiles are usually attracted only to children, often regardless of the child's biological sex (Goode, 2009; Seto, 2012; Terry, 2011). There are no credible studies showing that people with same-sex orientation are more likely to abuse children than heterosexual offenders (Barth *et al.*, 2013; Stoltenborgh *et al.*, 2011).

The panel concludes that there is no evidence linking LGB sexual orientation or transgender and intersex people with the 'recruitment' of young people through childhood sexual abuse.

In Africa, given the high prevalence of childhood sexual abuse, the protection of all children should be paramount. As this has no correlation with sexual orientation, it should not be used to justify further marginalisation of LGBTI persons.

7. What are the Public Health Consequences of Criminalising Same-Sex Sexual Orientations, and Attempting to Regulate the Behaviour/Relationships Related to Some Sexualities Orientations?

“...research has found significant negative effects of exclusion and other forms of discrimination based on sexual orientation. Sexual orientation-based discrimination presents the same risks of psychological and other harms as discrimination on the basis of race, religion or gender... criminalisation on the basis of sexual orientation has been found to exacerbate social discrimination and, in particular, leads service providers to discount, ignore and neglect the needs of LGBT people, thus compounding their vulnerability” (Dramé *et al.*, 2013).

The paradox and tragedy of laws that criminalise same-sex orientation and behaviour is while they are in part justified by their proponents as measures to improve public health, such laws have an immediate and destructive impact on public health (Semugoma *et al.*, 2012). Not only do such laws and the climate they create worsen the health of LGBTI populations, their impact carries through to the general population's health as well. This is partly because many men who have sex with men, for example, do not necessarily see themselves as 'homosexual' and continue to have heterosexual relationships. Some men have sex with both men and women because they are bisexual, or, even if they are exclusively same-sex orientated, they may choose to do so because repressive climates require them to create a 'cover' – often through marriage to women – to mask their same-sex orientations (Beyrer *et al.*, 2010).

While some proponents suggest that new laws might reduce or curb same-sex orientation and same-sex activity, there is no evidence that this has been the case anywhere where such laws have been introduced or reinforced. Clampdowns, repression and new laws bring about only negative consequences for LGBTI communities and for society more generally (Beyrer, 2014). The opposite is also true: countries that reduce repression of LGBTI persons and communities and put in place programmes to reduce stigma against same-sex orientations see swift and substantial gains in both LGBTI health and the health of general populations.⁹

LGBTI communities fare poorly on most measures of health, from physical well-being, rates of STI prevalence, rates of mental illness and risk of suicide. A large number of studies have confirmed this for most countries in the world, and certainly for many countries in Africa (Goldbach *et al.*, 2014; Smith *et al.*, 2009). As outlined in Section 3 and 4, there is substantial evidence that such health disparities are not caused by individual sexual orientation *per se*, but arise because of the inability of LGBTI populations to live openly, access health information and freely access health and other state facilities (Baral *et al.*,

⁹ For example, an article in the *New England Journal of Medicine* suggests that data from two states that have allowed same-sex marriage, Massachusetts and California, indicate that same-sex marriage led to fewer mental health-care visits and expenditures for gay men and that it reduced psychological distress among lesbian, gay, and bisexual adults in legally recognised same-sex relationship (Gonzales, G). See also Kiecolt-Glaser and Newton, 2001; Johnson *et al.*, 2000.

2013; Berlan *et al.*, 2010; Johns *et al.*, 2014; Ryan *et al.*, 2010; Schneeberger *et al.*, 2014; Semugoma *et al.*, 2012a; Semugoma *et al.*, 2012b).

Moreover, in many African countries, LGBTI populations often suffer socio-economic discrimination of various kinds and are affected by other factors that impact their life choices and opportunities. These challenges are particularly acute for adolescents and young adults, who often face intense pressure to conform to gender roles and identities in multiple domains – in school, at home, in faith structures and from peers. The key reasons for these poor outcomes are stress caused by high levels of social alienation, potential and substantive rejection by family and community, bullying and violence, as well as state-supported violence and potential incarceration. These factors interact with a lack of health services or fear of using health services, lack of educational material, and absence of any of the 'usual' channels of community support that are open to heterosexuals (Berlan *et al.*, 2010; Burton *et al.*, 2013; Poteat *et al.*, 2014).

The central tenet of the minority stress model, as outlined previously, is that rejection, alienation, absence of social support, bullying and violence perniciously affect the self-image, educational attainment, economic integration and sense of belonging for LGBTI individuals and communities. This causes a myriad of mental health disorders, including depression. This stress is then often 'self-medicated' by those who experience it through substance use and abuse, including high prevalence of alcohol abuse (Litt and Lewis, 2013; Talley *et al.*, 2014).

High numbers of young LGBTI people seek the support of their families and do not find it: many are 'disowned' or otherwise alienated from their families. Often this happens while they are still teenagers, either because of gender non-conforming behaviour or because of some expression of same-sex orientation. The results of familial rejection are particularly severe. One USA-based study shows adolescents who are rejected by their families are:

- 8.4 times more likely to report suicide;
- 5.9 times more likely to report depression;
- 3.4 times more likely to report use of illegal drugs;
- 3.4 times more likely to report engagement in unprotected sexual intercourse (Ryan, 2009; Ryan *et al.*, 2010).

In addition to family alienation, LGBTI people are subject to bullying at rates much higher than the general population. For example, sexual minority youth, or teens that identify themselves as gay, lesbian or bisexual, are, on average, bullied three times more often than heterosexuals (Berlan *et al.*, 2010; Burton *et al.*, 2013). A number of studies have shown that in the USA, even with relatively higher levels of acceptance of LGBTI rights and individuals, more than 80% of LGBTI individuals experience verbal harassment at school; about 40% experience 'milder' forms of physical bullying such as being pushed around (Berlan *et al.*, 2010; Nel and Judge, 2008); and one-fifth report more serious physical assault because of their gender expression (Burton *et al.*, 2013). Very few felt able to report the assaults and those who did often reported not getting any supportive response to their complaints (Kosciw *et al.*, 2011; Olsen *et al.*, 2014).

Most LGBTI populations in Africa also face the threat of physical violence and actual violence at much higher levels of frequency compared to heterosexual populations. It

should be stressed that this is often not just any kind of violence: a recent UN report asserts: "Violence against LGBT persons tends to be especially vicious compared to other bias-motivated crimes involving a high degree of cruelty and brutality" (United Nations High Commissioner for Human Rights, 2010). As with health services, LGBTI individuals often fear reporting violence to the police (Nel and Breen, 2013).

An important recent overview study drew the following conclusions about the violence that LGBT young people endure:

"A substantial body of literature suggests that LGBT students face disturbingly high rates of verbal and physical harassment that such students lack a sense of safety at school, and that familial rejection often deprives LGBT adolescents of the type of emotional support that could mitigate the harmful effects of disruptive environmental stressors. As a result, the potential consequences of persistent in-school bullying for LGBT students extend beyond the external, physical bruising that those students endure – unrelenting acts of bullying may also impair the development of non-cognitive skills by LGBT students and limit their long-term educational achievement and professional success" (Lee, 2014).

Minority stress is neither confined to growing up, nor just to family rejection and various forms of bullying and physical violence. For example, 23% of MSM in Africa also report having been arrested for 'homosexual behaviour' at least once in their lives compared to just 2% of MSM living in North American countries (Cloete *et al.*, 2014). On average, gay men in sub-Saharan Africa are arrested at double the rate of Middle Eastern and North African countries.

In this context, studies across many African countries have identified a 'dual stigma' of both being HIV positive and being attracted to men for many MSM (although not all MSM claim same-sex orientation). Some studies have identified fear of being blackmailed associated with disclosure of sexual orientation to a health-care worker (Fay *et al.*, 2011). For example, a recent study found that about 20% of MSM in Malawi, Namibia and Botswana were afraid to seek health services, and a similar number were even afraid to walk in their communities (for example, almost 30% of MSM reported feeling this in Botswana) (Baral *et al.*, 2009). Hesitance to seek health care as a result of stigmatisation is exacerbated by the low allocation of resources to educational material or services for LGBTI populations (Reddy *et al.*, 2009). For example, some countries devote less than 0.1% of their health or external aid budgets for HIV prevention dedicated to reaching MSM communities. This is despite MSM generating, in some countries, about 10% of new infections per annum (JHSPH amfAR, 2012).

MSM tend to have much higher rates of HIV infections and other STI compared to the general male populations. For example, HIV prevalence among MSM ranged from about 12.4% in Namibia to 21.4% in Malawi, averaging 17.4% for a set of African countries studied (Beyrer *et al.*, 2010), whereas rates for men in the general population ranged between 4% and 7%. These much higher rates of HIV and STI prevalence are caused by a number of interrelated reasons including the high rates of social stigmatisation and exclusion of MSM in most countries in Africa¹⁰.

¹⁰ In many countries, disapproval rates for same-sex acts and relationships exceed 90% of surveyed adults (Bell, 2014). A nationally representative study conducted in 2007 in South Africa, indicates that 88% of the South Africa population believed that it is 'always' or 'almost always' wrong for two adults of the same sex to have sexual relations (Roberts and Reddy, 2008).

Consequently, studies show that MSM often have lower levels of knowledge about how to protect themselves and guard their health (Fay *et al.*, 2011; Nel *et al.*, 2013). In most countries in Africa, almost all educational material on HIV and AIDS is directed at heterosexuals. One African study found that 55% of MSM believed that prevention messages about heterosexual (vaginal sex) did not apply to anal sex. Three quarters of MSM in the same study believed anal sex was safer than vaginal sex (Cáceres *et al.*, 2008; Thurston *et al.*, 2014).

As outlined earlier, LGBTI may develop low levels of social capital, i.e. low access to networks of contacts that, by contrast, provide most heterosexuals with opportunities for employment, social status and assistance with the challenges of life. There are strong connections between low levels of social capital and higher risk of HIV infection (Frumence *et al.*, 2010; Gregson *et al.*, 2011). Lower uptake of health services in turn helps to drive the general population-level epidemic of STIs, including HIV. One study concluded that “fear of seeking health care was significantly associated with lower rates of condom usage during anal sex among MSM. These structural barriers limit the ability to implement biomedical interventions, further highlighting the need for interventions for MSM to simultaneously address multiple levels of HIV risk, including at the level of the individual, community and government” (Baral *et al.*, 2011).

Another study concluded: “The end result is that men who engage in consensual sexual activities, and men who are sexually assaulted, are denied the opportunity to access vital HIV-related health services. Such missed opportunities to manage HIV and other sexually transmitted infections in these vulnerable populations also hold major public health implications for female sexual partners of bisexual MSM and male-on-male sexual assault survivors” (Singh, 2013).

The impact of minority stress on LGBTI individuals is severe but there are also substantial health consequences for national populations. Criminalisation and encouraging more repressive climates increase stigma and legitimises violence. A recent review deduces that “the odds of HIV infection in MSM populations relative to general populations are nearly twice as high in African and Caribbean countries that criminalise same-sex practices than in those countries where such practices are legal (Baral *et al.*, 2014). In the words of one report:

“By driving homosexuality deep into the closet, the laws may interfere with the fight against HIV/AIDS. Uganda was once an AIDS success story, but that is now changing. The portion of the population that identifies as gay is tiny, but there are many more men in Uganda – and across Africa – who have sex with other men but do not identify as gay or bisexual. These men, many of them married, are now less likely to be honest with health-care providers and less likely to get the education, free condoms, and HIV testing they need. They are also more likely to contract the virus and spread it to their female and male partners. In Senegal, after several HIV prevention workers were imprisoned in 2008, the number of men seeking sexual health services in that area dropped sharply (“Africa’s anti-gay crackdown”, 2014).

