The Experiential, Sexual, and Clinical Dimensions of Female Bisexuality in Canada: What are the Implications of Being In-between Monosexualities?

Tonje J. Persson

A Thesis
In the Department
of
Psychology

Presented in Partial Fulfillment of the Requirements
For the Degree of
Doctor of Philosophy (Psychology) at
Concordia University
Montreal, Quebec, Canada

September 2014

CONCORDIA UNIVERSITY
School of Graduate Studies

This is to certify that the thesis prepared

By: Tonje J. Persson

Entitled: The Experiential, Sexual, and Clinical Dimensions of Female Bisexuality in Canada: What are the Implications of being In-between Monosexualities?

and submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy (Psychology)

complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by the final examining committee:

Dr. Arpi Hamalian	Chair
Dr. Lisa Diamond	External Examiner
Dr. Frances Shaver	External to Program
Dr. Michel Dugas	Examiner
Dr. James G. Pfaus	Co-Supervisor
Dr. Andrew G. Ryder	Co-Supervisor

Approved by

Virginia Penhune
Chair of Department

2014

André Roy
Dean of Faculty

ABSTRACT

The experiential, sexual, and clinical dimensions of female bisexuality in Canada: What are the implications of being in-between monosexualities?

Tonje J. Persson, Ph.D.
Concordia University, 2014

Female bisexuality has been understudied and it is unclear how it is most adequately defined. Although it has been found bisexual women face mental health disparities compared to lesbian and heterosexual women, there is a lack of research examining risk and resilience factors. This dissertation sheds light on why female bisexuality has been understudied and provides findings relevant to bisexual women's sexuality and mental health. Manuscript I, a review, suggests that an "imposed invisibility" of female bisexuality is related to the simplicity of using dichotomous sexual orientation categories, the gay movement's desire to establish homosexuality as constitutional, feminist lesbians' fight against patriarchy, and queer theorists' neglect of including bisexuality in their discourse. Manuscripts II to IV include data, collected over a three-year period, from a confidential online survey including 388 women living in Canada (188 heterosexual, 53 mostly heterosexual, 64 bisexual, 32 mostly lesbian, 51 lesbian). The survey included questions about demographics, substance abuse, childhood abuse, sexual orientation/ identity/behaviour, sexual/romantic/emotional attractions, sexual arousal/desire/orgasm, and symptoms of depression and anxiety. Manuscript II compared the sexual and emotional characteristics of bisexual, lesbian, and heterosexual women and provides suggestions about how to define female bisexuality. Manuscript III compared subjective ratings of sexual arousal and desire in partnered sexual activities for women of five sexual orientation groups. Findings indicate non-monosexual women have higher sexual arousal and desire in sexual activities with women than monosexual women, and that bisexual women do not differentiate their sexual arousal with men versus women while the other sexual orientation groups differentiate in terms of their motivation to engage in sexual activity. Manuscript IV investigated whether the association between sexual orientation and mental health is moderated by childhood abuse, and mediated by risky sexual behaviour and sexual orientation disclosure for

monosexual versus non-monosexual women. Findings suggest childhood abuse is not a moderator but that increased risky sexual behaviour and decreased sexual orientation disclosure mediate the association for bisexual women. Results of this dissertation have implications for the measurement of female bisexuality, the conceptualization of female sexual orientation, and the identification of risk factors associated with bisexual women's mental health.

Acknowledgements

Dedicated to Mariana Faes, my partner and my best friend. Her incredible love, emotional support, and humor made this research possible. I love you.

I will always be grateful to my supervisors, James G. Pfaus and Andrew G. Ryder, for believing in my research ideas. Their unfaltering encouragement gave me the strength to pursue my studies. Their brilliance and innovativeness nurtured my curiosity and my love of science. Most of all, they gave me the freedom to be creative.

To my mother for always allowing me to think outside the box. To my father for stimulating my rational mind. I love you both.

To my friends, chosen family, in Montreal. I could not have completed this dissertation without your love, support, and feedback. Thank you for making me laugh.

To my dog, Poetry, for showing me that going on a walk helps me think.

To Lisa Diamond, I greatly admire your pioneering work on female sexual fluidity. Your research contributed to many of my ideas.

To my dissertation committee members for providing valuable feedback.

To the members of the Pfauslab and the Culture, Health, and Personality Lab at Concordia University, especially Maria Kyres and Maria Santaguida for helping with data collection, and to Dr. Jessica Dere for useful advice throughout my PhD.

To Concordia University for advancing an academic environment in which psychological research is greatly supported.

To the Canadian Institutes of Health Research for providing me with the funding to pursue this research.

Finally, this research would not have been possible without all the women who participated. Thank you.

“Somewhere, something incredible is waiting to be known.”

- Carl Sagan

Contribution of Authors

Manuscript I

Tonje J. Persson did the literature search and wrote the manuscript. James G. Pfaus edited the manuscript and provided comments for revision.

Manuscript II

Tonje J. Persson did the literature search, wrote the manuscript, designed the study, collected, analyzed, and interpreted the data. James G. Pfaus contributed to study design. He also edited the manuscript and provided comments for revision. Andrew G. Ryder contributed to data analysis and interpretation. He also edited the manuscript and provided comments for revision. Maria Kyres contributed to data collection.

Manuscripts III and IV

Tonje J. Persson did the literature search, wrote the manuscript, designed the study, collected, analyzed, and interpreted the data. James G. Pfaus contributed to study design. He also edited the manuscript and provided comments for revision. Andrew G. Ryder contributed to data analysis and interpretation. He also edited the manuscript and provided comments for revision.

Table of Contents

List of Figures

Manuscript III

Manuscript IV

List of Tables

Manuscript II

Manuscript III

Manuscript IV

General Introduction

On March 20, 2014, there was an article in *the New York Times*, entitled *The Scientific Quest to Prove Bisexuality Exists* (Denizet-Lewis, 2014). In this article, Brad S. Kane, a board member of the American Institute of Bisexuality (AIB), says: "[Bisexual people] are misunderstood. They're ignored. They're mocked. Even within the gay community, I can't tell you how many people have told me, 'Oh, I wouldn't date a bisexual.' Or, 'Bisexuals aren't real.'" A very recent study supports Kane's argument. This research explored heterosexual men and women's awareness of social stereotypes pertinent to bisexual men (Zivony & Lobel, 2014). Although it was found that heterosexuals have little explicit knowledge of bisexual stereotypes, they nevertheless, during a social evaluation task, rated bisexual men as less trustworthy, more confused, less willing to have monogamous relationships, and as less skilled at long-term relationships than gay and heterosexual men. Although this study only explored male bisexual stereotypes, research suggests they are equally applicable to bisexual women (Alarie & Gaudet, 2013; Bennet, 1992; Bostwick, 2012; Callis, 2013; Garber, 2000; Israel & Mohr, 2004; McLean, 2008, 2011; Mulick & Wright, 2002; Ochs, 1996; Ochs & Deihl, 1992; Ross, Dobinson, & Eady, 2010; Rust, 1995, 2000a; Rust, 2002; Weinberg, Williams, & Pryor, 1994). For example, in the lesbian community, bisexual women have been stigmatized and mistrusted because their sexual identity has been interpreted as an attempt at "maintaining a privileged position in a heterosexist society" (Rust, 1993).

Although the existence of bisexuality as a legitimate sexual orientation may be doubted, it undeniably exists. Several epidemiological studies have documented, that among women, bisexuality may, in fact, be more common than homosexuality (Herbenick et al., 2010a; Laumann, Gagnon, Michael, & Michaels, 1994; Mercer et al., 2013; Wellings & Johnson, 2013). Further, Lisa Diamond's groundbreaking ten-year longitudinal study of sexual minority women has shown that female bisexuality represents a stable sexual orientation; bisexual women's ratio of same-sex to other-sex attractions remained relatively fixed over a decade (Diamond, 2008a, 2008b). Although bisexuality may be a stable sexual orientation, is might also be a representation of fluid female sexuality. It has been argued that female sexuality may be quite plastic and prone to sociocultural influences (Baumeister, 2000, 2004). In his seminal review of the literature, Baumeister (2000) wrote: "Female sexuality […] is depicted as fairly malleable and mutable: It is responsive to culture, learning, and social circumstances. The plasticity of the female sex drive

offers greater capacity to adapt to changing external circumstances" (p. 347). In fact, although Diamond (2008a, 2008b) found bisexuality to be a stable sexual orientation over a ten-year period, she also found that the bisexual women in her study "showed larger *absolute* (italics in original) fluctuations in their attractions from assessment to assessment [about two years apart] than did the lesbian women" (2008a, p. 12). Echoing Baumeister (2000), she concluded: "Bisexuality may best be interpreted as a stable pattern of attraction to both sexes in which the *specific balance* (italics in original) of same-sex to other-sex desires necessarily varies according to interpersonal and situational factors" (2008a, p. 12).

In research, no clear consensus has yet been reached on how to define sexual orientation, generally, or bisexuality, specifically (Diamond, 2003b; Mustanski, Chivers, & Bailey, 2002; Savin-Williams, 2006; Savin-Williams, 2009; Savin-Williams & Vrangalova, 2013; Vrangalova & Savin-Williams, 2012). Although sexual orientation has typically been conceptualized as a combination of attraction, behaviour, identity, romantic relationships, and physiological arousal (Bailey, 2009; Laumann et al., 1994; Mustanski et al., 2002), there is evidence to suggest that these separate dimensions may not necessarily overlap or predict each other (e. g., Diamond, 2008b; Lhomond, Saurel-Cubizolles, & Michaels, 2013; Savin-Williams, 2006; Savin-Williams, 2009). For instance, several studies have documented that female genital arousal is non-category-specific, meaning that their genital arousal does not correspond with their stated sexual orientation (e. g., Chivers, Seto, Lalumière, Laan, & Grimbos, 2010; Chivers & Bailey, 2005; Chivers, Rieger, Latty, & Bailey, 2004). Further, it has been found that results from mental health research may differ depending on which dimension(s) of sexual orientation is used (Bostwick, Boyd, Hughes, & McCabe, 2010b; Diamond, 2003; Mayer et al., 2008; McCabe, Hughes, Bostwick, Morales, & Boyd, 2012; Savin-Williams, 2006; Savin-Williams, 2009).

