Understanding the mental health and wellbeing of sexual minority adolescents in the UK: A multi methods investigation

Thesis submitted in accordance with the requirements of the University of Liverpool for the degree of Doctor in Philosophy

by

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way I can. I am thankful that I can do this as a researcher and intend to be one who will turn research into action.

I would like to make a note to all future PhD students, or students who may read this section. This PhD was hard, at times it impacted my mental health more than I had ever thought I would let it, this academic journey is intrinsically tied to one's ego. If you are embarking on a similar journey, I will tell you: You will question your ability, you will realise all you have learned and be taken aback; you will feel like an imposter and at other times you will feel like a genius. It really is a whirlwind. But remember, why you are doing this, when caught in the minutia of data or when bogged down by the tedious nature of formatting/referencing, be drawn to the bigger picture. I wish you all to persevere, to endure and flourish. Nothing that is worth doing comes easily.

ABSTRACT

Adolescent mental health has declined in recent decades and will likely be associated with poor adult mental health and related health comorbidities in future. Within the UK a tumultuous political and economic climate is seeing widening disparities between the minority and majority groups. One form of minoritized status that merits attention during adolescence and beyond, relates to sexuality. Research consistently shows that sexual minorities experience significantly worse mental health outcomes, with adolescence being a key point of vulnerability. However, research conducted with sexual minority adolescent populations has been limited in the UK. The aim of this PhD was to investigate the prevalence of adversities in sexual minority adolescents, to understand their experiences of mental-ill health *and* of wellbeing, as well as the social circumstances contributing to such outcomes. This body of work aimed to add to the existing theoretical literature and to provide focus for future interventions. To do so this PhD utilises a range of methodological approaches from literature synthesis, population-based analyses, experimental psychology approaches to critical qualitative inquiry.

This PhD consists of six chapters and four studies. Chapter 1 summarizes the extant literature, the political and social context in the UK and the methodological approaches adopted within this PhD. Chapter 2 identifies factors associated with subjective wellbeing in sexual minority adolescents utilising a systematic review methodology. A model of minority wellbeing was proposed, whereby factors associated with higher levels of wellbeing tended to have an external locus e.g., family/social support; whilst those factors associated with lower levels of wellbeing tended to have a more internals locus e.g., internalised homonegativity. In the absence of existing estimates, Chapter 3 uses data from The Millennium Cohort Study to provide contemporary population-based estimates of mental health, adversity, and health problems in sexual minority adolescents growing up today. Sexual minorities

were more likely to experience greater mental ill-health, worse interpersonal difficulties, and poorer health related outcomes than their heterosexual counterparts. These adversities also cumulated at higher levels for sexual minorities. Chapter 4 tested the postulations of an existing sexual minority mental ill-health theoretical model (the Psychological Mediation Framework). Using an experimental approach, associations between sexual minority status, emotional dysregulation, minority specific mechanisms (i.e., internalised homonegativity), depression and wellbeing were tested via an Implicit Association Test (IAT). Support for the Psychological Mediation Framework was mixed, where conscious internalised homonegativity was linked to depression but not when it was subconscious. The relationship between minority specific mediators, depression and wellbeing varied based on whether internalised homonegativity was conscious or not and in some cases showed counterintuitive relationships (unconscious internalised homonegativity linked to higher levels of wellbeing).

To contextualise and further understand these finding explored developing a new theoretical framework that would map the pathways associated with mental health outcomes in sexual minority adolescents in the UK. Chapter 5 employed a constructivist grounded theory methodology. Sexual minorities across the UK were interviewed about their sexual identity navigation. Findings led to the development of the Dynamic Identity Formation of Sexual minority adolescent's theory (DIFS). Sexual identity navigation was dynamic, seeing a movement between cultures such as heternormativity and gender binarism and queerness, the enactment of these cultures, to the experience of the individual. The culture of queerness ran parallel to heternormativity and was usually accessed later in one's developmental journey. As pernicious as the enactment of heternormativity and gender binarism could be, so could the culture of queerness – in both cultural spaces young people experienced othering. Chapter 6 summarises the contribution this PhD has for the research field, the strength of this work and future directions.

Overall, it appears that sexual minorities experience significant disparities in their mental health in the UK today. Subtle messaging and social processes such as othering are having more detrimental impacts than are currently realised and can have a significant impact on an individual in the absence of discrete victimisation events. Younger sexual minorities seem particularly vulnerable as they navigate their minoritised identity.

All empirical chapters have been or are pending submission to peer reviewed journal and variation in the structure of chapters reflects the recommendations of each journal.

PUBLICATION OF THESIS STUDIES[1]

Chapter 2

Amos, R., Van Der Boor, C., Patalay, P., & White, R. (2022). Wellbeing in sexual minority adolescents: a systematic review and critical appraisal of research. *Pending submission.*

Chapter 3

Amos, R., Manalastas, E. J., White, R., Bos, H., & Patalay, P. (2020). Mental health, social adversity, and health-related outcomes in sexual minority adolescents: a contemporary national cohort study. *The Lancet Child & Adolescent Health*, *4*(1), 36-45.

Chapter 4

Amos, R., White, R., & Patalay, P. (2022). The relationship between internalised homonegativity, emotional dysregulation, depressive symptoms, and subjective wellbeing in sexual minority youth. *Pending submission.*

Chapter 5

Amos, R., White, R., Patalay, P., & Donnellan, W. (2022). The dynamic identity formation of sexual minority adolescents in the UK: experiences of adversity and resilience. *Pending submission.*

ADDITIONAL PUBLICATIONS COMPLETED DURING PHD

Khanolkar, A. R., Frost, D. M., Tabor, E., Redclift, V., Amos, R., & Patalay, P. (2022). Ethnic and Sexual Identity-Related Inequalities in Adolescent Health and Well-Being in a National Population-Based Study. *LGBT health.*

van der Boor, C. F., Amos, R., Nevitt, S., Dowrick, C., & White, R. G. (2020). Systematic review of factors associated with quality of life of asylum seekers and refugees in high-income countries. *Conflict and health*, *14*(1), 1-25.

Lewis, G., Duffy, L., Ades, A., Amos, R., Araya, R., Brabyn, S., ... & Lewis, G. (2019). The clinical effectiveness of sertraline in primary care and the role of depression severity and duration (PANDA): a pragmatic, double-blind, placebo-controlled randomised trial. *The Lancet Psychiatry*, *6*(11), 903-914.

[1] As lead author Rebekah Amos lead the design, data collection, data analysis and manuscript preparation and submission.

ABBREVIATIONS

CGT – Constructivist Grounded Theory

CI – Confidence Interval

DIFS – Dynamic Identity Formation theory for Sexual Minority adolescents

IAT – Implicit Association Test

IEM - Intersectional Ecology Model of LGBTQ health

LGB – Lesbian Gay Bisexual

LGBTQ – Lesbian Gay Bisexual Transgender Queer

MST – Minority Stress Theory

PMF – Psychological mediation framework

UK – United Kingdom

YOA – Years of Age

QoL – Quality of Life

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CHAPTER 1 - GENERAL INTRODUCTION

1.1 Adolescence: development, transitions, vulnerability, and wellbeing

Adolescence is a time of significant psychological, biological, and social development, a formative life stage which carries potential for adverse outcomes in adulthood (Sawyer et al., 2012). As the world around us transforms, so does this developmental period of human life. In high income countries, better nutrition has hastened the biological onset of adolescence (i.e., menarche), the changing landscape of the global economy and job market has also delayed the reaching of 'adult' milestones such as, financial independence, owning one's own home, and gaining a stable job (Sawyer et al., 2018). Young people are amid a technological revolution, subject to a flurry of potentially harmful information, influences, and actors. They are also growing up in an environmental crisis, where the impacts of global warming are alarmingly evident (Gislason et al., 2021). Finally, the most recent global event to significantly affect young people is the coronavirus pandemic (Pierce et al., 2020). Emerging research suggests that the impact of the pandemic will continue to impoverish the emotional wellbeing of adolescents who have grown up through this health crisis (Ford et al., 2021). These events may all be valid explanations for the increasing mental health difficulties seen in adolescents. However, there are significant social disparities embedded amongst these broader issues that impact minority groups at disproportionate rates. This PhD focuses specifically on psychosocial outcomes seen in sexual minority adolescents today who because of their sexual orientation may experience greater adversity than their heterosexual counterparts.

The developmental period of adolescence is lasting longer than ever before. The beginning of adolescence sees the activation of the neuroendocrine hypothalamic-pituitary-gonadal-axis (facilitating gonad ovarian development) (Sawyer et al., 2018), neuroanatomical changes to the limbic system (reward system) (Arain et al., 2013) and rewiring of the frontal lobe via myelination and

dendritic pruning (Giedd et al., 1999; Pfefferbaum et al., 1994). These hormonal and neuroanatomical changes are accompanied by psychosexual development such as increasing exploration of one's sexuality and the development of romantic relationships (Kar et al., 2015).

Adolescence has been defined by organizations such as the WHO and UN as the phase between childhood and adulthood, with an age range of 10 to 19, where young people are those aged 10-24 and youth are 15-24 (WHO, 2022; United Nations, 2022a). The age range of adolescence has been difficult to pinpoint in terms of its length,particularly its end point. In terms of developmental milestones, between approximately 10-17 years of age there is a progressive development of one's social identity, personality, and seeking of independence from the family (Sawyer et al., 2018). After this point, social interactions become more complex, and there is a movement from trying to fit the 'in-group' to the development of more meaningful friendships and relationships (Adams & Berzonsky, 2008). As adolescents mature in their ability to understand abstract concepts and navigate increasingly difficult emotional situations, they also mature physically (Adams & Berzonsky, 2008). There is no single biological marker indicating the end of adolescence. As such, a combination of social, psychological, and biological adjustments can be useful proxies (Sawyer et al., 2018). Given that better global nutrition leads to earlier menarche, the development of the prefrontal cortex extends into the mid-20s, and social milestones occur later than this, Sawyer (2018) has proposed a new age of adolescence – 10- 24 years of age. In sum, adolescence is a time of substantial biological, interpersonal, and individual change, signifying a period of great potential but also great vulnerability.

Of the world's population 16% are aged 15-24 years of age, at a total of approximately 1.2 billion(United Nations, 2022).It may be assumed that because of their youth, the large majority are in

good health. However, epidemiological data such as Daily Adjusted life years[2] (DALY's), which measures disease burden, suggest this is not the case. A study by Gore et al., 2011 used data from WHO's 2004 Global Burden of Disease study to estimate the causal factors linked to DALY's across low-, middle- and high-income countries. At the aggregate level, irrespective of sex or location unipolar depressive disorders were responsible for the highest number of healthy years lost (8.2%) in those aged 10-24. Other substantial risk factors included alcohol use, unsafe sex, and illicit drug use (Gore et al., 2011). In terms of years lived with disability (YLD's), neuropsychiatric disorders were the largest contributor to poor health in this age group (45%) (Gore et al., 2011). Thus, not only are there considerable, and avoidable health concerns at this age, but mental health problems and risky behaviours contribute significantly to poor adolescent health.

To understand health outcomes and facilitate health promotion, requires us to consider the happiness and wellbeing of our young people. High income countries such as the Netherlands, Norway, Finland, and Sweden have scored highly in terms of children's wellbeing over the last decade in areas of mental wellbeing, physical health, and education. The happiness reported by Nordic populations has been linked to the promotion of work-life balance, better social and economic equality, and significant welfare benefits (Delhey & Newton, 2005). In contrast, the UK has moved from rank 16 for overall wellbeing in 2009-2010, to 27th in 2020 with the mental health domain showing the biggest decline (Delhey & Newton, 2005). This has been linked to disparities in material well-being – with 23% of children falling below the poverty line, higher comparative rates of infant mortality, low further education rates in comparison to similarly wealthy countries, higher levels of alcohol consumption and issues with overcrowding and air pollution (UNICEF UK, 2013). Suggested improvements include better investment in wellbeing from children to *young adulthood* and liaison with young

[2] DALY's calculate the years of life lost via premature death.

people themselves to enable them to determine sources and ways of promoting their own well-being (UNICEF UK, 2013).

The UK has 11.7 million young people aged 10-24 years, equivalent to one fifth of the population (Office for National Statistics, 2020). Murray et al., compared the UK against several countries across Europe and north America. In relative terms the UK's performance in terms of health (e.g., YLD's) had improved between 1990 – 2010, but fared worse in terms of mortality and years of life lost, ranking lower amongst these countries in 2010 than it had in 1990. Notably the major causes of YLD's in this age group were mental and/or behavioural disorders, highlighting the need for future public health interventions to focus on mental health (Murray et al., 2013). This finding is accompanied by other alarming trends such as an increase in mental health problems for more recent generations of adolescents (those growing up in the millennium). Recent population estimates, which compared proxies of mental ill-health from adolescents born in the 90's to those born in 00'sindicates that adolescents experience greater emotional difficulties such as depression and self-harm today than they did a decade prior (Patalay & Gage, 2019). This is particularly concerning given that poor mental health in adolescence will likely have a lifelong impact. Contemporary population estimates indicate that adolescents report experiencing anxiety and depressive like symptoms as early as 14 years old (Patalay & Fitzsimons, 2018) and adolescents with depression have been found to be between 2-4 times more likely to experience such difficulties in adulthood (Johnson et al., 2018). As such, a focus on the development of psychopathology and its pathways at this earlier point of life will facilitate early interventions in future and may minimize the detrimental lifelong outcomes associated with poor mental health.

There are significant inequalities at play, driving disparities in adolescent outcomes. A group who are significantly more likely to experience poorer mental and physical health outcomes are sexual

minorities. In comparison to heterosexual counterparts, sexual minorities are 2.94 times more likely to experience common mental health problems such as depression (Lucassen et al., 2017), 2.56 times more likely to experience severe mental health problems such as psychosis (Gevonden et al., 2014), and are more likely to engage in risky health behaviours such as smoking, alcohol use and substance misuse (Marshal et al., 2008; Roxburgh et al., 2016).

1.2 Sexual minority adolescents: Definitions and experiences of adversity

Given the common intersection between gender, sex, and sexuality it is important to define these constructs and their relationship to one another. Particularly given that gender and sex are related but often conflated constructs (Bailey, 2016).

Sex is a binary categorisation of 'male' or 'female' according to one's sexual dimorphism and thus assumed hormonal, reproductive capabilities (Jones et al., 2016). Sex is typically assigned at birth by medical professionals dependent on one's genitalia. Although this categorisation is generally useful it can also be problematic and othering (Jones et al., 2016; Carpenter, 2015). For example, those who are 'intersex' – possessing sexual characteristics outside of those expected given their assigned birth sex - do not accurately fall within the rigid dichotomy of sex. This has led to questionable medical interventions with children to ensure their sexual characteristics conform despite this often not causing any medical or physical harm to the individual (Carpenter, 2015). Although sex and gender are often congruent i.e., one's assigned birth sex is in line with the societal expectations of that gender and the individuals psychological understanding of themselves there are key differences between the two (Steensma et al., 2013). Definitions of sex are historically rooted in medical science and biology, whereas gender is more related to the social expectations attached how someone should present physically, the behaviours they exhibit and the relationships they have (typically being heterosexual -

between a man and a woman) (Bailey et al., 2016). Gender can be considered a multifaceted construct but is most widely understood as a binary categorisation of 'man' or 'woman' (Richards et al., 2016). Social and cultural norms dictate how sex might confer gendered traits. For example, the belief that those assigned female at birth are (should be) more feminine such as having long hair, wearing dresses/makeup and being in subservient and/or passive social roles (Bailey et al., 2016). Gender is thus often assumed to be binary and congruent with one's birth sex. However there exist multiple gender identities which can conform to or transgress social norms within any chosen culture (Richards et al., 2016). For those who identify/consider themselves as cisgender the sex they were assigned at birth matches their psychological and social representation of their gender (Steensma et al., 2013). For those who are transgender, their assigned sex at birth is incongruent with their psychological gender and/or social representation. Gender identities include those who are non-binary i.e., those who do not feel they are a man or woman or sometimes relate to one or more of these categories more flexibly (Richards et al., 2016; Steensma et al.,2013). A more detailed discussion of gender and sex is beyond the scope of this work, however throughout this PhD it is made clear whether demographic characteristics are split by gender and/or sex.

Sexual minority adolescents are non-heterosexual i.e., they experience same-gender, multiple-gender attraction, or identify with labels such as lesbian, gay, bisexual, or pansexual. Sexuality has been theorized to be a multi-dimensional construct (Saewyc et al., 2004) and as such, sexual minority status can be categorized based on an individual's romantic attraction, sexual attraction, behaviour, identity, and romantic relationship. Research has tended to measure sexual orientation[3] as though it is a stable and discrete construct. However, there is evidence to suggest it exists on a spectrum and may fluctuate throughout a person's lifetime (Savin-Williams & Ream, 2007). As such researchers need to be

[3] Sexual orientation is used here as an umbrella term and thus includes all various forms of sexual attraction, behaviour identity and relationship.

mindful of the conclusions, they draw working with any of these categorisations and, the time in a person's life in which they draw them (i.e., adolescence, adulthood). Four categorisations will be reviewed below, starting with sexual attraction, moving on to sexual behaviour, then sexual identity and finally romantic relationships.

1.2.1 Romantic and Sexual attraction

During young to middle (10-15 yoa) adolescence, individuals are typically in the process of navigating their sexuality (Saewyc et al., 2004). They are unlikely to have formed an identity yet, found their 'in-group' or even 'come out'. As such categorising them via romantic or sexual attraction is probably most appropriate (opposed to one based on identity or sexual behaviour). Romantic attraction is the feeling of romantic affection towards another person(s) which occurs alongside but often precedes sexual attraction. This can include wanting to be close to a person, showing physical affection and/or imagining being in a romantic relationship. Romantic attraction is more emotional in nature and less about the aesthetic appreciation typically associated with sexual attraction (Savin-Williams & Ream, 2007). Attraction may fluctuate over time and despite someone being attracted to the same-gender/multiple-genders they may never attach themselves to any sexual minority identity or label (Savin-Williams & Ream, 2007). Friedman et al. (2004) interviewed an opportunistic sample of adolescents of a narrower age range i.e., 16-22 years of age. It was found that adolescents conceptualized their attraction in two main ways. One was cognitive, defined as an aesthetic appreciation for a person, i.e., seeing them as a physical object of desire rather than a focus on feelings they hold for that person. The second type was physiological – i.e., the feelings associated with being attracted to someone such as sexual arousal (Friedman et al., 2004).

1.2.2 Sexual behaviour

As adolescents age they become more likely to act on their sexual attractions as they continue to biologically develop. Thus, categorizing one's sexuality based on their sexual behaviour is more

appropriate for older adolescents given that most adolescents in the UK engage in sexual behaviour around 16-17 yoa+ (NHS Borders, 2022). Typically, this categorisation has been used when investigating sexual risk taking and sexually transmitted infection, often grouping samples into ‘men who have sex with men’ or ‘women who have sex with women’. This categorization can also be a useful when sampling from certain cultures and countries where a sexuality minority label is heavily stigmatized or even illegal (Human Dignity Trust, 2022). However, sexual behaviour does not necessarily reflect a sexual minority identity, there are men who have sex with men that identify as heterosexual (Savin-Williams & Ream, 2007). Thus, this categorisation is less appropriate when trying to estimate perceived or actual social stigmatization or adversity given that one’s sexual orientation may be largely invisible to others.

1.2.3 Sexual identity

Sexual identity is arguably one of the more complex categorisations. It encompasses many aspects of a person’s character and the way they behave and express themselves. By subscribing to a particular identity, one starts to conceptualize and enact the character they want to portray to others via the group they associate with (Ashmore et al., 2004). Self-identity puts people in collective social positions, and spaces with those who share a similar identity (Ashmore et al., 2004). Sexual identity involves a cognitive (and potentially emotive) evaluation of the self, relating to who someone wants to be seen *as* and who they want to be seen *with* (Friedman et al., 2004). The way someone views their sexual identity is likely to be very personal to them. Those with a ‘lesbian’ identity, for example, may vary in why they have adopted that label and the behaviours and relationships they engage in. Given that it can take a while to navigate identity and with transitions in later adolescence/emerging adulthood (e.g., Attending university or moving to a more accepting place) this categorization is most appropriate for older adolescents and adults.

1.2.4 Romantic relationship

Romantic relationships may be formed based on who people think they *should* be with and who they can build a life with (Friedman et al., 2004). There are also instances where those who would identify as heterosexual fall in love with someone of the same-gender and pursue a romantic relationship with them. This may be a useful categorisation when estimating exposure to homophobia or stigmatisation as having a relationship with the same gender can be a visible indicator to others of sexual minority status. However, it might not reflect more complex internal processes such as internalized homonegativity or fear or rejection that those who hold a sexual minority identity may also experience. Like sexual behaviour and identity, this categorisation is best used with older adolescents and emerging adults/adults, given that meaningful romantic relationships tend to be formed around 18yoa and older (Collins et al., 2009).

In summary, the categorisation used should be based on the question being asked (e.g., investigating propensity of sexual risk taking would be best using a behavioural categorisation of sexuality) the developmental stage of the young person, the cultural conceptualization of sexuality and, the level of sexuality acceptance within the country of investigation. Recent work has explored how sexuality categorisation and data recoding choices can lead to variations in health outcomes estimates, it seems however that the adoption of variant sexuality categorisations does not have a substantial impact on outcome estimates (Tabor et al., 2022). Multiple categorisations may be appropriate, especially when the research question is multifaceted, or the age range being studied is wide. Throughout this PhD each categorisation has been carefully chosen to reflect the developmental progress of the population being researched and the question being answered. Key sexual minority theories can also be used to guide the researchers process of adopting the most appropriate sexuality categorisation. In the next section will describe the theories that have been used to understand adversity exposure and mental ill-health in sexual minorities.

1.3 Minority stress theory

The most widely used theory to explain sexual minority adversity and mental health disorder prevalence is the minority stress theory (MST). A thorough and systematic search of the extant literature led to its development in 2003. Its origins are rooted in stress theory (Dohrenwend, 2000). The underlying proposition is that certain events surpass one's threshold for stress, resulting in poor mental and/or general health. The MST posits that sexual minorities are at increased exposure to stress given their sexual minority status (see figure 1 below). For example, sexual minority status is less socially acceptable and goes against heteronormative narratives that are pervasive in many societies, religions, and cultures (Herek, 2004).

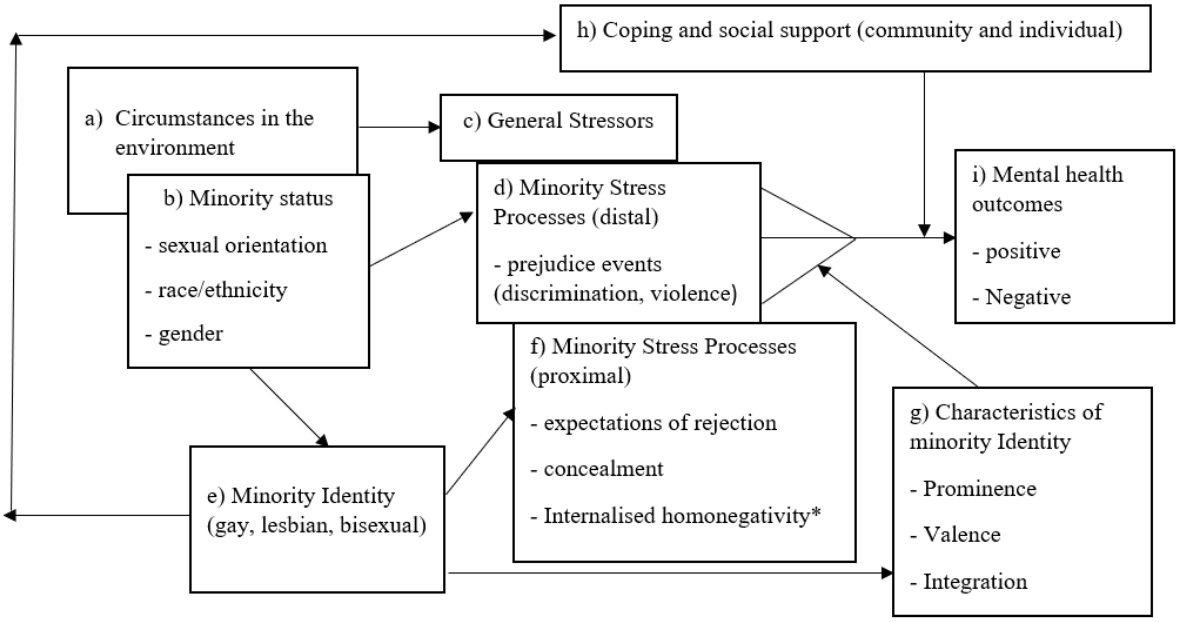


Figure 1.1 Minority Stress Theory (From Meyer, 2003)

The starting point of this model (box a, figure 1) recognizes the situated context of the individual. One's environmental circumstances may increase their likelihood of experiencing *general stressors*

(box c), for example living in and more deprived area and struggling with job precarity. Minority status (box b) overlaps with this as one's minority status, may interact with one's environment that increases or buffers against this likelihood (for example may be harder to get a job as gay person if discriminated against). However, for the sexual minority individual there are *additional stressors* to contend with (box d) such as exposure to acts of violence because of homophobia. These are distal stressors given that they are external to the individual. Distal stressors can impact how an individual approaches future threats (box f) and how they perceive themselves (box f "internalized homonegativity"). One may become hypervigilant to signs of homophobia to avoid future violence, may expect to be rejected based on their sexuality, conceal their sexuality from others and ultimately begin to internalize negative opinions about their sexuality. The latter stressors are proximal cognitive and/or emotional processes formed as a reaction to distal stress, which impacts one's mental health. Furthermore, the *characteristics* of one's sexual identity (box g, figure 1) may impact their mental health outcomes positively or negatively (box I, figure 1). To illustrate, it is reasonable to assume if someone's sexuality is integral to their sense of self, any discrimination related to their sexual identity might heighten the level of stress/distress (as it is a personal attack). However, having a sexual minority identity may allow access to support from other sexual minorities (box h, figure 1) which buffers against the negative impact of heightened stress.

The MST encapsulates elements that the *developer* identified as *most* relevant to those with minority identities. In doing so, Meyer recognizes that wider factors such as one's biological profile, personality traits and one's wider environment will also play a role in one's coping ability. This model was developed using findings from adult populations. The next section will now focus on a contemporary adaption of this model which is specific to an adolescent population.

1.3.1 Developmental Minority Stress Theory

The original MST has mainly been tested with adult samples and therefore, its utility with adolescent populations is open to debate (e.g., Kelleher, 2009). To explore MST's utility with adolescents, Goldbach & Gibbs (2017) conducted 48 qualitative interviews with a diverse group of sexual minority adolescents from California (USA) . Social context, such as one's family environment, religious background, and school, emerged as a key element to the experience of minority stress and its varying forms (i.e., internalized homonegativity vs victimization) (see figure 1.2).

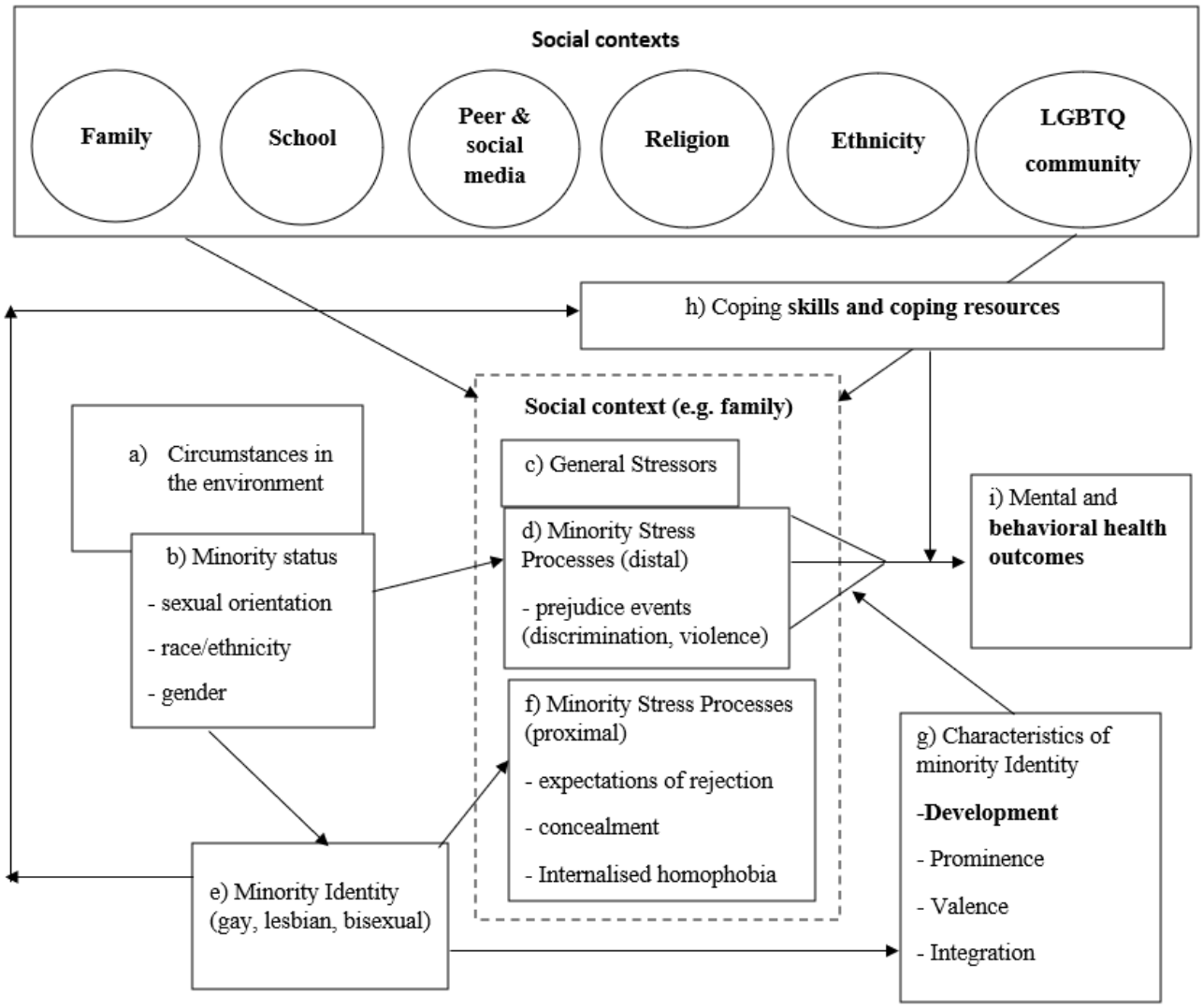


Figure 1.2 Adapted minority stress theory from Goldbach and Gibbs (2017)

Note. Additions to original MST model are in bold.

By extension, these social contexts could bolster coping with most of these social contexts being outside the behavioural control of the individual. This research shows the importance of the situated context of the sexual minority adolescent, these environments are not easy to avoid if they are unpleasant, given the adolescents dependence on the family and the obligatory nature of attending school at this age. Older sexual minorities can adapt and change their environments, whereas sexual minority adolescents are forced to adapt *to* these environments. As sexual minority research has progressed variant theories have emerged and, in some cases, extended those previous. For example, the MST does have some important limitations which are in some ways addressed by additional theories.

1.4 Psychological Mediation Framework

The psychological mediation framework (PMF; (Hatzenbuehler, 2009) proposes that the notion of 'stress' adopted by the MST is non-specific. Namely the MST does not make clear *how* mental health problems occur and are maintained. Looking back at figure 1.1 between paths d/f to I, there is no real clear indication of *how* psychological distress occurs, specifically what the mechanism of action is. Furthermore, the MST does not theorize the impact of general mediating psychological processes such as emotional regulation and cognitive functioning (Herts et al., 2012). The MST encapsulates many forms of stress that may have heterogeneous mental health outcomes. For example, exposure to family denigrations might be associated with depression and ruminative processes, whereas exposure to violence could lead to avoidance behaviours or conduct problems. Both exposures would be distal in nature but have differing impacts on the individual's behaviour and mental health. As such, the psychological mediation framework incorporates existing knowledge of psychopathological processes – so that general population-based research can be used to understand the *development and maintenance* of mental ill-health in sexual minority populations (see figure 1.3).

As with the MST, the PMF maps the impact of distal stressors – those which are external to the individual. However, it adds mediating pathways, such as cognitive appraisals and emotional regulation strategies which are proposed to mediate the link between distal adversities and psychopathological outcomes. Similarly, to the MST, the PMF acknowledges that sexual minority individuals have an increased likelihood of exposure to adverse situations and outcomes. However, the PMF posits that poor outcomes are mediated by general psychopathological processes such as emotional dysregulation strategies i.e., rumination. The PMF theory facilitates specific hypotheses and statistical modelling (i.e., mediation), by incorporating prior work on psychopathology.

It is important to note that this framework is a psychological one. As such, its focus is to understand the pathways and processes involved in poor psychological outcomes for this population. Whereas the MST is broader, more sociological and provides an overview as to *why* disparities may be seen

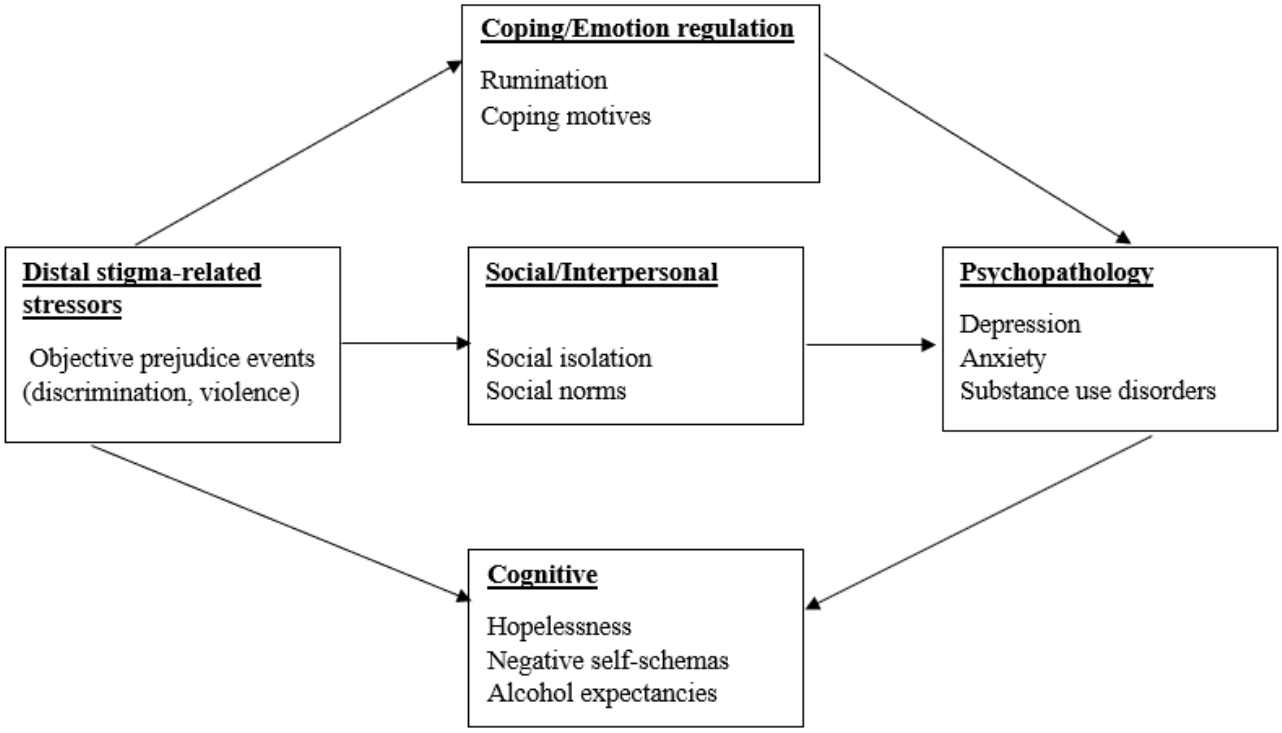


Figure 1.3 Psychological Mediation Framework schematic (from Hatzenbuehler, 2009)

between minority and majority groups (Meyer, 2003). The PMF was not intended to be used to consider the broader social and environmental circumstances that may impact the sexual minority individual or as is the focus of this PhD, the added difficulty adolescence holds for emotional regulation and identity navigation. Below will review in more detail the mental health difficulties that have been seen in sexual minorities.

1.5.1 Mental health in sexual minority adolescents

A wealth of research indicates that sexual minorities fare poorly in terms of their mental health when compared to heterosexual populations. Thus, sexual minority research has primarily centred around mental-ill health (Saewyc, 2011). A bibliometric analysis of work conducted since inception found that five topics dominated sexual minority research, these were: suicide, mental health/depression, bullying/victimization, substance use/alcohol and violence (Sweileh, 2022). Indeed, meta-analytic work reveals that sexual minorities are at greater risk of engaging in substance misuse (Goldbach et al., 2014), attempted suicide (di Giacomo et al., 2018), depression (Marshal et al., 2008) and other common mental health problems such as anxiety (Semlyen et al., 2016). Despite this being a significant cause for concern and thus an important focus for targeted interventions, there is also an empirical and moral imperative to focus on the wellbeing, flourishing and protective factors that lead to better outcomes for sexual minorities (Saewyc, 2011). However, in the context of mental health research for sexual minorities, mental *illness* has been the dominant focus.

1.5.2 Wellbeing and sexual minority adolescents

The absence of mental ill-health does not denote a presence of mental wellbeing and the counter point also stands. Namely, the presence of clinical symptomology does not mean an individual cannot flourish or experience wellbeing. Despite this, mental health has become synonymous with mental

illness, with researchers typically only measuring the latter (Magyar & Keyes, 2019). Mental ill-health and mental wellbeing have been proposed to be interlinked but separate constructs. In this vein, theorists have proposed that a dual model of wellbeing and psychopathology exists, where wellbeing, and psychopathology work simultaneously and even antagonistically (Keyes, 2002; Suldo & Shaffer, 2019). Psychometric work has indeed found a dual model to be the best in terns if fit when compared to other alternative models such as the continuum model. Keyes (2005) recruited a nationally representative US sample of over 3000 adults. It was found that wellbeing and mental ill-health correlated about r = .53. Crosstabulation analyses also revealed that mental health disorders such as clinical depression, generalised anxiety disorder and, panic disorders were indeed more common in mentally unhealthy or 'languishing' participants (Keyes, 2002). However, there were still participants that could be considered mentally healthy (flourishing) who also experienced such disorders. This highlights the limitation of measuring psychopathology in isolation given that some who experience disorders to a clinical level (cut-off) can also flourish in life and vice versa. Keyes proposes that just as people can be diagnosed as depressed or anxious people can also be diagnosed as 'mentally healthy' (low psychopathology and high wellbeing), 'vulnerable' (low psychopathology, low wellbeing), 'symptomatic but content' (high psychopathology and high wellbeing) and 'troubled' (high psychopathology and low wellbeing) (Suldo & Shaffer, 2019).

Wellbeing is a multidimensional construct, relating to affect, cognitions, interpersonal connection, and core values of self (Magyar & Keyes, 2019). Wellbeing can be subjective, psychological, and social (Keyes, 2006). Subjective wellbeing includes an assessment of one's positive affect, negative affect, and life satisfaction. Psychological wellbeing assesses one's perception of their autonomy, purpose in life, personal growth, positive relations, environmental mastery and how accepting they are of themselves (Keyes, 2006). Social wellbeing assesses one's feelings of social integration, social

contribution, social actualization (e.g., society improving), social acceptance (e.g., feeling people are generally good) and social coherence (that society makes sense).

It is worth highlighting that within this PhD the focus is on psychological and or subjective wellbeing. Other categorisations of positive functioning and / or the impediment of that functioning include concepts such as Quality of Life (QoL) and resilience. QoL is often used in a broad sense involving the subjective interpretation of one's life and their satisfaction with it. Whereas, Wellbeing has been adopted more in a psychological sense to not just capture affect but also how cognitions and emotions influence one's wellbeing and by extension overall mental health (Pinto, Fumincelli, Mazzo, Caldeira, & Martins, 2017). Resilience on the other hand, has been defined in several ways, with some authors considering it to be an internal trait such as displaying grit, and for others being more about one's reactions to adverse social circumstances and their adaptation to these (Fletcher & Sarkar, 2013). Thus, it is important for researchers to be clear as to what specific constructs they are measuring and the underlying theoretical postulations of the chosen psychometric tool that underlies its measurement.

It is worth noting that in relation to sexual minority theories, the MST and PMF have been used to primarily focus on poor outcomes, such as *psychopathology*. Although the MST does give recognition to the fact positive outcomes may come out of minority experience, the PMF does not. There has been recognition in sexual minority literature that not only has work focused almost exclusively on psychopathology, but it has adopted a victim-based narrative that largely ignores sexual minority individual's experiences of resilience, grit, and wellbeing.

Several key authors have worked to address the dearth of wellbeing based sexual minority research, these include Ellen Riggle, Jonathan Mohr, Sharon Rostosky, Adam Fingerhut, Joy Whitman, Emily

Colpitts and Jacqueline Gahagan. Through a mixture of qualitative work, literature reviews and psychometric development and testing, the work conducted by these authors highlights that sexual minorities have unique factors contributing to their wellbeing.