Many recent studies in the modes of transmission of HIV and other STI in various countries in Africa confirm that majorities of MSM also have relationships with women (Baral *et al.*,

2014; Dramé *et al.*, 2013; Park *et al.*, 2013; Poteat *et al.*, 2011; Semugoma *et al.*, 2012; Strömdahl *et al.*, 2012). For example, in Malawi, a study suggests that “The family and social pressure on all men to marry and father children is intense in Malawi and likely plays a major role in the high rates of marriage among these MSM” (Fay *et al.*, 2011). If further studies confirm this finding, it might suggest an African pattern of active bisexual partnerships and bisexual concurrency as a normative response to the contrasting tensions of same-sex desire and social imperatives to marry women. There is an urgent need for HIV programmes that are for the whole population, but which simultaneously target higher risk groups such as MSM.

The panel concludes: There is clear evidence that more repressive environments increase minority stress and impact negatively on LGBTI health. This has a direct impact on the general population’s health, particularly in terms of HIV and AIDS, TB and other STI reduction campaigns. There are no known positive impacts on public health because criminalisation cannot stop people from feeling same-sex attractions and expressing same-sex orientations. It merely makes it harder and more stressful to be same-sex orientated and makes LGBTI individuals less likely to access health care and more likely to suffer ill-health. This causes reductions in broader social cohesion and broader social stress, as well as enhancing the transmission of infectious diseases, including HIV.

The panel recommends: To promote human welfare, we must advance two important goals: well-being and social justice. Recognising the harm of bullying and other exclusionary behaviours and the damage caused by physical violence and fear in LGBTI communities, scientists in Africa should engage more actively in research to reduce stigma, and work further to promote access to health care and educational materials for LGBTI communities.

8. What Research can be Conducted to Address the Most Critical Unanswered Scientific Research Questions Regarding the Diversity of Human Sexualities and Sexual Orientations in Africa?

Based on the findings reported in the previous sections, suggestions are made for research foci pertinent to Africa.

- i. Conduct large-scale pan-African research studies looking at the prevalence, genetic patterns and familial association of gender and sexual diversity, including twin, family and pedigree studies.
- ii. Evaluate the previously reported association of high fecundity in maternal relatives (aunts and grandmothers) of homosexual men in local populations.
- iii. Assess sexual orientation in persons with gender dysphoria undergoing hormone therapy, both pre- and post-transition.
- iv. Ascertain the effect of endocrine disruptors on physical sex, gender identity and sexual orientation, e.g. DDT, which is implicated in the high incidence of intersex persons in South Africa's Limpopo province.
- v. Examine recommendations for further research in the IOM report, *The Health of Lesbian, Gay, Bisexual, and Transgender People: Building a Foundation for Better Understanding* (IOM, 2011) on the health of LGBT and adopt/validate the research questions on sexual orientation for general population use.
- vi. Conduct research and make recommendations for policy that leads to the introduction of a new category for birth certificate registration to cater for neonates.
- vii. Study the inter-relationship between oppressors and the oppressed when looking at the minority stress model.
- viii. Conduct ethnographic research that documents the linguistic and cultural distinctiveness of sexual and gender minorities in various locations on the continent to enrich the understanding of these minority cultures for both scientific and non-scientific communities.
- ix. Study concepts like 'moral panic', specifically the description, evolution and consequence of such social processes.
- x. Undertake studies on the impact of circumcision on the sexual lives of men with same-sex practices.

9. Conclusion

This report examined the evidence that would provide answers to a set of critical questions related to gender diversity and human sexuality. The panel investigated the role or interplay of biology and environment in determining gender diversity and human sexuality; it assessed the evidence on whether sexual orientation could be altered through therapy; whether the claims that same-sex orientations posed a threat to others were authentic; and the public health consequences of criminalising same-sex sexual orientations. Finally, the panel identified the most critical unanswered research questions that could shape future research.

It is evident that contemporary science has evolved to see sexuality beyond a simple binary opposition of hetero/homosexual and normal/abnormal. Contemporary science appropriately describes the range of human variation, very little of which can justifiably be termed abnormal. As variation in sexual identities and orientations has always been part of a normal society, there is no justification for attempts to 'eliminate' LGBTI from society. Efforts should rather be focused on countering the belief systems that create hostile and even violent environments for those who are 'othered' within 'heteronormative' societies.

9.1 Role of Biological Factors

There is substantial biological evidence for the diversity of human sexualities and for sexual orientations in particular. Studies have found significant linkage between male sexual orientation and regions of the X chromosome. This particular region on the X chromosome is also associated with other elements of sexual development. These findings, initially published in 1993 and confirmed in 2014, directly associate a particular trait (same-sex orientation) to genetic material for at least some same-sex-attracted men. The mechanisms through which gene expression impacts on sexual orientation remain to be determined. Although less well studied, there is also considerable evidence for a biological component for same-sex orientation in women.

Family and twin studies, including recent large-scale and methodologically robust research, demonstrate familial patterns with regard to same-sex orientation, particularly in men. In addition, pedigree studies, tracing thousands of female relatives of heterosexual and homosexual men, found convincing evidence that female relatives of homosexual men have increased fecundity, i.e., on average, they bear more children compared to female relatives of heterosexual men. This may provide a key to the major evolutionary paradox of reduced fecundity because of homosexual men. These pedigrees, moreover, confirm the X-linked pattern initially observed in the early 1990s.

A genetic component to same-sex orientation, at least in men (with suggestive evidence for women), is consistent and has been replicated in different studies. There has been a steady accumulation of evidence and there are coherent, biological plausible theories, and in particular the neurohormonal theory that connect various approaches to the research of sexualities.

Socio-behavioural research also clarifies the high percentage of heterosexual and homosexual men who feel that they have/had no choice in terms of their sexual attraction.

The majority of women who experience same-sex attraction express similar views in their lack of choice in their sexual orientation, although there is evidence for much greater fluidity in sexual orientation among women.

9.2 Role of Environmental Factors

There is a lack of evidence to support the idea that the way parents bring up their children, or the relationships formed between children and parents, impacts on sexual orientation. While family environment may shape other elements of sexuality and the way sexuality is expressed, and while construction of gender and sexual identities have social and cultural components, orientation is not directly correlated to family upbringing.

Hence, 'blaming' parents for their children's orientation (and stigmatising those orientations, and subjecting them to criminal sanction) cannot be supported by current global scientific consensus on the etiology, development or expression of non-heterosexual orientations.

9.3 Acquisition of Sexual Orientation through Social Contagion

No evidence could be found to support the notion that sexual orientation can be acquired through contact with LGBTI persons. Instead, there was substantial evidence to show that tolerance of same-sex orientation not only benefited LGBTI persons but impacted positively on public health, civil society and long-term economic growth. Peer pressure, although a powerful influencer of young people's behaviour, has not been shown to influence same-sex activity or the development of same-sex sexual or bisexual orientations.

9.4 Change of Same-Sex Orientation through Therapy

There is no evidence that same-sex orientation can be changed through 'conversion' or 'reparative' therapy. Given the documented dangers of such therapy and its direct conflict with medical ethics, these interventions are contra-indicated.

Recognising the ineffectiveness of conversion therapy, the panel recommends the wide dissemination of this information especially to health professionals across Africa and beyond.

Health professionals and their associations should adopt affirmative stances towards LGBTI individuals. Psychosocial interventions and support particularly for adolescents are recommended to facilitate the adjustment of same-sex-orientated persons to the stress, stigma, shame and discrimination they may face and to affirm their choices and orientations.

9.5 Threat Posed by Same-Sex Individuals

There is no evidence linking LGB sexual orientation or transgender and intersex people with the 'recruitment' of young people through childhood sexual abuse. In Africa, given the high prevalence of childhood sexual abuse, the protection of all children should be paramount. As this has no correlation with sexual orientation, it should not be used to justify further marginalisation of LGBTI persons.

9.6 Public Health Consequences of Criminalising Same-Sex Orientations:

There is clear evidence that more repressive environments increase minority stress and impact negatively on LGBTI health. This has a direct impact on the general population's health, particularly in terms of HIV and AIDS, TB and other STI reduction campaigns. There are no known positive impacts on public health because criminalisation cannot stop people from feeling same-sex attractions and expressing same-sex orientations. It merely makes it harder and more stressful to be same-sex orientated and makes LGBTI individuals less likely to access health care and more likely to suffer ill-health. This causes reductions in broader social cohesion and broader social stress, as well as enhancing the transmission of infectious diseases, including HIV.

To promote human welfare, we must advance two important goals: well-being and social justice. Recognising the harm of bullying and other exclusionary behaviours and the damage caused by physical violence and fear in LGBTI communities, scientists in Africa should engage more actively in research to reduce stigma, and work further to promote access to health care and educational materials for LGBTI communities.

References

ACHPR, 2014: Resolution on protection against violence and other human rights violations against persons on the basis of their real or imputed sexual orientation or gender identity. Retrieved from <http://www.achpr.org/sessions/55th/resolutions/275/>.

Amnesty International, 2013: Making love a crime. Criminalisation of same-sex conduct in sub-Saharan Africa, Index: AFR 01/001/2013 Retrieved from <https://www.amnesty.org/en/documents/AFR01/001/2013/en/>. Accessed January 2015.

APA, 2009: Report of the American Psychological Association task force on appropriate therapeutic responses to sexual orientation. American Psychological Association, Washington, DC.

Badgett, M., Nezhad, S., Waaldijk, K., and Rodgers, Y.M., 2014: The relationship between LGBT inclusion and economic development: An analysis of emerging economies. The William's Institute, UCLA School of Law, Los Angeles, CA.

Bailey, D. H., Ellingson, J. M. and Bailey, J. M., 2014: Genetic confounds in the study of sexual orientation: comment on Roberts, Glymour and Koenen (2014). *Archives of Sexual Behavior*, 43(8), 1675–7. doi:10.1007/s10508-014-0269-3.

Bailey, J. M. and Benishay, D. S., 1993: Familial aggregation of female sexual orientation. *The American Journal of Psychiatry*, 150(2), 272–277.

Bailey, J. M., Bobrow, D., Wolfe, M. and Mikach, S., 1995: Sexual orientation of adult sons of gay fathers. *Developmental Psychology*, 31(1), 124–129.

Bailey, J. M., Dunne, M. P. and Martin, N. G., 2000: Genetic and environmental influences on sexual orientation and its correlates in an Australian twin sample. *Journal of Personality and Social Psychology*, 78(3), 524–536.

Bailey, J. M. and Pillard, R. C., 1991: A genetic study of male sexual orientation. *Archives of General Psychiatry*, 48(12), 1089–1096. doi:10.1001/archpsyc.1991.01810360053008.

Bailey, J. M. and Pillard, R. C., 1995: Genetics of human sexual orientation. *Annual Review of Sex Research*, 6, 126–150.

Balthazart, J., 2012: *The Biology of Homosexuality*. Oxford University Press, UK.

Bao, A.M. and Swaab, D. F., 2011: Sexual differentiation of the human brain: relation to gender identity, sexual orientation and neuropsychiatric disorders. *Frontiers in Neuroendocrinology*, 32(2), 214–26. doi:10.1016/j.yfrne.2011.02.007.

Baral, S., Adams, D., Lebona, J., Kaibe, B., Letsie, P., Tshello, R. and Beyrer, C., 2011: A cross-sectional assessment of population demographics, HIV risks and human rights contexts among men who have sex with men in Lesotho. *Journal of the International AIDS Society*, 14(1), 14–36. doi:10.1186/1758-2652-14-36.

Baral, S. D., Grosso, A., Holland, C. and Papworth, E., 2014: The epidemiology of HIV among men who have sex with men in countries with generalised HIV epidemics. *Current Opinion in HIV and AIDS*, 9(2), 156–67. doi:10.1097/COH.000000000000037.

Baral, S., Holland, C. E., Shannon, K., Logie, C., Semugoma, P., Sithole, B. and Beyrer, C., 2014: Enhancing benefits or increasing harms: community responses for HIV among men who have sex with men, transgender women, female sex workers, and people who inject drugs. *Journal of Acquired Immune Deficiency Syndromes*, 66 Supp. 3: S319–28. doi:10.1097/QAI.0000000000000233.

Baral, S., Scheibe, A., Sullivan, P., Trapence, G., Lambert, A., Bekker, L.-G. and Beyrer, C., 2013: Assessing priorities for combination HIV prevention research for men who have sex with men (MSM) in Africa. *AIDS and Behavior*, 17 Supp. 1: S60–9. doi:10.1007/s10461-012-0202-5.