Despite there being no definite agreement on how to assess female bisexuality, past research measuring women's self-reported attractions to men and women have, nevertheless, tended to adopt a proportional approach (e. g., Diamond, 1998; Diamond, 2000; Diamond, 2003a; Diamond, 2005; Diamond, 2008a, 2008b). Albeit this one-dimensional methodology may be valid (Paula C. Rust, 1992), it cannot be ruled out that some women may be high (or low) on both same-sex and other-sex attractions (Shively & De Cecco, 1977; Storms, 1980; Vrangalova & Savin-Williams, 2012). For instance, one recent study has found support for the notion that same-sex and other-sex attractions are not necessarily inversely related; the authors concluded,

"Although traditionally the one-dimensional approach has been favored when assessing sexual orientation, we suggest that the two-dimensional model is a better fit to individual lives" (Vrangalova & Savin-Williams, 2012, p. 97).

In addition, although sexual orientation has been assumed to exist along a seven-point continuum from exclusive heterosexuality to exclusive homosexuality (Kinsey, Pomeroy, & C. E. Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953), research in psychology has nonetheless been inclined to place individuals into one of three categories, namely heterosexual, bisexual, or homosexual (Vrangalova & Savin-Williams, 2012). In practice, sexual orientation research has mostly meant comparing heterosexuals to homosexuals; bisexual individuals have been excluded all together or have been lumped together with homosexual or heterosexual participants (Barker, Bowes-Catton, Iantaffi, Cassidy, & Brewer, 2008; Barker et al., 2012; Kaestle & Ivory, 2012; Pallotta-Chiarolli & Martin, 2009; Rust, 2000b; Rust, 2002; van Anders, 2012; Volpp, 2010). Indicatively, physiological research on female sexual arousal have not included bisexuals, while "mostly heterosexual" and "mostly lesbian" women have been lumped together with exclusively heterosexual and exclusively lesbian women, respectively (Chivers & Bailey, 2005; Chivers et al., 2004; Chivers, Seto, & Blanchard, 2007; Suschinsky, Lalumière, & Chivers, 2009).

In sum, even if female bisexuality has been supported by literature reviews (e. g., Baumeister, 2000; Rust, 2002), epidemiological studies (e. g., Herebenick et al., 2010), and by longitudinal research (Diamond 2008a, 2008b), it has still been relatively ignored by psychological science up until recently (Barker et al., 2012; Diamond, 2008a, 2008b; Eliason & Elia, 2011; Kaestle & Ivory, 2012; Rust, 2000b; van Anders, 2012). The first mental health community survey analyzing bisexuals as a group separate from homosexuals and heterosexuals was only published in 2002 (Jorm, Korten, Rodgers, Jacomb, & Christensen, 2002), the first international research conference on bisexuality only took place in 2010, and bisexuality research guidelines were first published in 2012 (Barker et al., 2012; van Anders, 2012). Illustratively, the number of articles specifically discussing the mental health of bisexuals is minute in comparison to the number of articles focused on mental health and sexual orientation more broadly (Dodge & Sandfort, 2007). For example, a PubMed analysis of articles listed on bisexual health showed less than 20 percent of the articles discussing bisexuality included bisexuals as a distinct group (Kaestle & Ivory, 2012). Indicatively, bisexuals tended to be

"mentioned in passing or bundled in as indistinguishable parts of the gay and lesbian community" (Kaestle & Ivory, 2012, p. 43), underscoring the invisibility of bisexuality in scientific psychology. Consequently, there is a lack of knowledge about risk and resilience factors particularly relevant to the mental health of bisexual women.

Although, historically, there has been a general absence of research devoted to female bisexuality, during the last decade, the priority has shifted from excluding this population to examining it separately. As van Anders writes (2012) "treating bisexuality as a distinct sexuality makes for good science unless there is some compelling scientific justification to do otherwise" (p. 398). This shift in focus was sparked by Jorm and colleagues' (2002) mental health community survey, which revealed that bisexuals scored higher on measures of anxiety, depression, and negative affect than both heterosexuals and homosexuals. Bisexuals also reported more current adverse life events, greater childhood adversity, less positive support from family, more negative support from friends and a higher frequency of financial problems. In comparison to the heterosexual group, both homosexuals and bisexuals reported higher levels of suicidality.

The findings from this survey were groundbreaking because they indicated there might be important mental health disparities between bisexual and homosexual individuals. Further, the results underlined how past epidemiological research may have masked psychopathology among bisexuals while exaggerating it among homosexuals by not analyzing these two groups separately (Kaestle & Ivory, 2012; Schick & Dodge, 2012). By now, these findings have been replicated numerous times; many studies have found that bisexuals tend to report poorer mental and physical health, higher rates of substance abuse, higher risk of suicidality, more adverse life events, and face more barriers to health care than both heterosexual and homosexual individuals (e. g., Alvy, Hughes, Kristjanson, & Wilsnack, 2013; Bolton & Sareen, 2011a; Bostwick, Boyd, Hughes, & McCabe, 2010a; Bostwick et al., 2007; Dodge & Sandfort, 2007; Fredriksen-Goldsen, Hyun-Jun, Barkan, Muraco, & Hoy-Ellis, 2013; Fredriksen-Goldsen, Kim, Barkan, Balsam, & Mincer, 2010; Hughes, Szalacha, & McNair, 2010; Kerr, Santurri, & Peters, 2013; King & Nazareth, 2006; McCabe, Bostwick, Hughes, West, & Boyd, 2010; McCabe, Hughes, Bostwick, West, & Boyd, 2009; McCabe, West, Hughes, & Boyd, 2013; Ross et al., 2010; Steele, Ross, Dobinson, Veldhuizen, & Tinmouth, 2009).

Although, broadly, it may be argued bisexuals are faced with both mental and physical health disadvantages compared to their heterosexual and homosexual counterparts, little is known about bisexual within group differences. In a special issue of the *Journal of Bisexuality* devoted to bisexuality and health, the editors wrote that: "The emphasis on health disparities has the potential to perpetuate a problematized view of bisexuality. The stigmatization of bisexual men and women may be further amplified by research which evaluates bisexual populations against comparatively 'healthy' heterosexual populations" (Schick & Dodge, 2012, p. 161). In short, one of the main goals of the special issue was to explore potential within group factors relevant to bisexual health. For instance, one of the featured articles found that congruence between bisexual behaviour and bisexual identity was associated with higher sexual arousal and desire (Schick, Rosenberger, Herbenick, Calabrese, & Reece, 2012).

So far, research on bisexual risk and resilience has mainly been centered on the minority stress model developed by Meyer (Meyer, 1995, 2003, 2007, 2013), which postulates that: "Stigma, prejudice, and discrimination create a hostile and stressful social environment that causes mental health problems" (Meyer, 2003, p. 674). As previously pointed out, bisexuality is associated with several negative stereotypes, and it has been found that bisexual individuals' experiences of stigma and discrimination are linked to psychological distress (Bostwick, 2012; Ross et al., 2010).

In addition to studying the link between minority stress and mental and physical health adjustment, some research has explored bisexual women's experiences of lifetime adversity (childhood abuse and neglect, adult sexual victimization) (Alvy et al., 2013; Friedman et al., 2011; Lehavot, Molina, & Simoni, 2012; McLaughlin, Hatzenbuehler, Xuan, & Conron, 2012). In short, these studies have found that bisexual women may face more lifetime adversity than lesbian and heterosexual women. Further, recent data has indicated exposure to victimization and childhood/adolescent adversity may mediate the association between bisexuality and mental health (McLaughlin et al., 2012).

To summarize, up until now, research on female bisexuality and mental health has mainly focused on two themes, namely, minority stress and lifetime adversity.

Research Program

The general introduction above aimed to indicate how the study of bisexuality has been largely absent in psychological research up until the last decade despite evidence suggesting it

undeniably exists. As pointed out, among women, bisexuality may be more prevalent then exclusive homosexuality. Nevertheless, bisexuality has been and still is stigmatized and stereotyped. Bisexual individuals have typically been excluded from research all together or they have been lumped together with homosexual or heterosexual participants. Consequently, less is known about their mental and sexual health compared to their heterosexual and homosexual counterparts. Although, recently, there has been a shift in research from excluding to including bisexual participants, much is still to be known about risk and resilience factors and within-group differences. By now, several studies have found that bisexual women, overall, may have worse mental health than lesbian and heterosexual women; however, it is unclear why that may be the case. Most research on female bisexuality and mental health has focused on exploring minority stress and lifetime adversity, to the exclusion of other potentially relevant variables. For instance, there is a general lack of research addressing bisexual women's sexual arousal and desire. Further, among researchers, no clear consensus has been reached on how to best conceptualize sexual orientation generally, or bisexuality, specifically.

To address the limitations above, the current thesis includes four manuscripts, each with their specific goals.

The first manuscript, entitled *The Visibly Invisible but Undeniable Fact of Fluid Female Bisexuality: A Review*, provides a comprehensive literature review of female bisexuality in the history of sexology and psychology, and discusses bisexual stereotypes and stigma. The first goal of this paper was to provide hypotheses for why the study of bisexuality has been relatively ignored by research. It is argued that the "imposed invisibility" of bisexuality is related to the simplicity of using dichotomous sexual orientation categories (monosexism), the gay movement's desire to establish homosexuality as constitutional, feminist lesbians' fight against male patriarchy, and queer theorists' neglect of including bisexuality in their discourse. The second goal was to review how bisexuality has been typically measured and defined in research, along with implications for female bisexual mental health. The third goal was to review research on female bisexual mental health and risk and resilience factors, pointing out gaps in the research literature and providing suggestions for future research. In sum, this review was written with the overarching intention of providing readers with a better understanding of why female bisexuality has been relatively absent from the research literature, up until recently, and why it is important this practice changes.

The second manuscript, entitled *Women's Experiences of Sexuality and Intimacy: A Descriptive Study of the Sexual and Emotional Characteristics of Bisexual Women Compared to Straight and Lesbian Women*, provides suggestions on how female bisexuality may be best conceptualized and measured in research. This descriptive study addressed how different dimensions of sexual orientation overlap among women who define themselves as heterosexual, mostly heterosexual, bisexual, mostly lesbian, or lesbian. Further, the sexual and emotional characteristics of these women were compared in order to identify potential risk and resilience factors among bisexual women.

The third manuscript, entitled *Comparing Subjective Ratings of Sexual Arousal and Desire in Partnered Sexual Activities from Women of Different Sexual Orientations*, aimed to expand research knowledge about female sexual arousal and desire by including women from both monosexual and non-monosexual orientations. Hitherto, little is known about bisexual women' sexual arousal and desire with men versus women in comparison to other women's sexual arousal and desire with men or with women. It is also unclear whether sexual orientation is best conceptualized one-dimensionally or bi-dimensionally. In addition, it has not been established which dimension of sexual arousal and desire may be most relevant to how women define their sexual orientation. Therefore, subjective arousal and desire with men and with women was not just compared between the heterosexual, mostly heterosexual, bisexual, mostly lesbian, and lesbian women but also within the five sexual orientation groups. Finally, in order to assess which dimension(s) of sexual arousal and desire may be most relevant to female sexual orientation, four dimensions were measured, namely a physiological, a cognitive, a motivational, and a negative dimension.