Work by Riggle et al., (2008) found that sexual minorities draw feelings of wellbeing from social support and disclosure, by developing high levels of empathy for self and others and moving beyond societal definitions and roles (Riggle et al., 2008). Research with same sex couples has indicated that they could discuss and positively reframe discriminatory experiences, position stress as external and view their relationship as a positive and empowering experience in the face of rejection or victimization (Rostosky et al., 2007).

Based on these findings Riggle et al. (2014) began validating a measure of *positive identity* in sexual minorities. Five constructs of positive identity in sexual minorities were identified: Authenticity, Social Justice, Self-Awareness, Intimacy, and LGB Community. These positive identity constructs were moderately associated with subjective wellbeing (e.g., positive affect) and more with psychological wellbeing such as a sense of purpose (Riggle et al., 2014). Authenticity explained unique variance in all the psychological wellbeing constructs such as one's perception of their; autonomy, purpose in life, personal growth, positive relations, and environmental mastery (Rostosky et al., 2018). Thus, knowing one's identity and being able to communicate one's identity with others seems to bolster psychological wellbeing.

Colpitts & Gahagan (2016) focused on 'strength-based approaches' as opposed to wellbeing per se. Utilizing a scoping review methodology, they identified individual-level and structural-level factors impacting resilience in this group. At the individual-level, high self-esteem, self-efficacy (coping with

environmental demands), proactive coping, self-care and shamelessness promoted resilience in this group. At the structural/broader level, perceived social support, social connectedness, having positive LGBT role models in the media, positive school and work environments, social activism, access to safe spaces and access to LGBT communities (Colpitts & Gahagan, 2016). It may be the case that focusing solely on a victim-based understanding, runs the risk of reducing adversity but not necessarily facilitating wellbeing in this group. Furthermore, it erases the voices of those who overcome difficulties and show strength despite the experience they have been exposed to. A greater focus on wellbeing, resilience and positive affect could potentially lead to better informed public health interventions by identifying factors unique to this minority group, especially at the structural level. Focusing on individual-level factors in isolation is likely insufficient given the wide-ranging factors affect sexual minorities (Krieger, 2019).

1.6 Structural harms, intersectionality & theories of disease distribution

Sexual minority health is situated within a larger environmental context of socio-political structures. Meta-analytical work has provided an outline of causal factors, intervening factors, and health outcomes in sexual minorities (see figure 1.4) (Lewis, 2009). Synthesizing findings from 12 national adult survey conducted across north America and Europe has revealed varying patterns of risk dependent on geographical location. Lewis (2009) linked this to differing policy regimes and health service design and access. Thus, differing structures of health care, policy and cultural attitudes will impact one's health outcomes simply because of geographic location. This can be considered a form of structural prejudice, as unfair treatment is related to one's environmental factors opposed to individual characteristics or decision-making processes. Lewis (2009) provides a useful schematic outlining the potential causal impact that structural prejudice can have on intervening factors and ultimately the health outcomes of sexual minorities (see figure 1.4).

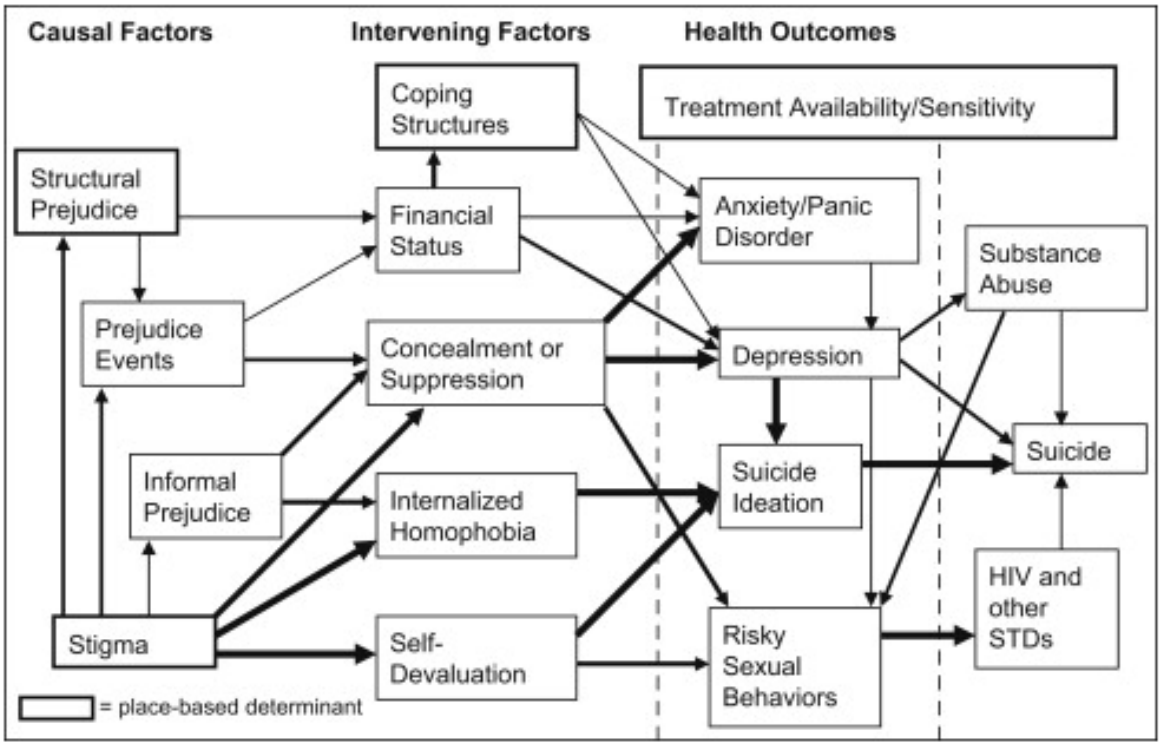


Figure 1.4 Proposed causal pathways between to minority stress and poor mental health outcomes in sexual minorities (taken from Lewis, 2009).

Such structural inequalities exist in a hierarchy. They and are embedded in our culture, facilitating ostracization, false representation and in the extreme – violence (Herek, 2004). Herek (2004) theorizes a useful outline of how and why oppression is enacted. Sexual minority identities are marked by a "sexual stigma" (see left side of figure 1.4). Sexual stigma is the negative valuation (shame/taboo status) of this 'mark' (sexual orientation). In contrast to heterosexuality, homosexuality is considered inferior, devalued and to be kept invisible or on the 'fringe'. A key feature of sexual stigma is that anyone who bears its mark is defined by it (i.e., their minority status), other aspects of their character are largely ignored (Herek, 2004). Sexual stigma (the mark) is promoted and facilitated by heterosexism (the conduit). Negative representations of sexual minorities in media are one example of heterosexism in action (other examples may be a lack of laws or policies protecting sexual minorities), this facilitates negative valuation of sexual minorities (i.e., sexual stigma) and subsequently sexual

prejudice. Sexual prejudice (the consequence) is the psychological evaluation by an individual that sexual minority identities are wrong or inferior. To summarise, heterosexism is the cultural ideology and social system that considers sexual minorities as inferior, this leads to them being marked as different (sexual stigma) and this then begins to exist in the mind of individuals (sexual prejudice) which can have covert (internal judgements, avoidance, microaggressions) or overt (violence and victimisation) consequences (see figure 1.4 "intervening factors"). Sexual minority status is not the only identity that is regarded as 'less than' or inferior. It is suggested that the cultural ideology of heterosexism breeds not only sexual stigma and prejudice, but also reduces visibility of the human diversity. This is particularly pertinent given that sexual minorities are a heterogeneous population, some may have multiple minority status' that increases their exposure to negative outcomes.

Intersectional based research proposes that sexuality, gender, and race do not exist in a vacuum, as such, multiple identities can interact in unique ways over and above the sum of their parts (Mink et al., 2014). Protective and adverse factors may vary across identity compositions and will also vary depending on the social context the individual finds themselves in. For example, the experience of being a black gay woman will involve different support networks and different vernacular which will be *qualitatively* different from that of a white pansexual woman. Multiple identities intersect in such a way that health inequalities may be increased for the most underprivileged in any given situation, having a life-long impact on the individual (Creighton et al., 2019).

In terms of risk, work utilising a statistical methodology that identified clusters of groups who shared similar outcomes, found that white and/or non-Hispanic ethnic individuals were less likely to be in a high victimisation class (Child abuse and neglect and sexual cyber intimate partner violence) in comparison to people of colour. Furthermore, one's sexual identity type (bisexual or gay) and gender also played a role in the class they belonged to. With more bisexual people (men or women) more likely to be in the emotional abuse and neglect class than gay men or lesbian women. Moreover,

bisexual women (compared to bisexual men) were also more likely to be in the childhood abuse and neglect class (Charak et al., 2019). A recent study by Khanolkar et.al (2022) used population cohort data (from the MCS) to estimate the increased odds of mental health, general health, and health-harming behaviours in 17-year-olds with double minority status i.e., an ethnic and sexual minority, versus white sexual minorities and white and ethnic minority heterosexual young people. They found that whilst sexual minorities were at increased odds of experiencing negative mental health and engaging in health-harming behaviours in comparison to their heterosexual counterparts, the odds were significantly elevated in white sexual minorities versus ethnic sexual minorities (Khanolkar et al., 2022). The reduced odds of ethnic minorities being diagnosed with mental health disorders may be due to other patterns observed indicating they are less likely to seek clinical treatment (Edbrooke-Childs & Patalay, 2019). There were differences in health-harming behaviours where white sexual minorities were more likely to engage in drinking and ethnic sexual minorities were more likely to take drugs. There may be cultural differences that impact this pattern, whereby some protective or buffering effects exist in one group but not the other. There is also a need to consider under-reporting and stigma associated with mental health difficulties in other ethnic groups that may also impact study findings reported here.

To summarize, the research evidence points to an interplay between social expectations, cultural norms, power constructs and privilege across differing identity compositions. These interactions or 'intersections' impact the outcomes a person is likely to experience. This has been represented in the Eco-social theory of disease distribution (Krieger, 2019) and for sexual minorities specifically – the intersectional ecology model of LGBTQ health (Mink et al., 2014)

The Eco-social theory of disease distribution proposes that structural injustices such as 'isms' (e.g., racism, sexism, heterosexism, and gender binarism) promote the majority class whilst subjugating the

minority class, carrying with it health inequities for the latter (Krieger, 2019). These structural injustices cause *embodied harm* to the minority individual i.e., they have biological side effects. There is a hierarchical and chronological order to how population level disparities occur. Social ecosystems exist at the Global, National, regional, local, household, and individual level and unjust 'isms' are enacted via geography, historical change, power difference, social deprivation, physical violence, and discrimination. Not only is exposure to embodied harm more likely via oppressive social ecosystems but also more likely to carry cumulative risk (Krieger, 2019). In relation to sexual minorities differing pathways to embodiment may include increased exposure to victimization, leaving with it a mark of physical harm and/or mental trauma (Meyer, 2003). In terms of cumulative interplay, there is evidence to suggest that polyvictimisation (e.g., co-occurring forms of victimisation) occurs in sexual minority groups (Baams, 2018). Furthermore, sexual minorities are more likely to experience victimization when they are less developmentally equipped to deal with it (Savin-Williams & Ream, 2007). This theory helps one to understand how social injustices lead to poor biological outcomes, whilst promoting those of the majority. It makes clear that social injustice is also health injustice. Although this theory is useful in a sociomedical sense and applicable to a wide range of minorities, it does not expand upon how embodiment occurs or may be maintained on the individual level.

This is where, theories such as the intersectional ecology model (IEM) of LGBTQ health become useful, given that it aims to explore the effect of structural harms and the adoption of psychological processes that can perpetuate negative effects over time (Mink et al., 2014). The authors suggest that two key constructs impact the health of sexual minorities: the social context and the stress cycle. The social context includes the dominant culture as well as sexual minority culture, however the tendency is for a range of social contexts to promote heternormativity. The stress cycle includes exposure to stressors, a perceived threat, *a method to cope* with this threat and the health outcomes associated with the stress. This theory also recognizes that stigma can be perpetuated by the minority group

themselves whether this is a sexual minority or ethnic minority. There is a potential rigidity of conforming to certain identities and the rules made within minority spaces, that is less tolerated when deviated from.

All these theories have one key similarity, they have been developed by researchers in the USA and although have generalisable elements may miss cultural differences that impact sexual minorities differently from other countries. In the next section explore the work that has been done to date with sexual minorities in the UK.

1.7 Existing sexual minority research in the UK

Sexual minority research has developed most notably in countries such as the Netherlands and US. The former country being particularly progressive in its laws and attitudes to sexual minority individuals, whilst the latter has multifarious socio-political attitudes, due to is geographical and political composition (i.e., state vs federal policy). Whilst these countries have provided empirical evidence highlighting the general adversity experienced by sexual minorities; the cultural, social, and political contexts of these environments will have differing impacts on their sexual minority populations. For example, the way institutions (schools, universities), health services and popular religious narratives perpetuate or counteract structural harm and sexual stigma. There has been a general dearth of research on sexual minority health within the UK context, especially when it concerns adolescents. Below a brief overview of some of the work conducted in the UK is provided.

Earlier UK based work focused on establishing exposure to victimization and bullying within the school context, using community or opportunity-based recruitment methods. More recent work has moved to considering the significant impact social adversity and disparities have over the life course i.e., increased rate of suicidal ideation, depression, and general psychopathology. As this research field has developed,

the quality of research has too. Below a summary of older to more recent work is provided with an overview of the methodological changes and advancements that have followed.

Early research by Rivers (2001) is an example of UK based work establishing the prevalence of bullying, and its association with poorer school attendance. An opportunistic sample of 190 sexual and gender minority adults was obtained and using retrospective self-report questionnaires it was found that 72% of participants had truanted to avoid homophobic abuse at school. Whilst, showing a clear pattern of bullying in this population this work suffers several design issues. Namely, the retrospective nature of reporting, the lack of a heterosexual control group and the convenience sampling in such designs makes findings less rigorous and less generalizable. However, this work has provided an important foundation on which to build. Namely that within school settings sexual minorities are more likely to be exposed to victimization and bullying.

King et al., (2003) started to explore adverse outcomes in sexual minority youth and adults in England and Wales. Gaining an opportunistic sample of 1086 sexual minorities and 1093 heterosexual participants with an approximately even gender split. It was found that those meeting the threshold for common mental health disorders (CMD's) was significantly elevated in gay men (44%) vs heterosexual men (35%). This pattern was also observed in sexual minority women, with 44% also scoring above CMD threshold in comparison to 34% of heterosexual women. Furthermore, a high proportion (62%) of gay men who expressed a wish to change their sexual orientation scored above the threshold for CMD's. As above, this work suffers some limitations. Although a larger and more balanced sample was acquired than in Rivers (2000) study, recruitment was opportunistic – limiting its generalizability. Moreover, sexual minorities were monosexual, so there was no representation of bisexual individuals in this study.

From 2010 onwards there seemed to be a movement to using more population level data sets with several authors using the Avon Longitudinal Study of Parents and Children or other household surveys. Most of this work was either conducted with adult sexual minorities (Shahab et al., 2017) had limited focus on younger people (Davies et al., 2019; Warner et al., 2004) or used retrospective designs with sexual minorities who had grown up in a much less progressive socio-political context (Calzo et al., 2018; Irish et al., 2019; Needham & Austin, 2010).

The ALSPAC is a birth cohort of parents and children from the South-West of England. At age 16 years, children enrolled in this study and answered questions regarding their sexual orientation that has allowed several authors to assess retrospective and prospective outcomes in sexual minorities. Using this dataset authors have found that lower levels of family connectedness predict worse health outcomes i.e., suicidal ideation, drug use and heavy drinking (Needham & Austin, 2010), that gay and lesbian adolescents have significantly increased odds of body dissatisfaction and disordered eating patterns (Calzo et al., 2018), and that between 16-21 years of age sexual minorities are at increased odds of self-harming and self-harming with suicidal intent compared to heterosexuals (Irish et al., 2019).

Other work has analysed data from smoking and alcohol use household surveys (Shahab et al., 2017), the health survey for England (Davies et al., 2019) as well as study specific opportunistic surveys (Warner et al., 2004). Findings from this work indicate that the link between increased smoking and sexual minority status is removed when controlling for socioeconomic factors, but health-harming behaviours such as hazardous alcohol use remain, particularly in sexual minority women (Shahab et al., 2017). Like the findings cited above, Warner et al., (2018) found that rates of planned and deliberate self-harm, and levels of depression, were higher amongst sexual minority adults than those found in heterosexuals.

This section provides a snapshot of the work that has been done. But it is evident, despite the increasing rigor and breadth of focus on sexual minority health in the UK, there remain significant gaps. For example, prior to this PhD, there was a lack of contemporary population-based estimates establishing broad adversities (within a single study) in sexual minority adolescents compared to heterosexual adolescents. Furthermore, as can be seen above – the focus of work has focused primarily on adversity or psychopathology without a broader focus on mental *health*.

1.8 UK Laws and rights for sexual minorities

To situate the socio-political context in which young LGBT people find themselves in the UK, it is worth firstly outlining the global contexts which affect this population. At the time of writing, it remains illegal to be gay or engage in homosexual acts in 71 countries with at least 6 of these countries also imposing the death penalty (Iran, Nigeria (Northern Region), Saudi Arabia, Somalia and Yemen and the death penalty is a legal possibility in Afghanistan, Brunei, Mauritania, Pakistan, Qatar and UAE). This makes clear the stark reality in which a considerable proportion of sexual minorities are growing up. Across the globe there is considerable heterogeneity in people's attitudes towards homosexuality, where some are legally allowed to marry whilst others are punished for the simple act of being with a member of the same sex. Even within Europe there is variation in the acceptance of homosexuality. In several Eastern European countries such as Russia and Chechnya, there are higher levels of violence towards sexual minorities and legal rights such as same-sex marriage are prohibited (Wilson, 2020).

In addition to same-sex marriage in the UK now being lawful, sexual orientation is also a protected characteristic. The equality act 2010 provides broad protection for those of all sexual orientations who

may be subject to work discrimination, refusal of housing, issues with health access, and wider victimization (UK public General Acts, 2010). Despite these protections and privileges there is still considerable work to be done in terms of public attitudes, feelings of safety and equitable health care. The *Improving the health and wellbeing of lesbian and bisexual women and other women who have sex with women* report by public health England addresses the fact that women who have sex with women are more likely to suffer physical and mental health inequalities, which are impacted by social discrimination, lack of practitioner education/support and wider determinants such as occupational attainment, educational attainment, insecure housing or homelessness, crime and violence (Public Health England, 2018). The largest government national survey of LGBT people revealed that 68% of sexual minorities who completed the survey would feel uncomfortable holding hands in public and 70% said they avoided being open about their sexual orientation in public for fear of a negative reaction (Government Equalities Office, 2018). In addition, 40% of participants reported experiencing a negative incident in the preceding 12 months due to being (or being perceived to be) a sexual or gender minority. From 2016 to 2021, police records indicate that the number of reported hate crimes related to sexual orientation has increased each year a total of 19% over a five-year period (Home Office, 2022). This increase may be attributed to increased reporting and improvements in recording hate crimes.

The inequalities identified in health care provision and protection, fear of being open in public, and the number of reported hate crimes in the UK attests to the fact more work is needed to reduce social discrimination and improve safety for sexual minority individuals.

1.9 Chapter summary, aims and outline of current thesis

To summarize, adolescence is a significant developmental period in the life course, lasting longer than previously thought, becoming increasingly challenging to navigate as the demands of modern life rapidly expands. There seems to be a general decline in mental health for adolescents with evidence of poorer wellbeing in young people in the UK in comparison to other high-income countries. The health burden of this is significant with the leading cause of years lived with disability being mental-ill health and associated health-harming behaviours. As mental ill-health is associated with several co-morbid health problems over time, promoting adolescent health and reducing risk is vital to better life-long outcomes for coming generations. It has been made clear that significant disparities at play, where sexual minority adolescents are particularly vulnerable to adverse mental health outcomes due to overt, covert, interpersonal and structural harm. To address this inequality, it is imperative identify the extent of such disparity and the potential reasons for it. To bolster wellbeing, also need to identify factors promoting or reducing wellbeing in our sexual minority young people.

The aim of this PhD is to build upon the emerging empirical work focusing on sexual minority mental health outcomes in UK adolescents, by establishing factors associated with mental ill-health and wellbeing. This PhD employs a multi-method approach, moving from quantitative studies to a final qualitative study. Further details regarding the methods and analysis are provided in each study. The layout of each study was prepared in accordance with the journal it was (or intended to be) submitted to (referencing is consistent throughout).

At the outset quantitative work was undertaken to explore the current quantitative wellbeing literature, then to assess the prevalence of sexual minority adversity in contemporary adolescents and finally to explore the specific mechanism of psychopathology proposed by the PMF. The totality of this work highlighted the need to explore the lived experience of sexual minority young people. A qualitative

investigation which facilitated theory generation and exploration of the pathways and underlying processes contributing to this pattern of adversity at a psychosocial level. As such Constructivist Grounded theory was conducted. Below each method used in each chapter is justified (see table 1.1).

Table 1.1 Rationale of methodologies used associated research questions and theoretical underpinnings.

Methodology	Research question	Theoretical underpinning	How methodology facilitates answering of research question.
Systematic review	How do psychological and social factors interact and impact positive or negative wellbeing outcomes in sexual minority adolescents? What is the quality and rigor of current work?	*A priori:* Dual model of Wellbeing (Keyes, 2006b) Minority stress theory (Meyer, 2003) *A posteriori* Minority wellbeing model (Amos et al., 2022 unpublished)	➢ Systematic review of literature allowed assessment of current work, the relationship between positive/negative wellbeing outcomes ➢ Assessment of quality/rigor using a validated tool allowed assessment of quality of extant literature.
Cross-sectional quantitative analysis of population cohort	Are there differences across mental health, social environment, and health-related domains in sexual minority adolescents compared to heterosexual adolescents?	*A priori:* Minority stress theory (Meyer, 2003) and psychological mediation framework (Hatzenbuehler, 2009)	➢ Quantitative investigation of generalizable UK data set. Allowing up to date assessment of disparity prevalence in sexual minority adolescents in contrast to heterosexual adolescents. ➢ Facilitated assessment of cumulative effects in sexual minorities via

	Do see cumulative effects of adversity? And does this differ between groups?		statistical analysis in contrast to heterosexual adolescents
Implicit Association task (Experiment)	How do general psychological processes (e.g., rumination) relate to depression and subjective wellbeing in sexual minority adolescents?	*A priori:* Psychological mediation framework (Hatzenbuehler, 2009)	➢ Direct analysis of mediation postulation made by PMF ➢ Using IAT allowed access to potentially unconscious yet pernicious processes i.e., internalized homonegativity.
Constructivist grounded theory	How do sexual minority adolescents' experience of navigating their sexuality? and how does this impact their mental health and wellbeing?	*A priori:* Constructivist Grounded Theory for Critical Inquiry (Charmaz, 2016) *Emergent:* Ecological systems theory (Bronfenbrenner, 1977) Eco-social theory of disease distribution (Krieger, 2019) *A posteriori* Dynamic Identity Formation theory for Sexual Minority adolescents (Amos et al., 2022 unpublished)	➢ Allowed systematic questioning of preconceived and 'taken for granted' ideas. ➢ Encouraged elucidation of processes of inequality at structural and social levels for the disadvantaged and marginalized ➢ Facilitated exploration of temporality (historical and developmental)

1.10 Ontology, epistemology, and positionality of this research

Ontology is concerned with the nature of reality and variant ontological approaches inform how phenomena can be measured, tested, or understood (Moon & Blackman, 2014). Two main divisions of ontological thought are relativism and realism (Guba and Lincoln, 1994). Relativism posits that reality is constructed and is inherently subjective, it does not exist outside of human experience (Hugly & Sayward, 1987). Realism posits that reality exists outside of the human experience and can be objectively measured, as such there are universal truths that humans can uncover (Moses & Knutsen, 2012). These two approaches appear to be mutually exclusive given that one is concerned with the *subjective* and the other the *objective*. In psychological research it is often the case that researchers are trying to understand and measure phenomena that are not directly observable for example cognitions and emotions (Cornish & Gillespie, 2009). Psychological research seems to lend itself more readily to the subjective relativist ontology. Rather than a harsh dichotomy between subjectivity and objectivity, pragmatism recognises the multitude of ways the world can be understood and thus, research conducted (Cornish & Gillespie, 2009). Thus, an exploration of ones embedded experience is often based in a relativist ontology, whereas researcher who seek to measures phenomena such as rates of disparity assume that these rates exist as independent fact and can be measured objectively (or quantitively).

Pragmatism marries the seemingly mutually exclusive philosophies of relativism and realism, accepting that knowledge is gained over time, where objective actions and subjective experiences interact (Dewey, 1911). From a pragmatism perspective, relativism and realism can be considered two ends of a continuum where the pragmatist researcher balances between the two, leaning toward either end depending on the research question they are exploring (Cornish & Gillespie, 2009). The subsequent epistemology was informed by the pragmatist philosophy, where the methods deemed

most appropriate were utilised to answer pre-defined and emerging research questions. The pragmatic approach to the epistemology herein is outlined below.

The starting point of this PhD was a review of existing literature given the researcher needed to gain a fuller insight into the existing gaps in sexual minority adolescent research (see Table 1.1). This inductively informed the systematic review search strategy. By conducting a systematic review, the researcher was able to deduce that there was a lack of work on wellbeing in a sexual minority population and notably within the UK. The researcher realised there was a need to provide evidence as to the current state of disparity within sexual minority adolescent population in the UK. This led to the quantitative exploration of mental health and social adversity in sexual minorities. The factors explored were inductively formed (interpersonal and psychological) by the systematic review and the findings allowed us to deduce the extent of disparity in these factors between sexual minority and heterosexual adolescents. Findings from both pieces of work inductively informed the development of the experimental methodology adopted thereafter. Where not only were disparities in rates of wellbeing/psychopathology explored but additionally the potential psychological mechanisms mediating the relationship between sexual minority status, psychopathology, and wellbeing. This was motivated by findings in the systematic review that sexual minority specific mechanisms such as internalised homonegativity were associated with lower levels of wellbeing. The totality of these findings highlighted that outcomes did indeed seem to be worse in sexual minorities, and general psychopathological strategies were heightened in sexual minority adolescents. The methods adopted up until this point only facilitated the researcher to identify what was associated with poorer outcomes in this population. To develop a more holistic understanding of sexual minorities experiences of mental health and adversity, explorative work was needed. Namely a research design that could build upon our previous work and allow theoretical insights beyond what had already been found. As such a constructivist qualitative methodology was deemed most appropriate as it allowed a) exploration of

unforeseen topics/factors not already identified b) development of an interview structure and analytical framework informed by prior research findings and d) the inbuilt ability to develop of a theory grounded in participants experiences. As such, the last chapter was informed by prior chapters, and the methodology was chosen allowed additional theoretical insights.

I will now review my positionality within this research. Within this PhD I always felt passionately that I should choose a range of methodologies that would best answer my research questions, and this led to the variant methodologies adopted herein. It is worth noting that there were occasions where I was drawn to methodologies before refining my research question. Being clear that the methods should flow from the research questions and not vice-versa was an important lesson within my PhD – and one I thank my supervisors for. I am now clear that I need to plan studies in a logical manner although iterative changes will be needed. In this vein, I have learned the importance of preregistration of research protocols and the importance of maximising scientific transparency.

Boland and colleagues' (2014) book outlining guidance on how to conduct systematic reviews, provided a useful template for keeping organised. Authors suggest developing folders related to each aspect of the review process e.g., scoping results, search results, screening, and eligibility, included study data and analysis (Boland et al., 2014). This allowed the systematic recording of every step of the research journey. I now apply this approach to each new research study I work on. Specifically, whenever I design a study, I set up key folders and pre-organise the places in which key aspects of my research are recorded.

Through my interaction with the millennium cohort dataset, I have also learned important lessons about cleaning complex data, about the potential benefits and costs of recoding variables (for example from ordinal to binary/categorical) and again ensuring code files are annotated and key changes recorded. In addition, through interacting with colleagues in the broader scientific community, and the quantitative training I have undertaken, I am cognizant of planning statistical models in advance, thinking very clearly about the potential causal implications and the logical starting point for a statistical model (see amendments to pre-registration appendix 4, A4.3).

CHAPTER 2 - WELLBEING IN SEXUAL MINORITY ADOLESCENTS: A SYSTEMATIC REVIEW AND CRITICAL APPRAISAL OF RESEARCH

2.1 Abstract

Subjective and psychological wellbeing (e.g., positive affect and personal growth) are integral to an individual's mental health and functioning. Sexual minority adults generally experience lower wellbeing, which begins to reduce during adolescence. Current research has focussed heavily on psychopathological factors in this group with minor focus on wellbeing. The literature was systematically searched synthesised where studies investigated psychosocial factors associated with subjective and psychological wellbeing in sexual minority adolescents. Seven cross-sectional studies from Israel (3), the Netherlands (2) and the US (2) met inclusion criteria (N= 1904). Findings fit a minority stress model and are presented as a schematic. Factors associated with lower levels of wellbeing were usually proximal to the individual, i.e., the internalisation of homonegative attitudes. Factors associated with higher levels of wellbeing were usually more external to the individual. Studies had modest levels of methodological rigour with clear aims and replicable methods, but there was a lack of justification of sample sizes and variation in the measurement of wellbeing and sexuality, a lack of longitudinal research precluded an ability to draw causal conclusions. Of the factors investigated to-date, family support emerged as a strong positive influence on sexual minority wellbeing and internalised homonegativity was particularly pernicious. Higher quality research is needed to further understand the factors and pathways impacting sexual minority wellbeing.

2.2 Introduction

Mental health is integral to an individual's functioning, overall health, and better life-long outcomes (Patton et al., 2016). However, minority groups experience significant mental health disparities. One

such group is sexual minorities, i.e., those who experience non-heteronormative relationships, attractions, and behaviours. Sexual minority adolescents tend to develop worse mental health outcomes such as reduced life satisfaction, and more psychopathology such as depression, anxiety, and suicidal ideation (Amos, Manalastas, White, Bos, & Patalay, 2020; Coker, Austin, & Schuster, 2010). These difficulties usually begin in adolescence when sexual minorities begin to explore, understand, and express their own identity to others (Drasin et al., 2008). Historically, sexual minority research has been heavily focused on psychopathology given the associated economic, personal, and social costs of the negative outcomes seen in this group (Colpitts & Gahagan, 2016). However, a purely psychopathological approach overshadows the unique coping processes sexual minorities have developed (Colpitts & Gahagan, 2016).

There has been less exploration of wellbeing in this group. This is an important gap given that the determinants of wellbeing may differ from those predicting psychopathologies. A dual understanding of psychopathology and wellbeing is needed to provide more holistic forms of assessment, support and intervention.

Wellbeing is a multidimensional state including subjective experiences of an individual's affective and cognitive evaluation of their life, their perceptions of positive thoughts/experiences, their subjective feelings of happiness, relationships with others and personal autonomy (Pinto et al., 2017). Subjective wellbeing is the evaluation of life satisfaction, positive/negative affect, whereas psychological wellbeing relates to feelings of personal growth, positive relations with others, and self-acceptance (Huppert et al., 2009; Keyes, Shmotkin, & Ryff, 2002). Subjective and psychological wellbeing (henceforth referred to generically as wellbeing) are purported to be related concepts (Keyes, 2002) and both will be the focus of this paper.

One's wellbeing can be impacted by physical and mental states as well as one's social life (e.g., family/community networks) and broader environment (e.g., neighbourhood, socioeconomic status) (Kiefer, 2008). Minority Stress Theory (Meyer, 2003) can be used as a theoretical framework to understand the many pathways to adversity experienced by sexual minorities specifically. This theory can also be used to understand pathways to positive outcomes. One's minority identity and/or status increases the likelihood of experiencing general stressors as well as minority specific stressors such as discrimination. Minority specific stressors can be distal from the participant and objectively measurably (e.g., violence/name calling) or proximal, internalised, and subjective (e.g., expected rejection). Pernicious minority stressors may be buffered by wellbeing factors in one's broader environment and social networks (Colpitts & Gahagan, 2016). For example, accessing communities with shared identities and experiences may reduce effects of distal stress (discrimination) via feelings of solidarity (Meyer, 2003). This can then also improve sexual minority adolescents' self-acceptance of their identity as they express themselves in a supportive environment (positive valence of identity) (Meyer, 2003). 'Coming out' allows sexual minorities to adapt to external sources of stress as well as internal sources of stress (i.e., concealment of identity) (Morris, Waldo, & Rothblum, 2001). Sexual minorities have been shown to develop positive identities in the face of adversity such as increased authenticity, intimacy, commitment to social justice, and compassion (Riggle & Mohr, 2015; Riggle, Mohr, Rostosky, Fingerhut, & Balsam, 2014). Social factors such as a supportive and accepting family and friends is also linked to improved life satisfaction in this group (Simons, Schrager, Clark, Belzer, & Olson, 2013). As such, sexual minorities' wellbeing is embedded in a complex and dynamic psychosocial context in which interpersonal, intrapersonal, social contexts and structures, all impact the individual simultaneously (Singh-Manoux, 2003). Therefore, it is important to investigate how psychological and social factors interact and impact positive or negative wellbeing outcomes.

To summarise, there has been no systematic synthesis of psychosocial factors associated with wellbeing in sexual minority adolescents. Identifying wellbeing factors specific to sexual minorities during adolescence is particularly important to buffer against such adverse outcomes and enable them to thrive in later life (Patton et al., 2016).

2.3 Current Review

The current review focusses on psychosocial variables, that is, factors that affect adolescents at the individual and structural level (e.g., school conditions) and which interact socially and psychologically (Singh-Manoux, 2003). Psychosocial factors might include minority specific stressors already identified in the literature. However, our working definition of psychosocial factors was broad enough to include generic variables that could affect any group and they did not need to be minority specific. This work aimed to identify similarities and differences across studies to inform future empirical work. Secondly, to assess the methodological rigour of papers, areas of best practice and those still requiring improvement in this burgeoning field are highlighted.

2.4 Methods

2.4.1 Search strategy and study selection

All systematic searches were conducted via electronic databases and followed recommendations provided by the Centre for Reviews and Dissemination (Dissemination, 2009). After initial scoping searches, four databases were chosen; PSYCInfo, PubMed, Web of Science & CINAHL (see table A2.1, appendix 2). The initial search was conducted in June 2018. No limitations or filters were added to the search. Complementary search techniques were conducted such as internet searching (Google Scholar), reference chaining and authors of the included papers were contacted in case they had

additional unpublished work pertinent to the review aims (no relevant papers were found as a result of this). Identified literature was held in EndNote X8 software package. Searches were conducted again in August 2019 and February 2021 to identify any additional papers (Detrie & Lease (2007) paper was found in 2021 search). This paper was pre-registered to PROSPERO and was originally intended to assess sexual and gender minority adolescents (those whose birth sex is incongruent to their gender) but given very low representation of wellbeing literature in gender minority populations (only 2 papers identified) it was decided to focus on sexual minority literature in isolation.

Studies were included if the paper focused on sexual minority adolescents aged 10 - 24 years of age. This age range was chosen because general population research displays the significant neuroanatomical changes and social shifts that still take place until the mid-twenties (Sawyer et al., 2018). Inclusion criteria for papers were as follow: explicit reporting of sexual minority status; use of a validated self-report measure of wellbeing; analyses investigating the association between psychosocial factors and wellbeing; written in English; and inclusion of quantitative data from a primary source. Case studies and case series designs were excluded as they can be subject to a high degree of bias (Guyatt et al., 2011). Grey literature such as policy documents and dissertations were excluded given that they were not subjected to peer review and may therefore lack scientific rigour and reliability. Once database searches were completed, paper titles and abstracts were exported to excel and screened according to inclusion criteria. Articles meeting inclusion criteria at this stage were subjected to independent full text screening by the first and second authors. Inter-rater agreement was low (Kappa: 15%) during the first iteration of full-text screening. This uncertainty was resolved via a consensus meeting between the two authors and subsequent inter-rater agreement increased to 92% during the second iteration. The selected articles after this point were discussed further with the entire research team and all researchers deemed the selected papers suitable for inclusion.

2.4.2 Variables of interest

The participants of interest were sexual minority adolescents aged 10-24 years of age. The outcomes of interest were psychosocial predictors of wellbeing, such as family relationships, social discrimination, and self-acceptance and could include other relevant predictors in the literature.

2.4.3 Assessment of Methodological Quality and Risk of Bias

Selected papers were assessed for quality using the 20 item AXIS checklist (Downes, Brennan, Williams, & Dean, 2016). The checklist assesses the quality of study design, the accuracy and transparency of the reported results and whether author conclusions were in line with the review research question. Researcher responses to each checklist question consist of yes, no, not sure, or not applicable. The second author also independently assessed the quality of two papers (Baams et al., 2014; Shilo & Savaya, 2011).

To demonstrate the magnitude of effects, effect sizes are presented. Effect size estimates were derived from correlation coefficients/coefficients of determination (r/R2) (Hemphill, 2003), Cohen's d or Cramer's V (Cohen 1988; Ferguson, 2016), and where effect sizes were not available, used effect size calculators (Wilson, 2001).

2.4.4 Data extraction and analysis

Data were extracted using a standardised form developed by the first author. Extracted data included sample characteristics (e.g., sexual orientation), study characteristics (e.g., sampling method), dimensions of wellbeing measured, and main findings (See Table 2.1). Bivariate and multivariate analyses were summarised for each study, where such information was available. For bivariate

analyses, information has been presented for variables associated with wellbeing. In studies where multiple multivariate analyses were conducted, the most in-depth analysis is included (e.g., inclusion of mediation analyses vs. regressions with no interactions terms). For studies using the same data set with different research questions, only additional variables not mentioned in the prior study were included. Due to heterogeneity of measures used, a meta-analysis was not possible. A total of 1692 unique records were extracted from a systematic database search (See Figure 2.1).

2.5 Results

2.5.1 Included studies

Six studies met inclusion criteria and were conducted in, Israel (n = 3; Shilo et al., 2015; Shilo & Savaya, 2011, 2012), the Netherlands (n = 2; Baams et al., 2013; Baams et al., 2014, and USA (n = 2; Detrie & Lease, 2007; Rieger & Savin-Williams, 2012) (See figure 2.1 for PRISMA diagram).

All studies used a cross-sectional design. Recruitment methods for sexual minorities were often opportunistic, using snowball sampling methods or recruiting from online sources (Baams et al., 2013; Baams et al., 2014; Detrie & Lease, 2007; Shilo et al., 2015; Shilo & Savaya, 2011, 2012). One study recruited participants from schools, and this was also the only study that included a heterosexual comparison group (Rieger & Savin-Williams, 2012). Studies report data from a combined total of 1904 participants (Mdn = 320, IQR = 243). Ages of participants ranged between 12 – 24 years of age, there were no studies which included adolescents younger than 12 (See Table 2.1).

2.5.2 Study instruments

Wellbeing was measured using several different questionnaires (see table 2.1). Questionnaires measured psychological wellbeing (Ryff & Keyes, 1995) and subjective wellbeing (Diener, Emmons,

Larsen, & Griffin, 1985; Lyubomirsky & Lepper, 1999; Pavot & Diener, 1993). One study used two wellbeing scales (Satisfaction with life scale (Pavot & Diener, 1993) & Psychological wellbeing scale (Ryff, 1989)) in conjunction (Rieger & Savin-Williams, 2012), whereas all others used one measure only. Three papers (Shilo et al., 2015; Shilo & Savaya, 2011, 2012) calculated wellbeing subscale scores from a generalised mental health questionnaire (Mental Health Inventory (Veit & Ware, 1983)).

Detrie and Lease (2007) used wellbeing subscales scores (from psychological wellbeing scale (Ryff, 1989)) to measure impact of different dimensions of wellbeing (e.g., autonomy in life, environmental mastery), whereas all other authors used a total score of wellbeing from wellbeing specific questionnaires (see table 2.1).