Baral, S., Trapence, G., Motimedi, F., Umar, E., Lipinge, S., Dausab, F. and Beyrer, C., 2009: HIV prevalence, risks for HIV infection, and human rights among men who have sex with men (MSM) in Malawi, Namibia, and Botswana. *PloS One*, 4(3), e4997. doi:10.1371/journal.pone.0004997.

Barth, J., Bermetz, L., Heim, E., Trelle, S. and Tonia, T., 2013: The current prevalence of child sexual abuse worldwide: A systematic review and meta-analysis. *International Journal of Public Health*, 58, 469–483. doi: 10.1007/s00038-012-0426-1.

BBC, 2000: Genetic link to sexual orientation. Retrieved January 17, 2015, from <http://news.bbc.co.uk/2/hi/health/1025276.stm>.

Beckstead, A. L., 2012: Can we change sexual orientation? *Archives of Sexual Behaviour*, 41 (1), 121–134. doi:10.1007/s10508-012-9922-x.

Beer, C. L. D. and Marnell, J., (Eds.) 2013: Home Affairs: Rethinking Lesbian, Gay, Bisexual and Transgender Families in Contemporary South Africa. Jacana Media, South Africa. Department of Home Affairs. Pretoria.

Bennett, J., Reddy, V. and Moletsane, R. M., 2010: The country we want to live in: Hate crimes and homophobia in the lives of black lesbian South Africans. *Journal of Health and Social Behavior*, 54, 1–4. doi:10.1177/0022146513491066.

Bergman, Å., Heindel, J., Jobling, S. and Kidd, K., 2013: State of the science of endocrine disrupting chemicals 2012: Summary for decision-makers. Retrieved from <http://apps.who.int/iris/handle/10665/78102>.

Berlan, E. D., Corliss, H. L., Field, A. E., Goodman, E. and Bryn Austin, S., 2010: Sexual orientation and bullying among adolescents in the Growing Up Today Study. *Journal of Adolescent Health*, 46(4), 366–371.

Beyrer, C., 2012: LGBT Africa: A social justice movement emerges in the era of HIV. SAHARA J: *Journal of Social Aspects of HIV/AIDS Research Alliance/ SAHARA*, Human Sciences Research Council, 9(3), 177–9. doi:10.1080/17290376.2012.743813.

Beyrer, C., 2014: Pushback: the current wave of anti-homosexuality laws and impacts on health. *PLoS Medicine*, 11(6), e1001658. doi:10.1371/journal.pmed.1001658.

Beyrer, C., Trapence, G., Motimedi, F., Umar, E., Lipinge, S., Dausab, F. and Baral, S., 2010: Bisexual concurrency, bisexual partnerships, and HIV among Southern African men who have sex with men. *Sexually Transmitted Infections*, 86(4), 323–7. doi:10.1136/sti.2009.040162.

Billy, J., Tanfer, K., Grady, W. and Klepinger, D., 1993: The Sexual Behavior of Men in the United States. *Family Planning Perspectives*. Retrieved from [http://links.jstor.org/sici?sici=0014-7354\(199303%2F04\)25%3A2%3C52%3ATSBOMI%3E2.0.CO%3B2-8](http://links.jstor.org/sici?sici=0014-7354(199303%2F04)25%3A2%3C52%3ATSBOMI%3E2.0.CO%3B2-8). Accessed January 2015.

Black, M., Basile, K.C., Breiding, M.J., Smith, S.G., Walters, M.L., Merrick, M.T., Chen, J. and Stevens, M.R. 2011: National Intimate Partner and Sexual Violence Survey 2010 Summary Report. National Centre for Injury Prevention and Control. Centres for Disease Control and Prevention, Atlanta. pp. 1–124.

Blanchard, R., 1997: Birth order and sibling sex ratio in homosexual versus heterosexual males and females. *Annual Review of Sex Research*, 8, 27–67.

Blanchard, R., 2001: Fraternal birth order and the maternal immune hypothesis of male homosexuality. *Hormones and Behavior*, 40(2), 105–114.

Blanchard, R. and Zucker, K. J., 1994: Reanalysis of Bell, Weinberg, and Hammersmith's data on birth order, sibling sex ratio, and parental age in homosexual men. *American Journal of Psychiatry*, 151(9), 1375–1376.

Blanchard, R., Zucker, K. J., Bradley, S. J. and Hume, C. S., 1995: Birth order and sibling sex ratio in homosexual male adolescents and probably prehomosexual feminine boys. *Developmental Psychology*, 31(1), 22–30.

Blumberg, B., Iguchi, T. and Odermatt, A., 2011: Endocrine disrupting chemicals. *The Journal of Steroid Biochemistry and Molecular Biology*, 127 (1–2), 1–3.

Bocklandt, S., Horvath, S., Vilain, E. and Hamer, D. H., 2006: Extreme skewing of X chromosome inactivation in mothers of homosexual men. *Human Genetics*, 118(6), 691–694.

Bogaert, A.F., 2006: Towards a conceptual understanding of asexuality. *Review of General Psychology*, 10(3), 241–250.

Bogaert, A. F., 2003: Number of older brothers and sexual orientation: new tests and the attraction/behavior distinction in two national probability samples. *Journal of Personality and Social Psychology*, 84(3), 644–652.

Bogaert, A. F. and Skorska, M., 2011: Sexual orientation, fraternal birth order, and the maternal immune hypothesis: a review. *Frontiers in Neuroendocrinology*, 32(2), 247–54. doi:10.1016/j.yfrne.2011.02.004.

Boomsma, D., Busjahn, A. and Peltonen, L., 2002: Classical twin studies and beyond. *Nature Reviews. Genetics*, 3(11), 872–882.

Boswell, J., 2005: *Christianity, Social Tolerance, and Homosexuality: Gay People in Western Europe from the Beginning of the Christian Era to the Fourteenth Century*. University of Chicago Press, Chicago.

Brakefield, T., 2014: Same-sex sexual attraction does not spread in adolescent social networks. *Archives of Sexual Behaviour*, 43(2), 335–344.

Broqua, C., 2009: Male homosexuality in Bamako : A cross-cultural and cross-historical comparative perspective. In S.N. Nyeck and M. Epprecht (Eds), *Sexual Diversity in Africa: Politics, Theory, and Citizenship* (pp. 208–224), McGill-Queen's University Press, Canada.

Burton, C. M., Marshal, M. P., Chisolm, D. J., Sucato, G. S. and Friedman, M. S., 2013: Sexual minority-related victimisation as a mediator of mental health disparities in sexual minority youth: A longitudinal analysis. *Journal of Youth and Adolescence*, 42(3), 394–402.

Cáceres, C. F., Konda, K., Segura, E. R. and Lyerla, R., 2008: Epidemiology of male same-sex behaviour and associated sexual health indicators in low and middle-income countries: 2003-2007 estimates. *Sexually Transmitted Infections*, 84 (Supp. 1), i49–i56. doi:10.1136/sti.2008.030569.

Camperio-Ciani, A., Corna, F. and Capiluppi, C., 2004: Evidence for maternally inherited factors favouring male homosexuality and promoting female fecundity. *Proceedings Biological Sciences/The Royal Society*, 271(1554), 2217–2221.

Cantor, J. M., 2012: Is homosexuality a paraphilia? The evidence for and against. *Archives of Sexual Behavior*, 41(1), 237–47. doi:10.1007/s10508-012-9900-3.

Cantu, L., Murray, S. O. and Roscoe, W., 1999: *Boy-wives and Female Husbands: Studies of African Homosexualities*. PALGRAVE, New York. ISBN 0-312-21216-X (hardback) 0-312-23829-0 (paperback)

Chandra, A., Mosher, W. D., Copen, C. , 2011: Sexual behavior , sexual attraction , and sexual identity in the United States : Data From the 2006 - 2008 National Survey of Family Growth, National Health Statistics Report Number 36, 19 pp. US Centres for Disease Control and Prevention, Atlanta.

Cheney, K., 2012: Locating neocolonialism, “tradition,” and human rights in Uganda's “gay death penalty”. *African Studies Review*, 55 (2), 77-95.

Chiang, H., 2009: Homosexual behavior in the United States, 1988-2004: quantitative empirical support for the social construction theory of sexuality. *Electronic Journal of Human Sexuality*, 12. <http://www.ejhs.org/Volume12/Homosexuality.htm>

Cloete, A., Simbayi L.C., Rehle, T., Jooste, S., Mabaso, M., Townsend, L., Ntsepe, Y., Louw, J, Naidoo, D., Duda, T., Naidoo, P. and the Marang Men's Project Team, 2014:

The South African Marang Men's Project: HIV bio-behavioural surveys using respondent-driven sampling conducted among men who have sex with men in Cape Town, Durban and Johannesburg. Cape Town. HSRC Press, Cape Town.

Cochran, S., Drescher, J., Kismödi, E., Giami, A., García-Moreno, C., Atalla, E., Marais, A., Vieira, E. and Reed, G. 2014: Proposed declassification of disease categories related to sexual orientation in the International Statistical Classification of Diseases and Related Health. *Bulletin of the World Health Organisation*, 92 (9), 672-679, doi: <http://dx.doi.org/10.2471/BLT.14.135541>.

Coleman, E., 2008: Sexual health for the millennium: An introduction. *International Journal of Sexual Health*, 20 (1-2), doi10.1080/19317610802156954.

Comaroff, J. and Comaroff, J., 1986: Christianity and colonialism in South Africa. *American Ethnologist*, 13(1), 1–22. Retrieved from <http://www.jstor.org/stable/644583>.

Cromton, L., 2003:*Homosexuality and Civilisation.* Belknap Press of Harvard University Press, USA.

Crozier, I. D., 2000: Taking prisoners: Havelock Ellis, Sigmund Freud, and the construction of homosexuality, 1897-1951. *Social History of Medicine*, 13(3), 447–466.

Dawood, K., Bailey, J. M. and Martin, N. G., 2009: Genetic and environmental influences on sexual orientation. In Y.-K. Kim (Ed.), *Handbook of Behavior Genetics*, 269–279. Springer New York. doi:10.1007/978-0-387-76727-7.

Delano, L.,1998:. Sexual abuse and violence in sub-Saharan Africa. Retrieved from <http://www.advocatesforyouth.org/publications/publications-a-z/457-sexual-abuse-and-violence-in-sub-saharan-africa?tmpl=component&print=1&layout=default&page=>.

Denton, F. N., 2012: Minority stress and physical health in lesbians, gays , and bisexuals : The mediating role of coping self-efficacy. University of Kentucky, UK.

Diamanti-Kandarakis, E., Bourguignon, J.P., Giudice, L.C., Hauser, R., Prins, G.S., Soto, A.M., Zoeller, R.T. and Gore, A.C., 2009: Endocrine-disrupting chemicals: An Endocrine Society scientific statement. *Endocrine Reviews*, 30(4), 293-342.

Diamond, L. M., 2012: The desire disorder in research on sexual orientation in women: contributions of dynamical systems theory. *Archives of Sexual Behavior*, 41(1), 73–83. doi:10.1007/s10508-012-9909-7.

Diamond, M., 1995 : Biological aspects of sexual orientation and identity. In L. Diamant and R. McAnulty (Eds.), *The Psychology of Sexual Orientation, Behavior and Identity: A Handbook*, pp. 1-42, 45-80, Greenwood Press, USA.

Dickson, N., Paul, C. and Herbison, P., 2003: Same-sex attraction in a birth cohort: Prevalence and persistence in early adulthood. *Social Science and Medicine*, 56(8), 1607–1615.

Dillon, F. R., Worthington, R. L. and Moradi, B., 2011: Sexual identity as a universal process. In S. J. Schwartz and E. Al. (Eds.), *Handbook of Identity Theory and Research*, 649–670pp.

Pew Research Center, 2013: In Gay Marriage Debate, Both Supporters and Opponents See Legal Recognition as 'Inevitable'. <http://www.people-press.org/2013/06/06/in-gay-marriage-debate-both-supporters-and-opponents-see-legal-recognition-as-inevitable/>.