Little is known about risk and resilience factors specific to bisexual women's mental health. Therefore, the fourth manuscript, entitled *Explaining Mental Health Disparities for Bisexual Women: Abuse History and Risky Sex, or the Burdens of Non-disclosure?*, aimed to identify how bisexual women's mental health may be moderated by childhood abuse, and mediated by risky sexual behaviour and sexual orientation disclosure.

In conclusion, these four manuscripts will provide new evidence regarding female bisexuality, which will shed light on these women's sexual and emotional lives, strengths and difficulties. Ultimately, this new knowledge may contribute to the development of public policy programs specifically geared towards the experiences of bisexual women.

Manuscript I. The Visibly Invisible but Undeniable Fact of Fluid Female Bisexuality: A Review

Tonje J. Persson, MSc ● James G. Pfaus, PhD

Center for Studies in Behavioral Neurobiology, Department of Psychology (SP 244), Concordia University, Montreal, QC, H4B 1R6 CANADA

Abstract

We review issues surrounding female bisexuality that have emerged in the history of both sexology and psychology and outline how bisexuality has been typically defined and measured in research, along with implications for female bisexual mental health. We argue that an "imposed invisibility" of female bisexuality is related to the simplicity of using dichotomous sexual orientation categories (monosexism), the gay movement's desire to establish homosexuality as constitutional, feminist lesbians' fight against male patriarchy, and queer theorists' neglect of including bisexuality in their discourse. Suggestions for future research directions include the potential benefits of investigating within-group differences among female bisexuals.

Keywords: Female bisexuality, monosexism, mental health, defining bisexuality, within-group differences.

Introduction

When it became publicly known in 2012 that the wife of New York's Mayor-Elect Bill de Blasio, Chirlane McCray, used to identify as a lesbian, it caused a local media storm. The *New York Post* published a much-criticized editorial cartoon, in which de Blasio and McCray were depicted in bed both dressed in women's lingerie and with McCray on the phone saying, "I used to be a lesbian but my husband, Bill de Blasio, won me over." In response to questions about her sexuality, McCray has stated that when she fell in love with de Blasio, she was not "converted" to heterosexuality: rather she was attracted to Bill because he was "the perfect person for her." Further, although she rejects the bisexual label, she has alluded to still being attracted to women by saying "I'm married, I'm monogamous, but I'm not dead and Bill isn't either" (Villarosa, 2013).

The media craze surrounding McCray's sexuality underlines the confusion, stereotypes, and stigma associated with being non-monosexual. The *New York Post* cartoon implies the inconceivability of female sexual fluidity and bisexuality by depicting de Blasio in women's underwear (McCray is still a lesbian) and, conversely, by suggesting she has "converted" to heterosexuality (de Blasio won her over). In short, McCray is either a homosexual or a heterosexual.

It has been argued that bisexuality is "the target of a politics of delegitimization" (Erickson-Schroth & Mitchell, 2009; Yoshino, 2000). It has been made invisible by society's preference towards single-gender orientations (monosexism) (Barker et al., 2008; Barker & Langdridge, 2008; Bradford, 2004; Diamond & Butterworth, 2008; Erickson-Schroth & Mitchell, 2009; Kaestle & Ivory, 2012; Klein, 1993; Ross et al., 2010; Rust, 2000a; Rust, 2002; Suresha & Alexander, 2008; Yoshino, 2000). Though homosexuality appears to be increasingly accepted in North America, politically, through efforts such as legalizing same-sex marriages, and socially, through, for example, the inclusion of homosexual personalities in the popular media, bisexuality is still stigmatized (Alarie & Gaudet, 2013; Bostwick, 2012; Callis, 2013; Israel & Mohr, 2004; Mulick & Wright, 2002; Ross et al., 2010). Indeed, bisexual individuals face prejudice and discrimination from both homosexual and heterosexual communities, with some members of those communities doubting that bisexuality is a legitimate sexual orientation (Friedman et al., 2013, 2014). Common stereotypes about bisexuality are that it is a phase (towards homosexuality or heterosexuality), that bisexual individuals are confused, promiscuous,

untrustworthy, non-monogamous, greedy, hypersexual, immature, equally attracted to men and women, and that they represent vectors of sexually transmitted diseases/infections from the heterosexual to the homosexual communities or vice versa (Bennet, 1992; Garber, 2000; Israel & Mohr, 2004; McLean, 2008; Ochs, 1996; Ochs & Deihl, 1992; Weinberg et al., 1994).

One very recent study examining negative social attitudes among heterosexual men and women towards bisexual men found that stereotypes are common but often not acknowledged as such, underlining bisexual invisibility (Zivony & Lobel, 2014). Specifically, although results indicated little explicit awareness of bisexual stereotypes, during a social evaluation task, participants nevertheless evaluated bisexual men as less trustworthy, more confused, more open to new experiences, and less inclined to and able to maintain monogamous and long-term relationships than gay and heterosexual men. Some of the hypothesized reasons for these stereotypes will be explored in the next sections of this review.

This paper will discuss different aspects of bisexuality, namely its prevalence, its history in sexology and psychology, bisexuality and epistemology, its definition and measurement in research, bisexuality and mental health, and potential risk and resilience factors associated with the mental health of bisexual individuals, with the ultimate goal of uncovering future research directions in the study of bisexuality, mainly among women.

Prevalence of bisexuality

Though marginalized, bisexuality indubitably exists. In November 2013, findings from the third British National Survey of Sexual Attitudes and Lifestyles (NATSAL) were published in the *Lancet* (Mercer et al., 2013; Wellings & Johnson, 2013). An article about the results was published in the *Independent* under the headline "The truth about women and sex: They start younger and have more partners – and those are not necessarily men" (Connor, 2013). One of the main findings of the survey is that the percentage of same-sex experiences has increased dramatically for women but not for men, from 4 percent in 1990 (Johnson, Wadsworth, Wellings, & Field, 1994; Wellings, Field, Johnson, & Wadsworth, 1994) to 16 percent currently (for women between the ages of 16 and 44). In response to this four-fold increase and whether it may be an artefact of the survey, Professor Wellings stated:

> I think it's too big to be simply an artefact of reporting. We can see signs in the media that there have been changes in the representation of women. There have been celebrities who have apparently embraced same-sex experiences. We do see women kissing together and so

on (http://www.independent.co.uk/news/science/the-truth-about-women-and-sex--they-start-younger-and-have-more-partners--and-those-are-not-necessarily-men-8962997.html).

Although 16 percent of women reported ever having had a same-sex sexual experience (eight percent for genital contact), only 1.4 percent of the total sample (ages 16-74 years) self-identified as bisexual, underlining how behaviour and identification may not necessarily overlap (the different dimensions of bisexuality are addressed below). However, this percentage is still above the number of people that identified as gay/lesbian, which was one percent. In short, bisexuality may be more common among women than homosexuality, a finding also supported by the American National Survey of Sexual Health and Behavior (NSSHB), which found that 3.6 percent of women between the ages of 18-92 identified as bisexual while 0.9 percent identified as homosexual (Herbenick et al., 2010b). This echoed findings from two decades ago showing that sexual-minority women may experience attractions to both sexes and that non-exclusive attractions may be more common than exclusive same-sex attractions (Laumann et al., 1994). In short, major sexuality studies have revealed that the prevalence of bisexuality is higher than the prevalence of homosexuality, which has led some to conclude that "bisexual invisibility is not a reflection of the fact that there are fewer bisexuals than there are homosexuals in the population, but is rather a product of social erasure" (Suresha & Alexander, 2008; Yoshino, 2000).

Past theories have argued that female sexuality may be relatively fluid (Baumeister, 2000; Diamond, 2008b). For instance, Baumeister (2000) has depicted "female sexuality […] as fairly malleable and mutable: It is responsive to culture, learning, and social circumstances. The plasticity of the female sex drive offers greater capacity to adapt to changing external circumstances as well as an opportunity for culture to exert a controlling influence" (p. 347). Of note, Professor Wellings echoed Baumeister's theory when responding to the question of why there has been a four-fold increase in same-sex experiences among women in Britain from 1990 to 2013; as a possible explanation she pointed to the rise in the media's depictions of female same-sex experiences.

Diamond's ten-year longitudinal study of approximately 80 sexual-minority women also supports the notion of female sexual fluidity (Diamond, 2008a, 2008b). For instance, in her two-year follow-up interviews, she found that half of her participants had changed sexual identity labels more than once since the original interview (Diamond, 2000). Although her

research has underlined how sexual identity labels may change over time, her data nevertheless demonstrate that sexual minority women tend to have a relatively stable distribution of same-sex to other-sex attractions, at least over a ten-year period. She has given credibility to bisexuality as a stable sexual orientation by documenting that, although bisexual and unlabeled women may have greater absolute fluctuations in their attractions over time than lesbian women do, their average percentage of same-sex to other-sex attractions do not change over time (Diamond, 2008a). Diamond's work also supports other research indicating that bisexuality may be more common among women than exclusive homosexuality; she has said that bisexuals "represent the vast majority of individuals [females] with same-sex attractions" (Andre, 2012). In sum, there is research to support the existence of bisexuality as a sexual orientation among women; survey data indicate more women may be bisexual than heterosexual, and theories and research exist in support of female sexual fluidity. Further, two of the most influential scientists in the history of psychology and sexuality, namely Sigmund Freud and Alfred Kinsey, both argued for the existence of bisexuality (more on that shortly) (Freud, 1937; Kinsey et al., 1948; Kinsey et al., 1953). Yet, bisexuality is marginalized by society and has been relatively ignored by psychological science up until recently (Barker et al., 2012; Diamond, 2008a; Eliason & Elia, 2011; Kaestle & Ivory, 2012; Rust, 2000b; van Anders, 2012). How is this possible?