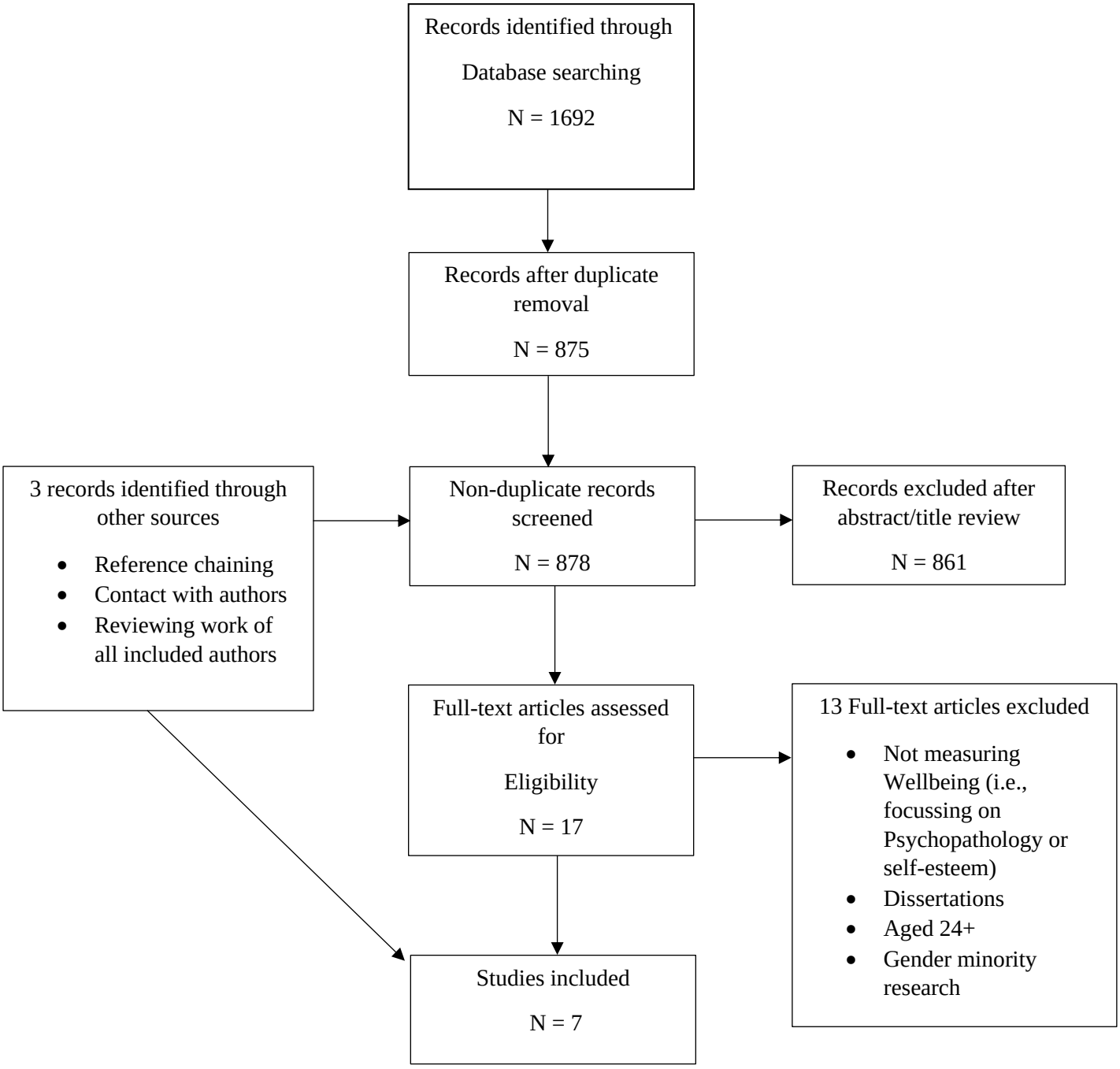


Figure 2.1 PRISMA diagram

Table 2.1 Study characteristics of included papers

Author & Year	Study Design	Country	N	Sampling	Age (years)	Sample recruited	Sexuality Indicator*	Wellbeing measure	Psychosocial variables of interest
Baams et al., (2013)	Cross sectional	NL	192	Opportunistic Online	16 - 24	Sexual minority	Same sex attraction	ESSS α=.87	• Perceived discrimination • Gender nonconformity
Baams , Bos & Jonas (2014)	Cross sectional	NL	320	Opportunistic Online	16 - 24	Sexual minority	Same sex attraction	ESSS α=.90	• Romantic relationships • Minority stressors (e.g., expected rejection)
Detrie & Lease (2007)	Cross sectional	US	218	Targeted LGBT group Online	14 – 22	Sexual minority	Identity	PWS α= .85-96	• Social support • Social connectedness • Collective self-esteem
Rieger & Savin-Williams (2012)	Cross sectional	US	475	Schools	16 - 20	Sexual minority & Heterosexual	Same sex attraction/ fantasy/ infatuation	SWLS α= .83 PWS α=. 72	• Gender nonconformity
Shilo , Antebi & Mor (2015)	Cross sectional	IL	238	Opportunistic Online	12 - 18	Sexual minority	Identity	MHI α =.94	• Social support (e.g. family) • Individual factors (e.g. Internalised homophobia) • Community factors (e.g. LGB contact, victimisation)

Shilo & Savaya (2011, 2012)	Cross sectional	IL	461	Opportunistic Online Snowballing	16 - 23	Sexual minority	Identity	MHI α =.92†	• Social support and acceptance (friends & family) • Social status (e.g. female, bisexual) • Minority stressors (e.g. internalised homophobia)

***Note*.** *There at least 3 categorisations of sexual minority status, attraction, identity, behaviour. † = internal consistency calculated with the study sample. NL = Netherlands, US = United States, IL = Israel. ESSS = European Social Survey Scale (Huppert et al., 2009); SWLS = Satisfaction with life scale (Pavot & Diener, 1993); PWS = Psychological wellbeing scale (Ryff, 1989); MHI = Mental Health Inventory (Veit & Ware, 1983)

2.5.3 Results of methodological quality and risk of bias

Most studies were deemed of moderate to low quality (see table 2.2). Limitations across papers were related to sample size justification (n=7), representativeness of the population studied (n = 2), and lack of clarity regarding potential non-response bias (n=6). Exemplary studies (Baams et al., 2013; Baams, Bos & Jonas, 2014) were clear in their study aims, clearly outlined their analysis strategy (and used it as specified) and clearly defined their target sample. Studies with lower levels of quality (Shilo et al., 2015; Shilo & Savaya, 2011, 2012) developed questionnaires specifically for their studies and provided minimal detail on measure development procedures (e.g., item development) or validation (e.g., construct validity). Furthermore, lower quality studies did not outline the analyses in the methods section, and we could not assess whether the proposed analysis matched the final analysis (Shilo & Savaya, 2011, 2012). Another methodological limitation across all studies was the lack of explicit justification for sample sizes i.e., power calculations.

Table 2.2 Risk of bias assessment for all studies using the AXIS criterion tool

AXIS Criterion	Baams et al., (2013)	Baams, Bos & Jonas (2014)	Detrie &Lease (2007)	Rieger, & Savin-Williams, (2012)	Shilo, Antebi, & Mor (2015)	Shilo & Savaya (2012)	Shilo & Savaya (2011)
Introduction							
1. Aims/objectives of the study clear?	Y	Y	Y	Y	Y	Y	Y
Methods							
2. Appropriate study design?	Y	Y	Y	Y	Y	Y	Y
3. Was the sample size justified?	N	N	N	N	N	N	N
4. Was the target/reference population clearly defined?	Y	Y	Y	Y	Y	Y	Y

5. Was the sample frame taken from an appropriate population?	Y	Y	Y	Not sure	Y	Y	Y
6. Was the selection process likely to select participants that were representative of the target/reference population?	Y	Y	Y	Not sure	Not sure	Y	Y
7. Were measures undertaken to address and categorise non-responders?	NA	N	NA	NA	NA	NA	NA
8. Were the risk factor and outcome variables measured appropriate to the aims of the study?	Y	Y	Y	Y	Y	Y	Y
9. Were the risk factor and outcome variables measured correctly using instruments/ measurements that had been trialled, piloted, or published previously?	Y	N	Y	Y	Not sure	Not sure	Y
10. Is it clear what was used to determined statistical significance and/or precision estimates?	Y	Y	Y	Y	Y	Y	Y
11. Were the methods sufficiently described to enable them to be repeated	Y	Y	Y	Y	Y	Not sure	Not sure
Results							
12. Were the basic data adequately described?	Y	Y	Y	Y	Not sure	Y	Y

13. Does the response rate raise concerns about non-response bias?	Not sure	Not sure	Not sure	Not sure	Not sure	N	Not sure
14. If appropriate, was information about non-responders described?	NA	NA	NA	NA	NA	NA	NA
15. Were the results internally consistent?	Y	N	Y	Y	Y	Y	Y
16. Were the results for the analyses described in the methods, presented?	Y	Y	N	Y	Y	N	N
Discussion							
17. Were the authors' discussions and conclusions justified by the results?	Y	Y	Y	Y	Y	Not sure	Y
18. Were the limitations of the study discussed?	Y	Y	Y	Y	Y	Y	Y
Other							
19. Were there any funding sources or conflicts of interest that may affect the authors' interpretation of the results?	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure
20. Was ethical approval or consent of participants attained?	Y	Y	Y	Y	Y	Y	Y

2.5.4 Factors associated with wellbeing

Factors associated with increased/decreased wellbeing were mapped onto the Minority Stress Theory model (Meyer, 2003), allowing findings to be aligned to a relevant theoretical framework or the "Minority Wellbeing Theory" (see figure 2.2 & Table 2.3).

Table 2.3 Bivariate and multivariate analyses of variables associated with wellbeing in sexual minority adolescents

	Bivariate analyses		**Multivariate analyses**			
Paper	**Variables correlated to wellbeing**	**Results /Effect size**	**Predictors of wellbeing**	**Results**	**Effect size**	**Control variables**
Baams et al., (2013)	Same-sex attraction	r = .16*	Path *a:* Gender nonconformity -> perceived stigmatisation-> wellbeing	B = -.03*	-	Same-sex attraction
	Gender nonconformity	r = -.19***				
	Perceived stigmatisation	r = -.26***				
Baams, Bos & Jonas (2014)	Internalised homophobia	**r = -.34*** **	Internalised homophobia	β = -.19*	**R^2 = .28**	Offline & online support; gender , same sex attraction
	Expected rejection	**r = -.44*** **	Expected rejection	β = -.46***		
	Meta-stereotyping	**r = -.36*** **	Expected rejection X romantic relationship	β = .32***		
	In-group blame	r = -.11				
	Same-sex attraction	r = .09				
	Offline social support	r =. 21**				
	Online social support	r = -.06				
Detrie & Lease (2007) ≠	-	-	*Autonomy*			
			Social connectedness	β = .202*	R^2 = .17	Sex, social class, age Perceived social support From family & friends.
			Collective self-esteem	β = .085		
			Purpose in Life			
			Social connectedness	β = .377***	**R^2 = .33**	
			Collective self-esteem	β = .147**		
			Relations with others			

			Social connectedness	β = .44***	**R^2 = .68**	
			Collective self-esteem	β = .098**		
			Environmental mastery			
			Social connectedness	β = .42***	**R^2 = .41**	
			Collective self-esteem	β = .10*		
			Personal growth			
			Social connectedness	β = .17**	**R^2 = .36**	
			Collective self-esteem	β = .10*		
			Self-acceptance			
			Social connectedness	β = .46***	**R^2 = .50**	
			Collective self-esteem	β = .25***		
Rieger & Savin-Williams (2012) †	Sexual orientation	r = -.10	Childhood gender nonconformity	β = -.19***	R^2 = .06	Sex, ethnicity, religiousness, parent education, childhood gender nonconformity, adolescent gender nonconformity.
	Childhood gender nonconformity	r = -.15*	Adolescent gender nonconformity	β = -.13*		
	Adolescent gender nonconformity	r = -.20*				
Shilo , Antebi & Mor (2015)	-	-	Outness	β = .21***	**R^2 = .28**	None specified
	-	-	Internalised homophobia	β = -.11*		
	-	-	Family support	β = .41***		

		-	Friends support	β = .25***		
		-	Steady relationship	β = .11*		
Shilo & Savaya (2011)	Self-acceptance	r = .21**	Friends support	β = .23**	††V = 0.002	None specified
	Disclosure	r = .25**	Friends' acceptance	β = .11**		
	Family support	**r = .36****	Family support	β = .28**		
	Friends support	**r = .39****				
	Family acceptance	r = .22**				
	Friends' acceptance	r = .29**				
Shilo & Savaya (2012)	Female	r = -.04	Family support	β = .70**	††V = 0.002	None specified
	Bisexual	r = -.10*	Friends support	β = .27**		
	Age	r = .05	Internalised homophobia	β = -10*		
	Religiosity	r = -.03	Family acceptance	β = .55**		
	Internalised homophobia	r = -.21**	LGB Social contact	β = .12**		
	LGB social contact	r = .20**				

***Note*.**
Large effect sizes in bold. * p< .05, ** p <.01 *** p<.001.≠ Given these authors provided models per wellbeing dimension, each model is summarised here. Bivariate analyses are available in the original paper for each wellbeing dimension against demographic variables and social connectedness and collective self-esteem, for the sake of brevity they are omitted here (see Detrie & Lease, 2007 pg. 185) † Results for wellbeing composite. †† Calculated via X^2 value and relates estimates of model fit from the structural equation model summarised here. Effect sizes guide : r <.20 low effect, r .20 - .30 moderate effect, r >.30 large effect (Hemphill, 2003); R^2.01 small effect, .09 medium effect, .25 large effect: Cramer's V .07–.21 small effect, .21–.35 medium effect, > .35 large effect (Ferguson, 2009; Cohen 1988)

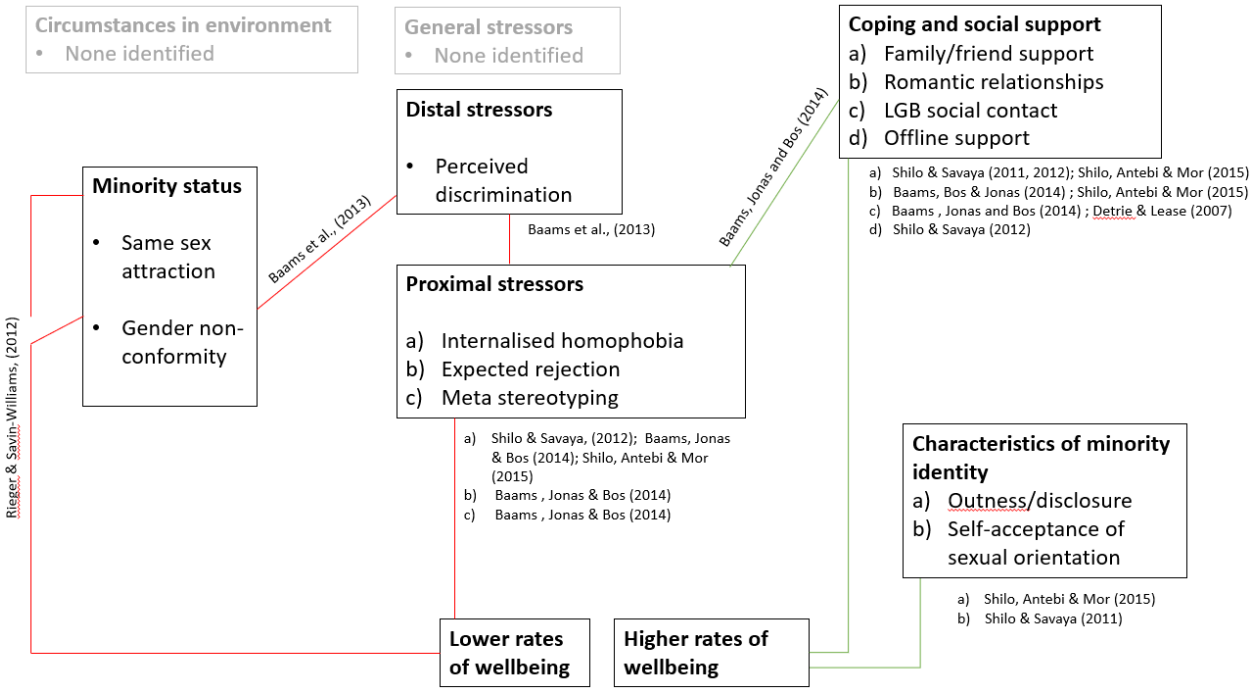


Figure 2.2 Schematic of factors across studies that were associated with wellbeing mapped on to the minority stress theory model (Meyer, 2003)

2.5.4.1 Increased wellbeing.

Social support was associated with improved wellbeing across papers. Increased Lesbian, Gay and Bisexual (LGB) contact (Shilo & Savaya, 2012) such as active participation with LGB social groups, was associated with higher levels of wellbeing in sexual minorities. However, increased LGB contact was not significantly associated with wellbeing in a similar paper (Shilo et al., 2015). High levels of offline social support (i.e., based on the participants' sexual orientation) was associated with improved wellbeing, whereas online support was not (Baams et al., 2014). Feeling cared about by family (Shilo et al., 2015), as well as perceived family acceptance of sexual orientation (Shilo & Savaya, 2012), was significantly associated with higher levels of wellbeing. In the study by Detrie and Lease (2007) perceived family and friend support such as feeling morally/emotionally supported, feeling included and feelings of closeness, was significantly and positively associated with six wellbeing dimensions

(autonomy, purpose in life, relations with others, environmental mastery, personal growth, and self-acceptance). These authors also found that when social connectedness (i.e., interpersonal closeness with one's social world and sense of belonging) and collective self-esteem (i.e., assessing one's feeling of worthiness to groups and the worthiness of said groups) were entered into models they explained between 3 – 19% of additional variance (Detrie & Lease, 2007).

Being in a long-term romantic relationship was also associated with increased wellbeing (Shilo et al., 2015) and moderation analyses revealed that romantic relationships buffered the pernicious effect of expected rejection on wellbeing (Baams et al., 2014). However, being in a romantic relationship did not lower the deleterious effects associated with internalised homonegativity (Baams et al., 2014).

Characteristics of minority identity (see Figure 2.2) were associated with wellbeing, for example being 'out' (i.e., disclosing one's identity) to family, friends, and work colleagues, was associated with improved wellbeing (Shilo et al., 2015). Furthermore, the extent to which respondents engaged in verbal and behavioural forms of disclosure, such as taking a same-gender partner to a family gathering was also associated with higher wellbeing (Shilo & Savaya, 2011). Finally, self-acceptance of one's sexual orientation status was positively associated with wellbeing.

2.5.4.2 Decreased wellbeing

Variables associated with decreased wellbeing tended to be proximal to the individual and directly related to one's minority status (see Figure 2.2). In three out of the eight studies the internalisation of negative stereotypes, beliefs, and prejudice about sexual minorities (i.e., internalised homonegativity), was associated with lower (Shilo et al., 2015; Shilo & Savaya, 2012) wellbeing (Baams et al., 2014).

Expecting rejection based on one's sexuality, feeling that most heterosexuals have negative views of homosexuality (or 'meta-stereotyping'), and perceived discrimination were all associated with reduced wellbeing (see figure 2.2). Higher levels of gender nonconformity in adolescence were associated with lower wellbeing, whereas sexual orientation was not (Rieger & Savin-Williams, 2012).

There were also various indirect pathways associated with reduced wellbeing. For example, religiosity was associated with higher levels of internalised homonegativity and lower wellbeing (Shilo & Savaya, 2012). Higher levels of gender nonconformity were associated with increased levels of perceived discrimination, thereby reducing wellbeing (Baams et al., 2013). Similarly, identifying as bisexual was associated with the reduced likelihood of disclosing one's sexuality, receiving less family acceptance, and increased internalised homonegativity (Shilo & Savaya, 2012).

2.6 Discussion

This systematic review explored psychosocial variables and their relationships with subjective and psychological wellbeing in sexual minority adolescents. Moreover, exclusively focused on wellbeing and not psychopathology, to estimate the prevalence of wellbeing research that has been done with this population.

From the identified studies, the Minority Stress Theory emerged as a parsimonious theory, which allowed the mapping of multiple pathways to improved or worsened wellbeing. Drawing on the Minority Stress Theory (Meyer, 2003) and its concepts, factors associated with higher levels of wellbeing tended to be *distal* to the adolescent (i.e., social support). In contrast, factors associated with reduced wellbeing were more *proximal* such as internalised homonegativity. Family support was

strongly related to wellbeing for sexual minority adolescents. The included studies were all cross-sectional in nature which limits the conclusions that can be drawn here as the relationships between factors may be explained by many other factors not measured within this body of literature. The sampling strategy is also worth highlighting as another limitation, opportunistic samples often reflect those who are willing to participate and not those from other minoritized groups or those experiencing heightened levels of adversity.

A schematic is presented (See figure 1.2) to help the reader visualise the correlation between factors that have been identified in the research thus far. Given the cross-sectional design of the included studies and methodological limitations i.e., modest sample sizes, small to medium effect sizes and issues with the comparability of measures used, the findings here should be interpreted with caution. Longitudinal research with generalisable samples would be beneficial to assess wellbeing trajectories and to allow causal inferences. Thus, broader, and higher quality research is needed to identify additional factors and pathways to wellbeing in what has been an overly psychopathologised research field.

The minority stress model emerged as a potential explanatory theoretical framework and a visual schematic was built based on this theory to represent the psychosocial variables associated with wellbeing. Doing so highlighted the direct and indirect pathways linked to wellbeing outcomes identified to date. Examples of indirect pathways included being in a romantic relationship which buffered the negative impact of expected rejection on wellbeing. It was also found that disclosing one's sexuality was associated with improved wellbeing (Shilo & Savaya, 2012). Being open about one's sexuality permits access to minority communities and resources (Meyer, 2003) and disclosing one's identity may reduce the cognitive and behavioural burden of identity concealment (Alessi,

2014). However, it is worth noting that most of these studies adopted a Minority Stress Theory approach and is likely the reason that findings fit this framework. Furthermore, the variable quality of each study must be considered when drawing conclusions from this narrative summary, more higher quality empirical work is needed. Limitations of this research includes a lack of prospective work. Thus, causal implications cannot be inferred.

Research came from three distinct geographical locations (Netherlands, USA & Israel), which are all high-income countries each with different, albeit largely Westernised, cultural attitudes and laws. The Netherlands is generally very liberal, and same sex marriage has been legal for two decades (Kuyper, Iedema, & Keuzenkamp, 2013). Comparatively, Israel's political and religious systems are intertwined and consequently legal rights such as same sex marriage remain elusive (Weishut, 2000). Given these socio-political differences, it is worth considering the impacts these contexts will have on sexual minorities, often against a backdrop of fast-moving political changes (Jones, 2018). Despite this, here findings across geographical locations seemed to reflect a similar pattern e.g., higher levels of wellbeing when provided social support and lower levels of wellbeing in the presence of discrimination and other proximal stressors. Research investigating the experiences of sexual minority adolescents in low- and middle-income countries is urgently required.

To the authors knowledge, this is the first systematic review to be conducted in this area, however there are several limitations to be considered. Firstly, a comparatively small number of papers met inclusion criteria. It is likely that other factors and pathways that have not been researched but are relevant to understanding wellbeing of these populations exist. Secondly, sexual minority status was standardised in multiple ways across studies (e.g., attraction or identity), limiting comparability of findings. Despite this limitation, different standardisations of sexual orientation are necessary,

especially for younger adolescents who might not have an established identity (i.e., lesbian, or gay) but are still vulnerable to discrimination (Mayer, Garofalo, & Makadon, 2014; Saewyc et al., 2004). Thirdly, the variety of wellbeing measures that were used make comparability across studies difficult. Some authors (Shilo & Savaya, 2011, 2012) also used subscales to assess wellbeing versus a complete validated measure. However, given similarities between wellbeing constructs there is likely to be useful overlap in terms of how psychosocial variables impact wellbeing in this group (Pinto et al., 2017). Not necessarily a limitation, but a point worth noting, is that originally intended to include gender minority research with sexual minority research. However, given such low representation in the literature decided to focus solely on sexual minority research. The two gender minority papers did identify (De Vries et al., 2014; Röder et al., 2018) were heavily focussed on medical intervention. As such, more wellbeing research is needed for this group, focussing on a broad range of social and psychological factors that can improve wellbeing and positive mental health outcomes.

The totality of these research findings allowed factors associated with wellbeing to be mapped their outcomes using a minority stress framework allowing the Minority Stress Theory. This model has also proved effective in understanding outcomes for those with intersecting identities (i.e., sexual, and ethnic minority individuals), allowing us to understand the impact of cumulative stress on their mental ill-health outcomes (Hayes, Chun-Kennedy, Edens, & Locke, 2011). However, work is still needed to understand wellbeing in those with multiple minority statuses (Hayes et al., 2011) and unfortunately this is something could not assess here. Given the work have done here, it is recommended that a Minority *Wellbeing* Theory be explored and developed further. Additional correlational and causal work is needed to validate this theory and identify variables associated with poorer and better wellbeing. The development of a minority wellbeing theory would have therapeutic utility, allowing clinicians to explore the social and psychological factors impacting the client's wellbeing *as well as* their psychopathology (Alessi, 2014). Given that factors improving wellbeing were generally more

distal, support can be more generalist in nature (i.e., via universal interventions). Policies should promote easy access to safe spaces (e.g., in school) and diversity and equality education. Such policies will be particularly important in countries where attitudes restrict legal rights and liberties for this population.

2.7 Conclusion

This is the first systematic review to focus on wellbeing in sexual minority adolescents. Minority Stress Theory was used to understand the variables associated with improved and/or worsened wellbeing and may be an effective clinical tool in future. Given the limited research identified, future work is needed to explore broader factors and pathways affecting sexual minority wellbeing, ideally utilising longitudinal methodologies and population-based samples.

CHAPTER 3 - MENTAL HEALTH, SOCIAL ADVERSITY, AND HEALTH-RELATED OUTCOMES IN SEXUAL MINORITY ADOLESCENTS: A CONTEMPORARY NATIONAL COHORT STUDY

3.1 Abstract

Sexual minority adolescents are more likely to have mental health problems, adverse social environments, and negative health outcomes compared with their heterosexual counterparts. There is a paucity of up-to-date population-level estimates of the extent of risk across these domains in the UK. analysed outcomes across mental health, social environment, and health-related domains in sexual minority adolescents compared with their heterosexual counterparts in a large, contemporary national cohort. The Millennium Cohort Study (MCS) is a birth cohort study in the UK following up children born between Sept 1, 2000, and Jan 11, 2002, across England, Wales, Scotland, and Northern Ireland. Children recruited from the MCS have been followed up over six recruitment sweeps to date at ages 9 months, 3 years, 5 years, 7 years, 11 years, and 14 years. Mental health, social, and health-related outcomes in sexual minority versus heterosexual adolescents at age 14 years were analysed. Additionally, the accumulation of multiple adverse outcomes in both groups were estimated. The primary aim of the study was to assess whether sexual minority adolescents experienced more adverse outcomes than heterosexual adolescents. Between January 2015, and April 2016, 9885 adolescents provided a response about their sexual attraction. 629 (6%) of 9885 adolescents (481 female participants and 148 male participants) were identified as sexual minorities. 9256 (94%) of 9885 participants (4431 female and 4825 male) were attracted to the opposite sex or not attracted to the same sex and identified as heterosexual. Sexual minority adolescents were more likely to experience high depressive symptoms (odds ratio [OR] 5·43, 95% CI 4·32–6·83; p<·0001), self-harm (5·80, 4·55–7·41; p<·0001), lower life satisfaction (3·66, 2·92–4·58; p<·0001), lower self-esteem (β 1·83, 95% CI 1·47–2·19; p<·0001), and all forms of bullying and victimisation. Sexual minorities were more likely to have tried alcohol (OR 1·85, 95% CI 1·47–2·33; p<·0001), smoking (2·41, 1·92 –3·03; p<·0001), and cannabis (3·22, 2·24–4·61; p<·0001), and also had increased odds of being less physically active (β 0·36, 95% CI 0·25–0·46; p<·0001), perceiving themselves as overweight (OR

1·73, 95% CI 1·40–2·14; p<·0001), and dieting to lose weight (1·98, 1·58–2·48; p<·0001). Sexual minority adolescents had more co-occurring mental health outcomes (mean 1·43 of 3 outcomes, 95% CI 1·34–1·52) compared with heterosexual adolescents (0·40 of 3 outcomes, 0·38–0·41), and more total cumulative difficulties (mean 9·43 of 28 outcomes, 95% CI 9·09–9·76 in sexual minority adolescents vs 6·16 of 28 outcomes, 6·08–6·23 in heterosexual adolescents). Sexual minority adolescents in the UK experience disparities in mental health, social, and health related outcomes despite living in a time of substantial progress in rights for sexual minorities. These adverse outcomes co-occur, with implications for lifelong health and social outcomes. Health and educational practitioners should be aware of the increased risk for adverse outcomes in sexual minority adolescents.

3.2 Introduction

Sexual minorities have consistently been found to be at an increased risk of a range of adverse outcomes compared with their heterosexual counterparts (Meyer, 2003). Despite modern advances in rights for sexual minorities in high-income countries, recent research shows that substantial disparities remain in mental health, social, and health-related domains. However, there is a paucity of contemporary population-level estimates of these outcomes in adolescents in the UK.

Adolescence is an important stage of human development, where rapid biological changes occur alongside increasing psychological and social demands (World Health Organization, 2017). Mental health difficulties and other health-related behaviours, such as smoking and alcohol use, are a leading cause of disability-adjusted life years lost globally and usually have their onset in adolescence (James et al., 2018). Adverse experiences in adolescence, including victimisation (Evans-Lacko et al., 2017) and engaging in antisocial behaviours (Colman et al., 2009), are also precursors to adversity and

poorer health outcomes in later life, with multiple negative outcomes in adolescence potentially increasing the effects on later life outcomes.

Throughout this chapter, sexual minority is used as an umbrella term to include those attracted to the same or both sexes. Researchers commonly disaggregate bisexual, gay, and lesbian groups and inconsistent differences between these subgroups have been found (Irish et al., 2019; Matthews et al., 2014). This disaggregation is usually based on identity or sexual behaviour, whereas measures of attraction are more developmentally appropriate for younger adolescents, who are the focus of the current study (Saewyc et al., 2004). Sexual minority adolescents are particularly at risk of negative outcomes during adolescence because of increased exposure to victimisation (Fedewa & Ahn, 2011) and having to navigate an understanding of their sexual identity (Savin-Williams, 2011). Previous estimates indicate that sexual minority adolescents are almost three times more likely to have suicidal ideation and depressive symptomology (Marshal et al., 2011), reduced wellbeing (Shilo & Savaya, 2011), and are four times more likely to self-harm with suicidal intent (Irish et al., 2019) compared with their heterosexual counterparts. In terms of health-related behaviours, sexual minority adolescents are more likely to be obese or have an eating disorder (Austin et al., 2013), engage in risky sexual behaviour (Everett et al., 2014), and use cigarettes and other substances (e.g., alcohol and cannabis) (Marshal et al., 2008) than are heterosexual adolescents. The increased exposure to negative societal attitudes that sexual minority adolescents experience has been implicated in more mental health (Hatzenbuehler, 2009) and health-related behaviour problems (Frost et al., 2015). Sexual minority adolescents are more likely to experience social stressors such as fear of rejection based on sexuality status, (Meyer, 2003) increased exposure to bullying and discrimination (Fedewa & Ahn, 2011), have property stolen, be involved in physical altercations (Mayer et al., 2014), and experience sexual abuse (Friedman et al., 2011). Sexual minorities might also engage in antisocial behaviours as a response to social conflict or oppression (Dennis, 2014). These social contexts and interpersonal

relationships are likely to heighten intrapersonal stress and thereby burden general psychopathological processes (Hatzenbuehler, 2009). Minority stress theory proposes that sexual minorities experience more general stressors (e.g., bullying) and minority-specific stressors (e.g., navigating identity) than do majority population groups (Meyer, 2003). Proximal (e.g., internal processes) and distal factors (e.g., prejudice) interact in the context of an adolescent's environment, leading to adversity in mental (e.g., rumination), social (e.g., absence of support or family rejection), and health-related behaviour domains (e.g., substance use) (Meyer, 2003).

In high-income countries, adolescents arguably now live in a more socially progressive environment towards sexual minorities (Mercer et al., 2013). In the UK, same-sex marriage became legal on July 17, 2013, and a new curriculum that focuses on sexual diversity is being implemented in schools (Department of Education, 2019). However, the National LGBT Survey by the UK Government Equalities Office in 2018 revealed that more than two-thirds of participants avoided holding hands in public for fear of a negative reaction from others (Government Equalities Office, 2018), indicating that discrimination still exists at a societal level. Consequently, the UK government has developed an action plan to improve feelings of safety, experiences in educational settings, and health care for this group. As these government data focused on 16–65-year-olds, there is room for additional focus on younger age groups. Furthermore, given the shifting social climate in the UK, outcomes for more recent generations might be expected to differ from previous generations. Although population-based research has been done in other countries (Lucassen et al., 2014; Mustanski et al., 2014; Thorsteinsson et al., 2017), there is little representative population-based research in the UK investigating disparities on the basis of sexuality in mental health, social, and health-related domains in the current generation of adolescents. Studies that use population-based samples are scarce, focus on a narrow range of outcomes, and are based on generations born in the latter decades of the 20th century (Irish et al., 2019). Assessing a small number of outcomes in different samples limits the comparability of effects because of unaccounted participant variation (eg, different age ranges or ethnic profiles). Additionally,

although increased odds of single outcomes have been studied (eg, suicidal ideation), mental health, socially adverse outcomes, and health-related behaviours tend to be associated and co-occur (Patton et al., 2016). Sexual minority adolescents are more likely to experience multiple forms of victimisation simultaneously (polyvictimisation) (Baams, 2018). Co-occurrence of multiple risk factors is likely to have a larger impact on later life health and social outcomes; hence, examining the extent of accumulation of adverse outcomes in sexual minority adolescents compared with heterosexual adolescents has implications for policy and interventions in order to adequately support adolescents.

To address these research gaps, outcomes across mental health, social environment, and health-related domains in sexual minority adolescents were compared with heterosexual adolescents in a large, contemporary national cohort. This study utilises the Millennium Cohort Study (MCS), a nationally representative sample of adolescents born between 2000 and 2002. This is the first study to use a population-based sample in the UK to estimate differences in multiple mental health (e.g., depressive symptoms and self-harm), social (e.g., relationships and victimisation), and health-related outcomes (e.g., substance use and physical activity). also investigated the co-occurrence of negative outcomes across these domains, to understand the cumulative difficulties that sexual minority adolescents have compared with their heterosexual counterparts, which, to our knowledge, no previous study has done.

3.3 Research in context

3.3.1 Evidence before this study

PubMed was searched from inception to May 20, 2019, using the MeSH terms “sexual and gender minorities”, “adolescent”, “health”, and “population characteristic” to find relevant sexual minority research using population-based datasets (see appendix A3.1). Many larger population-based cohort studies were done in the USA, focused on a sample with a large age range, and commonly focused on

mental health outcomes. Only one study in Iceland used a large nationally representative adolescent sample and analysed multiple outcomes (between 2006–14). An additional search of the literature via Google Scholar identified another population-based study in New Zealand (between 2001–12). In both studies, sexual minority adolescents were more likely to experience adversity across multiple domains compared with heterosexuals. There was no research identified with the search that investigated outcomes for sexual minority adolescents using nationally representative samples in the UK and studies that have used unrepresentative samples in the UK have focused on past generations of adolescents.

3.3.2 Added value of this study

This paper extended previous research with a contemporary population-based UK sample and investigated 30 outcomes across mental health, social, and health-related domains and examined how they co-occur. To our knowledge, this is the first UK study that provides a nationally generalisable examination of adverse outcomes in mental health, social environment, and health-related domains in sexual minority adolescents born in the 21st century. This study used a sample of adolescents born between 2000 and 2002, who have experienced more socially progressive attitudes towards sexual minority individuals in their childhood compared with previous generations. Despite this, sexual minority adolescents were many times more likely to experience depressive symptoms, self-harm, bullying, and victimisation. Furthermore, they were more likely to have difficulties with their weight (perception or actual) and have engaged in various forms of substance use. Additionally, sexual minority adolescents had greater co-occurring difficulties overall.

3.3.3 Implications of all the available evidence

This study provides contemporary evidence of the extent of disparities faced by the current generation of sexual minority adolescents compared with their heterosexual counterparts on a range of outcomes. It was found that sexual minorities are more likely to experience greater mental ill-health, interpersonal difficulties, and poorer health related outcomes. Given that many mental health and health problems are comorbid and exacerbate one another over time, young people are likely to carry these adverse outcomes into adulthood with an associated social, health, and economic cost. It was also found that sexual minorities were more likely to have adverse experiences cumulatively, with multiple mental health experiences constituting the most cumulative difficulty. As an adolescent's social environment is likely to be a major factor involved in these disparities, universal interventions might need to more closely focus on reducing bullying and improving diversity and equality education.

3.4 Methods

3.4.1 Study design and participants

The MCS is a birth cohort study in the UK following children born between Sept 1, 2000, and Jan 11, 2002. 19, 519 children were recruited from across England, Wales, Scotland, and Northern Ireland to the MCS and have been followed up over six recruitment sweeps to date, at ages 9 months, 3 years, 5 years, 7 years, 11 years, and 14 years. Children were eligible for the study if they were listed on the child benefit register at the first recruitment sweep. Participants were excluded from the study if a cohort member had died or emigrated outside of the UK. In the sixth sweep at 14 years, 15, 415 families were selected for interview. 11, 726 (76%) of 15, 415 families were successfully interviewed, giving a total sample of 11, 884 adolescents. Attrition at this sweep was predicted by single-parent families, lower-income occupation and lower educational level, black ethnicity, and male sex (Mostafa & Ploubidis, 2017). Ethics approval for the MCS study was obtained from the National

Research Ethics Service Committee London— Central (reference 13/LO/1786). Collected data are anonymised and available to researchers via the UK Data Service. All parents gave consent for their children to participate, and young people also provided verbal consent.

3.4.2 Procedures

Binary or continuous scale scores were gathered via multiple questionnaires that were administered to adolescents. To identify sexual orientation, multiple questions were used to identify heterosexual or non-heterosexual attraction. Within the questionnaire participants were asked if they had ever been attracted to a boy or girl, combining this information with their assigned gender, a variable was constructed that identified same-sex, bisexual or heterosexual attraction. Mental health difficulties were measured via self-harm ("In the past year have you hurt yourself on purpose in any way?"), self-esteem (assessed via a 5-item shortened version of the Rosenberg self-esteem scale (Rosenberg, 1965)), subjective wellbeing (6-item measure assessing happiness with schoolwork, appearance, family, friends, school, and life as a whole), life satisfaction (widely used single-item measure of life satisfaction; "how do you feel about your life as a whole?" (Taylor et al., 2010)), and depressive symptoms (measured via the short moods and feelings questionnaire total (Sharp et al., 2006); established cut-off for high levels of depressive symptoms is a score of 12 or above; see appendix 3, Table A3.1 for all variable transformations and measures used). The relative frequency of interpersonal difficulties such as bullying ("how often are you bulled by peers, by siblings, and online?", e.g., "never", "everyday", etc; those bullied most days or everyday were coded as often bullied in binary transformations), victimisation (e.g., experience of verbal, physical, or sexual assault over the past 12 months), antisocial behaviours (i.e., had the young person stolen, hit someone, or hit someone with a weapon in the past 12 months?), parental relationships (i.e., how close they felt to their parents—not very close to extremely close—and how often they argued with parents—on a scale from most days to never [more than once a week was classed as often]), and friendships ("Do you

have any close friends?") was also measured. For health-related behaviours, measures of smoking use (ever smoked) and frequency (regular smoking: smoke 1–6 cigarettes per day or >6 per day), alcohol use (ever drank alcohol) and frequency (regular drinking: drank alcohol 10–>40 times in the past 4 weeks), other drug use (such as ecstasy, cocaine, speed), cannabis use (ever used cannabis) and frequency (regular cannabis use: used cannabis three to more than ten times ever), sexual activity (sexual intercourse), risky sex (i.e., did not use any contraception), obesity (overweight or obese thresholds determined using the International Obesity Task Force guidelines (Cole & Lobstein, 2012), weight control via exercise (ever exercised to lose weight or control current weight?), and dieting (ever restricted food or calorie intake to lose weight or avoid gaining weight?), and rates of physical activity (how many days in the last week was vigorous exercise done, e.g., every day or not at all) were used. For validity and reliability data for the included measures see Table A3.1. In relation to single item measures, these have been used in prior cohort studies (Fitzsimons, 2017) and are used as standard in survey-based research.

Finally, using binary variables, cumulative index scores were created for each domain. Outcomes were summed within each domain to calculate an average and proportional cumulative score of mental health, antisocial behaviour, interpersonal difficulties, health-related behaviours, and an overall cumulative score. For specific outcomes where two versions of severity were examined in this study (e.g., ever drinking alcohol and frequent drinking), only included the lower severity outcome (hence excluding frequent drinking, smoking, cannabis use, and risky sex) in this score to avoid counting these outcomes twice.

3.4.3 Outcomes

The primary aim of the study was to assess whether sexual minorities had more adverse outcomes than did heterosexual adolescents. Additionally, aimed to test whether sexual minority adolescents had more cumulative difficulties than did heterosexuals.

3.4.4 Statistical analysis

Logistic and linear regressions were used to examine outcomes in sexual minority adolescents compared with their heterosexual counterparts. All models controlled for parental income, parent composition in household (single parent or carer *vs* two parents or carers), housing tenure (ie, rented or owned), number of siblings in the household, ethnicity, and sex. To account for the testing of multiple models, a false discovery rate was calculated via the *multproc* command in Stata, generating a corrected p value that was applied to all models. Because of the stratified cluster design of the MCS and to account for attrition over time, all analyses were weighted with combined sampling and attrition weights to obtain nationally representative estimates using the Stata *svy* prefix for all models. Analyses were done using Stata version 14.1.