Downie, R., 2014: Revitalising the Fight against Homophobia in Africa. Centre for Strategic and International Studies, Washington DC.

Dramé, F. M., Peitzmeier, S., Lopes, M., Ndaw, M., Sow, A., Diouf, D. and Baral, S., 2013: Gay men and other men who have sex with men in West Africa: evidence from the field. *Culture, Health and Sexuality*, 15 (Suppl. February 2014), 7–21. doi:10.1080/13691058.2012.748935.

Drescher, J., 2014: Are the kids all right? Avuncular reflections on the gayby boom. *Journal of Gay and Lesbian Mental Health*, 18 (2), pp 222–229. doi:10.1080/19359705.2014.883959.

Drescher, J., 1998: I'm your handyman: a history of reparative therapies. *Journal of Homosexuality*, 36(1), 19–42.

Ellis, L. and Ames, M. a., 1987: Neurohormonal functioning and sexual orientation: a theory of homosexuality-heterosexuality. *Psychological Bulletin*, 101(2), 233–258. doi:10.1037/0033-2909.101.2.233.

El-Rouayheb, K., 2005: Before homosexuality in the Arab-Islamic World, 1500 –1800. *Archives of Sexual Behavior*, University of Chicago Press, USA, 208 pp.

Epprecht, M., 2006: "Bisexuality" and the politics of normal in African ethnography. *Anthropologica*, 48 (2), 187–201.

Farr, R. H., Diamond, L. M. and Boker, S. M., 2014: Female same-sex sexuality from a dynamical systems perspective: Sexual desire, motivation, and behaviour. *Archives of Sexual Behaviour*, 43(8) 1477–1490. doi:10.1007/s10508-014-0378-z.

Fay, H., Baral, S. D., Trapence, G., Motimedi, F., Umar, E., Iipinge, S. and Beyrer, C., 2011: Stigma, health-care access, and HIV knowledge among men who have sex with men in Malawi, Namibia, and Botswana. *AIDS and Behavior*, 15(6), 1088–97. doi:10.1007/s10461-010-9861-2.

Feinstein, B. A., Meuwly, N., Davila, J., Eaton, N. R. and Yoneda, A., 2014: Sexual orientation prototypicality and well-being among heterosexual and sexual minority adults. *Archives of Sexual Behavior*. doi:10.1007/s10508-014-0401-4.

Florida, R., 2014: The global map of homophobia. Retrieved from <http://www.citylab.com/politics/2014/02/global-map-homophobia/8309/>.

Floyd, J. Q. and Szymanski, L. A., 2007: Evelyn Gentry Hooker: The “hopelessly heterosexual” psychologist who normalised heterosexuality. In E. A. Gavin, A. Clamar, and M. A. Siderits (Eds.), *Women of Vision: Their Psychology, Circumstances, and Success* (pp. 177-188). Springer, New York.

Foucault, M., 1990: *The History of Sexuality, Vol 1: An Introduction*. Vintage Books, New York.

Frumence, G., Killewo, J., Kwesigabo, G., Nyström, L., Eriksson, M. and Emmelin, M., 2010: Social capital and the decline in HIV transmission - A case study in three villages in the Kagera region of Tanzania. *SAHARA J : Journal of Social Aspects of HIV/AIDS Research Alliance/SAHARA* , Human Sciences Research Council, 7(3), 9–20.

Gartrell, N. K., Bos, H. M. W. and Goldberg, N. G., 2011: Adolescents of the US national longitudinal lesbian family study: Sexual orientation, sexual behavior, and sexual risk exposure. *Archives of Sexual Behavior*, 40(6), 1199–209. doi:10.1007/s10508-010-9692-2.

Gates, G., 2011: How many people are lesbian, gay, bisexual and transgender? UCLA: The Williams Institute. Retrieved from: <https://escholarship.org/uc/item/09h684x2>. Accessed February 2015.

Gevisser, M. and Cameron, E., (Eds.)1995: *Defiant Desire: Gay and Lesbian Lives in South Africa*. Routledge, UK.

Goldbach, J. T., Tanner-Smith, E. E., Bagwell, M. and Dunlap, S., 2014: Minority stress and substance use in sexual minority adolescents: a meta-analysis. *Prevention Science*, 15(3), 350–63. doi:10.1007/s11121-013-0393-7.

Golombok, S. and Tasker, F., 1996: Do parents influence the sexual orientation of their children? Findings from a longitudinal study of lesbian families. *Developmental Psychology*, 32 (1), 3-11.

Gonzales, G., 2014: Same-sex marriage — A prescription for better health. *New England Journal of Medicine*, 370, 1373–1376. doi: 10.1056/NEJMp1400254.

Goode, S., 2009: *Understanding and Addressing Adult Sexual Attraction to Children: A Study of Paedophiles in Contemporary Society*. Routledge, UK.

Gooren, L. J. and Byne, W., 2009: Sexual orientation in men and women. In D. W. Pfaff, A. P. Arnold, S. E. Fahrbach, A. M. Etgen and R. T. Rubin, (Eds.). *Hormones, Brain and Behavior* (pp. 2429–2448), Vol 5, Chapter 77. Academic Press, USA. doi:10.1016/b978-008088783-8.00077-2

Grace, A. P., 2008: The charisma and deception of reparative therapies: when medical science beds religion. *Journal of Homosexuality*, 55(4), 545–580.

Greenberg D., 1988: *The Construction of Homosexuality*. University of Chicago Press, USA, 645 pp.

Gregson, S., Mushati, P., Grusin, H., Nhamo, M., Schumacher, C., Skovdal, M. and Campbell, C., 2011: Social capital and women's reduced vulnerability to HIV infection in rural Zimbabwe. *Population and Development Review*, 37(2), 333–359.

Gulich, A. E., De Visser, R. O., Smith, A. M. A., Rissel, C. E. and Richters, J., 2003: Homosexual experience and recent homosexual encounters. *Australian and New Zealand Journal of Public Health*, 27(2), 155–163.

Haldeman, D. C., 2002: Therapeutic antidotes: Helping gay and bisexual men recover from conversion therapies. *Journal of Gay and Lesbian Psychotherapy*, 5 (3), 117-130. doi 10.1080/19359705.2001.9962288.

Halperin, D. M., 2000: How to do the history of male homosexuality. *GLQ: A Journal of Lesbian and Gay Studies*, 6 (1), 87-123.

Hamer, D. H., Hu, S., Magnuson, V. L., Hu, N. and Pattatucci, A. M., 1993: A linkage between DNA markers on the X chromosome and male sexual orientation. *Science*, 261(5119), 321–327.

Heise, L. L., Pitanguy, J. and Germain, A., 1994: Violence against women: the hidden health burden. World Bank Discussion Papers, World Bank, New York.

Herdt, G., 1996: *Third Sex, Third Gender: Beyond Sexual Dimorphism in Culture and History*. Zone Books, New York.

Herdt, G., 1997: *Same Sex, Different Cultures: Exploring Gay and Lesbian Lives*. Westview Press, Boulder, Colorado.

Herek, G. M., 1991: Stigma, prejudice, and violence against lesbians and gay men. In John C. Gonsiorek and James D. Weinrich (Eds.), *Homosexuality: Research Implications for Public Policy*, need publisher and location 66–80.

Herek, G. M., 2006: Legal recognition of same-sex relationships in the United States: a social science perspective. *The American Psychologist*, 61 (6), 607–621.

Herek, G. M., Norton, A. T., Allen, T. J. and Sims, C. L., 2010: Demographic, psychological, and social characteristics of self-identified lesbian, gay, and bisexual adults in a US probability sample. *Sexuality Research and Social Policy*, 7(3), 176–200.

Hoad, N., 2007: *African Intimacies Race, Homosexuality, and Globalisation*. University of Minnesota Press, USA, 232 pp.

Hoffman, L. and Knight, S. K., 2007: Claiming psychological health: The history of homosexuality in the mental health professions. *PsycCRITIQUES*. doi:10.1037/a0010248.

Homma, Y., Wang, N., Saewyc, E. and Kishor, N., 2012: The relationship between sexual abuse and risky sexual behavior among adolescent boys: a meta-analysis. *The Journal of Adolescent Health*, 51 (1), 18–24. doi:10.1016/j.jadohealth.2011.12.032.

- Hope, D.A., (Ed.) 2009: *Contemporary Perspectives on Lesbian, Gay, and Bisexual Identities*. Springer-Verlag, New York.
- Human Rights Watch, 2008: This alien legacy, The origins of "sodomy" laws in British Colonialism.
- Human Rights Watch, USA. http://www.hrw.org/sites/default/files/reports/lgbt1208_webwcover.pdf
- Human Rights Watch, 2013a: Guilty by association human rights violations in the enforcement of Cameroon's anti-homosexuality law. Retrieved from <http://www.hrw.org/reports/2013/03/21/guilty-association>. Accessed February 2015.
- Human Rights Watch, 2013b: This alien legacy: The origins of "sodomy" laws in British colonialism. In C. Lennox and M. Waites (Eds.), *Human Rights, Sexual Orientation and Gender Identity in the Commonwealth: Struggles for Decriminalisation and Change*, Institute of Commonwealth Studies, 83-123.
- IOM, 2011: The health of lesbian, gay, bisexual, and transgender people: Building a foundation for better understanding. IOM, Washington, DC.
- Isay, R. A., 2009: *Being Homosexual : Gay Men and their Development*. Vintage Books, New York.
- Itaborahy, L. P. and Zhu, J. (2014). State-sponsored homophobia: A world survey of laws: Criminalisation. Retrieved from www.ilga.org.
- Jannini, E. A., Burri, A., Jern, P. and Novelli, G., 2015: Genetics of human sexual behavior: Where we are, where we are going. *Sexual Medicine Reviews*, 3(2), 65-77. doi:10.1002/smrj.46.
- JHSPH amfAR, 2012: Achieving an AIDS-Free Generation for Gay Men and Other MSM. Financing and implementation of HIV programs targeting MSM. Retrieved from <http://www.amfar.org/gmreport/>. Accessed February 2015.
- Johns, M. M., Zimmerman, M. and Bauermeister, J. A., 2013: Sexual attraction, sexual identity , and psychosocial well-being in a national sample of young women during emerging adulthood. *Journal of Youth and Adolescence*, 42 (1), 82-95.
- Johnson, W., Turkheimer, E., Gottesman, I. I. and Bouchard, T. J., 2009: Beyond heritability: Twin studies in behavioral research. *Current Directions in Psychological Science*, 18(4), 217-220.
- Kendler, K. S., Thornton, L. M., Gilman, S. E. and Kessler, R. C., 2000: Sexual orientation in a US national sample of twin and non-twin sibling pairs. *American Journal of Psychiatry*, 157(11), 1843-1846.
- Kimmel, D. C. and Garnets, L. D., (Eds.) 2003: What a light it shed: The life of Evelyn Hooker. *Psychological Perspectives on Lesbian, Gay, and Bisexual Experiences (2nd Ed.)*. Columbia University Press, New York.