History of bisexuality

Julius Caesar carried on so much and so publicly that Gaius Scribonius Curio, another Roman consul referred to him as "every woman's man and every man's woman"

- Suetonius, *The Lives of the First Twelve Caesars* (Suetonius, 2010)

The concept of bisexuality is certainly not new. Our current conceptualizations date to the early establishment of a science of human sexuality, around the middle of the 19th century (Gooß, 2008; MacDowall, 2009; Rust, 1992; Rust, 2000a; Rust, 2002). Rust (2000a) writes that: "The late-nineteenth-century shift toward viewing women and men as eroticized individuals produced not only lesbians and heterosexual women, but also the possibility of conceptualizing bisexuality as a combination of lesbianism and heterosexuality" (p. 206). However, as she points out, the very fact that men and women were understood as opposite sexual beings also implied that one could not be attracted to both at the same time because:

> …if men and women are "opposite" genders, then attractions toward women and men must also be opposite attractions that cannot coexist simultaneously within a single individual. If one is attracted to a man, how can one simultaneously be attracted to a woman who is everything a man is not and nothing that he is? (p. 206)

In short, if people are either male or female, then sexual relationships are between either men or women, and thereby either heterosexual or homosexual (Rust, 2000b). This dichotomous view of sexuality is well represented by the *New York Post* cartoon discussed in the introduction to this paper. Further, the fact that sexual orientation has, traditionally, been constructed as binary is related to the stereotype of bisexuality as a transitional phase or a confused state of sexual being (Rust, 2002).

During the emergence of psychoanalysis, it was assumed that bisexuality was constitutional. In *Analysis Terminable and Interminable*, Freud (1937) wrote that:

> It is well known that at all times there have been, as there still are, human beings who can take as their sexual objects persons of either sex and that the one orientation is no impediment to the other. We call these people bisexual and accept the fact of their existence without wondering much at it. (p. 396)

However, despite Freud's theory that humans are innately bisexual, American psychoanalysts broke away from this view and conceptualized homosexuality as an illness to be cured (Herek and Garnets, 2007) - and, consequently, looked for biological explanations to explain this deviation from normality (Garber, 2000). For example, in 1940, in a paper presented at the Annual Meeting of the American Psychiatric Association, Rado concluded "It is imperative to supplant the deceptive concept of bisexuality with a psychological theory based on firmer biological foundations. Reconstructive work of this nature is more than an invitation; it is a scientific obligation for psychoanalysis" (p. 467).

In short, scientists were attempting to find biological causes of sexuality, looking for the "essential" homosexual and the "essential heterosexual" and by the mid 1950s bisexuality was reduced to "a state that has no existence beyond the word itself" (Bergler, 1956).

In 1948, Kinsey and colleagues summarized what had, up until then, been the predominant idea concerning sexual orientation (Kinsey, Pomeroy, & Martin, 1948):

> Concerning patterns of sexual behavior, a great deal of the thinking done by scientists and laymen alike stems from the assumption that there are persons who are "heterosexual" and

> persons who are "homosexual," that these two types represent antitheses in the sexual world, and that there is only an insignificant class of "bisexuals" who occupy an intermediate position between the other groups. It is implied that every individual is innately-inherently-either heterosexual or homosexual. It is further implied that from the time of birth one is fated to be one thing or the other, and that there is little chance for one to change his pattern in the course of a lifetime. (p. 637)

However, Kinsey and colleagues' groundbreaking studies of human sexuality (Kinsey et al., 1948; Kinsey et al., 1953), documented a continuum of sexual orientation. Their creation of the seven-point Kinsey Scale was meant to be a reflection of the now famous quote, "The world is not to be divided into sheep and goats" (Kinsey et al., 1948, p. 639). However, despite their research indicating heterosexuals and homosexuals may not constitute a "natural" sexual dichotomy, bisexuality continued to be ignored as a topic of study. Further, the following quote from Kinsey and colleagues' 1953 volume on female sexuality appears to have been taken as valid for decades, regardless of the evidence refuting a dichotomy of sexual orientation:

> That there are individuals who react psychologically to both females and males, and who have overt sexual relations with both females and males in the course of their lives, or in any single period of their lives, is a fact of which many persons are unaware; and many of those who are academically aware of it still fail to comprehend the realities of the situation. It is characteristic of the human mind that it tries to dichotomize in its classification of phenomena. Things either are so, or they are not so. Sexual behavior is either normal or abnormal, socially acceptable or unacceptable, heterosexual or homosexual; and many persons do not want to believe that there are gradations in these matters from one to the other extreme." (p. 469)

Thus, one hypothesized reason for the historic Western neglect of bisexuality is the simplicity of using dichotomous categories of sexual orientation.

Bisexuality and Epistemology

In the scientific domain there is ample evidence documenting that bisexuality has been relatively ignored by psychology, not only empirically, but also structurally (Eliason & Elia, 2011). Prior to the launch of the *Journal of Bisexuality* (2000), most of the writing on bisexuality was pursued by academics in the field of sociology or literary studies. For instance, Marjorie Garber, the author of *Bisexuality and the Eroticism of Everyday Life* (2000), is a Professor of

English, while Paula C. Rust, famous for *Bisexuality and the Challenge to Lesbian Politics: Sex, Loyalty, and Revolution* (1995), is a Professor of Sociology. The first international research conference on bisexuality only took place in 2010, and bisexuality research guidelines were first published in 2012 (Barker et al., 2012; van Anders, 2012). The lack of psychological science devoted to the study of bisexuality has been made evident by several researchers in psychology. For instance, in 2008, Diamond wrote:

> Between 1975 and 1985, only 3% of the journal articles published on same-sex sexuality specifically included the word *bisexual* or *bisexuality* in the title, abstract, or subject headings. Between 1985 and 1995, this figure increased to 16%, reflecting the emerging acknowledgment of bisexuality as a legitimate sexual identity. In the past 10 years, however, that percentage has climbed only 3 more percentage points, demonstrating that the empirical underrepresentation of bisexuality persists. (2008b, p. 5)

Overall, limited scholarly attention has been dedicated to bisexuality and mental health (Kaestle & Ivory, 2012). The number of articles specifically discussing the mental health of bisexuals is "minuscule" in comparison to articles addressing sexual orientation and mental health more broadly (Dodge & Sandfort, 2007). Bisexual individuals are either excluded from sexual minority studies altogether [a practice linked to scientists' preference for "conceptual" and "methodological" clarity (Rust, 2000b)], or are lumped together with homosexual or heterosexual participants (Barker et al., 2008; Barker et al., 2012; Kaestle & Ivory, 2012; Pallotta-Chiarolli & Martin, 2009; Rust, 2000b; Rust, 2002; van Anders, 2012; Volpp, 2010). For example, a PubMed analysis of articles listed on bisexual health showed less than 20 percent of the articles discussing bisexuality included bisexuals as a distinct group (Kaestle & Ivory, 2012). Indicatively, bisexuals tended to be "mentioned in passing or bundled in as indistinguishable parts of the gay and lesbian community" (Kaestle & Ivory, 2012, p. 43), further underscoring bisexuality's imposed invisibility in scientific psychology.

As scientists, psychologists are trained to remain value-neutral and to abide by rules of empiricism when interpreting data (van Anders, 2012). But they do not live in a social vacuum. In their comment accompanying the latest NATSAL finding, Wellings and Johnson (2013) write that, "Just as sexual behavior is shaped by its social and historical context, so too is research in this specialty" (p. 1). One potent example of how societal values and psychology influence one another is found in the way that homosexuality has evolved from being considered an

abomination and a mental disorder to being protected by legislation in numerous countries (as indicated by anti-discrimination policies and equal marriage rights). Herek and Garnets (2007) write: "Although sexual stigma has long been expressed through cultural institutions such as the law and religion, much of its legitimacy during the past century derived from homosexuality's status as a psychopathology" (p. 354). Psychology has evolved from legitimizing discrimination against homosexuality (Herek, 2010), to becoming an ally and an advocate for policies protective of LGBT rights (APA, "APA advocates help LGBT legislation pass", 2013). In short, trends in psychology reflect the prevailing social structure and vice versa.

It has been argued that the stigmatized history of homosexuality as a mental disorder is related to the invisibility of bisexuality (Bradford, 2004; Erickson-Schroth & Mitchell, 2009; Yoshino, 2000). At least up until 1973, when the American Psychiatric Association's Board of Directors voted to remove homosexuality as a mental disorder, homosexuality was part of a dichotomy of sexuality wherein heterosexuality was understood as standard and normal whereas homosexuality was portrayed as deviant and abnormal (Bradford, 2004). Much attention was devoted to assessing why some people are heterosexual and others are homosexual (often understood as an anomaly to be corrected). This quest, in turn, crystallized the dichotomy of sexual preference (Weinberg et al., 1994). Furthermore, homosexuality's history of stigma and marginalization led to gay advocates' political and social agenda, but also to the *de facto* exclusion of bisexual visibility. Erickson-Schroth and Mitchell point out (2009):

> The desires and the existence of bisexuals are erased from view and subsequently reconfigured to fit within our comfortable—and comfortably narrow—homo–heterosexual binary, even by others within the queer community, many of whom are intent on normalizing homosexuality as a conservative, family-oriented identity no different from traditional heterosexuality. Bisexuality is fundamentally unsettling to the hegemonic institution of heterosexuality and its queer counterpoint, homosexuality, and is therefore ultimately ignored by both." (p. 298)

Part of the agenda of the gay sexual liberation movement has been to show how homosexuality is biological and therefore unchangeable (Yoshino, 2000). In a now famous 1935 letter to the mother of a homosexual son, Freud wrote: "By asking me if I can help, you mean, I suppose, if I can abolish homosexuality and make normal heterosexuality take its place. The answer is, in a general way, we cannot promise to achieve this" (Freud, 1951, p. 786).

Despite Freud's contention, many North American psychiatrists, physicians, psychologists, and religious fundamentalists attempted to convert homosexuals into heterosexuals by methods such as psychotherapy, hormone treatment, electroshock, and even castration (Herek, 2010). These methods were shown to be ineffective and, fortunately, the American Psychological Association issued position statements against their use (Anton, 2010). In light of gay history's trauma related to conversion therapy efforts, it is understandable that bisexuality may be perceived as a threat against the establishment of homosexuality as a stable and natural variation of sexual orientation, unrelated to choice. As Lady Gaga, gay rights advocate, sings, "I'm on the right track, baby, I was born this way."

Although science has not yet uncovered the etiology of sexual orientation as exclusively biological or environmental, or as a combination of the two, physiological studies have nevertheless been used to delegitimize bisexuality. For instance, in 2005, a much discussed article was published in *Psychological Science* (Rieger, Chivers, & Bailey, 2005), which stated that "Indeed, with respect to sexual arousal and attraction, it remains to be shown that male bisexuality exists" (p. 582). By now, other studies have found that bisexual males actually do show bisexual arousal patterns (Cerny & Janssen, 2011; Rosenthal, Sylva, Saffron, & Bailey, 2011; Rosenthal, Sylva, Safron, & Bailey, 2012) and the original interpretation of the 2005 findings have been modified. The methodology used by Rieger and colleagues (2005) were criticized for the type of erotic stimuli used, which included videos of men having sex with men and women having sex with women but not videos of men having sex with men and women simultaneously (Cerny and Janssen, 2011). Further, their recruitment strategy, which included advertisements in gay-oriented magazines and one alternative newspaper, was deemed as potentially flawed because the researchers did not ascertain whether their bisexual participants behaved bisexually (Rosenthal, Sylva, Saffron, & Bailey, 2011). Addressing this criticism, the study by Rosenthal and colleagues (2011) employed more stringent inclusion criteria for the male bisexual participants, namely requiring both romantic and sexual experience with both sexes. In contrast to the 2005 study, results were in support of a male bisexual arousal pattern. The power of physiological research in the male bisexuality debate is outlined in a recent New York Times article, *The Scientific Quest to Prove Bisexuality Exists* (Denizet-Lewis, 2014). Part of this article features how, following the controversial 2005 results, Bailey and members of the American Institute of Bisexuality (AIB) joined forces in order to investigate male bisexuality.