3.5 Results

Between January 2015, and April 2016, 9885 (83%) of 11, 884 adolescents provided a response about their sexual attraction. 629 (6%) of 9885 adolescents (481 female participants and 148 male participants) were coded as sexual minorities. Within this group, 50 participants (29 female and 21 male) reported same-sex attraction only and 576 participants (451 female and 125 male) reported bisexual attraction. 9256 (94%) of 9885 participants (4431 female and 4825 male) were attracted to the opposite sex or not attracted to the same sex and coded as heterosexual. The remaining 1999 (17%) of 11, 884 participants did not answer both questions about attraction or had not experienced

attraction yet and were not included in our analysis. Participant demographic characteristics are reported in table 3.1.

Table 3.1 Adolescent demographic characteristics

	Heterosexual (n=9256)	Sexual minority (n=629)	No attraction data (n=1999)
Sex			
Female	4431 (47·9%; 46.9–48.9)	481 (76·5%; 73·0–79·6)	1019 (51·0%; 48·8–53·2)
Male	4825 (52·1%; 51·1–53·2)	148 (23·5%; 20·4–27·0)	980 (49·0%; 46·8–51·2)
Ethnicity			
Minority ethnic group	1578 (17·0%; 15·3–19·0)	82 (13·0%; 8·3–20·8)	666 (33·3%; 28·6–38·8)
White	7601 (82·1%; 81·3–82·9)	542 (86·2%; 83·2–88·7)	953 (47·7%; 45·5–49·9)
Missing	77 (0·8%; 0·6–1·0)	5 (0·8%; 0·3–1·9)	380 (19·0%; 17·3–20·8)
Housing			
Homeowner	6214 (67·1%; 65·5–68·8)	382 (60·7%; 54·7–67·2)	1198 (59·9%; 47·43–56·1)
Renting	2733 (29·5%; 27·7–31·5)	227 (36·1%; 29·1–44·4)	678 (33·9%; 39·27–52·7)
Other	309 (3·3%; 2·7–4·2)	20 (3·2%; 1·4–8·5)	123 (6·2%; 4·7–11·1)
Parent education			
NVQ5	1048 (11·3%; 10·7–12·0)	127 (6·4%; 5·4–7·5)	127 (6·4%; 5·4–7·5)
NVQ4	3135 (33·9%; 32·9–34·8)	231 (36·7%; 33·0–40·6)	476 (23·8%; 22·0–25·7)
NVQ3	1302 (14·1%; 13·4–14·8)	72 (11·4%; 9·2–14·2)	271 (13·6%; 12·1–15·1)
NVQ2	2052 (22·2%; 21·3–23·0)	126 (20·0%; 17·1–23·4)	1302 (14·1%; 13·4–14·8)
NVQ1	456 (4·9%; 4·5–5·4)	33 (5·2%; 3·8–7·3)	141 (7·1%; 6·0–8·3)
Overseas qualification	223 (2·4%; 2·1–2·1)	8 (1·3%; 0·6–2·5)	112 (5·6%; 4·7–6·7)
No qualifications	650 (7·0%; 6·5–7·6)	37 (5·9%; 4·3–8·0)	368 (18·4%; 16·8–20·2)
Missing	390 (4·2%; 3·8–4·6)	34 (5·4%; 3·9–7·5)	97 (4·9%; 4·0–5·9)
Single parent or guardian*	2270 (24·5%; 23·6–25·4)	179 (28·5%; 25·1–32·1)	489 (24·5%; 22·6–26·4)
Unemployed household†	2109 (22·8%; 21·9–23·7)	159 (25·3%; 22·0–28·8)	840 (42·0%; 39·9–44·2)
Number of siblings in household	2·5 (2·4–2·5)	2·2 (2·2–2·4)	2·8 (2·8–2·9)
Disadvantaged stratum‡	4156 (44·9%; 42·6–47·4)	312 (49·6%; 41·0–60·1)	841 (42·1%; 37·4–47·4)
Income quintile‡			
Lowest	1323 (14·3%; 13·6–15·0)	80 (12·7%; 10·3–15·6)	635 (31·8%; 29·8–33·8)
Second	1510 (16·3%; 15·6–17·1)	113 (18·0%; 15·2–21·2)	385 (19·3%; 17·6–21·1)
Third	1952 (21·1%; 20·3–21·9)	130 (20·7%; 17·7–24·0)	332 (16·6%; 15·0–18·3)
Fourth	2249 (24·3%; 23·4–25·2)	132 (21·0%; 18·0–24·4)	346 (17·3%; 15·7–19·0)
Highest	2213 (23·9%; 23·1–24·8)	174 (27·7%; 24·3–31·3)	298 (14·9%; 13·4–16·5)
Missing	9 (0·1%; 0·1–0·2)	0	3 (0·2%; 0·1–0·5)

Notes. Data are n (%; 95% CI) or mean (95% CI). NVQ=National Vocational Qualification. *Biological mother or father or guardian responsible for the young person. †Household with no working parent(s). ‡The proportion of children living in areas which were the poorest 25% according to the Child Poverty Index for England and Wales. §Derived using a modified Organisation for Economic Cooperation and Development equivalence scale.

Significantly more females fell into the sexual minority category than did males (table 3.1). For all regression models, examined whether any associations observed between sexuality and outcomes were moderated by sex, and found they were not. All correlations between outcome variables were moderate to small (See appendix 3 table A3.2). The strongest correlation was between self-esteem and depressive symptoms and the weakest was between arguing often with the mother and being overweight or obese.

Sexual minority adolescents had increased odds of reporting clinical levels of depressive symptoms, had lower life satisfaction, and had increased odds of self-harming in the past year compared with heterosexual adolescents. Sexual minority adolescents were more likely to have lower self-esteem scores (figure 3.1; table 3.2). Sexual minority adolescents were at increased odds of antisocial behaviour such as hitting another person or stealing from another person, compared with their heterosexual counterparts. However, sexual minority adolescents were not at increased odds of hitting someone with a weapon (figure 3.1; table 3.2).

Sexual minority adolescents were at increased odds of having drunk alcohol, smoked, or used cannabis in the past compared with their heterosexual counterparts. However, observed no differences in regular smoking, regular cannabis use, regular drinking, or other drug use. Sexual minority adolescents did not have increased odds of engaging in sexual activity or of engaging in risky sexual behaviour (figure 3.1; table 3.2).

Sexual minority adolescents were at increased odds of being overweight or obese compared with heterosexual adolescents and were also more likely to be physically inactive. Sexual minority adolescents were not at increased odds of exercising to lose weight. However, sexual minority

adolescents were at increased odds of eating less to lose weight and were more likely to perceive themselves as overweight or very overweight compared with heterosexual adolescents (figure 3.1; table 3.2).

Sexual minority adolescents were at increased odds of being bullied by siblings, peers, and online compared with their heterosexual counterparts. They were also at increased odds of experiencing verbal assault, physical assault, sexual assault, being hit with a weapon, and being stolen from. observed no difference between sexual minority adolescents and heterosexual adolescents regarding whether they had close friendships. However, sexual minority adolescents reported being less close to and arguing more with their parents (figure 3.1; table 3.2).

Table 3.2 Descriptive statistics for all variables of interest

	Heterosexual adolescents (n=9256)	Sexual minority adolescents (n=629)	OR (95% CI)	Regression coefficient (95% CI)	p value*
Mental health					
Depressive symptoms score (score range 0–26)	9125, 5·53 (5·41–5·64)	622, 12·77 (12·16–13·38)	.	6·32 (5·51 to 7·13)	<0·0001
Above depressive symptoms cut-off	9125, 15·15% (14·19–16·15)	622, 54·27% (49·24–59·21)	5·43 (4·32 to 6·83)	.	<0·0001
Low subjective wellbeing	9163, 15·33 (15·20–15·47)	623, 20·30 (19·71–20·90)	.	4·18 (3·38 to 4·98)	<0·0001
Low life satisfaction	9204, 10·15% (9·33–11·04)	627, 34·40% (29·63–39·49)	3·66 (2·92 to 4·58)	.	<0·0001
Self-harm	9206, 14·20% (13·26–15·19)	624, 53·78% (48·73–58·74)	5·80 (4·55 to 7·41)	.	<0·0001
Self-esteem score† (score range 5–20)	9092, 9·46 (9·40–9·52)	621, 11·81 (11·53–12·10)	.	1·83 (1·47 to 2·19)	<0·0001
Antisocial behaviours					
Stole from another person	9225, 1·25% (0·98–1·61)	628, 3·09% (1·83–5·15)	3·36 (1·87 to 6·01)	.	<0·0001
Hit another person	9224, 33·76% (32·50–35·05)	629, 34·31% (29·78–39·16)	1·42 (1·12 to 1·79)	.	0·004
Hit someone with a weapon	9225, 1·17% (0·89–1·53)	629, 1·27% (0·55–2·94)	1·90 (0·73 to 4·97)	.	0·189
Health-related outcomes					
Ever drank alcohol	9227, 51·51% (50·17–52·84)	628, 67·45% (62·52–72·02)	1·85 (1·47 to 2·33)	.	<0·0001
Regular drinking‡	4048, 1·27% (0·94–1·72)	385, 1·07% (0·36–3·11)	0·50 (0·14 to 1·81)	.	0·288
Ever smoked	9203, 17·51% (16·47–18·60)	625, 34·73% (30·02–39·75)	2·41 (1·92 to 3·03)	.	<0·0001
Regular smoking‡	9201, 2·80% (2·33–3·37)	625, 6·18% (4·13–9·16)	1·84 (1·11 to 3·05)	.	0·018
Ever used cannabis	9226, 5·56% (4·92–6·28)	627, 15·87% (12·17–20·44)	3·22 (2·24 to 4·61)	.	<0·0001
Regular cannabis use‡	414, 49·90% (43·59–56·22)	76, 35·98% (23·43–50·80)	0·57 (0·27 to 1·18)	.	0·129
Other drug use	9224, 0·76% (0·55–1·06)	628, 1·94% (1·00–3·72)	2·70 (1·20 to 6·09)	.	0·017
Sexual activity	527, 31·42% (26·44–36·86)	82, 44·24% (31·69–57·56)	1·56 (0·81 to 3·00)	.	0·180
Risky sex	154, 20·59% (12·60–31·79)	33, 13·35% (4·34–34·34)	0·54 (0·14 to 2·07)	.	0·365
Overweight or obese	8890, 25·92% (24·71–27·18)	595, 33·04% (28·39–38·04)	1·35 (1·08 to 1·67)	.	0·007
Physically inactive	9231, 2·72 (2·70–2·74)	629, 3·20 (3·12–3·28)	.	0·36 (0·25 to 0·46)	<0·0001
Exercised to lose weight	9212, 61·35% (60·03–62·66)	629, 66·33% (61·31–71·02)	1·04 (0·82 to 1·32)	.	0·746
Dieted to lose weight	9204, 43·59% (42·28–44·92)	627, 65·55% (60·48–70·30)	1·98 (1·58 to 2·48)	.	<0·0001

Perceives self as overweight	9209, 32·59% (31·35–33·85)	629, 49·47% (44·49–54·47)	1·73 (1·40 to 2·14)	.	<0·0001
Interpersonal difficulties					
Sibling bullying (victimised)	8620, 26·54% (25·35–27·77)	582, 37·27% (32·26–42·58)	1·62 (1·25 to 2·09)	.	<0·0001
Frequency of sibling bullying score (score range 1–6)	8620, 2·72 (2·68–2·76)	582, 3·24 (3·08–3·39)	.	0·48 (0·26 to 0·70)	<0·0001
Peer bullying (victimised)	9216, 10·37% (09·56–11·23)	628, 27·10% (22·89–31·76)	3·36 (2·56 to 4·40)	.	<0·0001
Frequency of peer bullying score (score range 1–6)	9216, 2·00 (1·97–2·03)	628, 2·91 (2·76–3·05)	.	0·92 (0·70 to 1·13)	<0·0001
Cyber bullying (victimised)	9220, 2·32% (1·93–2·79)	626, 7·56% (5·27–10·72)	2·62 (1·66 to 4·14)	.	<0·0001
Frequency of cyber bullying score (score range 1–6)	9220, 1·47 (1·45–1·49)	0·42 (0·28 to 0·56)	.	0·42 (0·28 to 0·56)	<0·0001
Verbally assaulted	9223, 44·94% (43·62–46·27)	629, 65·86% (61·07–70·36)	2·25 (1·79 to 2·84)	.	<0·0001
Physically assaulted	9221, 24·22% (23·07–25·41)	627, 34·85% (30·21–39·81)	2·15 (1·69 to 2·74)	·	<0·0001
Hit with a weapon	9217, 3·70% (3·16–4·30)	628, 6·55% (4·19–10·09)	2·14 (1·28 to 3·58)	·	0·004
Been stolen from	9219, 7·94% (7·23–8·74)	628, 12·36% (9·51–15·91)	1·61 (1·14 to 2·28)	.	0·007
Sexually assaulted or harassed	9220, 2·53% (2·16–2·96)	627, 11·11% (8·46–14·47)	3·38 (2·36 to 4·85)	.	<0·0001
Has close friends	9230, 96·93% (96·37–97·40)	629, 96·41% (93·65–98·00)	0·64 (0·35 to 1·16)	.	0·142
Not close to mother	9131, 3·02% (2·56–3·55)	617, 8·74% (6·04–12·50)	2·42 (1·58 to 3·73)	.	<0·0001
Not close to father	8546, 11·05% (10·39–11·72)	568, 16·84% (13·75–19·93)	1·47 (1·05 to 2·07)	.	<0·0001
Close to mother score (score range 1–4)	9131, 3·20 (3·18–3·22)	617, 2·83 (2·76–2·90)	.	–0·35 (–0·45 to –0·25)	<0·0001
Close to father score (score range 1–4)	9546, 2·84 (2·82–2·86)	568, 2·49 (2·41–2·57)	.	0·026	0·026
Argues with mother often	9117, 26·37% (25·20–27·58)	615, 40·82% (35·85–45·98)	1·71 (1·33 to 2·21)	.	<0·0001
Argues with father often	8531, 16·06%, (15·06–17·12)	568, 23·84% (19·73–28·50)	1·62 (1·25 to 2·11)	.	<0·0001

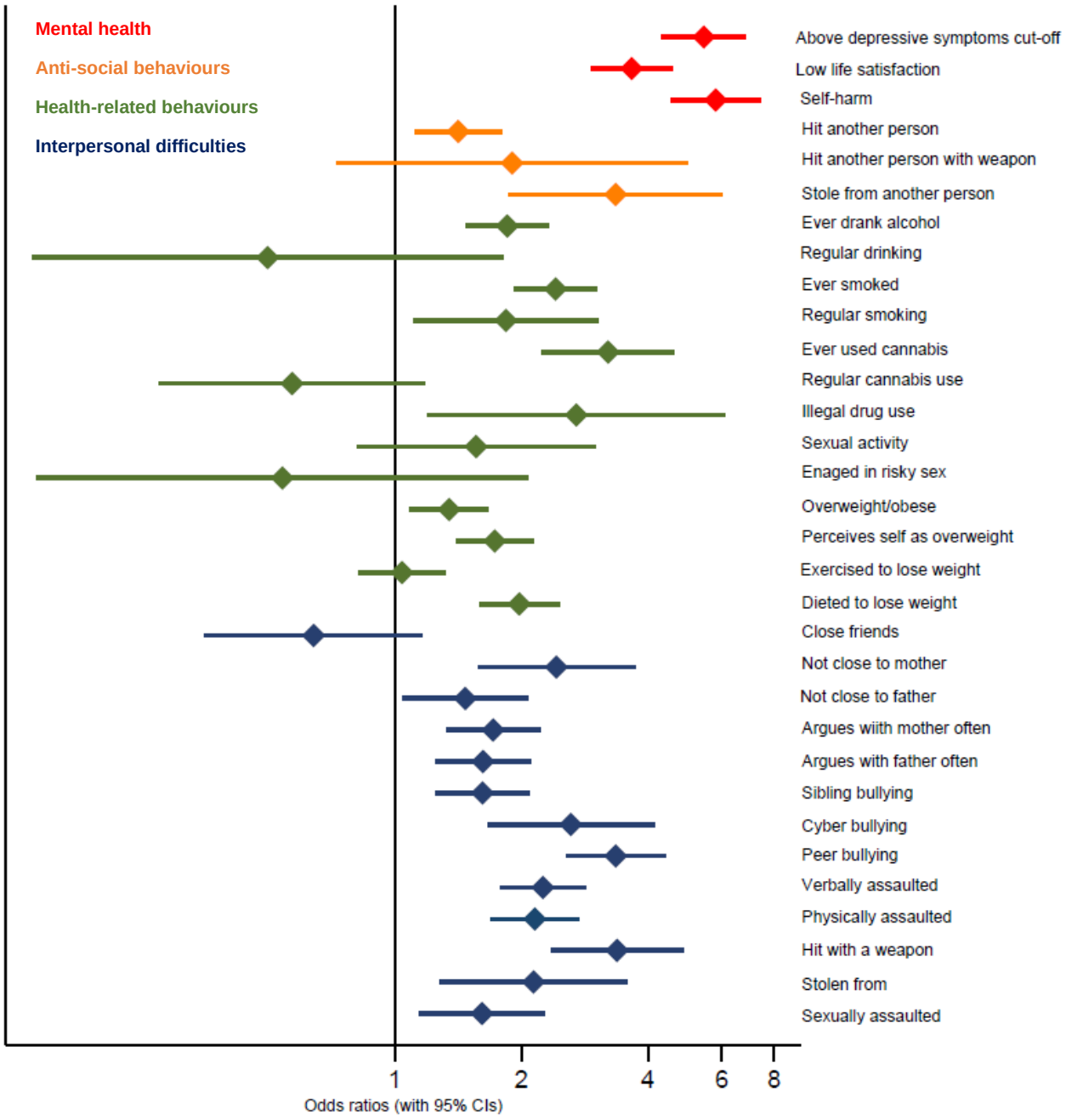


Figure 3.1 Odd Ratios for sexual minority adolescents compared with heterosexual adolescents

Note. Sex, parental income, number of siblings, housing tenure & ethnicity variables were controlled for in all models. ORs greater than 1 indicate increased odds in sexual minority adolescents. OR=odds ratio.

Sexual minority adolescents had more total cumulative difficulties (mean 9·43 of 28 outcomes [only binary variables], 95% CI 9·09–9·76) versus heterosexual adolescents (6·16 of 28 outcomes, 6·08–6·23). In the mental health domain, sexual minorities had a mean of 1·43 (95% CI 1·34–1·52) cumulative difficulties of three outcomes versus 0·40 (0·38–0·41) of three outcomes for heterosexual adolescents. The mental health domain also showed the highest percentage of cumulative difficulty for sexual minority adolescents (figure 3.2). In the health-related domain, sexual minorities had a mean of 3·75 (3·59–3·92) cumulative difficulties of nine outcomes compared with 2·68 of nine outcomes (2·64–2·72) for heterosexual adolescents. For the interpersonal difficulties domain, sexual minority adolescents had mean 3·93 (3·77–4·10) cumulative difficulties of 13 outcomes versus 2·79 (2·76–2·83) of 13 outcomes for heterosexual adolescents. found no difference in cumulative difficulty for the antisocial behaviour domain between sexual minority adolescents (0·39 out of three outcomes, 95% CI 0·34–0·43) and heterosexual adolescents (0·36 of three outcomes, 0·35–0·37).

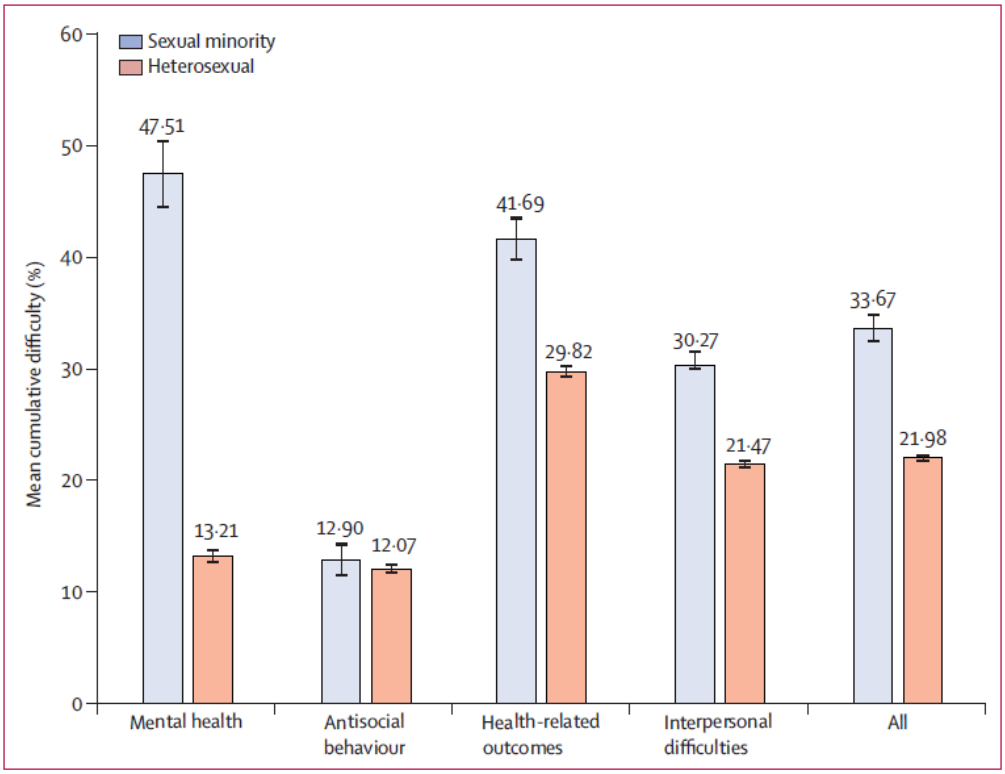


Figure 3.2 Percentage of cumulative difficulty across domains of adversity**.** Error bars represent 95% CIs.

also reported descriptive statistics for bisexual versus same sex attracted adolescents for all outcomes (See appendix 3, table A3.3). The only difference identified was for depressive symptoms (binary and continuous), for which bisexual adolescents were more likely to be above the depression cut-off.

3.6 Discussion

This study provides much needed population-based estimates of sexual minority adolescents' mental health, social environment, and health-related outcomes in the UK. Across the investigated domains, sexual minority adolescents were often at increased odds of more adverse outcomes. Furthermore, adverse adolescent outcomes accumulated at higher levels in sexual minority adolescents, highlighting the potentially severe extent of negative lifetime consequences due to experiences and outcomes in adolescence.

Similar to previous research, sexual minority adolescents had an increased likelihood of mental health problems such as depression, self-harm, lower self-esteem, and lower life satisfaction. Sexual minority adolescents were over five times more likely to have depression and self-harm compared with their heterosexual counterparts. Mental health difficulties also constituted the highest proportion of cumulative difficulty in sexual minorities. This pattern of mental health disparity is concerning given that depression is a leading cause of years lived with disability and carries a substantial health burden worldwide (James et al., 2018). There has been a call to prioritise preventive strategies that address the development of depression globally and for these strategies to also focus on at-risk groups and earlier stages of onset (Patton et al., 2016; World Health Organization, 2017). Increased mental health problems have been linked with adversity in an adolescent's social environment (Patton et al., 2016). In this study, sexual minority adolescents were more likely to argue with and be less close to their parents and were also significantly more likely to experience all forms of bullying and victimisation, including sexual assault. In accordance with the minority stress theory, these patterns of social adversity are likely to impact the mental health of sexual minority adolescents and the adverse health behaviours they engage in (Meyer, 2003). This research highlights that sexual

minority adolescents should be among the priority groups for interventions and that interventions should be targeted in various contexts (e.g., school and family settings) (Dennis, 2014). The 2018 publication of the UK government's LGBT Action Plan recognises that social discrimination needs to be further reduced (Government Equalities Office, 2018).

Sexual minority adolescents were more likely to have drunk alcohol, smoked tobacco, and used cannabis. They were also more likely to be physically inactive, perceive themselves as overweight, and restrict food intake to control their weight. These health-related behaviours are associated with increased mortality rates over the life course, having detrimental consequences for an individual's quality of life and increasing the likelihood of development of further comorbidities over time (James et al., 2018). In line with previous publications (Austin et al., 2013), it was found here that precursors of eating disorders (e.g., restriction of food intake and perceiving the self as overweight) are elevated in sexual minority adolescents. At the age of 14 years, sexual minorities were not more likely to engage in regular alcohol consumption, use other drugs, have had sexual intercourse, or risky sex. The overall sample prevalence of some of these outcomes was low. Alcohol use in sexual minorities is generally elevated for several indicators—e.g., younger age of initiation and heavy drinking. In this study, found that sexual minority adolescents were more likely to try substances such as alcohol, but not to use them regularly. Social, physical, and mental health outcomes might interact in a multidirectional fashion and evidence suggests that social variables have a key role in the dynamic development of later adverse outcomes (Dennis, 2014 ; Shilo & Savaya, 2011). However, because of the cross-sectional nature of our analysis could not examine these potentially causal relationships over time.

To our knowledge, this is the first study to use a large UK population-based sample to estimate differences for a broad host of outcomes within the same sample. This approach permitted investigation of the relative increased odds of several outcomes and measurement of cumulative difficulty. It was found that sexual minority adolescents were more likely to have negative outcomes in a range of domains, as well as multiple negative outcomes simultaneously, with nine co-occurring

outcomes on average compared with six in heterosexual adolescents. Given the consequences of cumulative difficulties, the associated risk is likely to be additive. Mental health comorbidities are likely to perpetuate one another and increase in severity over time (James et al., 2018). Therefore, there are likely to be lifelong health and social repercussions associated with the cumulative difficulties observed in sexual minority adolescents. By contrast with previous research (Lucassen et al., 2017), there were no observable sex differences in associations between sexuality and outcomes. A 2019 UK-based analysis of adolescents born in the 1990s also did not find an association between sex and depressive symptoms and self-harm in sexual minority adolescents (Irish et al., 2019).

The main strength of this study is that utilised a probability-based sample allowing the findings to be generalised to the UK population. Using a sample of adolescents born in the 21st century, provided a much-needed overview of the experience of sexual minority adolescents who have lived in an era of socio-political change towards equality and diversity (Mercer et al., 2013). By assessing multiple domains within the same sample, the relative likelihoods of multiple outcomes can be compared meaningfully, which is another strength of our study. For example, within this sample mental health factors, such as substantial depressive symptoms, were elevated by five times and most experiences of victimisation and assault elevated by two to three times in sexual minority compared with heterosexual adolescents. To date, most research in sexual minority adolescents has focused on these domains separately, making this relative understanding difficult.

Study limitations include the way in which sexual minority adolescents were identified. Sexuality was derived from responses about sexual attraction, using a combination of study items to determine heterosexual or non-heterosexual attraction. Thus, the way in which sexual orientation was identified has some limitations given it was not a direct question posed to young people. Given the fluidity of sexuality at this age and the complexity of navigating one's identity during adolescence (Savin-Williams, 2011), attraction was considered an appropriate measure of sexual minority status at this age. Past research showed that across varying labels of sexual minority (i.e., lesbian, gay, or bisexual), there are differences in levels of adversity experienced within the sexual minority group itself,

specifically with bisexual individuals experiencing worse outcomes (Matthews et al., 2014). Comparisons between bisexual and same sex attracted adolescents were underpowered. Descriptive statistics revealed differences for depressive symptoms only, with bisexual youth being more depressed on average. With the available data, it cannot be established whether individuals with increased odds of poorer outcomes, had yet disclosed attraction status at school or to family, and hence could not examine whether the observed outcomes were different on the basis of disclosure status. The measures used herein include several validated questionnaires but also some single item questions that have not been validated in the same fashion, thus the reader should be conscious of this limitation when interpreting the findings presented. Another limitation of this study is that the proxy indicator of risky sex is derived from a question that assumes penile–vaginal intercourse; given that most of the sexual minority sample was female, this variable might underrepresent risky sex for female sexual minorities.

A range of disparities based on sexual attraction are visible as early as 14 years of age. Problems such as increased rates of depression, smoking tobacco, and cannabis use are likely to affect sexual minority adolescents throughout the course of their lives, making early intervention a public health priority. Schools provide an ideal infrastructure to implement effective public health change and social policies (Fedewa & Ahn, 2011). In light of this, a new UK curriculum that teaches students about gender and relationship diversity has been developed, but the guidance around its implementation currently lacks clarity (Department of Education, 2019). Therefore, at the policy level clearer universal education guidelines are needed. Parental tensions identified for sexual minority adolescents need further investigation to identify whether support can be offered at the family level and whether there is scope to develop interventions targeting families of sexual minority adolescents.

In conclusion, sexual minority adolescents had higher levels of mental health difficulties (e.g., self-harm and depressive symptoms), social adversities (e.g., more bullying, less parental closeness, and sexual assault), and health-related behaviours (e.g., smoking and cannabis use). These results highlight the need for further prevention efforts and intervention at the school, community, and policy

level to ensure that sexual minority adolescents do not face lifelong negative social, economic, and health outcomes. Despite high-profile UK policies, such as the legalisation of same sex marriage in 2013 and the introduction of sexual orientation as a protected characteristic during the lifetime of the adolescents in this study, the evidence presented here indicates that large inequalities in social and health outcomes still exist for sexual minority adolescents growing up in the 21st century.

CHAPTER 4 -THE RELATIONSHIP BETWEEN INTERNALISED HOMONEGATIVITY, EMOTIONAL DYSREGULATION, DEPRESSIVE SYMPTOMS, AND SUBJECTIVE WELLBEING IN SEXUAL MINORITY YOUTH

4.1 Abstract

Sexual minorities tend to experience poorer psychological outcomes, usually beginning in adolescence. Socially stigmatizing attitudes experienced during adolescence can be turned inward (i.e., 'internalised homonegativity') which coupled with the adoption of poor emotional coping styles, might adversely affect mental health outcomes. This study investigates the mediating properties of emotional dysregulation and internalised homonegativity between sexual orientation and i) depression ii) subjective wellbeing. Sexual minority (N= 139) and heterosexual (N = 151) participants aged 16 - 24 years (Mean = 19.85, SD = 1.77) were recruited from the UK via social media platforms. Measures included *implicit* and explicit internalised homonegativity, depression, subjective wellbeing, and emotional dysregulation. On average sexual minorities did not display *implicit* internalised homonegativity whereas the average score for the heterosexual group indicated the endorsement of homonegative attitudes. Explicit internalised homonegativity was associated with higher depression scores (B [SE] = .31 [.10], 95% CI 's = .111 - .503, p= .002) (R^2 = 0.18) in sexual minority youths, whereas implicit internalised homonegativity was not (p = 0.505). Implicit internalised homonegativity mediated the relationship between sexual orientation and wellbeing (B [SE]= 3.85 (1.08), [1.73, 5.96], p <.001), but not depression (B [SE] = 2.00 (1.74), [-1.41, 5.41], p = .250. In contrast, emotional dysregulation significantly mediated the relationship between both i) sexual orientation and depression (B [SE]= 5.09 (1.43), [2.28, 7.89], p <.001) and ii) sexual orientation and subjective wellbeing (B [SE] = -3.36 (1.07), [-5.46, - 1.26], p =.002). The relationship between internalized homonegativity and poor outcomes seems to be more complicated than predicted. Whilst internalized homonegativity significantly mediates the relationship between sexual minority status and wellbeing, it seems to be associated with higher wellbeing when such attitudes are unconscious.

Whereas when one is consciously aware of their internalized homonegativity wellbeing scores are more likely to be lower. This work demonstrates that the minority and general psychopathological processes associated with wellbeing differ to those associated with depression. Furthermore, it calls into question the utility of measuring implicit of internalized homonegativity given its lack of association with depression. Larger scale longitudinal work is needed to explore the maintenance processes perpetuating wellbeing *and* psychopathology.

Keywords: *Implicit Association Task, Psychological mediation framework, Sexual minorities, LGBT, Adolescence, emerging adults.*

4.2 Introduction

Adolescence marks a time of considerable biological, social, and emotional change (Due et al., 2011). It is a time of personality formation, where one can begin to flourish but also when mental health problems can emerge for many (Patel et al., 2007). Sexual minority youth (those experiencing non-heterosexual attraction) experience higher rates of anxiety, depression and less life satisfaction compared to heterosexual youth ((Amos et al., 2020; Pinto et al., 2017; Semlyen et al., 2016). The aim of this paper was to use an experimental design informed by the Psychological Mediation Framework (PMF; (Hatzenbuehler, 2009)) to explore the mechanisms associated with psychopathology and poorer subjective wellbeing.

Sources of stress specific to being part of a minority population can facilitate the internalization of negative views of homosexuality and/or sexual minority identities and thus effect psychopathological outcomes and subjective wellbeing (Coker et al., 2010). Internalising heterosexist ideals, such as believing that homosexual relationships are less valid than heterosexual ones, increases the already existing cognitive burden of societal stigmatisation on the individual (Hatzenbuehler et al., 2009) and other minority specific stressors such as fear of rejection, concealing one's identity and prejudice events (Meyer, 2003). In younger people this might be particularly detrimental as emotional

dysregulation strategies develop, and they have limited access to positive social resources such as LGBT groups and friends (Szymanski et al., 2008).

The process by which social homonegativity becomes internalised has been labelled 'internalised homonegativity' (also referred to as internalised homophobia/heterosexism) and has gained increasing attention as a psychopathological process specific to sexual minority groups (Szymanski et al., 2008). Internalised homonegativity may present itself at the level of self-identity i.e., questioning the morality of one's sexuality, negative attitudes towards other sexual minorities and the unwillingness to disclose sexuality status due to expected stigmatisation (Szymanski et al., 2008).

Internalised homonegativity has been linked to a host of negative outcomes such as delays in sexual identity development and psychosocial difficulties such as poor self-esteem and restricting awareness of LGBT groups (Carpenter et al., 2019). Specifically, higher levels of internalised homonegativity have been shown to lead to decreased subjective wellbeing (Baams et al., 2014), increased psychological distress (Shilo & Savaya, 2012) increased depressive symptoms (Frost & Meyer, 2009) and emotional dysregulation (Hatzenbuehler et al., 2009). As postulated by the PMF ((Hatzenbuehler, 2009), *distal* minority specific stressors (i.e., stigma events related to sexuality but outside of individual) likely increase engagement with maladaptive strategies such as rumination, suppression, and negative self-schemas in turn leading to psychopathology (Hatzenbuehler, 2009; Hatzenbuehler et al., 2008). Internalised homonegativity is a *proximal* minority stressor which includes one's negative affect and attitudes towards their own sexuality and the group to which the belong (Szymanski et al., 2008). As such, both *general* and *minority specific* mechanisms may simultaneously contribute to the particularly adverse mental health outcomes seen in sexual minority individuals (Hatzenbuehler, 2009).

Historically, there have been issues with the measurement of internalised homonegativity. Earlier self-report measures assessed almost exclusively homosexual male adults and possessed content validity issues (Szymanski et al., 2008). For example, in a questionnaire developed by Ross & Rosser (1996)

one item asked whether “Discrimination against gay people is still common”, confirmatory responses to this question were taken to reflect negative or biased perceptions and/or attitudes, when this reflects common experiences in heterosexist society. This would lead to an overestimation of internalized homonegativity. Another caveat of relying on explicit measures is the potential impact of social desirability effects in responding (Greenwald et al., 1998). People rarely want to appear homophobic or may simply be unaware of their unconscious biases. Furthermore, in a heteronormative society, marginalised communities that experience victimisation or do not conform to social norms, may experience fear and discomfort which biases the accuracy of self-report measures (Krieger, 2019). Additionally, explicit measures fail to capture unconscious and implicit attitudes towards self and the in-group (i.e., other sexual minorities) (Krieger, 2019). In psychopathology literature a lack of self-awareness and or self-reflection that is associated with poor mental health. It is probable therefore that implicit attitudes are more pernicious than explicit ones given that by nature they are outside of awareness and more difficult identify and thus counteract (Hatzenbuehler et al., 2009; Weissman et al., 2020). Thus, the Implicit Association Task (IAT) presents a methodological advantage to dealing with these limitations by measuring the participant’s implicit and automatic attitudes (Greenwald et al., 1998) and is proposed to be particularly effective with marginalised groups that are exposed to the pressures of objective and structural oppression (Krieger, 2019).

The IAT, tasks respondents with associating positive and negative stimuli to social categories such as race, sexuality, and gender over a number of trials. The underlying assumption is that more socially stigmatised groups (i.e., sexual minorities), which tend to have negative societal representation, will be more readily associated with negative stimuli. A cognitive conflict is generated when respondents are then asked to associate these groups with positive stimuli resulting in slower reaction times (i.e., the IAT effect) (Greenwald et al., 1998). This test has been used with sexual minority groups themselves to reveal their own cognitive biases to the in-group (i.e., sexual minorities like themselves) and implicit internalised homonegativity. Hatzenbuehler et.al. (2009) used the IAT methodology to detect implicit preferences for heterosexual relationships over sexual minority relationships as a proxy of internalised homonegativity. They measured participants’ experience of prejudicial events over a

ten-day period. Those who had higher baseline levels of implicit internalised homonegativity showed greater levels of rumination and suppression in response to prejudicial events. Implicit internalised homonegativity was also found to be more predictive of psychological distress than explicit measures and was mediated by cognitive response styles (i.e., suppression and rumination) that have been shown to be associated with emotional dysregulation. Aside from this work, research has exclusively focused on explicit forms of internalised homonegativity. Whilst there is a wealth of literature exploring the relationship between self-report or 'explicit' forms of internalised homonegativity there is minimal information beside the work of Hatzenbuehler et.al. (2009) that explores the impact of unconscious or 'implicit' forms of internalised homonegativity.

Despite the novel work of the Hatzenbuehler et.al. (2009) study in investigating implicit internalised homonegativity, there are significant gaps that still exist. Namely, they recruited an exclusively adult sample, research still needs to be done with sexual minority youth as they lack biopsychosocial resources to deal with the pernicious effects of internalised homonegativity (Coker, Austin & Schuster, 2010). Furthermore, they recruited a modest sample size (N = 31) from a local community. As such, this study aimed to recruit a more diverse youth sample *across* the UK. This work was also designed in order extend the Hatzenbuehler et.al. (2009) study by measuring the impact that internalised homonegativity had on subjective wellbeing which also encompasses an important measure of overall mental health and functioning. The aim of the current study is to add to the dearth of UK based evidence in this field and to elucidate psychological processes related to depression and subjective wellbeing in sexual minority youth.

It was hypothesised that *a)* there would be a general trend for participants to more readily associate positive stimuli to heterosexual couples *and* with less errors, *b)* that explicit internalised homonegativity would be associated with higher levels of depression and lower levels of wellbeing in sexual minority youth, *c)* implicit measures of internalised homonegativity (relative to explicit measures) would correlate more highly with depression and wellbeing in sexual minority youth relative to heterosexual controls and; *d)* general psychopathological mechanisms (i.e. emotional

dysregulation) and minority specific stressors (i.e. internalised implicit homonegativity) would simultaneously mediate the relationship between sexual minority status and i) depression ii) wellbeing.

4.3 Methods

4.3.1 Design

This was an experimental mixed design, where compared differences *between* sexual minorities and heterosexual participants levels of implicit homonegativity as well as differences *within* sexual minorities emotional dysregulation, depression, and wellbeing. The primary outcome assessed was preference for heterosexual couple imagery over homosexual couple imagery in both groups. This study was pre-registered via the open science framework page and can be found at: DOI 10.17605/OSF.IO/JCFHD (see appendix 4, A4.4 for list of deviations from original protocol).

4.3.2 Participants

Sexual minority youth (n = 139) and heterosexual participants (n= 151) aged 16-24 (M =19.85 SD = 1.77) years of age were recruited online. Participants were excluded if they self-reported experiencing complex serious mental health problems (i.e., psychosis or bi-polar affective disorder), were not residing in the UK, could not read English (i.e., unable to complete study questionnaires) and had visual/learning difficulties that would make completion of the implicit association task difficult. See table 4.2 for demographic information. Most of the sample was female (57%), white British (84%) and non-religious (70%). This can be compared with recent office of national statistics reveal that approximately for 16–24-year-old people which indicated that 48% are female, 79% are white British, and 10-17% are religious (Office of National Statistics, 2015)

Out of 341 people who signed the consent form and proceeded to participate, 34 did not provide any useable information and were subsequently removed from the data set. An additional 17 people did not identify exclusively as having with a sexual minority or heterosexual (e.g., asexual, aromantic, or unsure) identity and were not included in group specific analyses, resulting in a sample 290 people who were included in the analysis.

As is recommended by Greenwald et al., 2003, responses over 10,000ms or shorter than 300ms were deleted as it was unlikely to be reflective of automatic responding. Out of 270 participants that completed the IAT, two participants were removed from analysis for responding sub 300ms, these participants were automatically deleted by the IAT software (http://iatgen.org/) (resulting in n = 268). No participants responded over 10,000ms.

An a priori power calculation using G*power (version 3.1) was conducted using an effect size of r = .18 based on a meta-analysis of sexuality IAT's (Greenwald et al., 2009). Specifying an $\alpha = .05$ and accounting for the inclusion of 6 predictors (sexual orientation, emotional dysregulation, internalised homonegativity and control variables: ethnicity, gender, and age) a total sample estimate of 146 to achieve a power of 0.99 was provided. Therefore 73 participants per group (heterosexual or sexual minority) was needed. Given gender imbalance during recruitment sampling went beyond this target.