- Kishida, M. and Rahman, Q., 2015: Fraternal birth order and extreme right-handedness as predictors of sexual orientation and gender nonconformity in men. *Archives of Sexual Behavior*. doi:10.1007/s10508-014-0474-0.
- Kosciw, J., Greytak, E. and Bartkiewicz, M., 2013: The 2011 national school climate survey: The experiences of lesbian, gay, bisexual and transgender youth in our nation's schools. GLSEN, New York.
- Kretz, A., 2013: From "kill the gays" to "kill the gay rights movement": The future of homosexuality legislation in Africa. *Northwestern Journal of International Human Rights*, 11 (2), article 3.
- Lalor, K., 2004: Child sexual abuse in sub-Saharan Africa: A literature review. *Child Abuse and Neglect*, 28(4), 439–460. doi:10.1016/j.chiabu.2003.07.005.
- Lalumière, M. L., Blanchard, R. and Zucker, K. J., 2000: Sexual orientation and handedness in men and women: a meta-analysis. *Psychological Bulletin*, 126(4), 575–592.
- Långström, N., Rahman, Q., Carlström, E. and Lichtenstein, P., 2010: Genetic and environmental effects on same-sex sexual behavior: A population study of twins in Sweden. *Archives of Sexual Behavior*, 39(1), 75–80.
- Lee, J., 2014: Too cruel for school: LGBT bullying, noncognitive skill development, and the educational rights of students. *Harvard Civil Rights-Civil Liberties Law Review*, 49 (1), 261-290.
- Lehavot, K., Molina, Y. and Simoni, J. M., 2012: Childhood trauma, adult sexual assault, and adult gender expression among lesbian and bisexual women. *Sex Roles*, 67(5-6), 272–284.
- Lemmola, F. and Camperio Ciani, A., 2009: New evidence of genetic factors influencing sexual orientation in men: Female fecundity increase in the maternal line. *Archives of Sexual Behavior*, 38(3), 393–399.
- LeVay, S., 2010: *Gay, Straight, and the Reason Why: The Science of Sexual Orientation*. Oxford University Press, UK.
- Lingiardi, V. and Capozzi, P., 2004: Psychoanalytic attitudes towards homosexuality: an empirical research. *The International Journal of Psycho-Analysis*, 85(Pt 1), 137–157.
- Litt, D., Lewis, M., Blayney, J.A. and Kaysen, D.L., 2013: Protective behavioral strategies as a mediator of the generalised anxiety and alcohol use relationship among lesbian and bisexual women. *Journal of Studies on Alcohol and Drugs*, 74 (1), 168-174.
- Masci, D., Sciupac, E. and Lipka, M., 2013: Gay marriage around the world (pp. 1–6). Washington DC. Retrieved from <http://www.pewforum.org/2013/12/19/gay-marriage-around-the-world-2013/>.
- McClintock, M. K. and Herdt, G., 1996: Rethinking puberty: The development of sexual attraction. *Current Directions in Psychological Science*, 5 (6), 178-183.

Michaels, S., 1996: The prevalence of homosexuality in the United States. In *Textbook of Homosexuality and Mental Health*. 43–63 pp. American Psychiatric Association, Arlington, VA.

Miller, E. M., 2000: Homosexuality, birth order, and evolution: Toward an equilibrium reproductive economics of homosexuality. Department of Economics and Finance Working Papers, 1991–2006. Paper 19.

Mkhize, N., Bennett, J., Reddy, V. and Moletsane, R., 2010: *The Country we want to live in: Hate Crimes and Homophobia in the Lives of Black Lesbian South Africans* (p. 72). HSRC Press, Cape Town.

Morgan, R. and Wieringa, S., (Eds.) 2005: *Tommy Boys, Lesbian Men, and Ancestral Wives: Female Same-sex Practices in Africa*. Jacana Press, Johannesburg.

Mugambi, S. and Morara, B., 2012: Taking stock of the status of child sexual abuse in Africa since the first international conference in Africa on child sexual abuse in 2007. The Second International Conference in Africa on Child Sexual Abuse, Accra, Ghana.

Murray, S., 1998: Homosexuality in "traditional" sub-Saharan Africa and contemporary South Africa. Retrieved from http://semgai.free.fr/doc_et_pdf/africa_A4.pdf. Accessed March 2015.

Mustanski, B. S., Chivers, M. L. and Bailey, J. M., 2002: A critical review of recent biological research on human sexual orientation. *Annual Review of Sex Research*, 13, 89–140.

Mustanski, B. S., DuPree, M. G., Nievergelt, C. M., Bocklandt, S., Schork, N. J. and Hamer, D. H., 2005: A genome wide scan of male sexual orientation. *Human Genetics*, 116(4), 272–278.

Neave, N., Menaged, M. and Weightman, D. R., 1999: Sex differences in cognition: the role of testosterone and sexual orientation. *Brain and Cognition*, 41(3), 245–262.

Nel, J., 2014: South African psychology can and should provide leadership in advancing understanding of sexual and gender diversity on the African continent. *South African Journal of Psychology*, 44(2), 145–148. doi:10.1177/0081246314530834.

Nel, J. A. and Breen, D., 2013: Victims of hate crime. In R. Peacock (Ed.), *Victimology in South Africa* (Second edition). JL van Schaik, Pretoria.

Nel, J. A., Yi, H., Sandfort, T. G. M. and Rich, E., 2013: HIV-untested men who have sex with men in South Africa: The perception of not being at risk and fear of being tested. *AIDS and Behavior*, Suppl 1, 51–59. doi: 10.1007/s10461-012-0329-4.

Nel, J. and Judge, M., 2008: Exploring homophobic victimisation in Gauteng, South Africa: Issues, impacts and responses. *Acta Criminologica*, 21(3), 19–36. Retrieved from http://reference.sabinet.co.za/sa_epublication_article/crim_v21_n3_a3.

Nell, M. and Shapiro, J., 2013: Resilience amidst adversity : Being gay and African in the new century. Retrieved from <http://www.atlanticphilanthropies.org/learning/resilience-amidst-adversity-being-gay-and-african-new-century>. Accessed March 2015.

Newport, F. and Gates, G., 2015a: San Francisco metro area ranks highest in LGBT percentage. Retrieved March 23, 2015, from http://www.gallup.com/poll/182051/san-francisco-metro-area-ranks-highest-lgbt-percentage.aspx?utm_source=Social+Issues&utm_medium=newsfeed&utm_campaign=tiles.

Ngun, T. C., Ghahramani, N., Sánchez, F. J., Bocklandt, S. and Vilain, E., 2011: The genetics of sex differences in brain and behavior. *Frontiers in Neuroendocrinology*, 32(2), 227–46. doi:10.1016/j.yfrne.2010.10.001.

Ngun, T. and Vilain, E., 2014: The biological basis of human sexual orientation: Is there a role for epigenetics. *Advances in Genetics*, 86, 167-184.

Nicolosi, J., 2009: Fathers of male homosexuals: A collective clinical profile. Retrieved from <http://josephnicolosi.com/fathers-of-male-homosexuals/>. Accessed March 2015.

Nicolosi, J. and Nicolosi, L. A., 2002: A Parent's Guide to preventing Homosexuality. Intervarsity Press, Illinois.

Olsen, E. O. M., H, M. S. P., Kann, L., Ph, D., Vivolo-kantor, A., H, M. P. and Mcmanus, T., 2014: School violence and bullying among sexual minority high school students. *Journal of Adolescent Health*, 55(3), 432-8. doi: 10.1016/j.jadohealth.2014.03.002

PAHO, 2009: The Pan-American Health Organisation/World Health Organisation PAHO/WHO Position Statement. "Cures" for an illness that does not exist. Retrieved from http://www.paho.org/hq/index.php?option=com_docman&task=doc_details&gid=17703&Itemid=2057.

Park, J. N., Papworth, E., Kassegne, S., Moukam, L., Billong, S. C., Macauley, I., Yomb, Y.R., Nkoume, N., Mondoleba, V., Eloundou, J., LeBreton, M., Tamoufe, U., Grosso, A. and Baral, S. D., 2013: HIV prevalence and factors associated with HIV infection among men who have sex with men in Cameroon. *Journal of the International AIDS Society*, 16 (Suppl. 3). doi: 10.7448/IAS.16.4.18752

Parker, R., 2009: Sexuality, culture and society: shifting paradigms in sexuality research. *Culture, Health and Sexuality*, 11(3), 251–66. doi:10.1080/13691050701606941.

Pascoe, E. A. and Smart Richman, L., 2009: Perceived discrimination and health: a meta-analytic review. *Psychological Bulletin*, 135(4), 531–554.

Pattatucci, A. M. and Hamer, D. H., 1995: Development and familiarity of sexual orientation in females. *Behavior Genetics*, 25(5), 407–420.

Peplau, L. A. and Garnets, L. D., 2000: A new paradigm for understanding women's sexuality and sexual orientation. *Journal of Social Issues*, 56(2), 330–350. Retrieved from <http://www.blackwell-synergy.com/links/doi/10.1111/0022-4537.00169>.

Pereda, N., Guilera, G., Forns, M. and Gómez-Benito, J., 2009a: The international epidemiology of child sexual abuse: A continuation of Finkelhor (1994). *Child Abuse and Neglect*, 33(6), 331–342.

Pereda, N., Guilera, G., Forns, M. and Gómez-Benito, J., 2009b: The prevalence of child sexual abuse in community and student samples: A meta-analysis. *Clinical Psychology Review*, 29(4), 328–338.

Perrin, A. J., Cohen, P. N. and Caren, N., 2013: Are children of parents who had same-sex relationships disadvantaged? A Scientific evaluation of the no-differences hypothesis. *Journal of Gay and Lesbian Mental Health*, 17(3), 327–336. doi:10.1080/19359705.2013.772553.

Person, E. S., 2005: As the wheel turns: a centennial reflection on Freud's Three Essays on the Theory of Sexuality. *Journal of the American Psychoanalytic Association*, 53(4), 1257–1282.

Pew Research Centre, 2003: Religious beliefs underpin opposition to homosexuality. Retrieved from <http://www.pewforum.org/2003/11/18/religious-beliefs-underpin-opposition-to-homosexuality/>. Accessed February 2015.

Pew Research Centre, 2013: A survey of LGBT Americans: Attitudes, experiences and values in changing times. Retrieved from <http://www.pewsocialtrends.org/2013/06/13/a-survey-of-lgbt-americans/>. Accessed February 2015.

Pew Research Centre, 2013: The global divide on homosexuality: Greater acceptance in more secular and affluent countries. Retrieved from <http://www.pewglobal.org/2013/06/04/the-global-divide-on-homosexuality/>. Accessed February 2015.

Pillard, R. C., Poumadere, J. and Carretta, R. A., 1981: Is homosexuality familial? A review, some data, and a suggestion. *Archives of Sexual Behavior*, 10(5), 465–475.

Pillard, R. C. and Weinrich, J. D., 1986: Evidence of familial nature of male homosexuality. *Archives of General Psychiatry*, 43(8), 808–812.

Potat, T., Diouf, D., Drame, F. M., Ndaw, M., Traore, C., Dhaliwal, M. and Baral, S., 2011: HIV risk among MSM in Senegal: A qualitative rapid assessment of the impact of enforcing laws that criminalise same-sex practices. *PloS One*, 6(12), e28760. doi:10.1371/journal.pone.0028760.

Potat, T., Logie, C., Adams, D., Lebona, J., Letsie, P., Beyrer, C. and Baral, S., 2014: Sexual practices, identities and health among women who have sex with women in Lesotho - a mixed-methods study. *Culture, Health & Sexuality*, 16(2):120-35. doi:10.1080/13691058.2013.841291.

Quinsey, V. L., 2003: The etiology of anomalous sexual preferences in men. *Annals of the New York Academy of Sciences*, 989, 105–117; discussion 144–153.

Rahman, Q., 2005: The neurodevelopment of human sexual orientation. *Neuroscience and Biobehavioral Reviews*, 29(7), 1057–66. doi:10.1016/j.neubiorev.2005.03.002.