Bailey, considered a foe by many bisexual activists due to the findings of the 2005 study, and the AIB, considered hypocritical by collaborating with Bailey, got "vindicated" when the results of the 2011 study supported a male bisexual arousal pattern. Thus, biological explanations can be used to delegitimize or legitimize bisexuality depending on the interpretation of results. This of course can depend critically on the methodology used and how bisexuality is conceptualized in research (see below).

Physiological studies of sexual arousal have not typically included bisexual women. As previously pointed out, female sexuality appears to be more fluid in females than in males, and it has been documented that the concordance between self-reported sexual orientation and genital responses is lower in women than it is in men (Chivers et al., 2010). In opposition to men's category-specific sexual arousal patterns (meaning their sexual arousal is highest to sexual stimuli featuring the category they state they are most attracted to), women's sexual arousal patters tend to be non-category specific (Bailey, 2009). In short, women are inclined towards displaying bisexual patterns of genital arousal. In response to the NATSAL findings previously discussed, Chivers, one of the world's top researchers in the field of female sexual arousal, stated in an interview that "Women have a greater capacity for gender-fluid sexual expression than men do. This might relate to women's capacity to become sexually aroused by a broader range of sexual stimuli, including images of women" (Clark-Flory, 2013). The fact that the average correspondence between genital arousal and self-reported sexual orientation is low among women [lesbian women may be an exception (Chivers et al., 2004; Chivers et al., 2007)] has led to a debate about whether women even have a sexual orientation, at least when it is defined as a non-socially constrained reflection of arousal, desire, fantasy, and attraction (Bailey, 2009). If most women have the capacity to be sexually attracted to both men and women, then why do most women not define themselves as bisexual? Bailey (2009) suggested that one answer may lie in socialization pressures, which "mold" women into leading predominantly heterosexual lives and thus defining themselves accordingly (p. 60). This theory appears to be supported by the latest NATSAL findings, which show a four-fold increase in female same-sex behavior since 1990, hypothesized to be a reflection of increased media depictions and social acceptance of lesbianism (Wellings & Johnson, 2013). However, as previously noted, female bisexuality is still stigmatized, and bisexual women tend to have poorer mental health than their heterosexual and homosexual counterparts (see below). If male bisexuality has been previously questioned by

sexual arousal studies, why has female bisexuality not been legitimized by the same kind of psychophysiological data?

In fact, female bisexuality has been either passively ignored or actively discredited despite a wealth of psychophysiological data showing that vaginal blood flow increases to a wide variety of stimuli (e. g., Bailey, 2009; Chivers & Bailey, 2005; Chivers et al., 2010). Considering that, in science, there is often a preference given to essentialist and biological explanations of sexual desire (Diamond & Butterworth, 2008; Diamond, 2003b; van Anders, 2012), it is interesting that descriptions and causes of female sexuality tend to be made and identified, respectively, by social-constructionist theories rather than by biological ones. However, this might be explained by the fact that male models of sexual orientation may not be applicable to women (Mustanski, Chivers, & Bailey, 2002). As pointed out by Chivers et al. (2010), "a woman's genital responding might reveal little about her sexual interests" (p. 48). In short, attempting to predict a woman's sexual desire or behavior from her sexual arousal pattern(s) may be relatively futile. The fact that genital responding is quite indiscriminate among women means that it would not be very useful to call on genital physiological measures as evidence for female bisexuality as a distinct sexual orientation. It is worth noting that biological explanations of sexual orientation may be prevalent because most of the research is conducted in men only, for whom the notion that sexual arousal (erection) reflects sexual interest as an early developing trait that is considered stable over the lifetime, and one that is more accurate for men than for women (Baumeister, 2000; Mustanski, Kuper, & Greene, 2014; Mustanski et al., 2002).

As previously stated, homosexuals may well have a vested legal interest in showing that their sexuality is innate and therefore unchangeable. Therefore, for lesbians the observation that many women show indiscriminate genital responding may be unsettling to their agenda of showing that lesbianism is innate and different from heterosexuality. Further, the fact that self-defined lesbians tend to show higher concordance between their stated sexual orientation and genital arousal than other women (Chivers et al., 2004; Chivers et al., 2007) could potentially be taken as evidence for "real" constitutional lesbianism relative to other women who "choose" to engage in homosexual behavior but who do not self-identify as lesbians. One of the stereotypes surrounding female bisexuality is that they are in denial or their "true" sexuality while another is that they are sexually promiscuous individuals who are experimenting with both males and females, unable to be monogamous and unwilling to make a sexual choice (Rust, 2000a; Rust,

2002). As pointed out by Yoshino (2000), monosexual individuals are interested in "stabilizing" sexual orientation:

> The first investment monosexuals have in bisexual erasure is an interest in stabilizing sexual orientation. The component of that interest shared by both straights and gays is an interest in knowing one's place in the social order: both straights and gays value this knowledge because it relieves them of the anxiety of identity interrogation. Straights have a more specific interest in ensuring the stability of heterosexuality because that identity is privileged. Less intuitively, gays also have a specific interest in guarding the stability of homosexuality, insofar as they view that stability as the predicate for the "immutability defense" or for effective political mobilization. Bisexuality threatens all of these interests because it precludes both straights and gays from "proving" that they are either straight or gay. This is because straights (for example) can only prove that they are straight by adducing evidence of cross-sex desire. (They cannot adduce evidence of the absence of same-sex desire, as it is impossible to prove a negative.) But this means that straights can never definitively prove that they are straight in a world in which bisexuals exist, as the individual who adduces cross-sex desire could be either straight or bisexual, and there is no definitive way to arbitrate between those two possibilities. Bisexuality is thus threatening to all monosexuals because it makes it impossible to prove a monosexual identity." (p. 362)

Thus, one hypothesis for the imposed invisibility of female bisexuality may be related to lesbians' desire to establish their sexuality as essential.

Paradoxically, although lesbians may be interested in demonstrating that their sexual orientation is constitutional and unrelated to choice, during the rise of political lesbianism and radical feminism in the 1970s, some women "chose" to be lesbian (referred to as political/chosen lesbians) (Baumeister, 2000; Diamond & Wallen, 2011). In his review of female sexuality, Baumeister (2000) refers to several studies showing that some women define themselves as lesbian for political rather than for sexual reasons. It appears lesbian feminists could ascribe to a role for choice in sexual orientation, as long as that choice meant homosexual. Yoshino (2000) has posited that one of the reasons for bisexual erasure is "an interest in retaining the importance of sex as a distinguishing trait in society" (p. 362). He argues sex as a defining characteristic is important for homosexuals who have an interest in creating single-sex communities that are bonded together erotically, sexually, and politically. During the flourish of lesbian-feminist

communities in the 1970s, sex was of the utmost importance as one of their main goals was to challenge male oppression. One of the ways to achieve this goal was to assert lesbianism was feminism (Rust, 1995, 2002). Lesbian feminists have accused bisexual women of conniving with the [male] enemy because they refuse an exclusively Sapphic sexuality. This is interpreted as a commitment to the patriarchy (Israel & Mohr, 2004; McLean, 2011). It has also been argued that some lesbians think that women who define themselves as bisexual do so in order to maintain a "privileged position in a heterosexist society", and thus do not fulfill their obligation to the lesbian community (Rust, 1993).

Not only has bisexuality been largely rejected by the scientific school of thought which traditionally espouses a strictly binary concept of heterosexuality and homosexuality, but also by those, such as queer theorists, who rebel against biological or essentialist categories. Callis (2009) and MacDowall (2009) note that bisexuality has not been significantly present in queer theory and discourse (Callis, 2009; MacDowall, 2009) The main premise of queer theory is that gender (male versus female) and sexual orientation (heterosexual versus homosexual) are social constructs rather than a reflection of essential sexual types (Butler, 1990; Foucault, 1978; Seidman, 1994). In short, queer theory critiques how gender and sexual orientation were devised as dichotomous around the late 19th century (as discussed by Rust, 2000a, 2002). And yet, "Scholars writing on the topic of bisexual identity frequently lament the lack of bisexual representation in works of queer theorists" (Callis, 2009, p. 213). Callis (2009) further observes that "authors such as Michel Foucault, Judith Butler, Diana Fuss and Eve Sedgwick, all bypassed bisexuality as a topic of inquiry even while writing against binary, biological models of gender and sexuality" (p. 213). By queer theorists undoing gender, the notion of *cis*-gendered bisexuality may have gotten lost amongst a multitude of posited genders, making it the historical blind spot of sexual theory, unseen from the birth of modern sexuality around the middle to late 19th century until the present day.

In conclusion, the imposed invisibility of female bisexuality is related to Western society's preference towards dichotomous categories of gender and sexual orientation, the gay movement's agenda of establishing homosexuality as constitutional and separate from heterosexuality, feminist lesbians' fight against male patriarchy, and queer theorists' neglect of including bisexuality in their discourse.

Defining and Measuring Bisexuality

Before addressing research on bisexuality and mental health, it is important to define what "bisexual" means. Does bisexuality mean sexual attraction to both males and females, romantic attraction to both males and females, sexual behaviour with both males and females (lifetime or presently), sexual fantasies about males and females, self-identifying as bisexual, or any combination of the above? What about individuals who have attractions to both men and women but do not label themselves? In November 2013, Olympic diver Tom Daley released a YouTube video in which he said he "still fancies girls" even if he currently has a boyfriend. That same month, actress Maria Bello, who has previously only publicly been in relationships with men, wrote a column in the *New York Times* where she shared she is romantically involved with a woman. Neither Daley nor Bello said they are bisexual (Lowder, 2013).

Currently, there is no clear answer to how bisexuality is best defined. However, it is conceivable research results on bisexuality and mental health may differ depending on which dimension(s) of bisexuality are used (Bostwick et al., 2010b; Diamond, 2003; Mayer et al., 2008; McCabe et al., 2012; Savin-Williams, 2006, 2009). Therefore, it is important to outline how bisexuality has been typically classified in the research literature and how it may be best categorized in future studies.