4.3.3 Procedure

Participants were given a participant information sheet explaining the details of the study and then, if interested in taking part, they were required to fill in a digital consent form. Ethical approval was granted by the University of Liverpool (REF: 4384). The study was advertised to university students in return for course credit and to people via social media platforms such as Twitter, Facebook, Tumblr, Instagram, and Reddit. Local LGBT charities and University societies were contacted (via

social media tagging or direct email) and asked to promote the study. The IAT task was generated via IATgen (Carpenter et al., 2019) and disseminated via Qualtrics. The IAT requires participants to associate negative or positive responses with the target concept presented in the middle of the screen (See A4.1), negative/positive responses could be chosen with left ('E') or right keys ('I') respectively. Online counterbalancing of blocks was automatically coded via the IATgen program. At the end of the study participants were debriefed regarding the aims of the implicit association task and provided with contact details of sexual minority and general support services.

4.3.4 Measures

4.3.4.1 Sexuality.

Sexuality was measured via self-report categories (i.e., lesbian, gay, bisexual, pansexual and other). Participants who responded 'other' were asked to specify their sexuality type in a text box. For analyses lesbian, gay, bisexual, pansexual and other were combined to form the sexual minority group. Those who said that they were asexual, aromantic or unsure were not considered a sexual minority.

4.3.4.2 Depressive Symptomatology.

The Centre for Epidemiologic Studies-Depression Scale Revised (CESD - R)

This is a 20-item measure of general depression symptoms where respondents select how frequently they have experienced depressive symptoms over the last week, 0 = 'not at all', 1 = '1-2 days', 2 = '3-4 days', and 3 = '5-7 days' or 4 = 'nearly every day for the last 2 weeks' (Eaton et al., 2004). Participants are asked about dysphoria, anhedonia, appetite, sleep, thinking processes, guilt, fatigue, agitation, and suicidal ideation. A cut off score of 16 and above indicates depression. This scale has been validated with youth (Radloff, 1991) and has high internal consistency (Cronbach's α=0.92) and

good convergent and divergent validity (van Dam & Earleywine, 2011). The internal consistency of the use of this questionnaire in this study was α = .94.

4.3.4.3 Subjective Wellbeing.

The mental health Continuum Short-Form (MHC-SF)

This is 14-item measure of subjective wellbeing, consisting of emotional, psychological, and social subjective wellbeing subscales (Keyes et al., 2008). Participants are asked, for example, how often they have felt "satisfied with life" over the last month. Responses are on a 6-point Likert scale, ranging from 1 "Never" to 6 "Everyday". Higher scores indicate more subjective wellbeing and categorical scoring can be used to diagnose individuals as flourishing, languishing, or having moderate mental health levels. This measure has high internal consistency (α = 0.89), moderate test-retest reliability (α =.65 - .68) and good discriminant validity (Keyes et al., 2008; Lamers et al., 2011). The internal consistency of this questionnaire in this study was α = .94.

4.3.4.4 Emotional dysregulation.

The Difficulty in Emotion Dysregulation scale - Short Form (DERS-SF)

This is an 18-item measure of emotional dysregulation (Kaufman et al., 2016). It consists of a 1-5 Likert scale, where participants are asked questions such as "When I'm upset, I acknowledge my emotions" (reverse scored)" and "When I'm upset, I am confused about how I feel". A response of 1 denotes "almost never" and 5 "almost always". Subscales assess; non-acceptance of emotional responses, difficulties engaging in goal-directed behaviour, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies and lack of emotional clarity. Higher scores indicate more emotional dysregulation. The full scale has high internal consistency (α = .93), with a Cronbach's α =.80 for each subscale, good construct validity and a good test-retest reliability over a period ranging from 4 to 8 weeks (Gratz & Roemer, 2004). The short form has been validated with youth and evidences an internal consistency of α = .95. The internal consistency of this questionnaire in this study was α = .91.

4.3.4.5 Internalised homonegativity.

4.3.4.5.1 The Internalized Homonegativity Inventory (IHNI) (explicit self-report).

This was used to measure explicit homonegativity (Mayfield, 2008). It is a 23-item measure with a 1-6 Likert scale (1 = strongly disagree, 6 = strongly agree). There are 3 subscales which assess homonegativity, homosexual affirmation and the morality of homosexuality. Each subscale has an alpha coefficient of .70 or greater, with α= .91 for the entire scale. Higher scores are indicative of more internalised homonegativity. This scale was made for, and validated with, homosexual men specifically, as is the case for many of the internalised homonegativity scales available (Szymanski et al., 2008). Therefore, adapted the wording of this scale, so it explicitly applied to those with homosexual or bisexual attraction (see appendix 4, A4.2). The internal consistency was α= .90 for the adapted scale4.

4.3.4.5.2 Implicit internalised homonegativity (IAT).

The implicit association (IAT) (Greenwald et al., 1998) was used to measure all participant's implicit internalised homonegativity. Participant's categorised positive and negative words, as well as images of homosexual (2 Gay, 2 lesbian) and heterosexual couples (See appendix 4, A4.3). The study consisted of seven blocks in total, five test blocks two 'critical blocks' (See table 4.1).

In the first critical block or "incongruent condition", participants were required to associate stimuli related to the category "Homosexual" and/or "Good" (left key response) and the category "Heterosexual" and/or "Bad" (right key response.). The second critical block or the "congruent condition" was the reverse order of this (e.g., "Heterosexual" and/or "Good" left key response). The order of trials was counterbalanced (See table A4.1). The latencies between the incongruent and congruent constitute the IAT effect (Greenwald et al., 1998). Faster reaction times in the congruent

[4] This scale was only administered to sexual minority youth and not heterosexual participants. This is because the scale was validated with sexual minorities and measures internalized views, attitudes, and behaviours of the in-group rather than a general measure of homonegative attitudes.

versus the incongruent blocks indicate a preference for heterosexual couples, and in the case of sexual minority youth - higher levels of implicit internalised homophobia. Error feedback was provided to participants, and they were not able to move on to the next trial without rectifying errors.

The image stimuli used were the similar to previous IAT studies (i.e., pictures of a homosexual and heterosexual couple and symbols) but they were of better quality and discernibility (see appendix 4, A4.3). Images used in other studies were very small and included cake topper decorations of two men for example, chose images that were more realistic in nature. To minimise confounding effects, images did not include identifiable facial expressions or ethnicity (black and white images). Words were taken from previous IAT papers (Greenwald et al., 1998; Hatzenbuehler et al., 2009; Nosek et al., 2010) e.g., disgusting, wonderful (see A4.3 for stimuli). The study was piloted prior to dissemination to test for acceptability of wording, completion time, clarity of image stimuli used, technical issues and general experience of completing the test. No issues were identified during piloting and the survey was subsequently disseminated.

Table 4.1 Format of Sexuality Implicit Association Task (IAT)

Block	Trials	Block type	Items assigned to left-key response	Items assigned to right- key response
1	20	Practice	Homosexual items	Heterosexual items
2	20	Practice	Positive words	Negative words
3	20	Practice	Homosexual items + Positive words	Heterosexual items + Negative words
4	40	Incongruent	Homosexual items + Positive words	Heterosexual items + Negative words
5	20	Practice	Heterosexual items	Homosexual items
6	20	Practice	Heterosexual items + Positive words	Homosexual items + Negative words
7	40	Congruent	Heterosexual items + Positive words	Homosexual items + Negative words

Note. Blocks 4 & 7 are critical blocks i.e., used to calculate the IAT effect, *Blocks and the associated response keys, were counterbalanced – see appendix 4, A4.1.

4.3.5 Analysis

4.3.5.1 Data management and missingness

To account for item-level missingness within questionnaires a row mean substitution approach was used, whereby each participant score is averaged, and these averages are then inserted into the corresponding missing cells for that participant (Dodeen, 2010).

Across measures, 37 participants did not respond to a single item (12.05% of total sample) and therefore had no usable data from which to conduct imputation for any measure. For each individual measure there was variant levels of responding. For the subjective wellbeing measure, 39 participants did not respond to any of the items, of the remaining 268 who completed this questionnaire there was no missing data for any of the items. For the emotional dysregulation measure 45 participants did not respond to any of the items, of the remaining 262 who completed this questionnaire there was no missing data for any of the items. Thus, substituted averages could not be added to missing emotional dysregulation and subjective wellbeing cells as there were not enough cells (i.e., less than two) to generate an average from. For the explicit internalised homonegativity measures 4 participants did not respond to one item and 2 participants did not respond to two items, thus imputed averages for a total of 6 participants for this measure. A total of 39 participants did not complete the implicit association task in full and therefore counted them as missing. Given that the implicit association task is calculated via reaction times did not use the mean substitution method as it would be unlikely to be accurate.

4.5.3.2 Analytic strategy

To calculate the IAT effect the difference between critical block means was divided by the standard deviation of all latencies in both critical blocks allowing an estimation for a preference for homosexual couples or heterosexual couples (Greenwald, Nosek & Banaji, 2003). Positive scores

indicated a preference for heterosexual couples or 'implicit internalised homonegativity' in the case of sexual minority youth.

To test whether participants showed a preference for heterosexual imagery and positive stimuli, a paired t-test was conducted, comparing participant reactions time in the congruent (heterosexual and/or good) vs. incongruent (homosexual and/or good) condition. To test whether participants made more errors in the incongruent condition a paired t-test comparing error rates in the congruent vs incongruent condition was conducted.

To assess whether explicit and implicit internalised homonegativity was associated with depression and subjective wellbeing, four multiple regressions were conducted whilst controlling for gender, ethnicity, and age. Comparing the beta coefficients of both models, it was estimated which form of homonegativity had a larger impact on depression and subjective wellbeing.

Finally, to test the last hypothesis i.e., that general psychopathological mechanisms would mediate the relationship between sexual orientation and mental health outcome (wellbeing or depression) two structural equation models were conducted. The two models included sexual orientation as a dichotomous predictor (where heterosexual was the reference group (coded as 0)), emotional dysregulation and implicit internalized homonegativity as mediators, and depression and subjective wellbeing as outcome variables in either model. The design of this structural equation model was theoretically motivated in accordance with the PMF (Hatzenbuehler, 2009). Thus, it was expected that minority specific proximal stressors (i.e., internalised homonegativity) and general psychopathological mechanisms (i.e., emotional dysregulation) would simultaneously impact mental health outcomes (Hatzenbuehler, 2009). As such, it was hypothesised that emotional dysregulation *and* implicit internalized homonegativity would mediate the relationship between sexual orientation and depression and subjective wellbeing.

Emotional dysregulation and internalised homonegativity were added as mediators using *sem* command in STATA version 14.1 to a model with sexual orientation as the predictor, with depression or wellbeing as the outcome and ethnicity, gender, and age as controls. Structural equation models were bias corrected via bootstrapping and 1000 iterations being chosen. It has been suggested that bootstrapping leads to more robust and better powered estimates (Pan et al., 2018). It is important to note that this mediation analysis is cross-sectional, and do not attempt to make *causal inferences* about the relationship between our predictor (sexual orientation), mediators (internalised homonegativity and emotional dysregulation) and outcomes (depression, wellbeing) (see appendix 4, A4.5 for all models conducted).

4.6 Results

4.6.1 Descriptive statistics

More female participants (57%) took part than male participants (27%) and other genders (16%) in the overall sample. There was more gender diversity in the sexual minority group (i.e., more transgender, and non-binary participants) (see table 4.2). Sexual minority youths had higher levels of depression, lower levels of subjective wellbeing and higher levels of emotional dysregulation in comparison to heterosexual youths. On average sexual minorities did not display *implicit* internalised homonegativity whereas the average score for the heterosexual indicated implicit homonegativity (see table 4.3). See table 4.4 for correlation among variables for the whole sample.

Table 4.2 Demographic information split by sexuality type.

	*Sexual minority (n = 139)	Heterosexual (n = 151)
Ethnicity		
White British	118 (%)	126 (%)

Black	4 (%)	16 (%)
Asian	2 (%)	3 (%)
Mixed†	6 (%)	1 (%)
Arab	1 (%)	2 (%)
Other	8 (%)	3 (%)
Age	19.95 (1.50)	19.83 (1.99)
Gender		
Male	40 (%)	40 (%)
Trans male	9 (%)	3 (2%)
Female	67 (%)	107 (%)
Trans female	2 (%)	.
Intersex	1 (%)	.
Non-binary	16 (%)	.
Other	4 (%)	.
Religious background		
Any religion	32 (%)	56 (%)
No religion	107 (%)	95 (%)

Note. Frequencies or means presented with 95% CI's or percentages in parentheses. * Includes bisexual, lesbian, gay, pansexual, and queer people. † Mixed black/Asian+ other.

As hypothesized, all participants irrespective of sexuality type associated positive stimuli with heterosexual imagery more quickly than homosexual imagery, they also associated negative stimuli with homosexual images more quickly. As such, there was a significant IAT effect; t (267) = -2.39, p = .017, d = - .15. However, there was no significant difference (t (267) = -1.29, p = .90, d = .09) between the number of errors made either in the congruent (M =3.38, CI = 3.05 – 3.71) or the incongruent condition (M = 3.62, 95% CI's = 3.30– 3.95), indicating that neither task was harder or easier to complete , this is not in line with our predictions as expected more errors in the incongruent condition.

Table 4.3 Subjective wellbeing, depression, emotional dysregulation, and internalised homonegativity split by sexuality type, M (95% CI's)

	Sexual minority (n = 139)	Heterosexual (n = 151)
Subjective wellbeing (n = 118/131)	49.44 (46.77 – 52.10)	56.79 (54.49 – 59.09)
Depression (n = 115/120)	27.39 (24.64 – 30.14)	18.66 (16.05 – 21.26)
Emotional dysregulation (n = 118/129)	53.19 (50.56 – 55.83)	46.94 (44.74 – 49.13)
Explicit internalised homonegativity (n = 119/0)	42.52 (39.50 – 45.53)	-
Implicit homonegative attitudes (n = 120/132)	-0.19 (-0.27 - -0.12)	0.33 (0.26 -0.40)

Table 4.4 Spearman's correlation between outcome variables for whole sample

	1	2	3	4	5
1. Depression	.				
2. Subjective wellbeing	-0.62***	.			
3. Emotional dysregulation	0.71***	-0.50***	.		
4. Explicit Internalised Homonegativity	0.30**	-0.04	0.27**	.	
5. Implicit Internalised Homonegativity	-0.20**	0.25***	-0.12*	0.33ŧ***	.

Note. * p <.05, ** p < .01, *** p <.001. ŧ explicit measures of internalized homonegativity were only gathered from sexual minorities.

4.6.2. Implicit vs explicit internalized homonegativity in sexual minorities

In sexual minority youths, explicit internalised homonegativity was associated with higher depression scores (B [SE] = .31 [.10], 95% CI's = .111 - .503, p= .002) (R^2 = .18) but not with subjective wellbeing (B [SE] = .021 [.10], 95% CI's = -.177 - .219, p =.833) (R^2 = .11).

Implicit internalised homonegativity was not significantly associated with depression (B [SE] = .002 [.003], 95% CI's= -.004 - .007, p = .505, R^2 = .07) or subjective wellbeing (B [SE] = -.003 [.003], 95% CI's = -.008 - .002, p = .258, R^2 = .08) in sexual minority youths. In heterosexual youths, levels of implicit homonegativity were not significantly associated with depression (B [SE] = .001 [.003] 95% CI's = -.004 - .006, p = .791, R^2 = .04) or wellbeing (B [SE] = -.004 [.003] 95% CI's = -.009 - .001, p = .120, R^2 = .06).

4.6.3 Structural equation models

To answer the final hypothesis, analyses explored whether implicit internalised homonegativity and emotional dysregulation mediated the relationship between sexual orientation and depression and wellbeing.

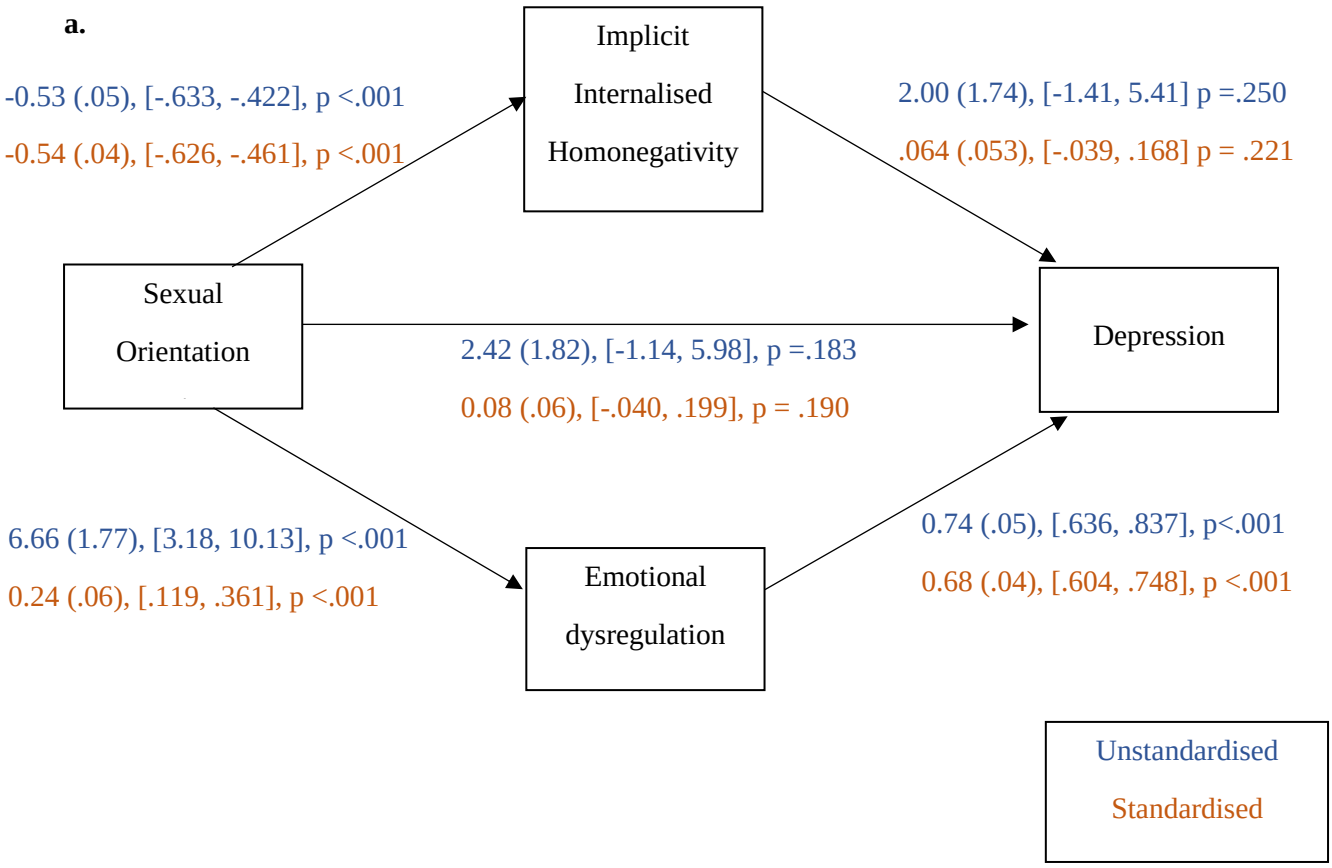
4.6.3.1 Sexual orientation, implicit internalised homonegativity, emotional dysregulation and depression.

There was a significant total effect of sexual orientation on depression via implicit internalised homonegativity and emotional dysregulation (B [SE]= 8.38 [1.91], 95% CI's = .463 – 12.12, p <.001) showing a cumulative direct and indirect effect. The mediation pathways are clarified below to make clear whether both implicit internalised homonegativity and emotional dysregulation mediated this relationship (See figure 1, panel a).

There was a significant direct effect of sexual orientation on implicit internalised homonegativity (B [SE] = -0.53 (.05), [-.633, -.422], p <.001, where sexual minorities were less likely to have homonegative attitudes. Implicit internalized homonegativity did not have a significant direct effect on depression (B [SE] = 2.00 (1.74), [-1.41, 5.41], p = .250. Additionally, there was no significant indirect effect of sexual orientation on depression via internalised homonegativity (B [SE] = -0.90 (1.17), [-3.19, 1.39], p = .442. As such, implicit internalised homonegativity did not mediate the relationship between sexual orientation and depression scores.

There was a significant direct effect of sexual orientation on emotional dysregulation (B [SE]= 6.66 (1.77), [3.18, 10.13], p <.001, with sexuality minority individuals more likely to have higher rates of emotional dysregulation. There was also a significant direct effect of emotional dysregulation on depression (B [SE]= 0.74 (.05), [.636, .837], p <.001, where higher levels of emotional dysregulation were associated with higher levels of depression. Finally, there was an indirect effect of sexual orientation on depression via emotional dysregulation (B [SE]= 5.09 (1.43), [2.28, 7.89], p <.001). As such, emotional dysregulation mediated the relationship between sexuality and depression, where sexual minority status was associated with higher levels of emotional dysregulation and subsequently higher levels of depression.

a.



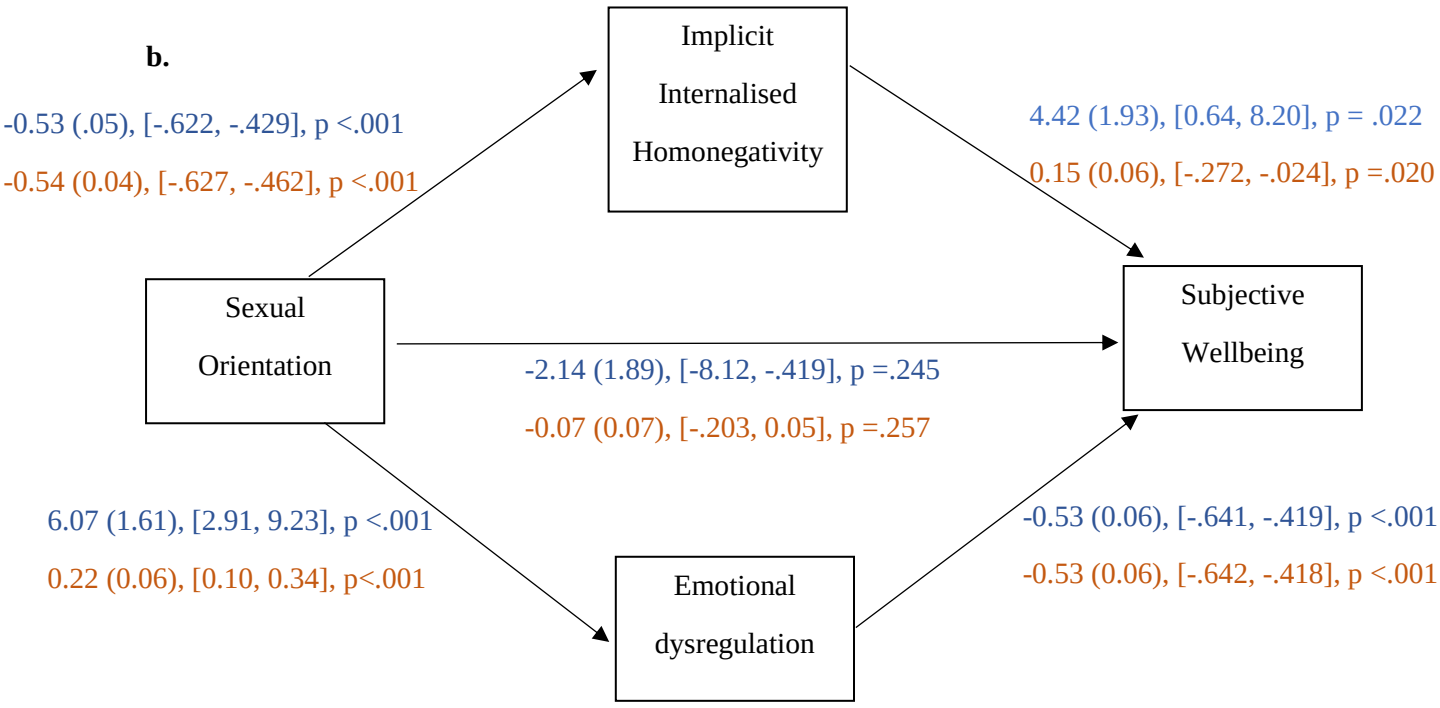


Figure 4.1 Structural equation models between sexual orientation, implicit internalised homonegativity, emotional dysregulation and (a.) depression / (b) subjective wellbeing in sexual minority youth. Unstandardized/standardised coefficients (SE) [95% Confidence Intervals]. R^2 = .32/34.

4.6.3.2 Sexual orientation, implicit internalised homonegativity, emotional dysregulation and subjective wellbeing.

There was a significant total effect of sexual orientation on wellbeing via implicit internalised homonegativity and emotional dysregulation (B [SE]= -7.68 (1.87), [-11.35, -4.01], p <.001) suggesting a cumulative direct and indirect effect of the mediating variable(s). To identify the contribution of implicit internalised homonegativity and emotional dysregulation as mediators their individual effects are explored below (See figure 4.1, panel b).

There was a significant direct effect of sexual orientation on implicit internalised homonegativity (B [SE] = -0.53 (.05), [-.622, -.429], p <.001) where sexual minority status was associated with less homonegative attitudes. There was also a significant direct effect of implicit internalised homonegativity (B [SE] = 4.42 (1.89), [0.71, 8.12], p <.001), where higher levels of homonegative

attitudes were associated with higher levels of subjective wellbeing. Finally, there was a significant indirect effect of sexual orientation on wellbeing via implicit internalised homonegativity (B [SE] = 3.85 (1.08), [1.73, 5.96], p <.001, where sexual minorities with more implicit internalised homonegativity had higher levels of wellbeing. As such, implicit internalised homonegativity was a significant mediator of sexual orientation and wellbeing.

There was a significant direct effect of sexual orientation on emotional dysregulation (B [SE] = 6.07 (1.61), [2.91, 9.23], p <.001) where sexual minority status was associated with higher rates of emotional dysregulation. There was also a significant direct effect of emotional dysregulation on subjective wellbeing (B [SE] = -0.53 (0.06), [-.641, -.419], p <.001, where emotional dysregulation was associated with reduced subjective wellbeing. Finally, there was a significant indirect effect of sexual orientation on subjective wellbeing via emotional dysregulation (B [SE] = -3.36 (1.07), [-5.46, - 1.26], p =.002) where sexual minority status was associated with more emotional dysregulation and consequently less subjective wellbeing.

4.7 Discussion

This study investigated the impact of homonegative attitudes on emotional regulation and its relationship to levels of depression and subjective wellbeing. Given that there was evidence to suggest one's level of conscious or unconscious endorsement of such homonegative attitudes may impact their mental health to a varying degree, with the latter being most pernicious, a novel approach was adopted to compare the effect of conscious versus unconscious homonegative attitudes. The implementation of the Implicit Association task facilitated the measurement of unconscious internalized homonegative attitudes. This study replicates and extends aspects of prior work by Hatzenbuehler et al., (2009). In this study wellbeing was measured alongside depression, assessed a younger demographic, in a different geographical and cultural context (the UK) than the Hatzenbuehler study (i.e., the US).

There was a general trend for participants, irrespective of sexuality to associate positive stimuli to heterosexual couples. However, levels of implicit homonegativity were higher in heterosexual participants. Despite predictions about increased errors in incongruent conditions no difference in error rate between conditions or between participants was found. It was predicted that in sexual minorities explicit homonegative attitudes would be associated with higher levels of depression and lower levels of wellbeing. There was partial support for this, as explicit homonegative attitudes were significantly linked to higher levels of depression but not with wellbeing (in any direction). also predicted that for sexual minorities, implicit measures of homonegativity would be associated more strongly with higher levels of depression and lower levels of subjective wellbeing relative to explicit measures, because implicit biases are outside of awareness and consequently difficult to emotionally regulate (Hatzenbuehler et al., 2009). However, implicit homonegativity was not *directly* related to depression or subjective wellbeing.

To explore whether general psychopathological and/or minority specific mechanisms (internalized homonegativity and emotion dysregulation) mediated the relationship between one's sexual orientation and subsequent mental health outcomes mediation analyses were conducted. It was found that Implicit homonegativity was *indirectly* associated with subjective wellbeing. This relationship showed an opposite pattern of effect than predicted, where higher levels of implicit internalized homonegativity were associated with higher levels of subjective wellbeing. This was a surprising finding and should be interpreted with caution given the cross-sectional design of this study. A potential explanation could be that being conscious of ones internalized homonegativity is harder to deal with. For example, if you are unaware of your own negative internalized views, you can navigate heterosexist environments without knowledge that they conflict with your identity or the group you belong to (or a perceived to belong to). In essence, holding these negative views and being unaware of them may be protective especially in heterosexist environments. This may also be particularly the case for younger people who are still assimilating to their in-group and their own identity.

In relation to the PMF our pattern of results suggests partial support. This theory postulates that sexual minorities have elevated use of emotional regulation strategies relative to heterosexuals due to increased exposure to stigma events. Levels of external stigma/stress events were not compared between groups, but it *was* found that sexual minorities had higher rates of emotional dysregulation than the heterosexual group. Secondly, the PMF postulates that the impact of stigma-related stress on psychopathology is mediated by general psychopathological mechanisms such as emotional dysregulation and simultaneously minority stressors such as internalized homonegativity. Emotional dysregulation was a significant mediator between sexual minority status and depression and wellbeing, but this was not the case for implicit internalized homonegativity and depression. Counter to PMF postulations and the hypotheses of this study, implicit internalized homonegativity was associated with higher levels of wellbeing in sexual minorities. Furthermore, in the study on which the current study was based, implicit internalized homonegativity was a better predictor of cognitive response styles related to emotional dysregulation such as rumination on the days where sexual minorities had been exposed to stigma related events (Hatzenbuehler et al., 2009). Therefore, it seemed logical to expect to the following similarities between our study and that of Hatzenbuehler et al., (2009). Namely, that implicit internalized homonegativity would be related to depression and have a stronger statistical relationship than explicit internalized homonegativity. There may be several reasons for finding a different pattern of results here. Firstly, Hatzenbuehler et al.'s, (2009) study was underpowered given the modest sample size recruited (N= 31). Secondly, Hatzenbuehler et al. (2009) used a short measure of internalized homonegativity, and it is unclear what dimensions were measured by this scale and the formal process by which this questionnaire was designed and validated (Meyer & Dean, 1998). Thirdly, this research replicates design aspects of the Hatzenbuehler et al., (2009) study 12 years on, in a different cultural and geographic context. In this time, there have been significant changes in social attitudes towards sexual minorities (Szymanski et al., 2008) and political changes within the UK (i.e., the legalisation of gay marriage). The lack of replication might therefore reflect a general difference in attitudes in the UK population. Finally, it is worth highlighting that in this study new visual stimuli used were selected and may be an explanatory factor for the difference in

previous findings. The choice of new stimuli in this study was to ensure stimuli were more salient to the participants and were clear in the proposed message (i.e., homosexual vs heterosexual couple).

There are some limitations of this study that need to be considered. Firstly, an item of the internalised homonegativity scale was changed early on during the recruitment period, based on feedback from a bisexual participant who felt the word homosexuality (used on original scale) did not apply to them i.e. “I see my homosexuality is a gift”. As such the word bisexuality was added to all items alongside homosexuality (see appendix 4, A4.2). The reliability of both the original and adapted scale and the reliabilities did not differ significantly (α =. 87 vs. α = .89). Furthermore, there were no significant group mean differences between sexual minorities who filled in the original or adapted version of the scale (see appendix 4, A4.2). The use of the IAT should be interpreted with caution, although it has been widely used and proposed to be a very useful tool to uncover unconscious attitudes its use has been controversial. There is no real way to identify that the IAT is indeed *measuring* implicit attitudes, given their implicit nature there is no way to explicitly identify whether the participants held those beliefs or not. Thus, the rate of false positives cannot be identified (Fideler, Messner & Bluemke, 2006). This leads onto another issue with this design, the fact that it is susceptible to faking, and respondents who have completed it more than once will know how to produce a more socially desirable result (Fideler, Messner & Bluemke, 2006). Another limitation of the IAT but more specific to its use in this study, is that it only measures one form of internalised homonegativity i.e., judgement towards the ‘in group’. Whereas the explicit internalised homonegativity scale used in the study measured homonegativity towards the self, the morality of homosexuality as well as homosexual affirmation or lack of. In the IAT, it is possible that participants might not have seen ‘themselves’ in the imagery if it was not as salient to them i.e., a bisexual person might not feel as represented by homosexual vs heterosexual couples, and they might not have one preference over the other per se. As such the measure of ‘in-group’ rejection might not apply if they do not see themselves as fitting the group they are ‘rejecting’ or indifferent to. However, a subgroup analysis in response to the IAT detected no difference between monosexual or bisexual sexual minorities (see appendix 4, table

A4.2). The findings here seemed counterintuitive to our predictions and given the disparity between explicit and implicit measures the former might be a better/more accessible psychometric approach to measuring internalised homonegativity. Despite its limitations and controversy, the IAT remains a widely used experimental methodology to uncover unconscious bias.

Because a cross-sectional mediation analysis was used in this study, causal inferences cannot be made about the relationship between implicit internalised homonegativity, emotional dysregulation and wellbeing/depression. As such, additional longitudinal research is needed to explore causal relationships. The use of mediation analyses on cross-sectional data has been criticized given the inherent importance of time ordering in such models (Maxwell & Cole, 2007). Furthermore, there has been a tendency for researchers to make bottom-up inferences from mediation models with little a-priori consideration for the logical relationship between variables (Fiedler et al., 2018). It is important to note that the mediation analysis herein was conceptualized a-priori and was informed by the theoretical postulations of the PMF. In line with this, sexual orientation was chosen as the starting point and proxy for exposure to minority stress (see appendix 4, A4.4 & Figure A4.1) feeding into internalized homonegativity and emotional dysregulation. There are likely other variables (e.g., access to LGBT community, engagement in risky behaviours) that were not assessed in the current study that could impact on mental health outcomes in sexual minorities.

4.8 Conclusion

This is the first study to use an implicit association task to assess implicit internalized homonegativity utilizing a novel experimental approach in a UK youth sample. General psychopathological mechanisms were elevated in sexual minorities, where increased emotional dysregulation seemed to bridge the gap between sexual minority status, wellbeing, and depression. Whereas minority specific mediators (i.e., internalised homonegativity) showed a more complicated pattern of effect. Self-report measures of internalised homonegativity may be a more informative measure of adversity given their

significant association with lower levels of wellbeing and higher levels of depression. The current pattern of results, differ from previous research findings highlighting the importance of replication across different samples. Future work should explore the multiple factors that lead to the experience of internalised homonegativity (both implicit and explicit) such as the frequency of homonegative messaging and the potential variation in impact on the individual as the deliverer varies (e.g., parent vs classmate).

CHAPTER 5 - THE DYNAMIC IDENTITY FORMATION OF SEXUAL MINORITY ADOLESCENTS IN THE UK: EXPERIENCES OF ADVERSITY AND RESILIENCE

5.1 Abstract

Background: The prevalence of mental health problems is elevated in sexual minority adolescents. To date, limited work has qualitatively explored sexual minority adolescents' experiences of navigating their sexuality and its impact on their mental health and wellbeing. The central aim of this study was to extend current theory relating to sexual minority identity formation and mental health.

Methods: A constructivist grounded theory methodology was used allowing use of existing theories to inform our findings whilst adopting a critical inquiry. Data were gathered from 17 semi-structured interviews with adolescents and emerging adults aged 16-25 years across the UK.

Results: The Dynamic Identity Formation Sexual Minority theory (DIFS) was developed. It is a three-tiered hierarchy; atop of which exist two antagonistic yet interconnected cultures; the culture of heternormativity and gender binarism, and the culture of queerness. These cultures are followed by how each one is then enacted and ultimately the individual experience associated with both. At the level of individual experience negative outcomes included internalised homonegativity and concealment of one's identity. Positive outcomes included becoming more resilient and confident and developing a commitment to supporting others. The education system was highlighted as a conduit for suppression of non-heterosexual relationships.

Impact: Institutions such as schools should ensure that sex and relationships education is a) more comprehensive, and b) representative of non-heterosexual identities is not confined to one subject or lesson. DIFS theory can be used by psychologists or those working to support young sexual minorities to explore psychological distress and wellbeing. Public health messaging needs to focus on safe sexual relationships as young sexual minorities expressed a lack of formal teaching to this end.

Key words: Constructivist grounded theory, Sexual Identity, Sexual Orientation, Adolescence, Young person, Dynamic Identity Formation Sexual-Minority theory

5.2 Introduction

Adolescence is marked by changes in one's interpersonal, biological, and emotional life, accompanied by the emergence of one's personality and identity (Sawyer et al., 2012). Some identities are particularly difficult to navigate against a backdrop of 'normative' societal values (Martin & Kazyak, 2009). Sexual minority adolescents, or those with non-heterosexual attractions or identities, navigate their emerging identities in a society where heterosexuality is often viewed as unquestionably normal and natural (Martin & Kazyak, 2009). Heterosexuality is promoted as 'default' via heteronormativity. Heteronormativity breeds heterosexism, a cultural ideology which perpetuates sexual stigma. Heterosexism holds the view that non-heterosexual identities, behaviours, relationships, and communities *should be* negatively regarded (Herek, 2004). Thus, when such identities become visible, they must be suppressed (Herek, 2004).

Exposure to overt heterosexism (e.g., hate crime), as well as its more covert forms (e.g., microaggressions or subtle denigrations) can be particularly pernicious during adolescence where individuals are trying to navigate their own sexuality (Savin-Williams & Ream, 2007). Sexual minority adolescents have the added difficulty of trying to establish which 'group' they belong to (Goldbach & Gibbs, 2017). Being ostracised from the group you are trying to assimilate to (e.g., a mainly heterosexual group of friends) might have negative connotations in terms of feelings of rejection and engagement in identity concealment (Meyer, 2003). As personality and self-esteem are developed during this life-period, a sexual minority may become particularly vulnerable to the effects of heterosexism (Goldbach & Gibbs, 2017). There is evidence to suggest that heterosexism can be turned inwards via internalised homonegativity (Meyer, 2003). This has been associated with delays in sexual identity development, difficulties accessing the LGBT community, and mental health difficulties (Newcomb & Mustanski, 2010; Szymanski et al., 2008). Taken as a whole, this evidence points to the turbulent nature of navigating adolescence as a sexual minority. Despite significant changes in governmental policy and societal attitudes in the UK over the past decade, using contemporary population-based research identified that sexual minorities aged 14 years face

significantly increased odds of mental ill health, lower life satisfaction, interpersonal difficulties, and risky health behaviours (Amos et al., 2020). *Why* sexual minorities experience such disparities in the UK remains unclear. Qualitative work can be used to elucidate how these processes are *experienced* and the embedded nature of experience (i.e., social, and cultural contexts).

Current UK-based qualitative research in this area, has tended to focus on individual level factors as opposed to wider structural inequalities (Bartoș & Langdridge, 2019). Prior work has focused on processes of adversity such as suicidality (Rivers et al., 2018), self-harm (McDermott, 2015; McDermott et al., 2013), and family tensions (Gabb et al., 2019). The focus of such work is almost exclusively mental ill-health. Other researchers have suggested that sexual minority research should also focus on experiences of resilience, flourishing and wellbeing (Colpitts & Gahagan, 2016). Recent work in the USA has gone some way to address this. For example, a recent grounded theory study explored how identity, emotions, and wellbeing were constructed in sexual minority adolescents (14-19 years) (Goffnett et al., 2021). The main findings suggested that sexual minority experiences were dichotomized into feelings of shame or pride. Social reality was presented as a malleable construct, where even within the same environmental context (e.g., school) one can feel safe to express a same-sex relationship with peers, but the sudden presence of an unaccepting member of this group makes this expression shameful (Goffnett et al., 2021). Pride was managed when participants made their identities visible and accessed supportive resources. This work balances the focus on adversity (shame) with positive experiences such as pride. Similar work is needed in varying cultures, countries, and contexts.

Given the turbulent nature of adolescence and the additional pressures associated with being a sexual minority individual, an exploratory study was designed to understand the lived experiences of adolescents and emerging adults growing up in the UK today. This led to the adoption of a qualitative methodology, namely a Constructivist Grounded Theory (CGT). This allowed the utilisation of both

a-priori and a-posteriori findings to develop and test any emerging theory, and to capture a broad range of social and psychological factors that sexual minorities felt impacted their identity navigation. The central aim of this study was to extend current theory relating to sexual minority identity formation and mental health.

5.3 Methods

5.3.1 Participants

A theoretical sampling strategy was employed. Participants aged 16- to 25 years were recruited given they would be in differing developmental stages of adolescence and identity formation (Savin-Williams & Ream, 2007; Sawyer et al., 2018). Recruiting this age range and employing a retrospective lens to questioning allowed us to assess the transitional impact of adolescence and identity. Participants expressing non-heterosexual attraction with, and without, 'formal' identities to capture the transitional nature of identity navigation were also recruited. Participants from different races, genders, and socioeconomic backgrounds were also recruited to facilitate an intersectional lens to analysis (see table 5.1). Participants also had to currently live in the UK given that this was a key focus of the research question. Participants were recruited via the University of Liverpool, various LGBT societies, and LGBT associated pages on Twitter, Reddit, and Tumblr.