- Rahman, Q. and Koerting, J 2008: Sexual orientation-related differences in allocentric spatial memory tasks. *Hippocampus*, 18(1), 55–63.
- Reddy, V., Sandfort, T. and Rispel, L., (Eds.) 2009: *From Social Silence to Social Science: Same-sex Sexuality, HIV&AIDS and Gender in South Africa*. HSRC Press, Pretoria, 252 pp.
- Reiter, L., 1989: Sexual orientation, sexual identity, and the question of choice. *Clinical Social Work Journal*, 17(2), 138–150. Retrieved from <http://link.springer.com/article/10.1007/BF00756141>.
- Rice, W. R., Friberg, U. and Gavrilets, S., 2012: Homosexuality as a consequence of epigenetically canalised sexual development. *The Quarterly Review of Biology*, 87(4), 343–368. doi:10.1086/668167.
- Roberts, A. L., Glymour, M. M. and Koenen, K. C., 2013: Does maltreatment in childhood affect sexual orientation in adulthood? *Archives of Sexual Behavior*, 42(2), 161–171.
- Rosario, M. and Schrimshaw, E. W., 2014: Theories and Etiologies of sexual orientation. In D. L. Tolman and L. M. Diamond (Eds.), *APA Handbook of Sexuality and Psychology Volume 1: Person-based Approaches*. Vol. 1, pp. 555–596. American Psychological Association.
- Roscoe, W. and Murray, S., 1997: *Islamic Homosexualities: Culture, History, and Literature*. New York: New York University Press.
- Rothman, E. F., Exner, D. and Baughman, A., 2011: The prevalence of sexual assault against people who identify as gay, lesbian or bisexual in the United States : A systematic review method search strategy. *Trauma Violence Abuse*, 12 (2), 55–66. doi: 10.1177/1524838010390707.
- Roughgarden, J., 2009: *Evolution's Rainbow: Diversity, Gender, and Sexuality in Nature and People*. University of California Press, USA.
- Royal College of Psychiatrists, 2010: Retrieved from <http://www.rcpsych.ac.uk/workinpsychiatry/specialinterestgroups/gaylesbian/submissiontothecofe/psychiatryandlgbpeople.aspx>.
- Rullo, J. E., Strassberg, D. S. and Miner, M. H., 2014: Gender-specificity in sexual interest in bisexual men and women. *Archives of Sexual Behaviour*. doi:10.1007/s10508-014-0415-y.
- Ryan, C., Russell, S. T., Huebner, D., Diaz, R. and Sanchez, J., 2010: Family acceptance in adolescence and the health of LGBT young adults. *Journal of Child and Adolescent Psychiatric Nursing*, 23(4), 205–13. doi:10.1111/j.1744-6171.2010.00246.x.
- Sanders, A. R., Martin, E. R., Beecham, G. W., Guo, S., Dawood, K., Rieger, G. and Bailey, J. M., 2014. Genome-wide scan demonstrates significant linkage for male sexual orientation. *Psychological Medicine*, 1–10. doi:10.1017/S0033291714002451.

Sandfort, T. G. M. and Reddy, V., 2013: African same-sex sexualities and gender-diversity: an introduction. *Culture, Health and Sexuality*, 15 (Suppl. November 2014), 1–6. doi:10.1080/13691058.2013.797218.

Savic, I., Garcia-Falgueras, A. and Swaab, D. F., 2010: Sexual differentiation of the human brain in relation to gender identity and sexual orientation. *Progress in Brain Research*, 186, 41–62.

Savic, I. and Lindström, P., 2008: PET and MRI show differences in cerebral asymmetry and functional connectivity between homo and heterosexual subjects. *Proceedings of the National Academy of Sciences of the United States of America*, 105(27), 9403–8. doi:10.1073/pnas.0801566105.

Savin-Williams, R. C., 2014: An exploratory study of the categorical versus spectrum nature of sexual orientation. *Journal of Sex Research*, 51(4), 446–53. doi:10.1080/00224499.2013.871691.

Savin-Williams, R. C. and Vrangalova, Z., 2013: Mostly heterosexual as a distinct sexual orientation group: A systematic review of the empirical evidence. *Developmental Review*, 33, 58–88. doi:10.1016/j.dr.2013.01.001.

Schlatter, B. E. and Steinback, R., 2015: 10 vile homophobic myths debunked (pp. 1–7). Retrieved from <http://www.splcenter.org/get-informed/intelligence-report/browse-all-issues/2010/winter/10-myths>.

Schmitt, M. T., Branscombe, N. R., Postmes, T. and Garcia, A., 2014: The consequences of perceived discrimination for psychological well-being: A meta-analytic review. *Psychological Bulletin*, 140(4), 921–48. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/24547896>.

Schneeberger, A. R., Dietl, M. F., Muenzenmaier, K. H., Huber, C. G. and Lang, U. E., 2014: Stressful childhood experiences and health outcomes in sexual minority populations: A systematic review. *Social Psychiatry and Psychiatric Epidemiology*, 49 (9), 1427–1445.

Seitz-Wald, A., 2014: Evangelicals are winning the gay marriage fight in Africa and Russia. *National Journal*, 1–9. Retrieved from <http://www.nationaljournal.com/gay-washington/evangelicals-are-winning-the-gay-marriage-fight-in-africa-and-russia-20140123>.

Sell, R. L., Wells, J. A. and Wypij, D., 1995: The prevalence of homosexual behavior and attraction in the United States, the United Kingdom and France: Results of national population-based samples. *Archives of Sexual Behavior*, 24(3), 235–248.

Semugoma, P., Nemande, S. and Baral, S. D., 2012a: The irony of homophobia in Africa. *Lancet*, 380 (9839), 312–4. doi:10.1016/S0140-6736(12)60901-5.

Semugoma, P., Beyrer, C. and Baral, S., 2012b. Assessing the effects of anti-homosexuality legislation in Uganda on HIV prevention, treatment, and care services. *SAHARA-J*, 9(3), 173–6. Doi: 10.1080/17290376.2012.744177

- Seto, M. C. (2012). Is pedophilia a sexual orientation? *Archives of Sexual Behavior*, 41(1), 231–6. doi:10.1007/s10508-011-9882-6.
- Seutter, R. A. and Rovers, M., 2004: Emotionally absent fathers: Furthering the understanding of homosexuality. *Journal of Psychology and Theology*, 32(1), 43–49.
- Short, E., Riggs, D. W., Perlesz, A., Brown, R. and Kane, G., 2007: Lesbian, gay, bisexual and transgender (LGBT) parented families. A literature review prepared for The Australian Psychological Society, 497(August).
- Silventoinen, K., Kaprio, J., Lahelma, E. and Koskenvuo, M., 2000: Relative effect of genetic and environmental factors on body height: differences across birth cohorts among Finnish men and women. *American Journal of Public Health*, 90(4), 627–630.
- Singh, J., 2013: Bigotry and oppressive laws in Africa drive HIV in men who have sex with men. *PLOS Medicine*, 10(6). doi: 10.1371/journal.pmed.1001471.
- Skinner, M. K., Manikkam, M. and Guerrero-Bosagna, C., 2011: Epigenetic transgenerational actions of endocrine disruptors. *Reproductive Toxicology*, 31 (3), 337-343.
- Smith, A. D., Tapsoba, P., Peshu, N., Sanders, E. J. and Jaffe, H. W., 2009: Men who have sex with men and HIV/AIDS in sub-Saharan Africa. *Lancet*, 374(9687), 416–22. doi:10.1016/S0140-6736(09)61118-1.
- SMUG, 2014: Expanded criminalisation of homosexuality in Uganda: A flawed narrative – empirical evidence and strategic alternatives from an African perspective. Retrieved from http://www.iranti-org.co.za/content/Press_Releases/2013%20Uganda%20Anti%20Homosexuality%20Bill/SMUG%20alternative%20to%20criminalisation.pdf. Accessed March 2015.
- Snow, J., 2013: “Ex-gay” ministry apologises to LGBT community, shuts down. *Metro Weekly*. 20 June 2013. Retrieved from <http://www.metroweekly.com/2013/06/ex-gay-ministry-apologizes-to/>. Accessed March 2015.
- Stern, M., 2014: The brutal, bloody horror of gay life in Putin's Russia. Retrieved from http://www.slate.com/blogs/outward/2014/01/30/gay_russia_under_putin_brutal_bloody_and_horrorifying.html.
- Stoltenborgh, M., Van Ijzendoorn, M. H., Euser, E. M. and Bakermans-Kranenburg, M. J., 2011: A global perspective on child sexual abuse: Meta-analysis of prevalence around the world. *Child Maltreatment*, 16(2), 79–101.
- Strömdahl, S., Onigbanjo Williams, A., Eziefule, B., Emmanuel, G., Iwuagwu, S., Anene, O. and Baral, S., 2012: Associations of consistent condom use among men who have sex with men in Abuja, Nigeria. *AIDS Research and Human Retroviruses*, 28(12), 1756–62. doi:10.1089/AID.2012.0070.
- Swaab, D., 2004: Sexual differentiation of the human brain: relevance for gender identity, transsexualism and sexual orientation. *Gynaecological Endocrinology*, 19(6), 301–312. doi:10.1080/09513590400018231.

Swaab, D. F., 2008: Sexual orientation and its basis in brain structure and function. *Proceedings of the National Academy of Sciences of the United States of America*, 105(30), 10273–4. doi:10.1073/pnas.0805542105.

Talley, A. E., Hughes, T. L., Aranda, F., Birkett, M., & Marshal, M. P., 2014; Exploring alcohol-use behaviors among heterosexual and sexual minority adolescents: intersections with sex, age, and race/ethnicity. *American Journal of Public Health*, 104(2), 295–303. doi:10.2105/AJPH.2013.301627.

Tamale, S., 2013: Confronting the politics of non-conforming sexualities in Africa. *African Studies Review*, 56(02), 31–45. Retrieved from http://www.journals.cambridge.org/abstract_S0002020613000401.

Tamale, S., 2011: *African Sexualities: A Reader*. Pambazuka Press, UK.

Terry, K. J., 2011: Book Review: Understanding and addressing adult sexual attraction to children: A Study of paedophiles in contemporary society. *Psychology of Women Quarterly*. doi:10.1177/0361684311410542.

The Week, 2014: Everything you need to know about Africa's anti-gay crackdown, 30 March. Retrieved from <http://theweek.com/articles/448702/everything-need-know-about-africas-antigay-crackdown>. Accessed April 2015.

Thoreson, R. R., 2014: Troubling the waters of a “wave of homophobia”: Political economies of anti-queer animus in sub-Saharan Africa. *Sexualities*, 17(1-2), 23-42. doi: 10.1177/1363460713511098.

Thurston, I., Dietrich, J., Bogart, L., Otwombe, K., Sikkema, K., Nkala, B. and Gray, G., 2014: Correlates of sexual risk among sexual minority and heterosexual South African youths. *American Journal of Public Health*, 104(7), 1265–1269.

Traub, V., 2001: The renaissance of lesbianism in early modern England. *GLQ: A Journal of Lesbian and Gay Studies*, 7(2), 245-263.

Turkheimer, E. and Waldron, M., 2000: Non-shared environment: a theoretical, methodological, and quantitative review. *Psychological Bulletin*, 126(1), 78–108.

Uganda. Uganda Anti-Homosexuality Act, 2014, 1–21.

United Nations High Commissioner for Human Rights, 2010: Discriminatory laws and practices and acts of violence against individuals based on their sexual orientation and gender identity. Retrieved from http://www.ohchr.org/Documents/Issues/Discrimination/A.HRC.19.41_English.pdf. Accessed March 2015.

Vanderlaan, D. P., Blanchard, R., Wood, H. and Zucker, K. J., 2014: Birth order and sibling sex ratio of children and adolescents referred to a gender identity service. *PloS One*, 9(3), e90257. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/24651045>.

Victor, C. J., Nel, J. a., Lynch, I. and Mbatha, K., 2014. The Psychological Society of South Africa sexual and gender diversity position statement: contributing towards a just society. *South African Journal of Psychology*, 44(3), 292–302. doi:10.1177/0081246314533635.

Vincent, L., 2014: "Unnatural", "un-African" and "ungodly": Homophobic discourse in democratic South Africa. *Sexualities*, 17(4), 472–483.

Visscher, P. M., 2008: Sizing up human height variation. *Nature Genetics*, 40 (5), 489-490. doi:10.1038/ng0508-489.

Vrangalova, Z. and Savin-Williams, R. C., 2014: Psychological and physical health of mostly heterosexuals: a systematic review. *Journal of Sex Research*, 51(4), 410–45. doi:10.1080/00224499.2014.883589

Walker, M. D., Hernandez, A. M. and Davey, M., 2012: Childhood sexual abuse and adult sexual identity formation: Intersection of gender, race, and sexual orientation. *American Journal of Family Therapy*, 40(5), 385–398.

Weill, C.L., 2009: *Nature's Choice, What Science reveals about the Biological Origins of Sexual Orientation*. Routledge, New York, 240 pp.

Whitam, F. L., and Mathy, R. M., 1987: Male homosexuality in four societies: Brazil, Guatemala, the Philippines, and the United States. *American Journal of Psychology*, 93 (3), 742-744.