In general, research on sexual orientation has been faced with a definitional problem (Diamond, 2003b; Mustanski et al., 2002; Savin-Williams, 2006; Sell, 1997). As pointed out by Mustanski and colleagues (2002), "one obstacle in research on sexual orientation is a lack of consensus on the definition of sexual orientation and in methods used to operationalize this construct" (p. 122). Thus, the question of how to define bisexuality is not unique and applies to how sexual orientation, generally, is most accurately classified.

In the broadest sense, sexual orientation has been conceptualized as an individual's predisposition to experience attractions to the same sex, the other sex, or to both sexes (Bell, Weinberg, & Hammersmith, 1981; LeVay & Valente, 2006; Money, 1988). Bailey (2009) has written: "The term sexual orientation connotes a mechanism, analogous to a compass, that directs our sexuality (p. 44). In general, sexual orientation is considered a reflection of sexual feelings, independent of social constraints. In Bailey's (2009) definition, sexual orientation is also described in terms of sexual arousal, desire, fantasy, and attraction. Although Bailey (2009) separates sexual orientation from sexual behaviour and sexual identity, other researchers have

conceptualized sexual orientation as a multidimensional construct that includes cognitive (identity), behavioural, and affective (attraction and desire) components (Laumann et al., 1994). For example, Savin-Williams (2009) has defined sexual orientation as "the preponderance of erotic and romantic arousals, feelings, fantasies, and behaviors one has for males, females, or both" (p. 8) and argues sexual orientation can be measured by four dimensions, namely sexual attraction, romantic attraction, sexual behaviour, and sexual identity. Although it has been found that these dimensions of sexual orientation may correlate with one another, they do not necessarily overlap or consistently predict each other (Diamond, 2008b; Lhomond et al., 2013; Savin-Williams, 2006, 2009). For instance, an individual may define herself as bisexual without ever having had sex with both males and females. Even though, historically, it has been assumed that sexual and romantic attraction overlap with each other, there is research suggesting this may not necessarily be the case (Diamond, 2003). Further, defining sexual orientation as an essentialist predisposition is problematic because this model does not allow for change in an individual's attractions over time (Diamond, 2007, 2008a).

Typically, researchers have used different components of sexual orientation to classify their participants. As pointed out by Savin-Williams (2006) in his review of research on homosexuality, biological and health science studies have often used sexual behaviour since puberty or in the last year as an indication of sexual orientation while psychological and social science studies have often used sexual identity as an indicator. For example, many epidemiological studies classify participants based on one question only, namely asking them to choose between a list of sexual orientations, usually heterosexual, homosexual, bisexual, or unsure/don't know/other (Fredriksen-Goldsen et al., 2010; Herbenick et al., 2010b; Jorm et al., 2002). The fact that studies have used different definitions of sexual orientation have led to divergent empirical findings, such as, the prevalence rate of mental health difficulties among sexual minorities (Savin-Williams, 2006, 2009). Further, although sexual orientation has been presumed to consist of various components, which may be measured on a continuum, in practice, researchers have nevertheless often placed individuals into one of three categories, namely, homosexual, heterosexual, or bisexual (Vrangalova & Savin-Williams, 2012). Vrangalova and Savin-Williams (2012) argue:

> These three categories have become so culturally and politically entrenched in contemporary societies that they have achieved the status of ''natural kinds,'' that is, naturally occurring

> rather than socially constructed distinctions. Consequently, individuals are expected to summarize their sexual orientation components as belonging to and consistent with one of these three categories." (p. 85)

Researchers have thus defined sexual orientation differently and there is no clear consensus about how sexual orientation is most adequately measured (Savin-Williams & Vrangalova, 2013). Empirical findings may vary depending on which dimension of sexual orientation is used for classification purposes, and psychological research has favored a categorical approach to sexual orientation even though sexual orientation may be best classified dimensionally.

How has bisexuality been defined and measured? Broadly, bisexuality has been conceptualized as attraction to two genders, males and females (Rust, 2002). In research, the seven-point Kinsey scale has often been used to define bisexuality (van Anders, 2012). To categorize bisexual participants, scientists have been inclined to use the mid-point of the scale, which refers to individuals who are "about equally homosexual and heterosexual in their overt experience and/or their psychic reactions" (Kinsey et al., 1948, p. 641). This approach has been recently criticized because it assumes bisexuality implies an equal proportion of same-sex to other-sex attractions (van Anders, 2012), which may not be the case (Diamond, 2008b; Klein, 1993; Rust, 2000a, 2000; Weinberg et al., 1994). Further, as van Anders (2012) points out, using this mid-point creates a statistical bias because only one of seven options on the scale is bisexual. Although the mid-point has been used to define bisexuality, it should be pointed out that researchers also often create a "bisexual" category by collapsing the three midpoints on the scale. In this paradigm, 0-1 is considered heterosexual, 2-4 is considered bisexual, and 5-6 is considered homosexual (Mustanski et al., 2002). As previously pointed out, this 3-category approach has been criticized because it does not capture the continuous nature of sexual orientation (Savin-Williams & Vrangalova, 2013; Vrangalova & Savin-Williams, 2012). In the last couple of years, it has been proposed that a five-category approach to sexual orientation may be better than a three-category approach because there seems to be individuals who would be best classified as "mostly heterosexual" or "mostly lesbian" (Savin-Williams & Vrangalova, 2013; Vrangalova & Savin-Williams, 2012). Of note, these individuals may have mental health profiles similar to bisexual women (McCabe et al., 2012).

The Kinsey scale has also been denounced as a good measure of bisexuality because it constructs homosexuality and heterosexuality as opposites. Rather, some have theorized that the strength of same-sex versus other-sex attraction may not vary inversely to each other (Shively & De Cecco, 1977), an idea reminiscent of cultural psychology research indicating identification with heritage and mainstream culture may be bidimensional rather than unidimensional (Ryder, Alden, & Paulhus, 2000).

One criticism against the original Kinsey scale was that it did not separate psychological reactions from overt experience (Klein, 1993; Sell, 1997; Weinberg et al., 1994). It should be noted that researchers have since modified the original Kinsey scale to assess fantasy, attraction, and behaviour separately (Sell, 1997). However, it has been argued that fantasy, attraction, and behaviour are also not sufficient measures of sexual orientation (Klein, 1993; Klein, Sepekoff, & Wolf, 1985). In the *Bisexual Option* (1993), Klein suggests seven dimensions most adequately define bisexuality, namely sexual attraction, sexual behaviour, sexual fantasies, emotional preference, heterosexual/homosexual lifestyle, and self-identification. He suggested individuals rate themselves on a 7-point scale for each of these dimensions, for their past, present, and ideal selves. Although comprehensive, Klein's Sexual Orientation Grid has not been much used in research, one of the main reasons being that it is "burdensome and less practical for many research purposes" than assessing fewer dimensions (Sell, 1997, p. 654).

Diamond's ten-year longitudinal study of around 80 sexual minority women has been groundbreaking in terms of gaining a better understanding of female bisexuality. She argues bisexuality may best be interpreted as "a stable pattern of attraction to both sexes in which the *specific balance* (italics in original) of same-sex to other-sex desires necessarily varies according to interpersonal and situational factors" (Diamond, 2008b, p. 12). In brief, Diamond has demonstrated bisexuality is not a transitional phase towards homosexuality or heterosexuality but rather that it may be *both* a "stable sexual orientation" *and* a "heighted capacity for sexual fluidity" (p. 5). Before moving on, it is important to clarify what Diamond means by "sexual fluidity":

> Sexual fluidity, quite simply, means situation-dependent flexibility in women's sexual responsiveness. This flexibility makes it possible for some women to experience desires for either men or women under certain circumstances, regardless of their overall sexual orientation. In other words, though women-like men-appear to be born with distinct sexual

> orientations, these orientations do not provide the last word on their sexual attractions and experiences. (Diamond, 2008a, p. 3)

Further, in her book *Sexual Fluidity: Understanding Women's Love and Desire* (2008a), Diamond separates bisexual identity from bisexual orientation. In her conception, bisexual identity refers to a "woman's self-description and self-presentation" (which is a culturally organized concept of the self) while bisexual orientation refers to "attractions and behaviours pursued with both sexes" (nonexclusive attractions and desires) (p. 13). Further, the most commonly adopted sexual identity in her study was unlabeled, which was a reflection of many sexual-minority women's skepticism towards existing sexual identity labels. Importantly, on average over the ten-years of the study, unlabeled women described their sexual attractions as around 60 percent directed to women, which would fit with a bisexual orientation. In short, researchers should be aware of the fact that many sexual minority women with a bisexual orientation may not choose to define themselves as bisexual. Diamond's findings are of importance because, historically, as bisexually identified women, unlabeled women have often been excluded from research (Diamond, 2008a). It is noteworthy that famous people, such as Tom Daley and Maria Bello, have chosen not to adopt "bisexual" as a label although their desires and attractions may be best classified as bisexual. In short, the difference between bisexual and unlabeled identities may be more a matter of social preference than an essential difference in sexual orientation. In sum, Diamond's research indicates bisexuality is a stable sexual orientation because, over a ten-year period, she found that bisexual and unlabeled women 1) reported lower percentages of same-sex attractions that lesbian identified women, and, 2) their average percentage of same-sex to other-sex attractions did not change over time. However, she also found that bisexual and unlabeled women may have greater erotic plasticity than lesbian women because they "showed larger absolute fluctuations in their attractions from assessment to assessment than did the lesbian women (Diamond, 2008b, p. 12).