Table 5.1 Demographic characteristics of participants

Name	Gender	Age	Ethnicity	Identity
Finola	F	19	White British	Bisexual
Jack	M	21	White British	Gay
Arienne	F	24	White British	Pansexual
Poppy	F	24	White British	Lesbian
Izzie	F	24	White British	Lesbian
Meredith	F	16	White British	Lesbian

Ezra	M	18	White Scottish	Gay
Rosie	F	23	White British	Queer
Jasmine	F	21	White British	Bisexual
Gray	M	21	White British	Gay
Benj	M	21	White British	Bisexual
Tinashe	F	25	Black African	Bisexual/queer
Jasper	M	21	White British	Gay
Dayana	F	20	Mixed Caribbean	Bisexual
Artie	M	24	White British	Gay
Silver	Non-binary	17	White British	Lesbian/gay
Vihan	M	21	British South Asian	Gay

Note: *Pseudonyms have been assigned to participants.*

5.3.2 Data collection

Participants were invited to participate via the University of Liverpool student participation for credits scheme within the school of psychology, social media posts and via LGBT societies. Interested participants contacted the lead investigator directly (RA). For those agreeing to being contacted, a screening call was arranged. This was to ensure their suitability (i.e., UK resident, within the required age range), explain the aims and format of the study (i.e., type of questions, estimated length of interview), and build rapport. Post screening a prospective interview date was arranged, and participants were provided with a participant information sheet and sent a link to an online consent form. Prior to interviews, the researcher ensured that the consent form had been initialled and participants wanted to proceed to interview. Prior to recording the interview, the researcher explained the need to keep the participant safe, why they were taking part, what the interview would entail, and that they were free to withdraw at any time. Interviews lasted approximately one hour. For participants who agreed to be interviewed online, Zoom was used. Zoom's end-to-end encrypted in-built record feature was used to audio record interviews. If the participant agreed, video was used to support rapport and interpret body language. For those who took part via telephone (N=3) interviews were recorded via Dictaphone. All audio files were transcribed into word format and deleted after

transcription and all transcripts were fully anonymised. All electronic data was stored on a password protected server at the University of Liverpool. Audio files were permanently deleted once interviews were transcribed. Ethical approval was granted by the University of Liverpool (Ref: 7483, 20/05/2020).

A semi-structured interview design was adopted. The interview guide included a set of predetermined topics and questions with a flexible question structure (Gill et al., 2008). Five principles guided its development (Kallio et al., 2016). Firstly, clarity was sought among the research team as to whether the interview schedule would facilitate answering of the research question. Secondly, extant literature was used to shape the topics explored within the interview. Thirdly, the interview schedule was iteratively designed, where selected questions were open ended and worded unambiguously. Fourthly, the interview was piloted with a sexual minority young person, utilising their feedback on interview style, question relevance, and wording. The main feedback was to ensure there was a balanced focus on positive as well as negative experiences, the interview schedule remained the same but the interviews approach to interviews incorporated the young person's suggestion. Finally, to facilitate transparency to the wider research community the interview schedule is presented in appendix 5, A5.1.

5.3.4 Analytical strategy

A Constructivist Grounded Theory (CGT) was conducted, allowing the systematic questioning of preconceived knowledge in this research domain (Charmaz, 2017). CGT is less concerned with establishing a universal truth, and more with an individual's description, understanding, and construction of 'truth'. Doubt was an essential research tool to conducting this CGT (Charmaz, 2017). By utilising this form of 'critical inquiry' the researcher questioned every element of the research process from design and recruitment to analysis. The analytical process was as follows: after each interview, each case was analysed individually; open coding was implemented; inter-relationships

between codes explored; and then ordered in terms of abstraction; allowing identification of overarching categories. A theory was then developed per case. Once a theory had been developed for each participant cross case analysis began, moving from identification of similar and contrasting experiences to identifying the key theory. By utilising with the constant comparative method, the lead researcher felt that data saturation was achieved at participant 17. At this point representation of differing sexual, gender, ethnic, religious, socioeconomic, and geographic backgrounds were captured. Current findings at this stage were presented to the entire research team and they agreed that saturation had been achieved.

During theory development of each case, it became clear there were varying social contracts and constructs at play. For example, gender status seemed to be related to unfair treatment and the promotion of conservative narratives by institutions, families, and or place often positioned sexual minorities as 'other'. Discussion with the research team led to the use of the Bronfenbrenner ecological systems theory and Krieger's social ecology model of disease distribution (Bronfenbrenner, 1977; Krieger, 2019). An analytical framework was developed utilising both theories. Analytical codes and categories emerging from each case were organised into a preliminary structure with Bronfenbrenner's model as the primary theory and Krieger's as secondary. Through this analytical process and subsequent discussions with the research team, it became clear that these theories were too prescriptive to fully capture the experiences shared by our participants. The Krieger model is inherently focussed on adversity and inequality and as such could not represent positive experiences. The Bronfenbrenner model became too piecemeal, not allowing for interaction among categories, and too focussed on systems rather than the individual. Thus, utilised the underlying principles of each theory, namely the hierarchical organisation and influence of social structures on the individual to form the DIFS theory.

5.3.5 Ensuring methodological rigor

This work sought to be transferrable, credible, dependable, and confirmable (Lincoln & Guba, 1986). To ensure transferability (i.e., that this work is applicable to varying contexts), a 'thick description' is provided in the results section. To ensure credibility (i.e., that this work reflects the 'true' experiences of participants), diverse sample was recruited which included negative case examples via a constant comparison method. Furthermore, member checking was carried out, where a theoretical summary was presented to a subsample of 5 participants (checking whether they felt the analysis sufficiently reflected their experiences). Of those who responded (n = 3), all endorsed the analysis and theoretical summary (see appendix 5, A5.2 for anonymised feedback). To ensure dependability (i.e., findings could be repeated), WD independently analysed 10% of transcripts, revealing a substantial level of agreement between coders (k= 0.79). Finally, to ensure confirmability, the lead analyst kept memo-notes, reflecting on changing insights, potential biases, and keeping a close working relationship with the supervisory expert (WD) (see appendix 5, A5.3 for detailed outline of reflexivity and positionality).

5.4 Results

5.4.1 Overview

Qualitative analysis of sexual minorities' experiences of navigating their sexuality during adolescence led to the development of the Dynamic Identity Formation of Sexual minority adolescents' theory (DIFS). DIFS is a three-tiered hierarchy, where the most overarching categories are presented as two antagonistic yet interconnected cultures; **"The culture heteronormativity and gender binarism"** and **"The culture of queerness"** (see figure 5.1). These cultures were enacted via processes such as othering, overt hostility, and representation and more. The final tier of this theory represents how these cultures and their enactment impact the sexual minority individual. This theory is presented sequentially from the top tier to bottom tier. This theory appeared to be spatially and temporally dynamic i.e., an individual's movement through each level of experience was not linear or fixed, there

was no concrete end point, and progress in one area (e.g., being resilient and confident) could be experienced with less favourable experiences in another (e.g., concealment of identity).

5.4.1.1 Culture of heteronormativity and gender binarism

The *culture of heteronormativity and gender binarism* were both comprised of pervasive codes of conduct which included expectations regarding the composition of romantic relationships, gender roles (feminine vs masculine), and heterosexual attraction. Gender binarism seemed to be upheld alongside heternormativity making them tightly interlinked:

> *"There's the whole gender roles thing when it's a heterosexual relationship, where there's like…uhm…when it comes to …. You know asking someone to go on a date and things…typically you know it's the man that asks uhm the woman and then the man is sort of like typically expected to pay for things" (Finola)*

Not only were heterosexual relationships presented as *the* standard, but this was also often experienced as being intimately related to how people expressed their gender:

> *"Why should I be different when everyone else is telling us, I should be playing football with the lads, I should be...have a girlfriend and all that kind of thing?" (Jack)*

Heteronormativity did not just promote heterosexuality but also *what it is* to be a *heterosexual man*. There also seemed to be an assumption that non-heterosexual identities precluded an ability to have children. This was a promotion of gender binarism alongside heternormativity as it assumed that an individuals perceived birth sex was linked to their biological functions:

> *"She's like "what are you, like are you gonna have children? Like what if you don't have children?" And I says "mum, I can still have*

children, I have a womb, I have a reproductive system, I can still have a child" (Finola)

The role of a heterosexual woman seemed to include traits of agreeableness, subservience, and attractiveness, typifying another way in which heternormativity and gender binarism are bound:

"I think especially when you're raised a woman, you're just taught to do stuff like that, aren't you? You know, sit properly, cross your legs, be polite, all that kind of stuff. I mean, you still get unwanted male attention, whether you do or not" (silver)

The overall message seemed to be that masculinity and femininity should be represented by two distinct parties, where one is more dominant and one more subservient. Thus, relationships consist of a man (who is masculine) and a woman (who is feminine).

5.4.1.2 The culture of queerness

This category relates to the culture of queerness, its principles, and codes of group membership. Throughout developmental time, participants educated themselves about queer culture, gaining access to its associated space. The culture of queerness was described as 'a world unto itself' (Ezra), something parallel to the 'norm'. Unlike the culture of heternormativity and gender binarism, the culture of queerness was open to varying sexual orientations as well as gender variation in identity and expression:

"I can fluctuate from masculine and feminine very easily, very fluidly, erm… but I think when I was younger, I was trying a lot harder to be a lot more feminine, whereas now I've just kind of embraced that this is how I am, this is how I like to act and dress and things like that, so I feel like I can be a lot more fluid" (Izzie)

The culture of queerness also promoted sexual liberation and exploration, as well as openness to differing relationships (e.g., polyamory):

"With same sex couples, you know, a lot choose not to get married because they just don't want to, or a law or I know, they'll have like an open relationship where it's like, they're together, but they see other people as well, sometimes and I think as much more prevalent and sort of as this are same sex, same sex relationships. Because again, there is not there is not those, like those centuries of precedent of how relationships should be conducted." (Ezra)

The culture of queerness was described as consisting of a heterogeneous population and the rules and roles encouraged upon its members varied as the space expanded and/or fractionated. The culture of queerness was described as inherently broad and expanding over time. Given its flexible parameters it offers space to a multitude of people. Despite its characteristic openness to diversity, there were spaces described as less inclusive:

"I went to the LGBTQ socials, and it wasn't for me. The fact that there were no people of colour there, no black people there, put me off. I was like, I don't want to go back." (Tinashe)

Whilst the culture of heternormativity and gender binarism was described as an omnipresent construct, the culture of queerness was *made* visible when one's membership to the culture of heternormativity and gender binarism became untenable (see figure 5.1):

"you'll see a whole new community, effectively, a whole new world in a sense, like, like, the LGBT experience is like almost a world unto itself." (Ezra)

Participants access the culture of queerness whilst still being subject to the pervasive messaging of the culture of heteronormativity and gender binarism. Although both cultures are antagonistic there is a transference of information between the two as they co-modify over historical time. Historical time in this context is different to developmental time mentioned above. Co-modification of cultural narratives seemed largely external to the young sexual minority, relying on collective social change:

"I am happy that the world is slowly changing. There are slow progressive movements. Once there is this big change and everywhere in the world is like, 'Gays are okay, everything is fine,' that is one part of the issue. The next part is talking about how society views these people and how the older generation may still have this homophobic look on it." (Jasper)

Cultural norms associated with heternormativity and gender binarism also seemed to pass over to the queer space:

"Most people when they talk about who they are attracted to will say, 'I want someone to be masculine. I want someone to be slim and have abs and look (interference).' That is the desired gay man look that a lot of people strive for." (Jasper)

Thus, although these cultures are often antagonistic there seems to exist a process of transference between the two which may have positive or negative repercussions.

5.4.1.3 Enactment of heteronormativity and gender binarism

5.4.1.3.1 Suppression

Suppression was enacted in various contexts i.e., schools, conservative places/spaces and enacted by various groups, for example, people from older generations, family members, peers, or religious communities:

"I wouldn't even know where to go in [place of residence] to socialise with other…you know gay women, I wouldn't, I just, I wouldn't know like where to even start, I don't know anybody you know…. I don't have any close friends or family that are homosexual, it's just not something that people talk about…" (Finola)

Suppression made being a visible or 'out' sexual minority difficult. For example, Meredith discusses below how after coming out to her dad the topic was not discussed again:

> *"He has just completely stopped and is not addressing the subject, and I think, I'm in the thing where I don't know whether he remembers or not, or whether he thinks I've completely forgot about it or it was like a phase?" (Meredith)*

It seemed that the sexual minority individual needed to go to extra lengths to 'prove' they were not heterosexual. A major theme associated with suppression was the lack of representation of sexual (and gender) minority identities, sexual relationships, and sexual health in school. This seemed to have a significant impact on participants, making them feel as though these identities were abnormal. This reflected an act of educational suppression:

> *"At schools when they do sex education, they only talk about heterosexuality. They don't talk about other potentials. So, I feel like in so many different ways it's kind of like, "this is natural, this is normal, and this is what you're going to be doing"". (Rosie)*

Participants had to engage in self-education given that mainstream forms of education had left gaps in their knowledge. Sexual minorities began to explore life outside of the heteronormative space:

> *I think I'm lucky that I've grown up in a time where the internet is so accessible, because I've just managed to learn everything from there. Let's be honest, school sexual education isn't the greatest anyway, so I think most people end up going to the internet as well." (silver)*

The act of suppression was at times accompanied by overt hostility, where the taboo subject - in this case sexual minority relationships or status – is made clearly unacceptable. The next section explores overt hostility in detail.

5.4.1.3.2 Overt hostility

Sexual minorities spoke of experiencing overt forms of hostility. This included verbal abuse or denigrations, exposure to violence and/or potential violence, and was a more direct form of enacting heternormativity and gender binarism:

> *"So, I'd have people write over my locker, it would just be the usual 'gay, lesbian' and I'd have like name calling" (Poppy)*

Poppy is also being positioned as 'other' in the above quote, by being labelled gay she is not associated with the heterosexual group. Furthermore, the assumption of the perpetrators is likely that being called gay, or lesbian is negative and being 'exposed' should cause distress and potentially shame. This is an overt way in which a sexual minority is excluded from the culture of heternormativity and gender binarism and made 'other'. Simply witnessing instances of victimisation on friends or peers was also enough to make sexual minorities retreat inwards and conceal their identities:

> *"There was one openly gay person I was in the same form with, very early on, and they were severely bullied. They weren't the nicest person in the first place, which probably didn't help, but they were also severely bullied, and I guess I thought, "hmm, not for me." (Benj)*

In this situation concealing one's identity was perceived to keep them from verbal and/or physical harm. Other participants spoke of how their intersectional identities made exposure to hostility more anxiety-provoking:

> *"If you have experienced issues of hate crime or you have been exposed to some issues, you feel on edge going outside or doing stuff. If you are always on edge and you feel anxious, it is not good for your mental health because you will always be thinking… I am always in a constant rush" (Vihan)*

Thus, having previous experience of a racial hate crime made Vihan more hypervigilant to a potential sexuality-based hate crime.

5.4.1.3.3 Othering

This category includes the process by which participants explained being 'othered[5]'. Vernacular used by the 'otherer' was used to position them outside of the culture of heternormativity and gender binarism. This often took the form of social labelling but was also described as a pervasive and intangible feeling that one is different or violating an agreed social code:

> *"I've always had that little thing of just I'm not quite the same…like when everyone was talking about 'oh I like boys' 'I like this boy' I was not kind of feeling the same" (Meredith)*

The consequence of othering is that those who do not adhere to the rules of heternormativity and gender binarism are excluded from that group:

> *"If you've got them all as one group, then you can be like, "are the dominant and privileged, and you're marginalised and oppressed." It gives people that binary to kind of use to then oppress the people." (Rosie)*

The enactment of othering via labelling was described as a confining process. This led to sexual minorities adopting labels understood by others, despite such labels not authentically representing their identity:

[5] The concept of othering is used here to explain the process by which people are denied membership to certain groups or communities based on a trait (or set of traits) that makes them 'different'. Othering happens *because* someone has a non-desirable trait or characteristic, but othering also *makes* them different, it distinguishes two types of people from one another. The concept has its origins in social identity theory (Tajfel & Turner, 2004) which outlines the process of intergroup behaviour, how people seek group membership towards the 'in-group', and how group classification and membership are sorted.

"When you try and tell people you don't really put a label on it, they're like, "Oh, you have to," and you're like, "That's kind of the point (Laughs) is that none really fit." (Jasmine)

The process of othering also made the 'othered' subject to unwanted attention and behaviour by the 'otherer'. When the label of lesbian or bisexual was attached to those perceived to be women, they describe a process of fetishization by males:

"I didn't really like the term lesbian for a little while, I went for the term gay because there was so much attached to the word lesbian, it…almost, it was almost associated with in my perspective with like porn" (Izzie)

Adopting the 'gay' label, i.e., a label not associated with a single gender, made young sexual minorities feel less targeted. On the other hand, a label associated with 'women' made young sexual minorities feel more vulnerable – showing again the promotion of gender binarism (e.g., women are subservient, and they try to attract men). In essence these sexual minorities other themselves to feel less targeted – they represent themselves as something 'other' to lesbian.

5.4.1.4 Enactment of queerness

5.4.1.4.1 Queer representation

This category relates to how the representation of queer identities, lifestyles and relationships provided an insight into the culture of queerness. This category includes both positive and negative representation. Sexual minorities spoke of how positive gay representation – either in real life, online or via television made them feel that they could be 'open':

"My school subsidized a journey to go on school pride. And it was so fun. Yeah, you know like seeing all the colours and people being open. It just sort of gave me sort of, I don't know how to describe it. But it just sort of gave me a sort of sense of this is, you know, …

not this is okay, but more like, it just gave me an idea of this is what it's like to be open." (Ezra)

This is in direct contrast to the negative representation of how sexual minority identities would be perceived by others. This was sometimes linked with identity concealment as well as feeling othered:

"When I was growing up, if you ever saw lesbians in the media, it was hyper-sexualised or extremely masculine, and those connotations kind of didn't sit right with me." (Jasmine)

Where negative queer representation was associated with identity concealment, positive queer representation gave participants the feeling of being part of something bigger than themselves, feeling supported and providing a template of how to exist openly as a sexual minority.

5.4.1.4.2 Connection

The culture of queerness was described as having an inherent acceptance of diversity. As such it was not surprising that this culture seemed to be enacted via friendship, kinship, and relationships. It seemed there was an intrinsic tendency for sexual minorities to gravitate toward one another:

"I have a lot of different types of friends, which I think is a lot to do with me being a sexual minority because all tend to gravitate towards each other and the diversity is just, like, there's so much diversity in me and my friends, and it's nice to see other people's viewpoints and other lifestyles" (Jasmine)

There seemed to be a connection based on similar interests but also similar experiences of victimisation and othering:

"It's a lot easier to bond, because as soon as you find out someone's gay you already have that kind of shared… not trauma, that sounds a bit dramatic, but you already have that, 'Oh, so you were bullied in school.'" (Silver)

A lot of participants talked about their friend groups and how this gave them extra support in terms of coming to terms with their sexuality:

> *"The queer space I loved the most was the feminist group, the women's society, because the two people running it were queer, everyone there was queer. That was (over speaking) It was a mix of people from all over the country, different ages, different experiences, different backgrounds, races, abilities, everything. It was more diverse and interesting. That was my queer awakening – in this group" (Tinashe)*

Thus, social connection with other sexual minorities was an important process in one's identity navigation journey. Through connecting sexual minorities gain much needed support whilst developing an understanding of how others navigate their own sexual minority identities.

5.4.1.4.3 Othering

Generally, the culture of queerness was experienced as welcoming. However, participants did speak of a fractionation within this culture. Thus, othering also occurred *within* the culture of queerness:

> *"There are large elements of the gay community that are a lot more relaxed and more abstract. They won't play with gender and sexuality, but there is an element especially in terms of attractiveness… Even friends of mine who are very feminine and very open are specifically attracted to very straight looking… It feels like a duality." (Gray)*

Othering happened in two ways. One was more informed by the culture of heternormativity and gender binarism. This is evidenced above, where ideals of attractiveness for gay men are based on a potential partner embodying masculinity associated with heterosexuality. The other form of othering seemed to be a strong reluctance to be associated with the former, where one should appear visibly queer:

"People who you are holding space for – say holding workshops, holding the film festival, organising things for – are looking at you like, you run queer things so why do you have a boyfriend?" (Tinashe)

By appearing heterosexual on the outside, one may be more associated with the conventional and traditional which is less encouraged in the queer culture. This rejection of one culture by the other, this rigid binarism, seems to make identity navigation more difficult.

5.4.1.5 Experience of cultures and their enactment on the sexual minority individual

5.4.1.5.1 Concealment of identity

The enactment of heternormativity and gender binarism via suppression, overt hostility and othering seemed to encourage the sexual minority individual to hide their sexual orientation. This was driven by a fear of negative repercussions and thus seemed to be a protective mechanism:

"There was always something about I was worried other female students were going to turn on me, like in PE changing rooms and stuff, and they'd accuse me of being predatory, even though I wasn't looking at them. That was my worst fear about coming out." (Silver)

The above quote by Silver links to misrepresentations about lesbians being hypermasculine, their assumption that others perceive lesbians to embody 'typical' male traits. This makes Silver want to retreat and withdraw from any association with that stereotype. Concealment of identity can also occur within a person, where they are so deeply entrenched in hiding their identity that they also begin to conceal their feelings, attractions, and needs from themselves:

There was a point where I had been, like, 'You know what? Maybe I am just straight, as my parents say, as my friends say, maybe I am,' and I just went along with that. If people asked I'd be like, 'Yes, I'm

straight.' You know, you just kind of get… I don't know, I was just, like, lost. I just felt lost." (Dayana)

Concealment of identity seemed to be a process participants engaged in towards the early phase of their identity navigation, where the culture of heternormativity was most pervasive/pronounced. Even for those who were well assimilated into their identities there appeared to be selective moments of concealment. Previous experiences with family members or interactions with those who seem generally less accepting made sexual minorities particularly sensitive to potential negative reactions and therefore encouraged identity concealment.

5.4.1.5.2 Internalised homonegativity

Internalised homonegativity seemed to be directed to the self or other sexual minorities. The impact of this was wholly negative. There was a perceived need to adhere to the codes of conduct proposed by heteronormativity and gender binarism:

"*I think to have an identity that is stigmatised as well, or people lack understanding, it obviously can have a massive detrimental impact. Like I said, internalised homophobia, it is a legit thing. It's so easy for people to have because you're constantly essentially being told that heterosexuality is how you should be, and anything other is wrong or just not understood." (Rosie)*

There also seemed to be an interaction between internalised homonegativity and identity concealment, where internalising negative opinions about one's sexuality or simply believing that heterosexuality is the default/expected, encourages 'faking it':

"From 14 to 18 I was very miserable, like I wasn't, like I didn't feel very happy within myself, I felt like I was…faking it basically like, I

felt like, I…just couldn't be happy because I was constantly trying to be what other people expected me to be" (Izzie)

Internalised homonegativity could also be turned to others, where stereotypical traits associated with sexual minorities were described negatively:

"Someone else did come out as gay and he was more of a drama queen so he was trying to consciously attract homophobia more than anything. That sounds kind of insulting and internally homophobic to say but he was sort of trying to get people to actually say things he could get dramatically over-reactive about." (Benj)

In the above quote, Benj implies that behaviours or traits such as being overly dramatic led to this individual's victimisation. The fault lay with the sexual minority person rather than the perpetrator(s).

5.4.1.5.3 Resilience and confidence

This category relates to how sexual minorities felt more resilient[6] having faced adversities and how coming out and becoming part of the culture of queerness bolstered their confidence. Essentially, they had moved into a space where the parameters of heternormativity and gender were rejected:

"There is still toxic masculinity within the gay community, but for most gay people the fact that are already seen as feminine or to have those qualities, it is more appropriate to cry and be emotional. It is seen as more acceptable than when you are a straight man. That is definitely a positive." (Gray)

[6] There are two main ways in which resilience is defined. Firstly, it can be defined as a response to adverse events and a subsequent positive adaptation to or reluctance to succumb to such adversities (Fletcher & Sarkar, 2013). The second way resilience is defined is an internal trait or quality that makes an individual more resilient to such adversities, thus one is more behavioural the other more psychological. Generally, a required antecedent of resilience is adversity exposure and positive adaptation to this. Our work aligns more closely to the former definition. The ways resilience is measured and conceptualised is beyond the scope of this paper (see, Fletcher & Sarkar, 2013).

There was recognition that although some individuals felt more resilient over time, these experiences had significantly impacted their mental health. Resilience came at a cost:

> *"I have learnt that each day I must wake up and get on with stuff. That is what I have learnt to do – take it steady, but the damage has been done with my mental health." (Vihan)*

As sexual minorities transition from a place of internalised homonegativity to exploring more fully the culture of queerness and their place within it a sense of confidence began to build:

> *"if you're like, a sexual minority that it can sort of define you and make you more confident,[…] That's definitely what happened to me, cus instead of being really shy and being really like erm, secretive about it, I kind of feel like 'yeh this is what I am I feel great about it yeh'" (Meredith)"*

Not only did people develop their own ways of becoming resilient to adversity, but they also talked of how personal characteristics and/or external factors outside of their control, buffered against negative experiences. They were grateful to have such experiences and expressed this via the concept of 'luck'. With luck seems to come a sense of gratitude:

> *"I'm so lucky, I've got my entire family supportive. I live in a, I live in a western country, which is immediately a bonus on top of living in Scotland, which is generally more progressive in those kind of areas." (Ezra)*

> *"I am lucky that I had the resources to get away from my situation, but some people will never have that chance." (Dayana)*

The expression of luck is not just about being grateful, but also the dissonance between what one *expects* to experience as a sexual minority and what happens:

"I feel like I'm quite lucky with the experiences I've had when I came out, because I know a lot of people have very negative experiences and they don't have an accepting family, or they go through really bad things at school" (Meredith)

Although luck was be perceived as protective in some ways it points to the fact that sexual minority participants expected things to be worse than they ultimately were. That not being victimised is 'lucky'.

5.4.1.5.4 Commitment to supporting others

Over developmental time, after participants arrived at a place of self-acceptance, they spoke of an inherent desire to support others. This seemed to involve a broad commitment to support stigmatised groups:

"By being gay because you are already a minority in a sense, you get introduced to other minorities and other social issues. You are in the sphere of caring about minorities, things like trans rights and rights of people of colour." (Gray)

It seemed that those who became more stable in their identities moved from a focus on their own difficulties to those with whom they shared an identity. It seemed that the process of connecting with a group of people who experience increased stigma drove a commitment to helping others.

"I have this sort of strong desire to give back to the LGBT community and to help other people. Because I feel to not do so would be almost a dereliction of some sort of duty. And it feels it feels, like something I've got to do because I had this positive experience. I've got to, I've got to earn it, but it's like, I've got to earn it."

Through accessing a queer space full of marginalised identities and people who have experienced adversity, sexual minorities seem to develop a profound compassion for their fellow minority group and beyond.

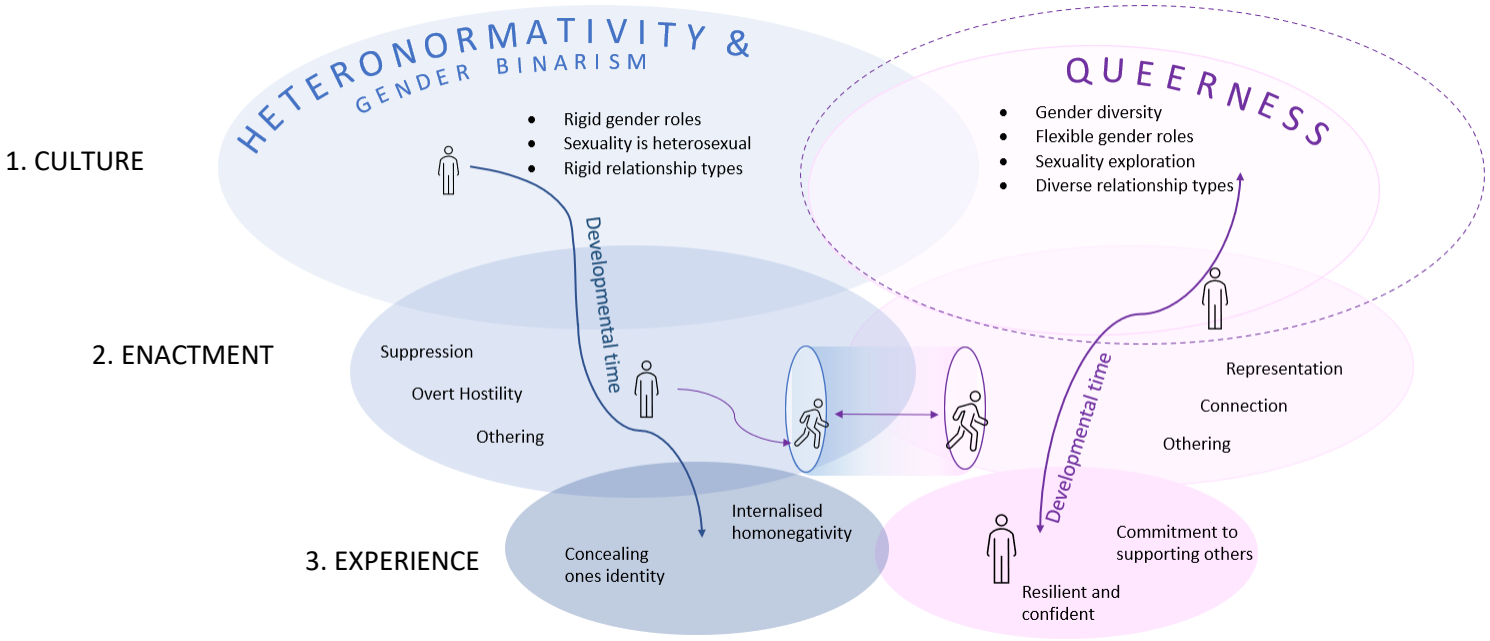


Figure 5.1 Dynamic identity formation for sexual-minorities (DIFS) theory.

Note. The hierarchy is organised in 3 tiers, from culture to enactment to experience. The person icon and arrows represent one's navigation through these cultures over time. The bi-directional arrows represent that movement is non-linear. The dotted oval above the culture of queerness represents the expansion of this space, in contrast to the culture of heternormativity and gender binarism the codes of conduct and the 'parameters' of this culture are ever-growing.

5.5 Discussion

This is the first qualitative study in the UK to explore adolescents' experiences of navigating their identities with a focus on both negative and positive mental health outcomes. The subsequent analysis can be understood as the Dynamic Identity Formation of Sexual minority adolescent's theory (DIFS). Participants described how cultures of heternormativity and gender binarism and the culture of queerness were enacted and subsequently impacted them. It was evident that both cultures negatively impacted the individual, however heterosexuality did so to a greater extent. Negative outcomes stemmed from being othered, being exposed to overt hostility and via active suppression of sexual

minority identities. Positive outcomes usually appeared later in one's identity formation, where sexual minorities often became more resilient to adversities and developed a commitment to supporting others. One's movement between cultures, exposure to its enactment and subsequently the impact upon them varied. The rate at which one assimilated into their identity and/or found their 'in-group' (or indeed did not) varied depending on where they lived (and had lived), their family dynamic and their religious or cultural background, with some participants not having reached such a stage. However, there tended to be a general movement from the culture of heteronormativity and gender binarism to the culture of queerness, the suppression of the latter by the former made the queer culture difficult to access, especially at younger ages. There was a sophisticated level of social positioning and othering at play. Such experiences can be difficult to navigate as a young person, especially when if one had limited resources to positive representation or social support.

In the extant sexual minority literature, the minority stress theory (MST) and the psychological mediation framework (PMF) are often used to understand mental health outcomes in sexual minorities. The key postulations from these theories centre around increased exposure to 'stress' via distal events. This work suggests that the covert but pervasive messaging of heternormativity and gender binarism has a pernicious and overarching impact on the individual. This negative process cannot always be linked to *specific events*. Furthermore, the MST and PMF do not explicitly acknowledge the harm that can come from the culture of queerness itself. Those who may be particularly vulnerable to othering are ethnic minorities or those perceived as heterosexual (i.e., are in a mixed-gender relationship). The DIFS theory build these existing theories, as found similar constructs at play like internalised homonegativity. However, DIFS proposes that it is cultural narratives and their enactment that are most pernicious. Thus, in a country where laws and social attitudes seem to support sexual minorities there are still cultural narratives that can cause harm and make sexuality difficult to navigate. Herek (2004) proposes that cultures such as heternormativity work to oppress sexual minority identities utilising a paradoxical combination of visibility and invisibility. Sexual minority traits and identities are subject to overt ridicule and rejection but made

invisible in everyday discourse. This work contributes additional insights. Namely, that gender binarism was integral to the culture of heternormativity. Not only are heterosexual relationships default and 'normal' but heterosexual people and couples should conform to rules of gender binarism; men should act masculine, women should act feminine. This follows that the roles of each partner are assumed in a heterosexual relationship. Heterosexuality is not just about upholding opposite gender relationships but also ensuring the parameters of gender are static. To violate gender norms may lead to exclusion from this culture, e.g., via othering. Other work has found victimisation to stem from 'gender non-conformity' (Baams et al., 2013)

Other similar work is that of Ian Hacking's ('looping effect of humankind' (Hacking, 1996). This work proposes that social classifications facilitate the adoption of new behaviours, ideas, and representation of 'self'. Interacting with these social structures or 'humankinds' leads to a cyclical feedback system where self, and kinds change dynamically over time as they continue to interact. This is like DIFS theory in that the cultures identified here lay out codes of conduct, which may change the ways in which one behaves or feels they should behave (Vesterinen, 2021).

The DIFS theory has several additional features to the MST and PMF. Firstly, this theory makes clearer how intangible social structures, here named as cultures, permeate into enactment and ultimately into outcomes. This has the advantage of providing three clear points at which intervention may be directed. Although the MST acknowledges the social structures contributing to negative and or positive experiences of sexual minorities, it does not make clear *how* heternormativity and gender binarism are enacted. Secondly, DIFS maps the exchange of information between heteronormative and queer cultures which allows researchers to follow how codes of conduct may co-modify over historical time. Thirdly, not only does this theory have room for adaption over historical time, but it also does for developmental time. DIFS can be used to map a young person's movement through cultural messaging and its impact upon them as they age. As such, it is inherently adaptable to

variations in young people's geographic location, their ethnic and social economic background and gender. It also adds key insights, that the enactment of suppression and othering are detrimental to sexual minority outcomes.

There are several practical applications of this research. Psychologists, schools, health practitioners, and policy makers can provide effective intervention strategies, for example increasing representation of sexual minorities and facilitating connection with other marginalised groups or individuals. Interventions may also be targeted at the family level, explaining how suppressing discussion of one's identity when/if they come out can be harmful in their sexuality development and on their wellbeing. Psychologists may wish work with the young person, mapping their current and past experiences at key points of the DIFS theory. This may be useful for therapeutic alliance but also to provide suggestions of how resilience may be improved.

There are some limitations of this work. Given the nature of qualitative inquiry the transferability of findings can be limited when a niche population is at the heart of analysis. The use of predetermined theoretical frameworks may be critiqued it may have constrained the identification of more emergent findings. The sample is composed predominantly of white cisgender participants. Although purposively sampled those from other ethnic backgrounds and of differing genders, this proved difficult. As such, there are likely unique experiences that multiple minority groups face that are not represented here. Another limitation is that all interviews were conducted remotely, and this may have affected rapport between participant and researcher. However, the researcher contacted each participant prior to interview to build a personal connection prior to the interview. The UK is a multi-cultural nation and our research, whilst aiming to include people from a wide number of backgrounds, was conducted in English and with English-speaking populations. Those from bilingual speaking backgrounds may be able to better represent concepts or experience in their first language. This gives

an English and/or British cultural overtone to the research which may be less relevant in other geographical contexts and in other language speaking countries.

5.6 Conclusion

This is the first key piece of UK-based work aimed at understanding how sexual minority adolescents navigate their identities. The apparent conflict between the observed distress and reduction in wellbeing in sexual minorities despite overt political changes and protections for this population is rooted in the covert yet pervasive nature of heteronormativity and gender binarism. Although younger people may face difficulties in navigation associated with their developmental age, this is by no means a linear relationship and involves many potential pathways. Although sexual minorities spoke of developing resilience and confidence as well as a commitment to supporting others, their exposure to adversities represents a form of social injustice that unfairly impoverishes their mental health. DIFS is a theory that can be adapted to each sexual minority young person whilst providing an understanding of the impact of wider social cultures on their mental health and wellbeing.

CHAPTER 6 - GENERAL DISCUSSION

6.1 Overview

This PhD aimed to add to the dearth of research focussing on sexual minority adolescents' mental health in the UK. A holistic approach to measuring mental health, measuring wellbeing alongside mental ill-health was adopted. Utilising a mixed methods approach allowed us to quantitatively identify disparities at play and qualitatively to delve into wider factors that contribute to such disparities.

Several themes emerged from the research conducted here. Firstly, there were variant *pathways* to wellbeing and psychopathology. Sexual minority status, internalised homonegativity, increased levels of emotional dysregulation and identity concealment were associated with psychopathology (Chapters 3,4,5) whereas family support, having positive gay representation, connecting with a queer community was associated with wellbeing (Chapters 2,5). Secondly, sexual minorities are exposed to more adversities than their heterosexual counterparts which was associated with poor mental health (all chapters). Thirdly, given that sexual minorities expressed feeling othered and experience difficulties during formal schooling years, the primary author concluded that universal interventions offer a promising source of future mental health support (Chapter 5). A final theme centres around, a broader reflection on the research methodologies adopted herein. Across studies the prevalence of certain psychopathological and wellbeing indicators (e.g., depressive symptoms, low-self-esteem, self-harming behaviours, low-life satisfaction), psychopathological and wellbeing pathways, as well as gaining a participant led insight into mental health experience of sexual minority young people was obtained. This PhD saw the implementation of systematic review (Chapter 2), a large-scale quantitative analysis of population data (Chapter 3), an experimental study (Chapter 4) and a constructivist grounded theory (Chapter 5).

6.2 Increased adversity in sexual minorities

Utilising data from a contemporary cohort of heterosexual versus sexual minority participants at age 14 years, disparities across multiple outcomes were identified, such as lower life satisfaction and higher levels of depression, more interpersonal issues, and increased likelihood of engaging in health-harming behaviours than their heterosexual counterparts. Mental health indicators were amongst the most elevated in contrast to other adversities (e.g., health-harming behaviours or interpersonal difficulties) *and* relative to heterosexual adolescents. Furthermore, sexual minorities were more likely to experience a larger proportion of mental health difficulties in combination. Prior work conducted in other countries, has also consistently found sexual minorities to be at increased likelihood of experiencing significant mental health disparities. However, this study conducted as part of this PhD is the first to have estimated the prevalence of this disparity in a contemporaneous and national UK dataset. This work thus highlighted that significant work is still needed to understand and combat the mental health disparities young sexual minorities are still likely to face in the UK today. This is similar to the results of Chapter 4 which explored the mediating properties of general and minority specific psychopathological processes on depression and subjective wellbeing. It was found that sexual minority youth had a higher incidence of psychopathology and lower incidence of wellbeing, being significantly more likely to experience higher rates of depression, emotional dysregulation, and lower rates of subjective wellbeing on average. The main limitation of these studies is that they are cross-sectional and can only tell us that at the point in time when these people were assessed they experienced significant disparities in their mental health. Moreover, the causal contributors to such disparity were not established. The assessment of psychopathology was also limited in scope - focusing mostly on depressive symptomology in addition to behavioural indices of psychological distress (i.e., self-harm). There are a whole host of psychopathology profiles and symptoms that have not yet been explored. Given the focus on comparing relative effects between majority and minority groups, examining common mental health disorders such as depression seemed a sensible starting point and indeed future work can focus on more complex and severe psychopathology prevalence.

To explore experiences of mental health from sexual minority adolescents' perspective, it was necessary to give voice to sexual minority youth, making sure context specific factors were explored. Thus, in the final chapter of this PhD, sexual minority young people were interviewed. Increased exposure to adverse social experiences such as othering, oppression and overt hostility were aspects of a larger culture of heternormativity and gender binarism that were important to the experience of sexual minority adolescents. Furthermore, adverse experiences of othering also existed in the culture of queerness. From participant accounts it became clear that, over and above discrete acts of violence or verbal denigration, it was the overarching social norms promoted by heteronormative and queer cultures that made sexual minorities feel their identities were taboo or fringe. These adversities fed into poorer mental health outcomes such as internalised homonegativity and engaging in behaviours such as identity concealment. However, there were also positive outcomes that became visible over participants' identity journeys. Sexual minority adolescents developed a unique resilience and confidence as well as a commitment to helping others. Although this work provided a retrospective overview of identity navigation and therefore psychopathology and wellbeing experiences as one aged, this work has some limitations given the sample were mainly white and cisgender and from high education backgrounds. Further sampling with ethnic minorities and gender minorities may have revealed more extensive adversities. However, this was somewhat addressed by recruiting participants from such groups in the sample, even if they were lower in number. The totality of findings here indicate that it is at the younger ages of adolescence where the most adverse impacts may be seen.