Whitam, F. L., Diamond, M. and Martin, J., 1993: Homosexual orientation in twins: A report on 61 pairs and three triplet sets. *Archives of Sexual Behavior*, 22(3), 187–206.

Whitehead, N., 2009: Homosexuality and mental health problems. Retrieved from <http://www.narth.org/docs/whitehead.html>.

Wilson, H. W. and Widom, C. S., 2010: Does physical abuse, sexual abuse, or neglect in childhood increase the likelihood of same-sex sexual relationships and cohabitation? A prospective 30-year follow-up. *Archives of Sexual Behavior*, 39(1), 63–74.

Winneke, G., Ranft, U., Wittsiepe, J., Kasper-Sonnenbeg, M., Furst, P., Kraemer, U. and Wilhelm, M., 2014: Behavioral sexual dimorphism in school-age children and early developmental exposure to dioxins and PCBs: A follow-up study of the Duisburg Cohort. *Environmental Health Perspectives*, (3), 292–298.

Worthington, R. L., Savoy, H. B., Dillon, F. R. and Vernaglia, E. R., 2002: Heterosexual identity development: A multidimensional model of individual and social identity. *The Counseling Psychologist*, 30(4), 496–531. doi:10.1177/00100002030004002.

Appendix 1: Biographies of Panel Members

Jerry Coovadia: Co-chair

Prof Hoosen (Jerry) Coovadia is currently a Director at MatCH Health Systems (Maternal, Adolescent and Child Health). MatCH Health Systems with the President's Emergency Plan for AIDS Relief (PEPFAR) funding (through United States Agency for International Development-USAID) supports the KwaZulu-Natal (KZN) Department of Health in their provision of HIV, TB and related diseases treatment, prevention and care services in the eThekweni and uMkhanyakude districts. Prof Coovadia is also the the Chairperson of the Board of the KZN Children's Hospital Trust and a Commissioner for the National Planning Commission for the Presidency of the Republic of South Africa. He also holds the title of Emeritus Professor of Paediatrics and Child Health and Emeritus Victor Daitz Professor of HIV/Aids Research at the University of KwaZulu-Natal. He was the Scientific Director at the Doris Duke Medical Research Centre at the University of Natal and the Director of BioMed HIV/AIDS Research at the Nelson Mandela School of Medicine. He also held the International Vice-Chair of the International Maternal Paediatric and Adolescent AIDS Clinical Trials Group (IMPAACT), the Deputy Chair of Transitional National Development Trust, Co-chair of the Advisory Board to the Artists for a New South Africa's Amandla AIDS Fund and is a Member of the South African Academy of Science. He has also been a member of a number of UN Committees. He holds Honorary Doctorates from the Universities of Cape Town, KwaZulu-Natal and the Witwatersrand; a Master of Science from the University of Birmingham, UK; a Fellowship of the College of Physicians (FCP) from the College of Medicine of South Africa; and a Bachelor of Medicine and Bachelor of Surgery from the University of Bombay, India. He has published more than 338 papers on factors causing morbidity, disability and mortality among Africa's children. He has received a number of awards including the Nelson Mandela Award for Health and Human Rights (co-recipient with Judge Edwin Cameron), The Order of the Star of SA for Contributions to Democracy and Health presented by former President Nelson Mandela, the 2013 Scientific Freedom and Responsibility Award from the American Association for the Advancement of Science (AAAS), the Lifetime Achievement Award from the HIV Congress in India, the Lifetime Achievement Award from the National Research Foundation (NRF) and most recently, the South African Medical Research Council (MRC) President's Award for Exceptional Contributions to Medical Research.

Glenda Gray: Co-chair

Prof Glenda Gray [MBBCH, FCPaed, DSc (honoris causa)] is the President of the MRC of South Africa and a National Research Foundation (NRF) A-rated scientist. Prof Gray trained as a medical doctor and paediatrician at the University of the Witwatersrand, co-founded and led the internationally renowned Perinatal HIV Research Unit, based at the Chris Hani Baragwanath Hospital in Soweto, South Africa. Prof Gray has expertise in mother-to-child transmission of HIV, HIV vaccines and microbicides. She is the Co-Principal Investigator of the HIV Vaccine Trials Network and Director of the HIV Vaccines Trial Network (HVTN) International Programmes. In 2002, she was awarded (together with Dr James McIntyre) the Nelson Mandela Health and Human Rights Award for pioneering work done in the field of mother-to-child transmission of HIV-1. She is a Member of the Academy of Science of South Africa, and chairs the Standing Committee on Health. She is a member of the United States Institute of Medicine, and serves on their Global Health Board. Additionally, in 2012 she was admitted as a Fellow of the American Academy of

Microbiology. Prof Gray has also been awarded the Outstanding African Scientist Award and the International Association of Physicians against AIDS "Hero of Medicine" award for work done in the field of HIV treatment in children and adults. In 2009, Dr James McIntyre and Prof Gray received the N'Galy-Mann lectureship in recognition of their HIV research contribution in South Africa. In June 2012, she received a DSc (honoris causa) from the Simon Fraser University, Canada for her work in the field of mother-to-child transmission of HIV. In 2013, she received the country's highest honour, the Order of Mapungubwe granted by the President of South Africa.

Chris Beyrer

Prof Chris Beyrer (MD, MPH) is Professor of Epidemiology, International Health, and Health, Behaviour and Society at the Johns Hopkins Bloomberg School of Public Health in Baltimore, USA. He serves as Director of Johns Hopkins University (JHU) HIV Training Programme in Epidemiology and Prevention Science, and founded and directs the Johns Hopkins Centre for Public Health and Human Rights. He is Co-Principal Investigator of the JHU Centre for AIDS Research (CFAR) and directs the CFAR Developmental Core. He is a member of the HIV Prevention Trials Network (HPTN) MSM Working Group, and Protocol Chair for HPTN 078, a study of recruitment, linkage to care, and an enhanced treatment intervention for MSM living with HIV infection. He currently serves as Co-chair of the Epidemiology and Natural History Planning Group of the Office of AIDS Research of the US National Institutes of Health (NIH). He has extensive experience in conducting international collaborative research and training programmes in HIV/AIDS and other infectious disease epidemiology, in infectious disease prevention research, HIV vaccine preparedness, in HIV among key populations and in health and human rights. Prof Beyrer has done HIV research in Thailand, Burma, China, India, South Africa, Malawi, Tanzania, Russia, Tajikistan, and Kazakhstan and is the author of over 220 scientific papers. Prof Beyrer was elected to the Institute of Medicine of the US National Academies in 2014. He is the current President of the International AIDS Society.

Derrick Higginbotham

Dr Derrick Higginbotham [BA (Honors) Dalhousie, MA Simon Fraser, MA, MPhil, PhD Columbia] is a lecturer in the Department of English Language and Literature at the University of Cape Town (UCT). He has hosted several events at UCT and in Cape Town about sexuality in Africa, and is editing a collection of essays with Dr Victoria Collis-Buthelezi called *Contested Intimacies: Sexuality, Gender, and the Law in Africa*, which will be published in May 2015. He also teaches queer theory and Lesbian, Gay, Bisexual, Transgender, Queer (LGBTQ) literature – most of it South African and some other African countries – along with early modern English literature. He has published several essays on early modern English theatrical texts and their depiction of gender, economics, and sexuality. His approach and specialisation is in the socio-cultural history of sexuality on the African continent and in 'The West'.

Juliet Kiguli

Dr Juliet Kiguli (PhD) is a Senior Lecturer, in the Department of Community Health and Behavioural Sciences at the College of Health Sciences, Makerere University, Uganda. She is an anthropologist and gender analyst, teaching and carrying out community-based research and is also a consultant on several bilateral and multilateral projects in gender, culture and health. Her work explores major debates in gender, power and cultural modernity, policy, social theory, contemporary anthropology and health. Currently, her main focus is social protection of the poor, policy, and community development. Her core skills include: sociological investigation, project appraisal and design, systematic

reviews, monitoring and evaluation, and report-writing. She has published various articles in journals and books. Recently, she has co-authored articles in health.

Beverly Kramer

Prof Beverley Kramer (BSc, BSc Hons, PhD) is Professor of Anatomy in the School of Anatomical Sciences, and Assistant Dean: Research and Postgraduate Support in the Faculty of Health Sciences at the University of the Witwatersrand. Prof Kramer's main field of research is in embryology and developmental biology. She has published widely and has presented her research at numerous international and local congresses.

James McIntyre

Prof James McIntyre (MBCChB, FRCOG) is the Chief Executive Officer of the Anova Health Institute, Honorary Professor in the School of Public Health and Family Medicine at the University of Cape Town and International Vice-Chair of the US NIH-funded IMPAACT Network, the leading global collaborative HIV research network in women and children. He previously worked for 25 years at the Chris Hani Baragwanath Hospital in Soweto, South Africa, where he was the co-founder and Executive Director of the Perinatal HIV Research Unit (PHRU) of the University of the Witwatersrand. He has been involved in research and programming on the prevention of mother-to-child transmission of HIV for more than 20 years.

Juan Nel

Prof Juan A Nel is a Professor of Psychology at the University of South Africa. A registered clinical and research psychologist, he completed his doctoral studies in 2007. Prof Nel's expertise in sexuality and gender – in particular, LGBTI mental health and well-being, as well as in hate crimes and victim empowerment and support, more generally, is recognised. His related academic research, tuition, advocacy and community participation have contributed to improved theory, professional practice, policy changes and community mobilisation. He is passionate about equality and human rights, and the strengthening of health-care service provision. Related efforts are increasingly focused on the discipline of psychology. In this context, he also serves as leader of a project aimed at positioning the Psychological Society of South Africa (PsySSA) as a regional hub towards the promotion of the well-being and human rights of LGBTI persons on the African continent. This initiative was instrumental in the recent establishment of the PsySSA Sexuality and Gender Division and the adoption of its Position Statement on Sexual and Gender Diversity. He is the President of PsySSA.

Jason van Niekerk

Dr Jason van Niekerk holds a BA and MA from Rhodes University, and completed his doctorate in philosophy at the University of the Witwatersrand. He is currently a postdoctoral research Fellow in the Department of Jurisprudence at the University of Pretoria. Dr van Niekerk's current research interests are philosophical accounts of Ubuntu and African communitarianism; homophobia/heterosexism and claims about traditional African moral values; and a collaborative platform for archiving, developing, and sharing African philosophy curricula.

Michael Pepper

Prof Michael Pepper is the Director of the Institute for Cellular and Molecular Medicine and a Professor in the Department of Immunology, Faculty of Health Sciences at the

University of Pretoria (UP). He is also Director of the SAMRC Extramural Unit for Stem Cell Research and Therapy at UP, and is *Professeur Associé* in the Faculty of Medicine at the University of Geneva, Switzerland. Prof Pepper obtained his MBChB degree (1982) from the Faculty of Medicine at the University of Cape Town, and moved to Geneva in 1986 where he obtained his PhD (1990), MD (1992) and *Privat Docent* (Habilitation) (1997) degrees. He is one of UP's leading researchers and has received a number of awards for his research. He is a Member of the Academy of Science of South Africa.

Jerome Singh

Prof Jerome Amir Singh (BA, LLB, LLM, MHSc, PhD) is Head of Ethics and Law at the Centre for the AIDS Programme of Research in South Africa (CAPRISA), Nelson R Mandela School of Medicine, University of KwaZulu-Natal (UKZN). He is also adjunct Professor in the Dalla Lana School of Public Health Sciences and the Joint Centre for Bioethics at the University of Toronto, Canada, and Course Director for Bioethics at Howard College School of Law, UKZN. He serves as a consultant to the World Health Organisation (WHO), United Nations Children's Fund (UNICEF), and United Nations Interregional Crime and Justice Research Institute (UNICRI). He is the Co-chair of the US NIH's HIV Prevention Trial Network's Ethics Working Group and is an elected Founding Member, and two-term Co-chair of the South African Young Academy of Science (SAYAS). He is a member of the South African National AIDS Council (SANAC) Technical Task Team on Ensuring Protection of Human Rights and Improving Access to Justice, and a member of the South African Law Reform Commission's statutory law revision project (redundancy, obsolescence and constitutionality of health legislation). He currently serves on several bodies, including the International Research Ethics Board of *Médecins Sans Frontières* (MSF), the Research Ethics Committee of the South African Human Sciences Research Council (HSRC), and the Scientific Advisory Board of the Aurum Institute of Health Research. He serves as a member of the Critical Path for TB Drug Regimens (CPTDR) Advisory Panel and as a Special Advisor to the Biomedical Research Ethics Committee of the Nelson Mandela School of Medicine. He has previously served as the Co-Director of the Ethical, Social, and Cultural Issues Advisory Services to the Bill and Melinda Gates Foundation's Grand Challenges in Global Health Initiative, as a member of the World Health Organisation's Ethics Task Force on TB Management, and the US NIH's African Data and Safety Monitoring Board.