Rust, a pioneer in the study of female bisexuality, has found that women who adopt a bisexual identity feel it is important to have both heterosexual and homosexual feelings although those feelings are not necessarily acted upon at the same time (Rust, 1992). Further, she has found that the ratio of homosexual to heterosexual feelings may not be equal; some women who report as much as 90 percent of either exclusive same-sex or exclusive other-sex

feelings may still define themselves as bisexual. Thus, it may be hypothesized that an essential component of bisexuality is the presence of attraction to both males and females but that the ratio of same-sex to other sex-attraction need not be balanced. Further, Rust (1992) has found that bisexually identified women tend to base their identity on feelings rather than on behaviour. Rust's (1992) findings are important because it underlines how studies may potentially misclassify bisexual participants if only a measure of attraction, identity, or behaviour is used. For instance, if studies only use past-year behaviour, they may misidentify a bisexual woman as either heterosexual or homosexual if she is in a monogamous relationship. Very recent research has cautioned against using behavioral data as a measure of bisexuality (Bauer & Brennan, 2013):

> Logically, it makes sense that one would need to report male and female sex partners to be behaviorally classified as bisexual, and that a shorter timeframe would have advantages in reducing recall bias. However, it is unclear how having recent male and female partners ought to figure into conceptual definitions of 'bisexuality.' Outside of survey research projects, bisexuals have not typically been defined as those who have at least one male and one female partner in the most recent 12 months! Moreover, if, within the specified timeframe, heterosexual and homosexual behavior can be classified based on reporting just a single sex partner (of the same or other sex respectively) but bisexual behavior is classified based on reporting a minimum of two partners, then by definition we are classifying 'behaviorally bisexual' to mean having more sexual partners than heterosexual or homosexual participants are defined to have. The shorter the timeframe, the greater the potential bias introduced." (p. 150)

In summary, although there is no clear consensus in research about how to best define sexual orientation, generally, or bisexuality, specifically, some tentative conclusions may be drawn. First, sexual orientation tends to be conceived as a combination of several dimensions, usually sexual attraction, romantic attraction, fantasy, sexual identity, and sexual behaviour. Second, the different aspects of sexual orientation may not necessarily overlap or predict each other. Third, depending on which dimension of sexual orientation is used, research may draw different conclusions about, for example, the prevalence rate of mental disorders among sexual minorities. Fourth, although sexual orientation may be best conceived as a continuum, researchers have been inclined to use categorical classifications, often heterosexual, bisexual,

or homosexual. Fifth, female bisexuality appears to represent *both* a stable sexual orientation *and* a capacity for erotic plasticity. Sixth, women who define themselves as unlabeled tend to experience attractions to both males and females. Seventh, women who define themselves as bisexual tend to do so because they experience attractions to both males and females although the ratio of same-sex to other-sex attractions need not be equal. Eight, sexual behaviour may be a poor indication of female bisexuality as many women who define themselves as bisexual may not be sexually involved with both males and females. In light of these conclusions, an important future research direction in the study of female bisexuality and health is to assess how outcomes may vary as a function of how bisexuality is defined.

Bisexual Mental Health

Although bisexuality has been relatively ignored until recently as a topic of empirical research, the last decade has seen an upsurge in articles devoted to bisexuality and mental health (Schick & Dodge, 2012). Why?

The first mental health community survey analyzing bisexuals as a group separate from homosexuals and heterosexuals was published in 2002 (Jorm et al., 2002). The results of this study demonstrated the bisexual group scored the highest on measures of anxiety, depression, and negative affect. Bisexuals also reported more current adverse life events, greater childhood adversity, less positive support from family, more negative support from friends and a higher frequency of financial problems. In comparison to the heterosexual group, both homosexuals and bisexuals reported higher levels of suicidality. The findings from this survey were groundbreaking because they indicated there might be important mental health disparities between bisexual and homosexual participants. Further, the results underlined how past epidemiological research may have masked psychopathology among bisexuals while exaggerating it among homosexuals by not analyzing these two groups separately. By now, research guidelines have been published recommending that different sexual minority groups not get lumped together (Barker et al., 2012; van Anders, 2012), and a US Institute of Medicine report (2011) has highlighted how these different groups represent unique populations with distinct health concerns. As van Anders writes (2012) “treating bisexuality as a distinct sexuality makes for good science unless there is some compelling scientific justification to do otherwise” (p. 398).

The paradigm shift in the last decade in terms of treating bisexuals as a distinct group has uncovered that bisexuality appears to be associated with elevated mental health distress. Jorm and colleagues' seminal findings have been replicated multiple times, and, by now, it has been demonstrated bisexual individuals appear to have poorer mental and physical health, higher rates of substance abuse, higher risk of suicidality, more adverse life events, and face more barriers to health care than both heterosexual and homosexual individuals (e. g., Alvy et al., 2013; Bolton & Sareen, 2011a; Bostwick et al., 2010a; Bostwick et al., 2007; Dodge & Sandfort, 2007; Fredriksen-Goldsen et al., 2013; Fredriksen-Goldsen et al., 2010; Hughes, L. A. Szalacha, et al., 2010; Kerr et al., 2013; King & Nazareth, 2006; McCabe et al., 2010; McCabe et al., 2009; McCabe et al., 2013; Ross et al., 2010; Steele et al., 2009). For instance, one recent survey, including self-identified heterosexual, lesbian, and bisexual female college students, found that bisexual women reported "the worst mental health status in all areas studied including anxiety, anger, depressive symptoms, self-injury, and suicidal ideation and attempts" (Kerr et al., 2013, p. 185). In conclusion, bisexual women face mental health disparities. However, although it is quite established by now that bisexual women appear to be suffering in comparison to their lesbian and heterosexual counterparts, few theories exist as to why that is the case.

Etiology of Bisexual Mental Health: Potential Risk and Resilience Factors

Considering that research specifically devoted to bisexual mental health spans mostly over the last decade, it is not surprising there is a lack of etiological theories relevant to bisexuality and psychological distress. As a companion volume to a special section on bisexuality among Black and Latino men in the *Archives of Sexual Behaviour* (2008, volume 37, edited by Sandfort & Dodge), the *Journal of Bisexuality*, in 2012, devoted a whole issue to the topic of bisexuality and health. In the introduction to this special issue, the authors write that most hypotheses pertinent to bisexual mental health have focused "on risk behaviors predating bisexual behaviour, or risk behaviors occurring in response to discrimination that bisexual men/women experienced as a result of their bisexual behaviour/identity" (Schick & Dodge, 2012). The history section of this paper has pointed out the stigma and stereotypes surrounding bisexuality, and it is understandable many researchers have argued biphobia may be the main predictor of negative mental health outcomes among bisexual individuals. However, as Schick and Dodge argue (2012), it may be time for researchers to move away from treating bisexuals as one homogenous group and start investigating, in greater detail, within-group differences. It is

conceivable biphobia may affect dissimilar groups of bisexuals differently. For example, bisexual community support may protect against experiences of discrimination. Further, it is possible that disparate dimensions of bisexuality may differently predict mental health. For instance, endorsing a bisexual identity may be more predictive of poor mental health than engaging in bisexual behaviour without identifying as bisexual. Finally, there is potential danger in treating bisexuals as one homogenous group at risk for negative mental health outcomes because this approach may reinforce stigmatization against bisexuality (Schick & Dodge, 2012). Van Anders (2012) has pointed out:

> There is a tension between not ignoring a group and not 'exoticizing' it (basically, not treating it like some sort of spectacle). Bisexuality is a common sexual orientation, and deserves our scientific attention because it exists; locating bisexuality in the broad spectrum of sexual diversity helps us to remember that every scientific phenomenon has unique and analogous qualities at the same time. (p. 398)

Keeping in mind the potential limitations of treating bisexual women as one homogenous group, some research findings and theories relevant to their mental health will be discussed.

As previously pointed out, the stigma and discrimination affecting the bisexual community has been identified as a possible risk factor for adverse mental health outcomes. This theory is grounded in the minority-stress model developed by Meyer (Meyer, 1995, 2003, 2007, 2013). The main premise of this model is that "stigma, prejudice, and discrimination create a hostile and stressful social environment that causes mental health problems" (Meyer, 2003, p. 674). Qualitative research has given credence to minority stress as a predictor of bisexual mental health because it has been found bisexual individuals link discrimination (biphobia and monosexism) to psychological distress (Ross et al., 2010). Recent quantitative research has uncovered that experiences of bisexual stigma is associated with symptoms of depression (Bostwick, 2012), further underlining the validity of the minority stress hypothesis. Further, indirect evidence for bisexual minority stress comes from research indicating bisexual women feel they have lower community connection and lower levels of self-disclosure than lesbian women do (Balsam & Mohr, 2007). In conclusion, one hypothesis is that there is a positive association between bisexual minority stress and psychological distress. Future studies may explore this theory further by including variables

such as openness about sexual orientation, being bisexual in a liberal setting versus in a conservative setting, partner characteristics of bisexual women (e. g. acceptance and understanding of bisexuality), and degree of internalized biphobia.

In addition to minority stress, childhood neglect and abuse has been proposed as a potential etiological factor related to mental health distress among bisexual women. It has been found that bisexual women report more childhood neglect than heterosexual, mostly heterosexual, lesbian, and mostly lesbian women (Alvy et al., 2013). Further, a meta-analysis has documented bisexual women report the highest percentage of childhood sexual abuse (Friedman et al., 2011). In addition, female bisexual adults have been found to be at a higher risk of sexual assault than lesbians (Lehavot et al., 2012). Recent data has indicated exposure to victimization and childhood/adolescent adversity may mediate the association between bisexuality and mental health (McLaughlin et al., 2012). In short, there is some data suggesting bisexual women face more lifetime adversity than heterosexual and lesbian women and that this adversity may be related to mental health outcomes. In light of these findings, it is suggested future research further explore the potential link between childhood abuse, sexual assault, and the mental health of bisexual women. For example, the fact that bisexual women have been found to have elevated rates of drug abuse, alcohol abuse, and sexual risk taking may be associated with past sexual victimization rather than with experiences of discrimination.

Finally, it is possible that the mental health of bisexual women is related to concordance between romantic and sexual attractions, identity, and behaviour. As has been previously pointed out, these different dimensions of sexual orientation do not necessarily overlap. There is very limited research pertinent to how non-concordance between these different aspects of sexual orientation may be related to the mental health of bisexual women. One recent study investigating congruence between bisexual behaviour and bisexual identity found that physical, mental, and sexual well- being was higher among women who reported that their sexual behavior over the last month matched their sexual identity (Schick et al., 2012). Specifically, bisexual women endorsed higher arousal and desire when they had been with both male and female sexual partners during the last 30 days. There has only been one other study directly examining the relationship between sexual identity and sexual behaviour congruence and mental health (Ketz & Israel, 2001). This study found that identity-behaviour congruence was not related to

participants' sense of wellbeing. In sum, there is no clear consensus about how bisexual mental health may be related to concordance between the different dimensions of sexual orientation.