6.3 Pathways to psychopathology and wellbeing

A key aspect of this work was to identify factors that were associated with mental ill-health but also wellbeing. Thus, a key finding was that there are differing factors impacting wellbeing than those impacting mental ill-health. Thus, this theme provides a roadmap of how researchers, practitioners and educators may understand, investigate, and develop future intervention strategies to reduce psychopathology and increase wellbeing.

By conducting a systematic review, were able to identify factors associated with wellbeing in sexual minority adolescents. The findings of chapter 2 identified that factors associated with higher levels of wellbeing were typically external (e.g., social support) and those associated with lower levels wellbeing were more likely to be internal psychological processes (e.g., internalised homonegativity). Given our main form of evidence for wellbeing factors comes from the systematic review, broader work will need to be conducted in a UK context to explore this further. Given that internalised homonegativity emerged as particularly detrimental to wellbeing. The decision was taken to explore the potential mechanisms by which mental ill-health was elevated and wellbeing reduced, utilising prior theoretical model to explore the impact of internalised homonegativity on both. Findings indicated that general psychopathological mechanisms such as emotional dysregulation mediated the relationship between sexual orientation and depression and wellbeing. Whereas minority specific mechanisms i.e., internalised homonegativity were only significantly related to depression when the participant was consciously aware of holding these homonegative attitudes. Unconscious forms of internalised homonegativity were not related to depression but were counterintuitively related to higher rates of wellbeing. This work will need further replication and utilising longitudinal methods. However, it may be the case that being unaware of one's internalised homonegativity allows an individual to navigate heteronormativity and maybe on some level assimilate to it, without an awareness of its potential conflict to their own identity.

This work helps provide speculative indicators of pathways to wellbeing or psychopathology for sexual minorities. Factors associated with improved wellbeing seemed to be more external to the individual (e.g., family and friend support) whereas those associated with psychopathology were more internalised (e.g., emotional dysregulation). Furthermore, younger ages or at least those in early stages of identity navigation seem to be particularly vulnerable. This work provides a starting point for further investigations into the trajectories of wellbeing and psychopathology over developmental time. Research could assess further the unique contributing factors to wellbeing and psychopathology to provide a roadmap of key intervention points for sexual minority youth as they age.

6.4 Universal intervention strategies

Although this work did not test the efficacy of any interventions, the findings do allow for speculation about the modes of intervention delivery that could be effective for supporting the mental health and wellbeing of sexual minority adolescents. Given the PhD's focus on adolescence and finding that adversities are likely to be most pronounced and detrimental at earlier ages, school emerged as a suggested starting point for interventions. When sexual minority young people were interviewed, they consistently mentioned the lack of proper sex education and lack of inclusivity in curricula. Specifically, the lack of discussion around sexual minority groups was a form of Epistemic injustice (e.g., being thwarted from knowledge) and a bias towards culture of heternormativity and gender binarism. It is worth mentioning that the participants interviewed were aged between 16-25 years of age and since they have come through compulsory education changes relating to the way in which sex and relationships are taught in schools in England since 2019[7]. There is likely going to be a transitionary process for schools where the roll-out process takes time to implement. However, the school system in the UK presents a unique challenge as independent schools do not have to conform to this law. Furthermore, the guidance surrounding this legislation is somewhat vague and open to interpretation, so there is concern that it might be side-lined or implemented in a cursory way. Young people did express a feeling that the representation of sexual minority identities should not be limited to one class or subject and indeed in the statutory guidance relating to the new legislation suggests that a whole school approach should be implemented. However, it is unclear how this is to be achieved or how it is assessed and what would be done if it the implementation of recommendations were below par. Collaborative work with young people and policy makers would be an effective way of ensuring policies best represent their needs.

[7] The Relationships Education, Relationships and Sex Education and Health Education (England) Regulations 2019, issued under Section 80A of the Education Act 2002 and section 403 of the Education Act 1996 (Department of Education, 2019).

Education was highlighted as a potentially beneficial form of intervention given that within formal school settings sexual minorities described a lack of representation of variant sexual and gender identities particularly in sex education lessons. Through their experiences of exploring both the cultures of heternormativity and gender binarism and of adversity, they developed a compassion for other minorities and those experiencing adversities such as mental ill-health. It may be worthwhile trying to foster such compassion in school settings as it facilitated giving back to the community. Furthermore, by educating young people who are not sexual minorities about other identities and issues in a way that promotes genuine compassion there can be a movement from the us versus them attitude and pernicious effects of the enactment of heternormativity and gender binarism.

Innovative and progressive education policies may foster school-based forms of intervention to better support the mental health and wellbeing of sexual minority populations. However, there may be public opposition, as has been seen in Birmingham 2019 when plans to make the curriculum more inclusive was met with protests (The Guardian, 2019).

The potential benefit of any policy on sexual minority mental health is likely to take significant time to become clear. Thus, those looking to develop clinical interventions should also take notice of the findings here. Namely, that sexual minorities may struggle with identity concealment and internalisation of homonegative views which impact them adversely especially at younger ages.

6.5 Reflection on adopted research methodologies

This PhD utilised diverse methodologies to identify mental-health disparities in adolescent sexual minorities and to understand what contributes to such outcomes. With any methodology or design approach there are associated limitations.

Utilising a systematic review methodology allowed us to identify relevant research studies and synthesise findings regarding what improves or worsens wellbeing for sexual minorities. However, the conclusions that can be drawn are only as good as the studies that are included in the review. identified a very limited number of studies meeting our inclusion criteria. Furthermore, studies were deemed to be of moderate scientific quality with a need for better sampling methods. Thus, our findings must be taken as preliminary in nature and future reviews will be needed to re-assess the breadth of work focusing on sexual minority adolescent wellbeing.

In chapter 3 utilised population-based data from a national cohort to estimate the prevalence of adversity in a broad range of outcomes in sexual minorities compared to heterosexual adolescents. The sample, quality and breadth of data collected in the Millennium Cohort Study allowed us to provide generalisable findings in a contemporary adolescent population. However, a key limitation was that the study could only investigate factors that were collected within this cohort. Notably, there was an absence of data relating to other variables of potential interest including people's experience of stigma and their experiences of coming out. Furthermore, using a cross-sectional design meant causal factors could not be identified. Thus, this would be a useful avenue for future research.

Chapter 4 provided an opportunity to test the mediating properties of psychological mechanisms such as emotional regulation on depression/wellbeing when internalised homonegativity was present. Furthermore, by implementing an experimental design could explore unconscious attitudes which are hard to investigate with other methods. This allowed the testing of specific predictions from the psychological mediation framework and assessment of its validity and utility. There were some important limitations with this approach. For example, did not directly measure experiences of victimisation and its relationship with internalised homonegativity, sexual minority status was assumed to be related to the predictive difference between homonegative attitudes, emotional dysregulation, depression, and wellbeing. There may be intermediate factors between sexuality and

internalised homonegativity that were not considered here. The findings of chapter 4 did not support key predictions of the PMF and those predicted by the PMF and ultimately the subsequent experimental work of this theories creator. Namely, that internalised homonegativity, when implicit, would be associated with worse depression than its explicit form. Given that Hatzenbuehler et al., (2009) and the chapter 4 of this PhD seem to be the only experimental approaches exploring the mental health outcomes associated with implicit forms of internalised homonegativity, further work is needed to disentangle further how pernicious this form of internalised homonegativity can be. A final limitation is with the IAT approach more widely, a key limitation being as to what the IAT measures, given that implicit attitudes are by nature implicit they cannot be confirmed consciously by the participant without the nature of such an attitude changing (Fiedler et al., 2006). This makes it difficult to falsify or conform whether the IAT is indeed measuring what it has intended to (Fiedler et al., 2006). Despite this it has been widely adopted in social psychology and provides a novel way of trying to discover unconscious biases (Krieger, 2019).

In study 5 a constructivist grounded theory was implemented. A key strength of such a methodology is it use of systematic questioning of preconceived ideas and current knowledge to form a theory that is grounded in participants experiences. Using this methodology, the DIFS theory was developed, a tailor-fit theory for UK based sexual minorities transferable to a range of contexts. This theory added novel findings to the existing body of sexual minority research. Namely, that cultural codes of conduct and their enactment are linked with negative experiences in the sexual minority individual even in the absence of discrete and targeted victimisation events. Moreover, othering – an enactment of cultural codes of conduct to position someone outside of an associated culture – was present in *both* queer and heteronormative cultures. As a result of this work, DIFS provides researchers and practitioners with a flexible developmental roadmap of sexual identity navigation for adolescents growing up in the UK. The key limitation of such an approach is that by focusing on a niche sample and in a particular geographical context it may not offer the wider generalisability of other approaches, namely quantitative methods.

6.7 General conclusions

This PhD has addressed a significant gap in UK based work. Prior to this PhD, much of the available evidence was conducted in other countries such as the Netherlands and US, with adults or focused on discrete forms of mental health problems. This PhD has focused on mental health more broadly, in an adolescent population and in a geographic location where sexual minority research has been minimal. The development of the DIFS theory adds an important potential avenue for future research. By highlighting the hierarchical nature of adversity and resilience in sexual minorities, DIFS can inform several layers of intervention (i.e., at the individual level (psychological/social), at the level of enactment (attitudes in schools, within families) and the cultural codes of conduct (wider social messaging)). From this work it seems likely that it is not discrete events or even perceived stigma that is detrimental to the experience of sexual minority adolescents, but the overarching feeling that one is different, that one does not belong or that one *should* be exposed to a certain amount of social adversity. This finding could transfer into the development of a psychometric tool that tests the impact of perceived othering and or identity suppression. Further work could explore any conflict between anticipated and perceived stigma and its impact on their mental health. A longitudinal methodology measuring this over one's identity navigation would be particularly useful to measure the perceived impact of heteronormativity and gender binarism as one ages and arguably begins to assimilate into their identity.

The totality of this PhD offers a better understanding to broader factors impacting sexual minorities today, showing that significant disparities do still exist and that intervention – particularly in schools may be an acceptable way to mitigate difficulties associated with sexuality navigation.

> **"All young people, regardless of sexual orientation or identity, deserve a safe and supportive environment in which to achieve their full potential."**
>
> **Harvey Milk**

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APPENDICES

CONTENTS

APPENDIX – CHAPTER 2

Table A2.1 Search terms used per database

Database	Syntax
PsychInfo & CINAHL (Via EBSCOhost)	(LGBT OR LGBTQ OR GLB OR Lesbian* OR Gay OR Bisexual* OR Sexual N1 minorit* OR Homosexual* OR Same N1 Sex N1 Attraction OR Gender N1 minorit* OR Queer OR "Non*Binary") AND (Youth OR Young N1 Person* OR Teen* OR Adolescen* OR Young N1 adult* OR Children OR Emerging N1 Adult*) AND (Predic* OR Determin* OR Correlat* OR Caus* OR Antecedent*) AND (Well*being OR Wellness OR Positive psychology OR Flourish* OR Thriv* OR Languish* OR Mental*health OR Adjustment OR Life*satisfaction OR Quality N1 of N1 life OR QOL OR Resilien*)
Web of Science	TS = (LGBT OR LGBTQ OR GLB OR Lesbian* OR Gay OR Bisexual* OR Sexual NEAR 1 minorit* OR Homosexual* OR "Same Sex Attraction" OR "Same-Sex Attraction" OR Queer) AND TS = (Youth OR Young NEAR 1 person* OR Teen* OR Adolescen* OR Young NEAR 1 adult* OR Children OR Emerging NEAR 1 Adult*) AND TS= (Predic* OR Determin* OR Correlat* OR

Caus* OR Antecedents) AND TS = (Well*being OR Wellness OR Positive psychology OR Flourish* OR Thriving OR Languish* OR Mental*health OR Adjustment OR Life*satisfaction OR Quality NEAR 1 of NEAR 1 life OR QOL OR Resilien*)

PubMed

(sexual and gender minorities[MeSH Terms]) OR Lesbian OR Gay OR Bisexual OR Homosexual OR "Queer" AND ((adolescent[MeSH Terms]) OR Youth OR "Young person" or "Young persons" OR "Young Adult" OR "Young Adults" OR Children OR "Emerging Adult" OR "Emerging Adults") AND (Predic* OR Determin* OR Correlat* OR Caus* OR Antecedent*) AND (Well*being OR Wellness OR Positive psychology OR Flourish* OR Thriv* OR Languish* OR Mental*health OR Adjustment OR Life*satisfaction "Quality of life" OR QOL OR Resilien*)

APPENDIX - CHAPTER 3

A3.1 MESH terms used in literature search via PubMed

Sexual & gender minority

- Non-Heterosexuals
- Non Heterosexuals
- Non-Heterosexual
- Sexual Dissidents
- Dissident, Sexual
- Dissidents, Sexual
- Sexual Dissident
- GLBT Persons
- GLBT Person
- Person, GLBT
- Persons, GLBT
- GLBTQ Persons
- GLBTQ Person
- Person, GLBTQ
- Persons, GLBTQ
- LGBT Persons

- LGBT Person
- Person, LGBT
- Persons, LGBT
- LGBTQ Persons
- LGBTQ Person
- Person, LGBTQ
- Persons, LGBTQ
- Lesbigay Persons
- Lesbigay Person
- Person, Lesbigay
- Persons, Lesbigay
- Non-Heterosexual Persons
- Non Heterosexual Persons
- Non-Heterosexual Person
- Person, Non-Heterosexual
- Sexual Minorities
- Minorities, Sexual
- Minority, Sexual
- Sexual Minority
- LBG Persons
- LBG Person
- Person, LBG
- Persons, LBG
- Gays
- Gay
- Men Who Have Sex With Men
- Gender Minorities
- Gender Minority
- Minorities, Gender
- Minority, Gender
- Lesbians
- Lesbian
- Women Who Have Sex with Women
- Bisexuals
- Bisexual
- Homosexuals
- Homosexual
- Queers
- Queer

Health

- Adolescent Health
- Cardiorespiratory Fitness
- Child Health
- Family Health
- Global Health
- Holistic Health
- Infant Health
- Men's Health
- Mental Health
- Minority Health
- Occupational Health

- One Health
- Oral Health
- Physical Fitness
- Cardiorespiratory Fitness
- Physical Functional Performance +
- Population Health
- Rural Health
- Suburban Health
- Urban Health
- Public Health
- Reproductive Health
- Sexual Health
- Social Determinants of Health
- Veterans Health
- Women's Health
- Maternal Health

Population characteristics

- Characteristic, Population
- Characteristics, Population
- Population Characteristic
- Population Statistics
- Statistics, Population
- Population Heterogeneity
- Heterogeneity, Population

Table A3.1. Outcome measures and how they are assessed and coded in analysis

Variable	Question asked /measure used	Variable recoding	Variable name
Sexual attraction†	'Have you ever been attracted to a female/male?'	Heterosexual = attracted to opposite sex/not attracted to same sex Sexual minority = Attracted to same sex/both sexes	**Sexual attraction**
Mental Health			
Depressive symptoms	Short mood and feelings questionnaire[1] This is a 13-item measure with a 0-2 response scale (0=Not true, 2= True). (Cronbach's α = ·93)	Score total on measure (continuous) Exceeds/equal to a clinical score of > =12 (binary) 0 = Non-clinical 1 = Clinical	**Depressive symptoms** **Above depressive symptoms cut-off**

Subjective wellbeing	On a scale of 1 to 7 where '1' means completely happy and '7' means not at all happy, how do you feel about the following parts of your life? (Cronbach's α = ·84) - Your schoolwork - The way you look - Your family - Your friends - The school you go to - Your life as a whole	Addition of all items = score total (continuous)	**Subjective wellbeing**
Life satisfaction	Using response to the 'your life as a whole' question.	0 = Happy (responses 1-4) 1 = Less/not at all happy (responses 5-7)	**Low life satisfaction**
Self-harm	'In the past year have you hurt yourself on purpose in any way?'	0 = No 1 = Yes	**Self-harm**
Self-esteem	5 Positive self-esteem items were used from the Rosenberg scale.[2] (Cronbach's α = ·90)	Addition of all items = score total (continuous)	**Self-esteem**
Anti-social behaviours	'In the last 12 months have you done any of the following things?'		
	- Stolen something from someone. e.g. a mobile phone, money etc.?	0 = No 1 = Yes	**Stole from another person**
	- Pushed or shoved/hit/slapped/punched someone?		**Hit another person**
	- Used or hit someone with a weapon?		**Hit someone with a weapon**
Health-related outcomes			
Smoking	'Please read the following statements carefully and decide which one best describes you.'	0 = Never smoked (a response of 1) 1 = Ever smoked (responses 2-6)	**Ever smoked**

	- 1= I have never smoked cigarettes - 2= I have only ever tried smoking cigarettes once - 3= I used to smoke sometimes but I never smoke a cigarette now - 4= I sometimes smoke cigarettes now, but I don't smoke as many as one a week - 5= I usually smoke between one and six cigarettes a week - 6= I usually smoke more than six cigarettes a week	0 = Non-regular smoker (1- 4 response) 1 = Regular smoker (5-6 response)	**Regular smoking**
Drinking alcohol	'Have you ever had an alcoholic drink? That is more than a few sips?'	0 = No 1 = Yes	**Ever drank alcohol**
	'How many times have you had an alcoholic drink in the last 4 weeks?' - 1 = Never - 2 = 1-2 times - 3 = 3-5 times - 4 = 6-9 times - 5 = 10-19 times - 6 = 20-39 times - 7 = 40 or more times	0 = Not a regular drinker (1-4 response) 1 = Regular drinker (5-7 response)	**Regular drinking**
Drug use	'Have you ever tried any of the following things?' - Cannabis (also known as weed, marijuana, dope, hash or skunk)? - Any other illegal drug (such as ecstasy, cocaine, speed)?	0 = No 1 = Yes	**Cannabis use /Other drug use**

	‘How many times have you used or smoked cannabis or weed?’ - 1 = Once or twice - 2 = Three or four times - 3 = Five to ten times - 4 = More than ten times	0 = Non regular use (response of 1) 1 = Regular cannabis use (response of 2-4)	**Regular cannabis use**
Sexual activity	‘In the last 12 months have you had sexual intercourse with another young person?’	0 = No 1 = Yes	**Sexual activity**
Risky sex	‘The last time you had sex which of the following did you do?’ - 1 = Used a condom - 2 = Used another form of contraceptive - 3 = Did not use any contraception	0 = Not risky sex (responses of 1 -2) 1 = Risky sex (a response of 3)	**Engaged in risky sex ***
Overweight/obese	International obesity taskforce (IOTF) thresholds were calculated for adolescents as follows: - 0 = Not overweight (including underweight) - 1 = Overweight - 2 = Obese	0 = Not overweight 1 = Overweight/obese	**Overweight/obese**
Weight perception	‘Which of these do you think you are?’ - 1 = Underweight - 2 = About the right weight - 3 = Slightly overweight - 4 = Very overweight	0 = Does not perceive self as overweight (responses 1-2) 1 = Perceives self as overweight (responses 3-4)	**Perceives self as overweight**
Physically inactive	‘How many days in the last week were spent doing vigorous physical activity’	Continuous variable	**Physically inactive**

	- 1 = Everyday - 2 = 5-6 days - 3 = 3-4 days - 4 = 1-2 days - 5 = Not at all		
Dieted to lose weight	'Have you ever eaten less food, fewer calories, or foods low in fat to lose weight or to avoid gaining weight?'	0 = No 1 = Yes	**Dieted to lose weight**
Exercised to lose weight	'Have you ever exercised to lose weight or to avoid gaining weight?'	0 = No 1 = Yes	**Exercised to lose weight**
Interpersonal difficulties			
Bullying	On a scale of 1-6 (1= Never, 6 = Most days):	Continuous variable	
	- How often do other children hurt you or pick on you on purpose?'	0 = not bullied (Once a month or less) 1 = bullied (At least once a week) ††	**Peer bullying**
	- How often have other children sent you unwanted or nasty emails, texts or messages or posted something nasty about you on a website?		**Cyber bullying**
	- How often do you hurt or pick on your brothers or Sisters on purpose?		**Sibling bullying**
Victimisation	'In the past 12 months has anyone done any of these things to you?'	0 = No 1 = Yes	
	- Insulted you, called you names, threatened or shouted at you in a public place, at school or anywhere else?		**Verbally assaulted**
	- Been physically violent towards you, e.g. pushed, shoved, hit, slapped or punched you?		**Physically assaulted**
	- Hit you with or used a weapon against you?		**Hit with a weapon**
	- Stolen something from you e.g. a mobile phone, money etc.?		**Stolen from**

	- Made an unwelcome sexual approach to you or assaulted you sexually?		**Sexually assaulted**
Friendship	'Do you have any close friends?'	0 = No 1 = Yes	**Close friends**
Parental relations	'Overall, how close would you say you are to your mother/father?' - 1 = Not very close - 2 = Fairly close - 3 = Very close - 4 = Extremely close	Continuous variable 0 = Close to mother/father (responses 2-4) 1 = Not close to mother/father (response 1)	**Not close to mother/father**
	'How often do you argue with your mother/father?' - 1= Most days - 2= More than once a week - 3= Less than once a week - 4= Hardly ever - 5= Never	0 = Infrequently (responses 3-5) 1 = Frequently (responses 1-2)	**Argues with mother/father often**
Cumulative difficulties	All binary scores were summed and means scores calculated in the following domains: - Mental health - Anti-social behaviours - Health-related behaviours - Interpersonal difficulties - All	Percentages and averages were used for both groups	**Cumulative difficulties**

†Sex is recorded in this study as the biological assigned sex at birth, which helped the formation of this variable. *If a participant answered no to having engaged in sexual activity, they would not be asked the question about safe sex. ††Binary transformation based on transformation used in previous literature[3]

Table A3.2. Correlations among all variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1. Depressive symptoms	1																													
2. Low life satisfaction	0.58	1																												
3. Self-harm	0.52	0.34	1																											
4. Self-esteem	0.6	0.58	0.35	1																										
5. Sibling bullying	0.2	0.19	0.12	0.15	1																									
6. Peer bullying	0.28	0.24	0.19	0.18	0.22	1																								
7. Cyber Bullying	0.24	0.15	0.21	0.14	0.11	0.33	1																							
8. Verbally assaulted	0.35	0.27	0.24	0.23	0.15	0.31	0.16	1																						
9. Physically assaulted	0.25	0.19	0.18	0.11	0.13	0.28	0.15	0.4	1																					
10. Hit with a weapon	0.18	0.15	0.12	0.09	0.08	0.14	0.15	0.18	0.3	1																				
11. Stolen from	0.18	0.16	0.14	0.11	0.09	0.17	0.15	0.18	0.24	0.2	1																			
12. Sexually assaulted/harassed	0.21	0.14	0.19	0.13	0.05	0.11	0.12	0.13	0.11	0.11	0.13	1																		
13. Close friends	-0.06	-0.1	-0.03	-0.5	-0.01	-0.09	-0.03	-0.04	-0.06	-0.03	-0.02	-0.06	1																	
14. Close to mother	-0.28	-0.36	-0.17	-0.3	-0.14	-0.11	-0.07	-0.13	-0.08	-0.08	-0.07	-0.08	0.05	1																
15. Close to father	-0.26	-0.34	-0.16	-0.27	-0.1	-0.08	-0.06	-0.12	-0.09	-0.07	-0.06	-0.08	0.02	0.43	1															
16. Argues with mother often	0.26	0.25	0.18	0.19	0.2	0.12	0.09	0.14	0.13	0.08	0.07	0.08	-0.02	-0.26	-0.14	1														
17. Argues with father often	0.19	0.19	0.14	0.11	0.16	0.14	0.08	0.13	0.12	0.09	0.07	0.04	-0.05	-0.1	-0.17	0.38	1													
18. Stole from another person	0.09	0.1	0.07	0.06	0.05	0.05	0.05	0.06	0.11	0.13	0.15	0.11	-0.01	-0.05	-0.03	0.05	0.06	1												
19. Hit another person	0.14	0.14	0.11	0.03	0.09	0.12	0.07	0.27	0.43	0.17	0.16	0.07	-0.02	-0.12	-0.09	0.16	0.12	0.11	1											
20. Hit someone with a weapon	0.05	0.06	0.06	0.001	0.05	0.05	0.01	0.06	0.12	0.28	0.11	0.05	-0.01	-0.27	-0.04	0.02	0.06	0.21	0.15	1										
21. Ever drank alcohol	-0.21	-0.19	-0.19	-0.17	-0.05	-0.03	-0.04	-0.19	-0.16	-0.07	0.1	-0.09	-0.05	0.13	0.11	-0.15	-0.09	-0.06	-0.2	-0.08	1									
22. Ever smoked	0.22	0.21	0.2	0.16	0.05	0.04	0.08	0.13	0.14	0.11	0.11	0.12	0.008	-0.16	-0.18	0.15	0.09	0.06	0.18	0.09	-0.32	1								

23. Ever used cannabis	0.18	0.15	0.15	0.1	0.03	0.03	0.09	0.1	0.13	0.12	0.11	0.13	-0.05	-0.13	-0.13	0.11	0.07	0.1	0.16	0.12	-0.22	0.47	1								
24. Other drug use	0.09	0.06	0.1	0.03	0.006	0.05	0.11	0.04	0.07	0.1	0.06	0.1	-0.03	-0.08	-0.07	0.07	0.06	0.08	0.09	0.14	-0.08	0.16	0.33	1							
25. Sexual activity	0.15	0.11	0.15	0.1	0.03	0.03	-0.03	-0.02	-0.06	0.02	-0.002	0.01	-0.06	-0.12	-0.17	0.12	0.002	0.07	-0.02	0.06	-0.15	0.29	0.35	0.17	1						
26. Overweight/obese	0.08	0.09	0.04	0.11	0.02	0.02	0.02	0.04	0.02	0.02	0.04	0.02	-0.01	0.01	-0.04	-0.001	0.004	0.002	0.002	0.01	-0.04	0.05	0.03	-0.01	-0.04	1					
27. Physically inactive	0.12	0.14	0.05	0.19	0.02	0.04	-0.01	0.02	-0.05	-0.02	-0.05	0.02	-0.06	-0.07	-0.1	-0.02	-0.01	0.01	-0.09	-0.02	0.05	-0.02	-0.03	-0.01	0.13	0.11	1				
28. Exercised to lose weight	0.18	0.14	0.12	0.16	0.05	0.008	0.03	0.07	0.04	0.02	0.05	0.05	0.06	-0.04	-0.04	0.05	0.03	0.04	0.04	0.003	-0.11	0.09	0.05	0.02	0.01	0.27	-0.05	1			
29. Dieted less to lose weight	0.29	0.21	0.21	0.25	0.1	0.02	0.07	0.11	0.05	0.02	0.08	0.08	0.03	-0.06	-0.09	0.09	0.06	0.04	0.03	0.0002	-0.11	0.1	0.06	0.02	0.07	0.3	0.03	0.51	1		
30. Perceives self as overweight	0.23	0.22	0.15	0.27	0.07	0.06	0.04	0.09	0.04	0.03	0.04	0.05	-0.02	-0.07	-0.08	0.07	0.05	0.03	0.02	0.02	-0.07	0.09	0.04	0.01	0.1	0.15	0.15	0.31	0.4	1	

Table A3.3. Descriptive statistics, means, percentages and 95% confidence intervals split by sexual attraction type.

		Bisexual attraction	**Same sex attraction**
		n = 576	**n = 50**
Mental health			
Depressive symptoms	(n = 571/48)	13·07 [12·44, 13·70]	9·29 [6·97, 11·61]
Above clinical cut off %	(n = 571/48)	56·15 [50·92, 61·25]	31·21 [17·97, 48·45]
Subjective wellbeing score†	(n = 572/48)	20·53 [19·91, 21·15]	17·66 [15·55, 19·77]
Low life satisfaction %	(n = 575/49)	34·75 [29·79, 40·08]	31·74 [16·57, 52·11]
Self-harm %	(n = 571/49)	54·13 [48·84, 59·33]	48·97 [31·77, 66·41]
Self-esteem	(n = 569/49)	11·92 [11·62, 12·21]	10·71 [9·59, 11·83]
Anti-social behaviours			
Stole from another person %	(n = 575/50)	3·13 [1·82, 5·32]	2·75 [0·36, 18·18]
Hit another person %	(n = 576/50)	33·91 [29·22, 38·94]	37·84 [21·81, 57·04]
Hit someone with a weapon %	(n = 576/50)	1·26 [0·51, 3·10]	··
Health related outcomes			
Ever drank alcohol%	(n = 575/50)	68.84 [63·75, 73·52]	51.49 [33·93, 68·70]
Regular drinking %	(n = 359/25)	1·10 [0·36, 3·33]	0·58 [0·07, 4·78]
Ever smoked %	(n = 572/50)	34·58 [29·65, 39·86]	34·77 [20·12, 53·00]
Regular smoking %	(n = 572/50)	5·85 [3·76, 9·01]	10·12 [3·67, 24·97]
Ever used cannabis %	(n = 574/50)	16·30 [12·36, 21·19]	10·04 [3·52, 25·46]
Regular cannabis use %	(n = 70/5)	35·84 [22·76, 51·42]	27·77 [1·86, 88·64]
Other drug use %	(n = 575/50)	1·72 [0·79, 3·68]	2·79 [0·65, 11·22]
Sexual activity %	(n = 76/7)	42·25 [29·28, 56·39]	66·22 [18·24, 94·51]
Risky sex %	(n = 29/4)	15·24 [4·91, 38·50]	··
Overweight/obese %	(n = 545/47)	33·09 [28·22, 38·35]	33·96 [19·50, 52·18]
Physically inactive	(n = 576/50)	3·22 [3·13, 3·31]	3·07 [2·69, 3·44]
Exercised to lose weight%	(n =576/50)	67·71 [62·48, 72·52]	50·54 [33·15, 67·81]

Dieted to lose weight %	(n = 574/50)	66·60 [61·31, 71·50]	53·45 [35·54, 70·52]
Perceives self as overweight %	(n =576/50)	49·61 [44·39, 54·84]	50·04 [32·75, 67·32]
Interpersonal difficulties			
Sibling bullying %	(n = 530/49)	38·26 [32·94, 43·87]	23·85 [12·65, 40·37]
Frequency of sibling bullying	(n = 530/49)	3·28 [3·12, 3·45]	2·63 [2·10, 3·17]
Peer bullying %	(n =575/50)	27·32 [22·88, 32·26]	25·84 [14·31, 42·09]
Frequency of peer bullying	(n = 575/50)	2·96 [2·81, 3·10]	2·39 [1·87, 2·90]
Cyber Bullying %	(n = 573/50)	8·18 [5·69, 11·62]	0·89 [0·19, 4.13]
Frequency of cyber bullying	(n = 573/50)	2·03 [1·92, 2·14]	1·66 [1·34, 1·97]
Verbally assaulted %	(n = 576/50)	67·03 [62·03, 71·67]	52.32 [34·86, 69·24]
Physically assaulted %	(n =574/50)	35·74 [30·82, 40·99]	24·91 [13·80, 40·73]
Hit with a weapon %	(n = 575/50)	6·81 [4·29, 10·64]	2·46 [0·32, 16·58]
Stolen from %	(n = 575/50)	12·48 [9·47, 16·27]	11·54 [4·84, 25·06]
Sexually assaulted/harassed %	(n = 575/50)	11·51 [8·68, 15·13]	6·91 [2·55, 17·39]
Close friends %	(n =576/50)	97·31 [95·25, 98·49]	86·04 [58·56, 96·41]
Not close to mother%	(n = 565/49)	9·14 [6·25, 13·19]	4·59 [0·95, 19·48]
Not close to father%	(n =519/47)	16·84 [13·08, 21·43]	17·26 [8·37, 32·29]
Close to mother	(n = 565/49)	2·83 [2·75, 2·90]	2·89 [2·62, 3·16]
Close to father	(n = 519/47)	2·49 [2·41, 2·57]	2·48 [2·21, 2·75]
Argues with mother often %	(n = 563/49)	41·83 [36·58, 47·27]	29·65 [17·22, 46·08]
Argues with father often %	(n = 519/47)	23·78 [19·58, 28·56]	25·15 [11·01, 47·71]

†Maximum score is 49, higher scores indicate less subjective wellbeing.

APPENDIX – CHAPTER 4

A4.1 Participant information sheet

1. **Young people's attitudes towards sexuality**
2. **Version Number and Date** 1.3– 21/01/2019
3. **Invitation Paragraph**

You are being invited to participate in a research study exploring attitudes toward sexuality. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to email us if you would like more information or if there is anything that you do not understand. Please also feel free to discuss this with your friends, relatives, your GP and any of the support networks listed in section 10 of this document. We would like to stress that you do not have to accept this invitation and should only agree to take part if you want to.

4. **What is the purpose of the study?**

This study explores the difference between sexual minorities and heterosexual individual's attitudes towards sexuality and its relationship with mental health/distress.

5. Why have I been chosen to take part?

You are aged 16 - 24 years of age and are willing and able to answer sensitive questions relating to your mental health and current levels of distress. You are also willing to state your sexuality and take part in a computer task. Unfortunately, you cannot take part if you have visual impairments, have been diagnosed with a severe mental health problem (bi-polar, psychosis), have a learning difficultly, have attentional deficit issues, are unable to understand written English and have colour blindness.

6. Do I have to take part?

No. Participation in this study is voluntary and you are free to withdraw their participation at any time, without explanation, and without incurring a disadvantage. If you start taking part and change your mind, you can stop at any time and also ask researchers to delete your data if you wish.

7. What will happen if I take part?

You will answer some questions regarding your sexual identity, gender, age and ethnicity. After this point you will then complete a computer task and several questionnaires regarding your attitudes towards sexual minorities and your current mental health status via Qualtrics. Some of the questions in the questionnaire are sensitive relating to mental distress you may be experiencing. If you are particularly distressed currently, carefully consider whether you will be comfortable enough to participate. The expected duration of this study is between 20- 30 minutes. You will be asked to provide your initials and email address to ensure each response to this study is unique. Once all data is collected

your data will be anonymised. The Principal Investigator is Rebekah Amos and the Chief investigator is Dr. Ross White, Department of Psychological Sciences, University of Liverpool.

8. How will my data be used?

The University of Liverpool processes personal data as part of its research and teaching activities in accordance with the lawful basis of 'public task', and in accordance with the University's purpose of "advancing education, learning and research for the public benefit. Under UK data protection legislation, the University acts as the Data Controller for personal data collected as part of the University's research. The Principal Investigator – Rebekah Amos acts as the Data Processor for this study, and any queries relating to the handling of your personal data can be sent to Rebekah Amos**,** **rebekah.amos@liverpool.ac.uk**. Further information on how your data will be used can be found in the table below.

How will my data be collected?	Online
How will my data be stored?	Password restricted drive at University of Liverpool
How long will my data be stored for?	10 years
What measures are in place to protect the security and confidentiality of my data?	A password protected computer drive at University of Liverpool will be used so data will be accessible by the research team members and may also be shared on the Open Science repository. All data will be anonymised post

	data collection to ensure personal data cannot be traced back to any participant.
Will my data be anonymised?	Yes.
How will my data be used?	To assess your attitudes towards sexuality Using a computer-delivered programme.
Who will have access to my data?	The research team and anonymised data may be made publically available on shared the Open Science Framework public repository.
Will my data be archived for use in other research projects in the future?	Yes. Anonymised data will be archived by the University and may be shared on the Open Science Framework public repository.
How will my data be destroyed?	Data will be electronically deleted from computer hardware and software.

9. Expenses and / or payments

If you are a student at The University of Liverpool studying Psychology, you are eligible for 2 EPR points for taking part in the study.

10. Are there any risks in taking part?

Discussing sensitive or distressing topics

This study asks you questions about your mental health, such as depressive symptoms you may be experiencing. Please be aware that this might be distressing for some participants. Please do not answer any questions you are uncomfortable with and if you are unsure whether to take part you may ask a friend, relative or GP for their advice. If distress occurs, please stop the study immediately and contact the research team and one of the nominated services who will be able to help you.

If you decide to continue with the study please be aware answering questions relating to your personal attitudes and mental health may cause distress to some participants. Please contact the following organisations if this study highlights any mental health problems or issues with your sexuality that you may be experiencing.

- Samaritans - 116 123 (UK), jo@samaritans.org (UK)

- University of Liverpool Counselling service - 0151 794 3304, counserv@liverpool.ac.uk

- Talk Liverpool - 0151 228 2300, talkliverpool@merseycare.nhs.uk

- Hospital Mental Health Liaison team, Royal Liverpool University Hospital, Prescot Street, Liverpool, L 7 8XP - Tel: 0151 706 3520

- LGBT Foundation - 0345 3 30 30 30, helpline@lgbt.foundation https://lgbt.foundation/helpline

- Stonewall - 020 7593 1850, info@stonewall.org.uk, www.stonewall.org.uk

11. Are there any benefits in taking part?

There a no anticipated benefits of taking part in this study.

12. What will happen to the results of the study?

The results of the study will be written up and prepared for publication in an academic journal and may also be shared on an Open Science repository. The data you provide will be anonymised and you will not be identifiable from the results.

13. What will happen if I want to stop taking part?

You are free to withdraw from the study at any time, without explanation. Results up to the period of withdrawal may be used. However, you can request that the entirety of your results is destroyed and no further use is made of them. Deletion of data will only be able to occur before data is anonymised. Data will be anonymised once all participant data is collected. If your data has not yet been anonymised and you would like your data deleted, please contact Rebekah Amos (Rebekah.amos@liverpool.ac.uk).

14. What if I am unhappy or if there is a problem?

If you are unhappy, or if there is a problem, please feel free to let us know by contacting Rebekah Amos (0)151 794 6705 rebekah.amos@liverpool.ac.uk / Dr Ross White (0)151 794 5532 and we will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the Research Ethics and Integrity Office at ethics@liv.ac.uk. When contacting the Research Ethics and Integrity Office, please provide details of the name or description of the study (so

that it can be identified), the researcher(s) involved, and the details of the complaint you wish to make. The University strives to maintain the highest standards of rigour in the processing of your data. However, if you have any concerns about the way in which the University processes your personal data, it is important that you are aware of your right to lodge a complaint with the Information Commissioner's Office by calling 0303 123 1113.

15. Who can I contact if I have further questions?

Contact details of investigatory team

Chief Investigator

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Institute of Life and Health Sciences

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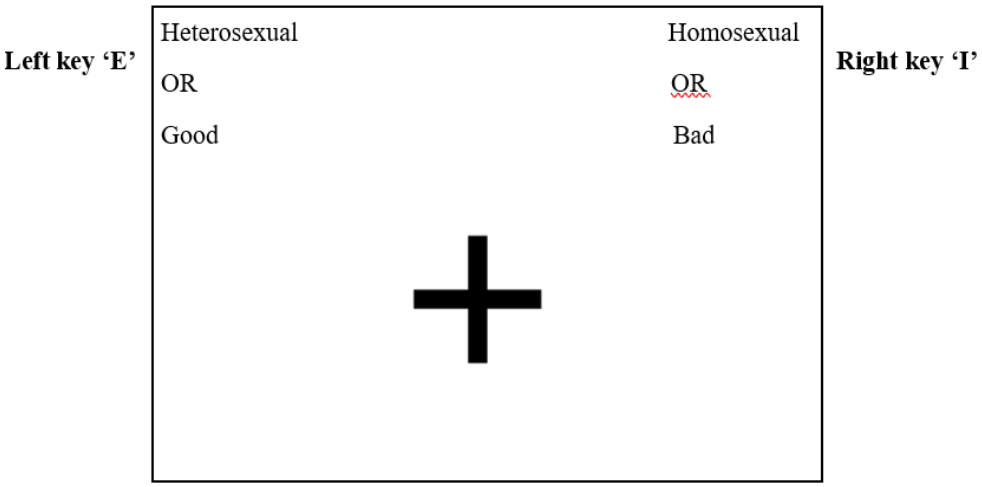


Figure A4.1 Example of counterbalancing of response key and stimuli type in critical blocks (4 & 7).

Table A4.1 Target position, stimuli valence across conditions

Target Position	Stimuli type	Condition type
Right key ('I')	Positive item	Incongruent condition (Homosexual & positive stimuli)
Right key ('I')	Positive item	Congruent condition (Heterosexual & positive stimuli)
Right key ('I')	Negative item	Congruent (Homosexual & negative stimuli)
Right key ('I')	Negative item	Incongruent (Heterosexual & negative stimuli)
Left key ('E')	Positive item	Incongruent (Homosexual & positive stimuli)
Left Key ('E')	Positive item	Congruent (Heterosexual & positive stimuli)
Left Key ('E')	Negative item	Congruent (Homosexual & negative stimuli)

Left Key ('E')	Negative item	Incongruent (Heterosexual & negative stimuli)

Table A4.2 Implicit internalised homonegativity scores in sexual minorities split by bisexual and homosexual participants M, (95% CI's)

	Bisexual (62)	Homosexual (51)
Implicit internalised homonegativity	0.22 (.011, 0.33)	0.15 (0.05, 0.26)

A4.2 Questionnaire amendments to Mayfield's 2001 scale

Internalized Homonegativity Inventory (IHNI)

The following statements deal with emotions and thoughts related to being homosexual. Using the scale below, please give your honest rating about the degree to which you agree or disagree with each statement.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

1. I believe being homosexual/bisexual is an important part of me.
2. When I think of my homosexuality/bisexuality, I feel depressed.
3. Sometimes I feel I might be better off dead than homosexual/bisexual.
4. I sometimes feel that my homosexuality/bisexuality is embarrassing.
5. I am disturbed when people can tell I'm homosexual/bisexual.
6. I sometimes resent my sexual orientation.
7. When people talk around me about homosexuality/bisexuality, I get nervous.
8. When I think about my attraction towards the same-sex, I feel unhappy.
9. Sometimes I get upset when I think about my attraction to the same-sex.