Melissa Steyn

Prof Melissa Steyn holds the Department of Science and Technology (DST) NRF South African National Chair in Critical Diversity Studies. She is the founding Director of the Wits Centre for Diversity Studies. Her work engages with intersecting hegemonic social formations, but she is best known for her publications on whiteness and white identity in post-apartheid South Africa. Her book, *Whiteness just isn't what is used to be: White identity in a changing South Africa* (2001, SUNY Press,) won the 2002 Outstanding Scholarship Award in International and Intercultural Communication from the National Communication Association in the United States. Her co-edited books include *The Prize and the Price: Shaping Sexualities in South Africa* (Vol 2) (2009, HSRC), *Performing Queer: Shaping Sexualities in South Africa* (Vol 1) (2005, Kwela), *Under Construction: Race and Identity in South Africa Today* (2004, Heinemann) and *Cultural Synergy in South Africa: Weaving Strands of Africa and Europe* (1996, Knowledge Resources). Prof Steyn was featured as one of Routledge's Sociology Super Authors for 2013.

Researcher and Report Author: Harry Dugmore

Prof Harry Dugmore is the Director of the Centre for Health Journalism at Rhodes University in Grahamstown, South Africa. He has a PhD in history from the University of the Witwatersrand. Prof Dugmore co-ordinates the Honours programmes at the School of Journalism and Media Studies at Rhodes, and supervises PhD and Masters research in the fields of health communication, sexuality and health, and digital journalism. He has had a long-standing interest in the media's ability to influence health behaviours and shape health identities. In the 1990s, Prof Dugmore co-wrote the first four seasons of the *Soul City* TV series and was, from 2001 to 2006, a coordinator of Khomanani, the then South African government's HIV, AIDS and TB behaviour change communication campaign. His research interest include media representations of obesity and the way non-communicable diseases are covered in media, health journalism in the digital era, participatory journalism, with particular reference to patient empowerment, and understanding the media's role in shaping sexualities and sexual identities. He is currently on the steering committee of the Highway Africa Conference, the largest annual conference of African journalists. He is also deputy Chair of the Board of *Grocott's Mail*, South Africa's oldest independent newspaper and is, from 2014, the Eastern Cape coordinator of the South African National Editors Forum (SANEF).

Appendix 2: Resolution on Protection against Violence and Other Human Rights Violations against Persons on the Basis of their Real or Imputed Sexual Orientation or Gender Identity

The African Commission on Human and Peoples' Rights (the African Commission), meeting at its 55th Ordinary Session held in Luanda, Angola, from 28 April to 12 May 2014:

Recalling that Article 2 of the African Charter on Human and Peoples' Rights (the African Charter) prohibits discrimination of the individual on the basis of distinctions of any kind such as race, ethnic group, colour, sex, language, religion, political or any other opinion, national and social origin, fortune, birth or any status;

Further recalling that Article 3 of the African Charter entitles every individual to equal protection of the law;

Noting that Articles 4 and 5 of the African Charter entitle every individual to respect of their life and the integrity of their person, and prohibit torture and other cruel, inhuman and degrading treatment or punishment;

Alarmed that acts of violence, discrimination and other human rights violations continue to be committed on individuals in many parts of Africa because of their actual or imputed sexual orientation or gender identity;

Noting that such violence includes 'corrective' rape, physical assaults, torture, murder, arbitrary arrests, detentions, extra-judicial killings and executions, forced disappearances, extortion and blackmail;

Further alarmed at the incidence of violence and human rights violations and abuses by State and non-State actors targeting human rights defenders and civil society organisations working on issues of sexual orientation or gender identity in Africa;

Deeply disturbed by the failure of law enforcement agencies to diligently investigate and prosecute perpetrators of violence and other human rights violations targeting persons on the basis of their imputed or real sexual orientation or gender identity;

- 1. Condemns** the increasing incidence of violence and other human rights violations, including murder, rape, assault, arbitrary imprisonment and other forms of persecution of persons on the basis of their imputed or real sexual orientation or gender identity;
- 2. Specifically condemns** the situation of systematic attacks by State and non-State actors against persons on the basis of their imputed or real sexual orientation or gender identity;

3. **Calls on** State Parties to ensure that human rights defenders work in an enabling environment that is free of stigma, reprisals or criminal prosecution as a result of their human rights protection activities, including the rights of sexual minorities; and
4. **Strongly urges** States to end all acts of violence and abuse, whether committed by State or non-State actors, including by enacting and effectively applying appropriate laws prohibiting and punishing all forms of violence including those targeting persons on the basis of their imputed or real sexual orientation or gender identities, ensuring proper investigation and diligent prosecution of perpetrators, and establishing judicial procedures responsive to the needs of victims.

Adopted at the 55th Ordinary Session of the African Commission on Human and Peoples' Rights in Luanda, Angola, 28 April to 12 May 2014 (ACHPR, 2014)



Appendix 3: Glossary ¹¹

Affirmative approach: An approach to psychological practice which recognises LGBTI sexualities and gender identities as normal variations of human sexuality and not as psychopathological. It emphasises the importance of contextual awareness, including an understanding of how factors such as homophobia, transphobia, heterosexism, prejudice and stigma impact on mental health and well-being.

Asexual: A person who has low or no sexual desire, little or no sexual behaviour, and a concomitant lack of subjective distress. Identifying as asexual does not preclude the ability of the person to have a romantic or love relationship with someone of the same and/or different genders.

Biological sex: The biological and physiological characteristics that are socially agreed upon as informing the classification of a person as male or female.

Bisexual: A person who is capable of having sexual, romantic and intimate feelings for or a love relationship with someone of the same gender and/or with someone of other genders. Such an attraction to different genders is not necessarily simultaneous or equal in intensity.

Coming out: A term describing the process of disclosing one's sexual orientation. In heteronormative contexts the expectation to disclose one's sexual orientation is typically associated with non-heterosexual orientations, while heterosexuality is generally assumed unless indicated otherwise. Coming out is a process of how one wants to be identified in relation to others. When an individual chooses not to come out (which is their right), the colloquial term used is "to be in the closet".

Discrimination: Differential treatment of a person because of group membership such as sexual or gender-minority status.

Gay: A man who has sexual, romantic and intimate feelings for or a love relationship with another man (or men).

Gender: The socially constructed roles, behaviour, activities and attributes that a particular society considers appropriate for either men or women.

Gender-affirming treatment/procedure: Medical treatment and other procedures, such as cross-gender hormones and gender-affirming surgeries, which transgender persons can choose to undergo in order to make their bodies more congruent with their gender identity, thus affirming their gender.

Gender diversity: The range of different gender expressions that spans across the historically imposed male-female binary.

¹¹ Definitions have been sourced from Psychological Society of South Africa (2013) Sexual and Gender Diversity Position Statement; Sam Killermann (2013) *A Social Justice Advocate's Handbook: A Guide to Gender*; and Institute of Medicine (2011) *The Health of Lesbian, Gay, Bisexual, and Transgender People: Building a Foundation for Better Understanding*.

Gender dysphoria: Refers to a discomfort with one's sex which is assigned at birth based on the appearance of the external genitalia and a desire to become and to live as the other sex.

Gender expression: Refers to the manifestation of characteristics in one's personality, appearance, and behaviour that are culturally defined.

Gender role conformity: Refers to the extent to which gender expression adheres to the cultural norms prescribed for people of his or her sex.

Gender identity: A person's private sense of being male, female or another gender. This may or may not match the biological sex a person was assigned at birth.

Gender non-conformity: Displaying gender traits that are not normatively associated with a person's biological sex. 'Feminine' behaviour or appearance in a male is considered gender non-conforming, as is 'masculine' behaviour or appearance in a female.

Hate crime: Any incident that may or may not constitute a criminal offence, perceived as being motivated by prejudice or hate. The perpetrators seek to demean and dehumanise their victims, whom they consider different from them based on their actual or perceived race, ethnicity, gender, age, sexual orientation, disability, health status, nationality, social origin, religious convictions, culture, language or other characteristic.

Heteronormativity: Related to 'heterosexism', it refers to the privileged position associated with heterosexuality based on the normative assumptions that there are only two genders, that gender always reflects the person's biological sex as assigned at birth, and that only sexual attraction between these 'opposite' genders is considered normal or natural. The influence of heteronormativity extends beyond sexuality to also determine what is regarded as viable or socially valued masculine and feminine identities, i.e. it serves to regulate not only sexuality but also gender.

Heterosexism: A system of beliefs that privileges heterosexuality and discriminates against other sexual orientations. It assumes that heterosexuality is the only normal or natural option for human relationships and posits that all other sexual relationships are either subordinate to or perversions of heterosexual relationships. In everyday life, this manifests as the assumption that everyone is heterosexual until proven otherwise.

Heterosexual: Having sexual, romantic and intimate feelings for or a love relationship with a person or persons of a gender other than your own.

Homonormativity: The system of regulatory norms and practices that emerges within homosexual communities and that plays a normative and disciplining function. These regulatory norms and practices need not necessarily be modelled on heteronormative assumptions, but they often are.

Homosexual: Having sexual, romantic and intimate feelings for or a love relationship with a person or persons of your own gender.

Homophobia: Also termed “homoprejudice”, it refers to an irrational fear of and/or hostility towards lesbian women and gay men, or same-sex sexuality more generally.

Intersex: A term referring to a variety of conditions (genetic, physiological or anatomical) in which a person’s sexual and/or reproductive features and organs do not conform to dominant and typical definitions of ‘female’ or ‘male’.

Lesbian: A woman who has sexual, romantic and intimate feelings for or a love relationship with another woman (or women).

LGBTI: An abbreviation referring to lesbian, gay, bisexual, transgender and intersex persons. ‘LGB’ are sexual orientations, while ‘T’ is a gender identity and ‘I’ is a biological variant. They are clustered together in one abbreviation due to similarities in experiences of marginalisation, exclusion, discrimination and victimisation in a heteronormative and heterosexist society, in an effort to ensure equality before the law and equal protection by the law.

Queer: An inclusive term that refers not only to lesbian and gay persons, but also to any person who feels marginalised because of her or his sexual practices, or who resists the heteronormative sex/gender/sexual identity system.

Sex: (1) Generally understood as a biological construct, referring to the genetic, hormonal, anatomical, and physiological characteristics of males or females. Sex is typically assigned at birth based on the appearance of the external genitalia. (2) All phenomena associated with erotic arousal or sensual stimulation of the genitalia or other erogenous zones, usually (but not always) leading to orgasm.

Sexual behaviour: Sexual behaviour is distinguished from sexual orientation because the former refers to acts, while the latter refers to feelings and self-concept. People may or may not express their sexual orientation in their behaviour.

Sexual diversity: The range of different expressions of sexual orientation and sexual behaviour that spans across the historically imposed heterosexual-homosexual binary.

Sexual orientation: A person’s lasting emotional, romantic, sexual or affectional attraction to others (heterosexual, homosexual/same-sex sexual orientation, bisexual or asexual).

Stigma: The inferior status, negative regard, and relative powerlessness that society collectively assigns to individuals and groups that are associated with various conditions, statuses and attributes.

Transgender: A term for people who have a gender identity, and often a gender expression, that is different to the sex they were assigned at birth by default of their primary sexual characteristics.