10. I believe it is unfair that I am attracted to the same-sex ~~instead of the opposite sex~~.
11. I wish I could control my feelings of attraction toward the same-sex.

---

12. I am thankful for my sexual orientation.
13. I see my homosexuality/bisexuality as a gift.
14. I am proud to be homosexual/bisexual.
15. I believe being homosexual/bisexual is an important part of me.
16. I believe that public schools should teach that homosexuality/bisexuality is normal.
17. In general, I believe that homosexuality/bisexuality is as fulfilling as heterosexuality.
18. I believe that more homosexual/bisexual people should be shown in TV shows, movies, and commercials.

---

19. I believe it is morally wrong for the same-sex to be attracted to each other.
20. In my opinion, homosexuality/bisexuality is harmful to the order of society.
21. I believe that it is morally wrong for people to have sex with the same-sex.
22. In general, I believe that homosexual/bisexual people are more immoral than straight people.
23. I believe it is OK to be attracted to the same-sex in an emotional way, but it's not OK for them to have sex with each other.

Note:

Once the survey commenced one participant expressed to RA that the internalized homonegativity scale did not feel relevant as it did not mention bisexuality explicitly. Subsequently each item asked about thoughts/feelings towards homosexuality and/or bisexuality for example "I see my homosexuality/bisexuality as a gift" , "I am disturbed when people can tell I'm homosexual/bisexual". Out of 139 total sexual minority participants, 42 completed the original scale (of which 23 were bisexual). Internal consistency was high for both versions of the scale $\alpha = .87$ (prior change) vs $\alpha = .89$ (post change) with the latter scale showing a minor. There were no significant differences between group means for sexual minorities completing the original or adapted scale (95% CI original: 39.02 – 48.20 vs adapted: 39.14 – 46.37).

A4.3 Word and picture stimuli used for Implicit Association Task

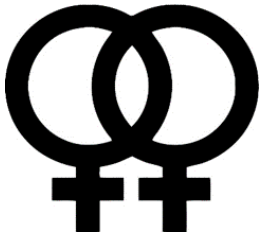
Gay pictures/symbols






Lesbian pictures/symbols







Heterosexual pictures






Word stimuli used in IAT

Negative valence

Sadness, rotten, disgust, negative, abuse, dirty, horrific, grief, filth(y), murder, sickness, accident, death, grief, poison, stink, assault, disaster, hatred, pollute, tragedy, divorce, jail, poverty, ugly, cancer, evil, kill, rotten, vomit, agony, prison, tragic, disgusting, terrible, horrible, humiliate, nasty, painful, awful.

Positive valence

Friend, appealing, adore, fantastic, enjoy, delight, cheerful, caress, freedom, health, love, peace, cheer, friend, heaven, loyal, pleasure, diamond, gentle, honest, lucky, diploma, gift, honour, miracle, sunrise, family, happy, laughter, paradise, vacation, joyful, beautiful, marvellous, wonderful, pleasure, glorious, lovely, superb.

A4.4 List of deviations from pre – registration

1. In our original analytical strategy, had proposed to assess the mediating properties of emotional dysregulation (z) on depression (y) and wellbeing (y'), with internalised homonegativity as the starting point (X). After consideration of the limitation of cross-sectional mediation and discussion with the research team, chose to instead use sexual minority status as the logical starting point of the model (because it cannot be caused by emotional dysregulation or internalised homonegativity). This was motivated in two ways:

    a) that could not follow a causal path of internalised homonegativity and its relationship to emotional dysregulation it was erroneous to assume that internalised homonegativity preceded emotional dysregulation processes.

    b) Despite the design chosen by Hatzenbuehler 2009 with internalised homonegativity feeding into emotional dysregulation strategies, their PMF would suggest that these two processes work in a simultaneous fashion, opposed to one directly preceding the other, as such entered emotional dysregulation and internalised homonegativity as mediators in two structural equation models (See figure S2). Sexual minority status (X) is therefore a proxy for experience of distal stressors (i.e., victimisation), where internalised homonegativity (z) is a proximal stressor, where emotional dysregulation is a general psychopathological process (z') and where depression (y) and subjective wellbeing (y') are the outcomes.

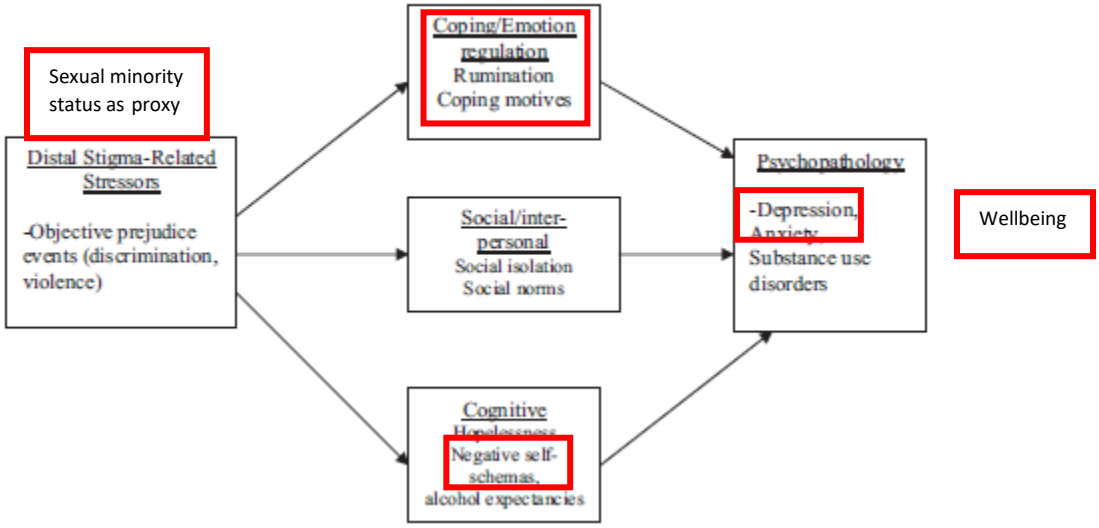


Figure
A4.1. Visualization of structural equation model mapped onto psychological mediation framework

As such hypothesis d) was changed from "The relationship between Internalised homophobia and psychopathology will be mediated by emotional dysregulation." to "general psychopathological mechanisms (i.e. emotional dysregulation) and minority specific stressors (i.e. internalised implicit homonegativity) would simultaneously mediate the relationship between sexual minority status and i) depression ii) wellbeing."

2. Due to changing our analytic strategy, with sexual orientation chosen as the starting point had to do our power calculation again, it was changed from:

"An a priori power calculation using G*power (version 3.1) was conducted using an effect size of r = .18 based on a meta-analysis of sexuality IAT's (Greenwald et.al. 2009). Specifying an α = .05 and accounting for the inclusion of 5 predictors (emotional dysregulation, internalised homonegativity and control variables: ethnicity, gender, and age) a total sample estimate of 105 to achieve a power of 0.99 was provided. Therefore 52.5 participants per group (heterosexual or sexual minority). Given gender imbalance during sampling went beyond this target."

To:

"An a priori power calculation using G*power (version 3.1) was conducted using an effect size of r = .18 based on a meta-analysis of sexuality IAT's (Greenwald et.al. 2009). Specifying an α = .05 and accounting for the inclusion of 6 predictors (sexual orientation, emotional dysregulation, internalised homonegativity and control variables: ethnicity, gender,

and age) a total sample estimate of 146 to achieve a power of 0.99 was provided. Therefore 73 participants per group (heterosexual or sexual minority) was needed. Given gender imbalance during sampling went beyond this target." [F tests, fixed effects, R^2 deviation from zero]

A4.5 Description of all models conducted

All models conducted are listed below. Models were conducted in a logical progression from single paths to include all paths (see Figure S2) and assessing mediators in isolation as well as simultaneously. model fit, standardised and unstandarised coefficients and values with/without inclusion of covariates are provided. Below is a list of models:

Depression as outcome:

- Step 1a: Sexual orientation as predictor and as depression outcome – without covariates
- Step 1b: Sexual orientation as predictor and as depression outcome – with covariates
- Step 2a: Sexual orientation as predictor and as depression outcome with Internalised homonegativity as mediator – without covariates
- Step 2b: Sexual orientation as predictor and as depression outcome with Internalised homonegativity as mediator – with covariates
- Step 3a: Sexual orientation as predictor and as depression outcome with emotional dysregulation as mediator – without covariates
- Step 3b: Sexual orientation as predictor and as depression outcome with emotional dysregulation as mediator – with covariates
- Step 4: Structural equation model with implicit internalised homonegativity and emotional dysregulation as mediators between sexual orientation and depression

Subjective wellbeing as outcome:

- Step 5a: Sexual orientation as predictor and subjective wellbeing as outcome – without covariates
- Step 5b: Sexual orientation as predictor and subjective wellbeing as outcome – with covariates
- Step 6a: Sexual orientation as predictor and subjective wellbeing as outcome with Internalised homonegativity as mediator – without covariates
- Step 6b: Sexual orientation as predictor and subjective wellbeing as outcome with Internalised homonegativity as mediator – with covariates
- Step 7a: Sexual orientation as predictor and subjective wellbeing as outcome with emotional dysregulation as mediator – without covariates
- Step 7b: Sexual orientation as predictor and subjective wellbeing as outcome with emotional dysregulation as mediator – with covariates
- Step 8: Structural equation model with implicit internalised homonegativity and emotional dysregulation as mediators between sexual orientation and subjective wellbeing.

Step 1a

Sexual orientation as predictor and depression as outcome

(Without covariates)

Unstandardized

8.73 (1.82), [5.16, 12.31] p <.001

Standardized

0.29 (0.06), [0.17, 0.41] p <.001

Fit

R^2 = .082

Step 1b

Sexual orientation as predictor and depression as outcome

(With covariates)

Unstandardized

8.73 (1.97), [4.88, 12.59] p <.001

Standardized

0.29 (0.06), [0.17, 0.41] p<.001

Fit

R^2 = .142

Step 2a

Sexual orientation as predictor and depression as outcome with Internalised homonegativity as mediator

(without covariates)

Unstandardized

Sexual orientation to internalised homonegativity (a)

.527 (.051), [.426, .629] , p <.001

Internalised homonegativity to depression (b)

5.89 (1.94), [2.09, 9.69], p = .002

Standardized

Sexual orientation to internalised homonegativity (a)

.544 (.044) , [.458, .629] p<.001

Internalised homonegativity to depression (b)

.190 (.060), [.071, .308], p = .002

Fit

R^2 = .295

Step 2b

Sexual orientation as predictor and depression as outcome with Internalised homonegativity as mediator

(with covariates)

Unstandardized

S*exual orientation to internalised homonegativity (a)*

.53 (.053), [.424, .632], p <.001

Internalised homonegativity to depression (b)

5.89 (1.90), [2.16, 9.62], p = .002

Standardized

S*exual orientation to internalised homonegativity (a)*

.544 (.044), [.458, .629], p <.001

Internalised homonegativity to depression (b)

.190 (.060), [.071, .308], p =.002

Fit

R^2 = .308

Step 3a

Sexual orientation as predictor and depression as outcome with emotional dysregulation as mediator

(without covariates)

Unstandardized

S*exual orientation to emotional dysregulation (a)*

6.85 (1.75), [3.41, 10.28], p <.001

emotional dysregulation to depression (b)

0.78 (.047), [.684, .868], p <.001

Standardized

S*exual orientation to emotional dysregulation (a)*

.246 (.061), [.127, .365], p < .001

emotional dysregulation to depression (b)

.708 (.035) [.640, .777], p <.001

Fit

R^2 = .061

Step 3b

Sexual orientation as predictor and depression as outcome with emotional dysregulation as mediator

(with covariates)

Unstandardized

S*exual orientation to emotional dysregulation (a)*

6.85 (1.78), [3.36, 10.34], p<.001

emotional dysregulation to depression (b)

0.78 (.049), [.679, .873], p<.001

Standardized

S*exual orientation to emotional dysregulation (a)*

.246 (.061), [.126, .367], p <.001

emotional dysregulation to depression (b)

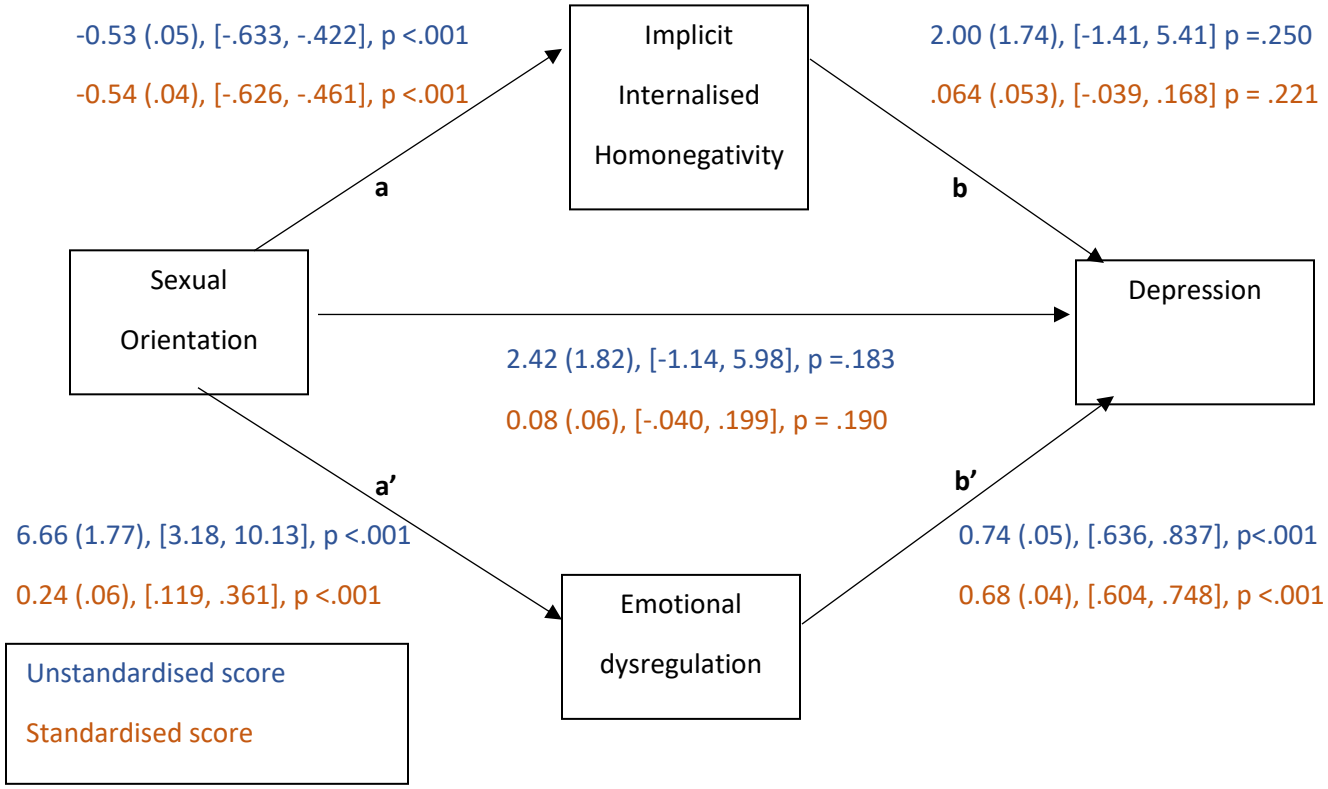
.708 (.035), [.639, .777], p <.001

Fit

R^2 = .126

Step 4

Structural equation model with implicit internalised homonegativity and emotional dysregulation as mediators between sexual orientation and depression



Fit

R^2 =.321

Step 5a Sexual orientation as predictor and subjective wellbeing as outcome

(without covariates)

Unstandardized

-7.35 (1.79), [-10.86, -3.83], p <.001

Standardized

-.254 (0.06), [-.365, -.143], p <.001

Fit – R^2 = . 064

Step 5b: Sexual orientation as predictor and subjective wellbeing as outcome

(with covariates)

Unstandardized

-7.35 (1.75), [-10.79, -3.91] , p <.001

Standardized

-.254 (0.06), [-.375, -.133], p <.001

Fit – R^2 = .122

Step 6a: Sexual orientation as predictor and subjective wellbeing as outcome with Internalised homonegativity as mediator

(without covariates)

Unstandardized

.526 (0.05), [0.42, 0.63], p <.001

Standardized

.548 (0.04), [0.46, 0.63], p <.001

Fit – R^2 = .30

Step 6b: Sexual orientation as predictor and subjective wellbeing as outcome with Internalised homonegativity as mediator

(with covariates)

Unstandardized

.526 (0.05), [0.43, 0.62], p <.001

Standardized

.548 (0.04), [0.46, 0.63], p <.001

Fit – R^2 = .31

Step 7a: Sexual orientation as predictor and subjective wellbeing as outcome with emotional dysregulation as mediator

(without covariates)

Unstandardized

Sexual orientation to emotional regulation

6.26 (1.75), [2.83, 9.69], p <.001

Emotional regulation to wellbeing

-.54 (0.06), [-.661, -.413], p <.001

Standardized

Sexual orientation to emotional regulation

0.23 (0.60), [.108, .344], p <.001

Emotional regulation to wellbeing

-.52 (0.06), [-.626, -.402], p<.001

Fit – R^2 = .05

Step 7b: Sexual orientation as predictor and subjective wellbeing as outcome with emotional dysregulation as mediator

(with covariates)

Unstandardized

Sexual orientation to emotional regulation

6.26 (1.73), [2.88, 9.64], p <.001

Emotional regulation to wellbeing

-.54 (0.06), [-.661, -.413], p <.001

Standardized

Sexual orientation to emotional regulation

0.23 (0.06), [.105, .347], p <.001

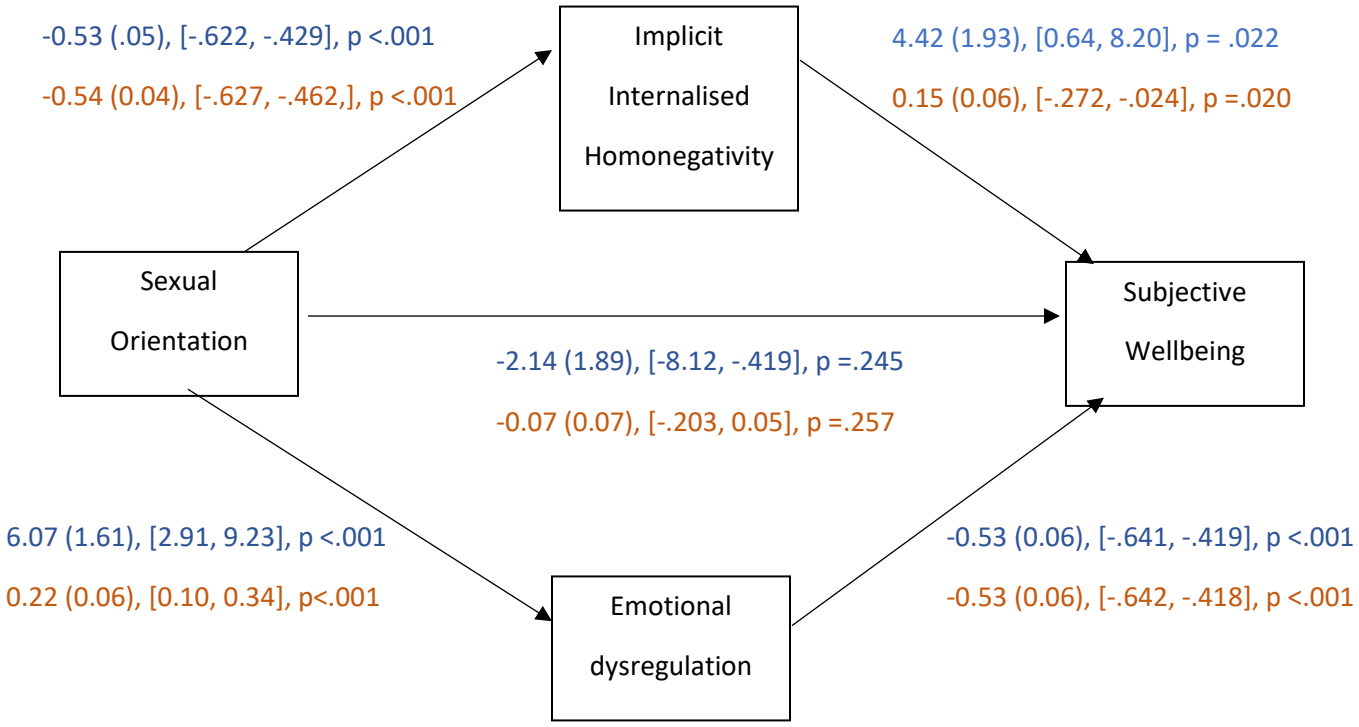
Emotional regulation to wellbeing

5.54 (0.25), [-.623, -.403], p<.001

Fit – R^2 = . 115

Step 8

Structural equation model with implicit internalised homonegativity and emotional dysregulation as mediators between sexual orientation and subjective wellbeing



APPENDIX - CHAPTER 5

A5.1 Participant information sheet

Understanding young people's experience of same-sex/both-sex attraction during adolescence

Version.2, 25.05.2020

Invitation Paragraph

You are being invited to participate in a research study. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please also feel free to discuss this with your friends, relatives, and GP if you wish. We would like to stress that you do not have to accept this invitation and should only agree to take part if you want to.

Warmest Regards, the research team

What is the purpose of the study?

People who are attracted to the same-sex/both sexes or identify with specific labels such as gay, lesbian and bisexual tend to experience more difficulties in terms of their mental health and relationships with others. We want to know how you have experienced the emergence of your sexuality and how this might have affected relationships with others, your relationship with yourself and your mental health.

Why have I been chosen to take part?

You are aged 16 - 24 years of age and have experienced same-sex/both-sex attraction or identify with labels such as gay, lesbian and bisexual (or other). You are also willing to talk to a researcher about your experiences.

Do I have to take part?

No, whether you take part or not is completely your decision. If you take part but then change your mind you are free to withdraw from this study prior to data analysis (as data will be anonymous we might not be able to identify your data), without explanation, and without incurring a disadvantage.

What will happen if I take part?

If you decide to take part, please contact the lead researcher (Rebekah Amos, Rebekah.amos@liverpool.ac.uk) who will talk you through the study in more detail and arrange a one to one research interview with you. Given the current restrictions with lockdown interviews will be conducted online via Jitsi or Zoom, therefore **it is important that you have a safe and quiet space available at home** where you can conduct these interviews and you would not be unintentionally put in a difficult situation with your family by taking part in this research. Post lockdown you will be able to have a face-to-face one to one meeting with the researcher at your school or university.

You and the researcher will discuss your experiences of being attracted to the same-sex/both-sexes and how this has affected you (i.e. positively and negatively). The discussion will last for approximately one hour but it might vary depending on your insights. The discussion will be audio recorded with to ensure we do not miss anything you have said. Only the lead researcher (Rebekah Amos) will have access to this audio file which will then be written up as a text document (known as a transcript) and anonymised (i.e. all personal details will be removed such as name, locations mentioned).

All of your information such as ethnicity, age, gender, religion, and sexuality will be kept confidential with the research team. We plan to write up this work in an academic paper and may use quotes from your interview. In the paper we may include information such as your age, gender, religion, and ethnicity but all other information such as your name and where you are from will not be included.

If you disclose something that would cause significant harm to yourself or another person we will need to disclose that information to the appropriate authority.

How will my data be used?

The University of Liverpool processes personal data as part of its research and teaching activities in accordance with the lawful basis of 'public task', and in accordance with the University's purpose of "advancing education, learning and research for the public benefit. Under UK data protection legislation, the University acts as the Data Controller for personal data collected as part of the University's research. The Principal Investigator – Rebekah Amos acts as the Data Processor for this study, and any queries relating to the handling of your personal data can be sent to Rebekah Amos**,** **Rebekah.amos@liverpool.ac.uk**. Further information on how your data will be used can be found in the table below.

How will my data be collected?	Via audio recording software integral to zoom /Jitsi or via Dictaphone (if via telephone or in person).
How will my data be stored?	On a password protected university server at the University of Liverpool. Hardcopy documents will be stored in a locked cupboard at the University of Liverpool.
How long will my data be stored for?	Contact detail information will be stored until the study finishes in case you want us to send you an update of study results. Audio-files will be deleted as soon as they are transcribed. Transcriptions and consent forms will be kept for 10 years in line with GDPR guidelines.
What measures are in place to protect the security and confidentiality of my data?	All data will be safely stored on a password protected drive, consent forms will be stored in a locked cupboard on university of Liverpool premises.
Will my data be anonymised?	Your audio data will be transcribed and then anonymised (i.e. deletion of your name, location). We may present information such as your age, gender, religion, and ethnicity in the academic paper. Contact details will be confidential and kept secure on a university

	password protected server. If you would like study findings we will keep these contact details until the study is written up, if not we will delete these details once your interview is completed. Only the lead researcher (Rebekah Amos) will have access to your contact details.
How will my data be used?	Your transcript data will be used in an academic paper. All of your quotes will be anonymised and you will not be identifiable from the information in the academic paper. However, we might summarise your age, gender, religion, and ethnicity.
Who will have access to my data?	The research team (Dr. Ross White, Praveetha Patalay) will have access to confidential data. Only in cases of significant harm to yourself or another person will we be obliged to pass your contact details to the appropriate authority.
Will my data be archived for use in other research projects in the future?	No.
How will my data be destroyed?	Audio-files will be permanently deleted from computer hardware and software. After the 10 year period consent forms will be shredded and disposed in the confidential waste bin. Online consent forms and transcripts will be permanently deleted.

Expenses and / or payments

If you incur travel costs by taking part in the study you will be reimbursed for this (please keep receipts of travel or an estimate of mileage use if driving). In all instances the researcher will endeavour travel to your school or university. Given the current lockdown, **ONLY** online methods of communication will be used.

Are there any risks in taking part?

Talking about personal issues can bring up sensitive topics and you might become upset when talking about them. As such, it is important to carefully consider whether you feel able to take part or not and

we encourage you to discuss the study with others to help you make up your mind. If you become upset in the interview you can take a break, we can change the subject, or you can stop altogether.

If you disclose something that would cause significant harm to yourself or another person we will need to disclose that information to the appropriate authority.

After the interview, you may wish to contact the following organisations if this study highlights any mental health problems or issues with your sexuality that you may be experiencing:

- **Talk Liverpool**– Provides advice, self-help activities and appointments for psychological therapy - https://www.talkliverpool.nhs.uk/ , 0151 228 2300

- **Young minds** – Young people/adults can Text the Young Minds Crisis Messenger, for free 24/7 support across the UK if experiencing a mental health crisis.

- **Mental health foundation** – provides information and advice to support mental health. https://www.mentalhealth.org.uk/your-mental-health

- **Family lives** – provides advice for parents and young people in terms of mental health, bullying, family tensions etc. They offer a confidential helpline (0808 800 2222) and email service askus@familylives.org.uk.

- **Stonewall** – provides information and support for LGBT communities and their allies. Stonewall provides an Information Service (0800 0502020 Lines are open 9:30 - 4:30 Monday to Friday).

- **Papyrus** – Charity promoting the prevention of young suicide. Helpline is available for those experiencing suicidal ideation or those struggling to cope (0800 068 4141).

- **Albert Kennedy trust** – Provides support to LGBTQ+ people aged 16-25 years of age who are experiencing /facing homelessness or living in a hostile environment (Tel: 0161 228 3308).

- **Samaritans** - offering support for people experiencing feelings of distress or despair. Samaritans offer a 24-hour confidential helpline Phone: 08457909090.

Are there any benefits in taking part?

Taking part in interviews can be an interesting and cathartic experience for participants. You may enjoy talking about your experiences and reflecting particularly on positive experiences you have had.

What will happen to the results of the study?

The results of the study will be written up in an academic paper. If you also want access to this paper we will send it to you, you can also request a brief summary sheet of the results which the researcher will send to you once the analysis is completed.

What will happen if I want to stop taking part?

Prior to and during the interview you can withdraw your participation in the study at any point, without explanation. However, post interview data analysis will begin shortly after and information will be anonymised and you will no longer be able to withdraw. Prior to analysis of the study (i.e. very shortly after your interview) you may request that your results are destroyed and no further use will be made of them.

What if I am unhappy or if there is a problem?

If you are unhappy, or if there is a problem, please feel free to let us know by contacting Rebekah Amos rebekah.amos@liverpool.ac.uk / Dr Ross White (0)151 794 5532 and we will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the Research Ethics and Integrity Office at ethics@liv.ac.uk. When contacting the Research Ethics and Integrity Office, please provide details of the name or description of the study (so that it can be identified), the researcher(s) involved, and the details of the complaint you wish to make. The University strives to maintain the highest standards of rigour in the processing of your data. However, if you have any concerns about the way in which the University processes your personal data, it is important that you are aware of your right to lodge a complaint with the Information Commissioner's Office by calling 0303 123 1113.

Who can I contact if I have further questions?

Principal Investigator

Rebekah Amos

School of Psychology

University of Liverpool

Room 1.75, Eleanor Rathbone Building

Bedford Street South

Liverpool

L69 7ZA

Rebekah.amos@liverpool.ac.uk

Chief Investigator

Dr. Ross White,

University of Liverpool

Institute of Life and Health Sciences

Brownlow Hill

Liverpool

L69 3GB

Tel: 0151 794 5532

rgwhite@liverpool.ac.uk

A5.2 Semi structured interview schedule

Introduction

Thank you for agreeing to take part, really appreciate your help with this research. are interested in *your* experiences in particular , so there are no right or wrong answers. want to know about *your* experience of being attracted to the same-gender/both-genders and how this may have changed the way you are treated at school at home with friends and also how it may have changed the way you think about yourself. Everyone's experience is unique, and you are the expert here.

If you at any point feel uncomfortable or wish to stop the session to take a break, please let me know and can pause/finish the interview. This interview will be audio-recorded and then written up so can analyse it, after this your audio file will be deleted. Your data is anonymous as will not use any of identifiable details in our analysis, however the written-up data will be available to the research team. If you reveal anything in the interview that could cause serious harm to yourself or someone else, I will be obliged to disclose it to the appropriate authority or health professional.

Do you have any questions before start?

Demographic questions

1a) How old are you?

1b) How would you describe your gender?

1c) Do you belong to a particular religion?

1d) How would you describe your ethnicity?

1e) Are you currently at school/university and/or working?

Identity, attraction & self-acceptance

2a) When did you realise you might be/were attracted to the same-sex/both-sexes?

- how did you know? how did you feel about it at the time? How do you currently feel about it?

2b) Have you disclosed your feelings of same-sex/both-sex attraction?

- who to i.e. teachers, friends, family? How has that been for you?
- Has the way you disclose your sexuality changed over time?

2c) Do you identify with labels such as lesbian, gay, bisexual or any others?

- Could you explain that a bit more for me?
- What do such labels mean to you?
- What do you think these labels mean to others around you?

2d) Do you view your sexuality as an important part of you? If so how?

2e) Has the way you view your sexuality changed over time? (i.e. from when you were recognising It until the current day)

Social life

How has the current UK lockdown/COVID-19 impacted your personal life?

- have you been home alone/with family?
- Have you been with people who are unaccepting?
- Have you been able/unable to access community groups, meet with partner, or come out during lockdown?
- Have you found new (online) communities?

3a) How would you describe your university/school life (i.e., with teacher and other students, groups?)

- Do you feel treated the same/different as everyone else?
- What is your friend circle like? How do you get on with teachers/staff?

optional question

3b) If they work -> how is your work environment is i.e. accepting of sexuality? are you out? Do you/would you feel comfortable being out there?

3c) How would you describe your friend circle? Are they sexual minorities too?

- have things changed i.e. since you came out/realised you were attracted to the same sex, have you gained new friends, or lost old ones?
- What kind of things do you do with your friends? have in common? have differences about?
- If they have new friends might be worth exploring if they engage in similar activities?

3d) How is life with your parents and family?

(if participant is out ->)

- have they treated you differently?
- What are their attitudes toward homosexuality/bisexuality (and other)?
- How did they react?
- Have you felt comfortable bringing partners over or same attracted friends?
- What labels are used with/by the family?

(If participant is not out ->)

- What are the reasons preventing you coming out to your family?
- What are their attitudes toward homosexuality/bisexuality (and other)? Does this affect you? If so how?

3e) Are you currently in/ or ever have been in a romantic relationship?

- *Has that impacted how you view your sexuality?*
- *Has it been different with different partners? (e.g. with men vs women)*

3f) Do you feel part of a community (local, online, or other)? If yes could you explain it for me?

3g) How do you think sexual minorities are perceived in UK society?

- Prompts – social media representation/visibility, tv representation etc., does this differ in your own culture?

Mental health

People often think of mental health in terms of mental illness or distress. However, mental health also encompasses positive feelings, your ability to do things in your environment and pursue a meaningful life , whilst experiencing, coping with, or reducing feeling of distress. In this way mental health has both negative and positive aspects to it.

4a) Thinking about your own mental health in this way, has your sexuality impacted your own mental health (if so, how)?

- Have you developed a positive attitude towards sexuality?
- Internalised negative viewpoints – stigma/discrimination?
- What are positive/negative impacts?
- When did you start experiencing negative/positive aspects of mental health and your sexuality?
- Have things changed over time?

Expectations for the future

4a) What are your thoughts/feelings about how things might change for you in the future?

- Prompt – Are there things about the future that you are particularly looking forward to?

4b) What (If any) things could be done to support sexual minority youth?

4c) Is there anything I have not spoken about you would like to talk about?

A5.3 Anonymised participant feedback

"I think the results really accurately reflect LGBTQ+ experiences, at least from my point of view! Looking at your findings, it was interesting to see how you'd captured so many thoughts and feelings in such a succinct way. I thought it was particularly nice how you highlighted that suppression doesn't just occur as a result of direct hostility and discrimination, but just from cultural norms in general, I think sometimes this can get overlooked in literature now that queer spaces and culture are expanding.

I also thought the emphasis on education was good, especially how you talked about the need for casual discussion within schools - normalisation of queerness from a young age is something i think most queer people wish they'd experienced!

I also think you highlighted both the negative and positive aspects of queerness really well and included a lot of stuff I haven't seen talked about before, like how heterosexual ideals are seemingly being adopted within the queer community (like how you spoke about men should be muscly etc.). Seeing your findings include less talked about issues was really refreshing, it made it feel like even nuanced queer experiences had really been listened to and understood during your analysis :)"

"I think the theory is brilliant, and very interesting! Thank you for sharing this with me"

"I think your theory hits the nail on the head, I found myself nodding in agreement with all of your points. It was great to see how you break down the contrast between your theory and existing theories- highlights how your work has implications for the implementation of interventions and initiatives. As you mentioned, I think there's real implications here for education - having more conversations about queerness in schools would be significant and could alleviate some of the factors which contribute to queer youth suppressing their identities.

Overall a really great study, completely agree with your theory and some really interesting findings!"

A5.4 Researcher positionality and reflexivity

Methodological self-consciousness

To adopt the critical inquiry lens that is essential to CGT it is necessary to engage in methodological self-consciousness (see Charmaz 2017). This is the assessment of the researchers' hidden preconceptions (methodological individualism), but also how one's institution, culture, race, gender, and class may all affect how data are collected and subsequently analysed. Below, I summarise the cultural content of this project and how my own social context and identities impact this study. Later, I review my own positioning within this research and my process of reflexivity throughout its conduct.

Cultural context of the research

This research sits within the larger culture of academia which comes with its own set of cultural customs and norms. Academia has historically been associated with elitism (y Muhs et al., 2012) as well as white and male privilege (Manglitz, 2003; Santos & Dang Van Phu, 2019). These associations may render a power imbalance when trying to recruit and voice the experiences of minority groups who are not typically represented in such spaces. It is also prudent to briefly summarise the cultural and historical context of the recruiting institution. The university of Liverpool is the original 'redbrick', one of nine civic institutions that admitted 'men' regardless of religion or background (University of Liverpool, website 2007). Whereas in the past 'redbrick' conferred inferiority in contrast to ancient institutions such as oxford, in modern times the term is associated with academic success. To date four of these redbrick institutions are in the top twenty best ranked institutions in the UK and all are recognised globally (Redbrick Universities, league table, entry requirements and guide, 2022). Today the University of Liverpool is considered a desirable study destination due to its academic heritage and its Russell group status (Russell group, 2022). Thus, the university has a mixed past, it is associated with academic pedigree (and potentially elitism) but also associated with the inclusion of those from poorer and disadvantageous backgrounds (University of Liverpool, website 2007). This might attract research participants who appreciate this heritage, but also may unintentionally ostracize those from non-academic backgrounds.

As this project was UK wide it is also important to consider how people from other regions may perceive Liverpool. Culturally, Liverpool is a very left wing, socialist, and progressive city (Smith, 1984). Although it has a very working-class history with areas of significant deprivation, there are also areas of significant affluence (Livingston, Whyte, Walsh & Bailey, 2013). Despite Liverpool's current ties to socialism, with many constituents being labour strongholds (Electoral calculus, 2022), this not always been the case. Liverpool policies approximately ninety years ago were dominated by the orange-tory bloc (Smith, 1984). Liverpool also has a marred history of slavery, being the main slaving port in the 18th century which was associated with vast wealth at the time (Liverpool museums archive, 2022). Thus, Liverpool's past and present as well as its variation in affluence and deprivation,

leads to a unique juxtaposition. As such, although the culture of Liverpool may feel inclusive for some, it may feel far removed for others with different upbringings and political affiliations and those with varying ethnic backgrounds.

It could be argued that the impact of this was mitigated in large part by the fact the research was conducted online and furthermore that our sample was young and likely unaware of Liverpool's history. Participants were not required to visit the University for the interview. Thus. the impact of these cultural narratives was minimised and less visible.

Positioning & reflexivity

To engage in this work truthfully and reflexively I outline my positionality below. Drawing on reflections from Charmaz (2017), in this section I have explicitly outlined how my own power, identity and subjectivity have impacted my interactions with the research process and research participants. I look at each of these constructs in isolation below:

Power

I hold certain positions of status that not only give me privilege but also affect the power balance between participants and myself. For example, I am a highly educated person, I am cisgender, and I am a white person. Being a white woman comes with privilege, I have never experienced racial hatred or ever felt uncomfortable because of the colour of my skin, I accept that this is something I cannot know or understand phenomenologically. I am cisgender, and again this comes with privilege, I feel comfortable in my gender expression mostly (sometimes I do not), but I have never experienced gender dysphoria or gender questioning. I therefore accept and acknowledge that I have certain privileges that may make it difficult for me to truly comprehend what a participant is telling me about their experience and furthermore, may make them unwilling to tell me. To manage any power imbalance, interviews were conducted online, and in a neutral space that did not represent an academic setting. I also contacted all participants prior to interview commencement, forming a human and empathetic connection. I have worked in a multitude of professional settings with varying groups, from service users (mild to severe mental ill-health, to those with profound disability), disadvantaged young people to highly educated academics. As such, I have experience adapting my demeanour as appropriate. I also made it explicitly clear that in this situation, I considered them to be the 'expert'.

Identity

It is worth mentioning that I did not share my sexuality with my participants unless explicitly asked. I did not want to change the dynamic of the conversation or for them to assume I knew their experiences. Having been part of the LGBT community intermittently over a decade, I may share experiences with them but also being older I may have unique experiences of marginalisation they did not. I have been immersed in the LGBT community at university, at home, in night life and more progressive circles such as trans activist communities, so I know the vernacular. During, piloting I feel this did impact my interview style, I did assume (from personal experience and my prior research) that

negative experiences would be in surplus and mechanisms of marginalisation would be easy to pinpoint. Through piloting I realised I needed to be more open to positive experiences of sexual minority youth today. I do feel my identity as a lesbian woman does bring with it an increased feeling of connection to my participants, and I especially felt this for those who also shared the same identity.

Subjectivity

Having a sexual minority identity, having experiences of victimisation, and engaging with a wealth of psychopathology literature prior did impact my expectations of what this study would find. I have seriously reflected at all stages of design, recruitment, and analysis of how my personal beliefs have shaped this work. I have engaged with the research team to discuss and rectify instances of potential bias. I could not remove my subjectivity, but I did my upmost to bracket it (Tufford & Newman, 2012). My main drive in this research was to be a conduit, voicing my participants experiences. This allowed me to put aside my political, social, and scientific stances to allow the participants voice to be most prominent whether I agree with them on a personal level or not.

I am complex, I am a combination of variant experiences and identities, I am highly empathic as well as highly analytical. I have grown up with people from all sorts of ethnic, educational, and economic backgrounds. I can understand suffering and I can also understand joy. I can manoeuvre around people's perspectives and experiences and absorb it with empathic curiosity. I have attempted to remain as objective as possible. In every avenue of research, the limits of our human fallibility plagues 'validity' and accuracy. are biased, are imperfect, but this humanity is invaluable to qualitative research. It allows me to dive into the subjective world of others, with an understanding of what it is to be human.

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