Diamond (2003) has proposed that sexual desire may not necessarily overlap with romantic attraction. She writes:

> The evolved processes underlying sexual desire and affectional bonding are functionally independent. As a result, one can "fall in love" without experiencing sexual desire. Second, the processes underlying affectional bonding are not intrinsically oriented toward other-gender or same-gender partners. As a result, individuals can fall in love with partners of either gender, regardless of sexual orientation. Third, the biobehavioral links between love and desire are bidirectional. As a result, individuals can develop novel sexual desires—even desires that contradict their sexual orientations—as a result of falling in love. (p. 173)

Thus, among bisexually identified women it is possible that some may be mostly sexually attracted to males while mostly romantically attracted to women or vice versa. It is also conceivable that for some bisexual women there is zero non-concordance between their sexual and romantic attractions. Finally, some bisexual women may feel they are attracted to "the person" rather than to "the gender" (Diamond, 2008a), implying concordance between sexual and romantic attractions may potentially be less relevant. Previous research has not investigated how romantic and sexual concordance may be related to mental health among bisexual women. Based on cognitive dissonance theory, which postulates that incongruence between cognitions may result in distress (Festinger, 1957), and Diamond's (2003) model of sexual and romantic attractions as potentially separate, it is suggested research investigates how concordance versus non-concordance of sexual and romantic attractions may relate to the mental health of bisexual women.

In sum, the main etiological theories pertinent to mental distress for bisexual women are based on the minority stress hypothesis, lifetime adversity, and degree of congruence between the different dimensions of bisexuality. None of these theories have been explored in great detail. Future models of female bisexuality and mental health should explore, in depth, the potential within-group differences outlined above because this may lead to identifying risk and resilience factors beyond those related to minority stress. Developing better etiological models of which group(s) of bisexual women may be at the highest risk of psychopathology, may, ultimately,

translate into mental health prevention and intervention programs specifically geared towards the most vulnerable bisexual women.

Implications

This review has attempted to provide an in-depth analysis of how female bisexuality has been largely invisible, up until recently, in the field of psychology. One of the implications of this invisibility may be that the mental and physical health needs specific to bisexual women may be relatively unknown. In light of the fact that epidemiological studies (e. g., Herbenick et al., 2010) have uncovered that female bisexuality may be more common that lesbianism, public health campaigns geared towards women's health may benefit from explicitly addressing women with a bisexual or fluid sexuality. For instance, in Canada, research has found that the rate of unmet health care needs is particularly high among bisexual women (Steele et al., 2009), and that mental service providers may hold negative beliefs about bisexuality (Eady, Robinson, & Ross, 2011). As has been previously pointed out, two of the hypothesized reasons for poor mental health among bisexual individuals are negative stereotypes and social stigma. The introduction to this review referred to a study in which it was found that heterosexual men and women appear to negatively stereotype bisexual men without being explicitly aware of doing so (Zivony & Lobel, 2014). In addition, it was found that those who held *less* prejudice were more aware of bisexual male stereotypes. The authors concluded" "Enhancing scientific and social knowledge regarding bisexuality should improve understanding and acceptance of bisexuality as a valid sexual orientation, which should consequently reduce prejudice and social stress experienced by bisexual individuals" (advance online publication). In sum, psychological research may potentially improve bisexual mental health by including it rather than excluding it as a topic of scientific study.

Conclusion

We have reviewed how bisexuality is still stigmatized and discriminated against. It has been argued that the imposed invisibility of bisexuality in psychological science has been influenced by society's preference towards dichotomous sexual orientation categories, the gay movement's agenda to establish homosexuality as constitutional, feminist lesbians' fight against male patriarchy, and queer theorists' neglect of including bisexuality in their discourse, all of which have contributed to the inconceivability of bisexuality. However, during the last decade, research on bisexuality and mental health has increased, mainly due to data indicating bisexual

individuals may face mental health disparities. Despite this scientific ascent, few theories exist as to why bisexuals may face more adversity and suffer more, both physically and mentally, in comparison to their homosexual and heterosexual counterparts. It is uncertain how bisexuality should be most adequately defined and measured in psychological research. Further, it is unclear how separate dimensions of bisexuality may overlap and differently predict mental health outcomes. Finally, little research has investigated bisexual within-group differences. In light of the above conclusions, we contend that it is important for future research to establish how female bisexuality is best defined and measured, how the separate dimensions of female bisexuality may differently predict psychological distress, and how with-in group differences may be related to risk and resilience.

In his seminal paper on the minority stress hypothesis, Meyer (2003) included the following quote from an article by Marmor (1980):

> The basic issue . . . is not whether some or many homosexuals can be found to be neurotically disturbed. In a society like ours where homosexuals are uniformly treated with disparagement or contempt—to say nothing about outright hostility—it would be surprising indeed if substantial numbers of them did *not* suffer from an impaired self-image and some degree of unhappiness with their stigmatized status. It is manifestly unwarranted and inaccurate, however, to attribute such neuroticism, when it exists, to intrinsic aspects of homosexuality itself. (p. 400)

In 2014, it may be valid to replace the word “homosexual” with “bisexual” in the above quote. Currently in North America, homosexuality is becoming increasingly accepted, documented by policies granting, for example, equal marriage rights. However, bisexuality is still stigmatized, made evident by media depictions, such as the one in the *New York Post* referred to at the beginning of this critique. In short, bisexuality has been the blindspot of modern cultural and scientific depictions of sexuality. Hopefully, future research will attempt to fill the void by exploring the lived experiences of bisexual individuals in greater depth than what has been the tradition until recently.

Bridge Between Manuscript I and Manuscript II

Manuscript I, in the form or a literature review and critique, has outlined how the study of female bisexuality has been relatively absent in psychological science. As discussed, due to the "imposed invisibility" of female bisexuality in research, much is to be known about how bisexuality may be best conceptualized and measured. Further, although several studies have documented poorer mental health among bisexual women, overall, in comparison to their heterosexual and lesbian counterparts, little is known about bisexual within-group differences. Research has generally focused on minority stress, in the form of stigma and discrimination, and lifetime adversity, in the form of childhood abuse and neglect and adult sexual victimization. As pointed out in Manuscript I, this focus on mental health disparities may potentially further stigmatize bisexual women. Therefore, there has been a call for researchers to expand their horizons in order to gain a better understanding of not only risk but also of resilience, and of how these factors may differently affect sub-groups of bisexual women (Schick & Dodge, 2012).

Manuscript II attempted to fill some of the aforementioned gaps in the literature by assessing different how different dimensions of sexual orientation, namely identity, behaviour, and attraction (by the Kinsey romantic, sexual, and fantasy scales), overlap among self-identified heterosexual, mostly heterosexual, bisexual, mostly lesbian, and lesbian women. Further, the study provides a descriptive exploration of the sexual and emotional characteristics of bisexual women in comparison to other women. The main goals of this descriptive study were to provide recommendations for how future research should measure female bisexuality and to suggest new hypotheses about mental health risk and resilience factors among bisexual women.

Manuscript II: Women's Experiences of Sexuality and Intimacy: A Descriptive Study of the Sexual and Emotional Characteristics of Bisexual Women Compared to Straight and Lesbian Women

Tonje J. Persson, MSc[1] ● Andrew G. Ryder, PhD[2] ● Maria Kyres[1] ● James G. Pfaus, PhD[1]

[1]Center for Studies in Behavioral Neurobiology, Department of Psychology (SP 244), Concordia University, Montreal, QC, H4B 1R6 CANADA

[2] Culture, Health, and Personality Lab, Department of Psychology (PY 153-2), Concordia University, Montreal, QC, H4B 1R6 CANADA

Abstract

Although research has documented mental health disparities between bisexual and other women, few theories exist as to why bisexual women may be at increased risk of psychopathology. Further, it is unclear how female bisexuality is best defined in research. This study provides a descriptive exploration of the sexual/emotional characteristics of bisexual women in comparison to other women, and suggestions about how to best define female bisexuality. 352 female participants (Mean age = 24.50, *SD* = 6.50) mainly from Montreal, Canada, answered an online confidential survey. 165 self-defined as heterosexual, 43 as mostly heterosexual, 59 as bisexual, 31 as mostly lesbian, 45 as lesbian and 9 as "unsure." Four sexuality measures were included: sexual orientation/identity/behaviour, and the Kinsey scales (sexual, romantic, fantasy). Demographic/sexual/emotional characteristics were measured. Findings indicate: 1) bisexual women should not be grouped into monosexual categories; 2) the Kinsey mid-point may be a poor measure of female bisexuality; 3) categories of "mostly heterosexual" and "mostly lesbian" appear to represent distinct sexual orientations that may have more in common with bisexual than monosexual orientations; 4) there is great overlap between the four sexuality categories for monosexual women; the picture is more complex for the non-monosexual groups; 5) although bisexual women report more sexual and romantic experiences with males than with females, they are equally satisfied with both genders; 6) there may be important differences among bisexual women in how they experience their sexual orientation. These findings suggest new hypotheses about mental health risk and resilience factors among bisexual women.

Keywords: Bisexual women, sexual minority women, sexual orientation, sexual and emotional characteristics, sexual orientation measurement

Introduction

Bisexuality has received increased research attention in recent years (Barker et al., 2012; Bostwick, 2012; Schick & Dodge, 2012; van Anders, 2012). Epidemiological data show that female bisexual individuals tend to report poorer mental health, poorer physical health, more substance abuse, more sexual victimization experiences, higher suicide risk, higher rates of mental health service utilization, and face more health service barriers than their heterosexual and homosexual counterparts (e. g., Bolton & Sareen, 2011b; Bostwick et al., 2010a; Case et al., 2004; Cochran & Mays, 2007; Cochran & Mays, 2009; Cochran, Sullivan, & Mays, 2003; Conron, Mimiaga, & Landers, 2010; Dobinson, Macdonnell, Hampson, Clipsham, & Chow, 2005; Eady, Dobinson, & Ross, 2011; Fredriksen-Goldsen et al., 2010; Hequembourg, Livingston, & Parks, 2013; Hughes et al., 2010; King et al., 2008; Koh & Ross, 2006; McCabe et al., 2009; Steele et al., 2009). The first community survey that separated bisexual participants from homosexual participants found that the bisexual group scored the highest on measures of anxiety, depression, and negative affect (Jorm et al., 2002). A more recent survey found that bisexual women reported more symptoms of anxiety, depression, anger, self-injury, suicidal ideation and attempts compared to both lesbian and heterosexual women (Kerr et al., 2013). In sum, several studies have documented that bisexual women appear to be at increased risk of poor mental health compared to other women.

Few theories exist as to why bisexual women face greater mental health problems. Most studies have explained their findings in terms of the minority stress model (Meyer, 1995, 2003, 2007). This model postulates that, "stigma, prejudice, and discrimination create a hostile and stressful social environment that causes mental health problems" (Meyer, 2003, p. 674). Bisexual individuals may be subjected to biphobia, defined as "prejudice against bisexuality and the denigration of bisexuality as a valid life choice," (Bennet, 1992) which in turn may be associated with a lack of community and social support (Dobinson et al., 2005; McLean, 2008; Pallotta-Chiarolli & Martin, 2009). Biphobia has been linked to a variety of negative stereotypes about bisexuality, such as, bisexuality is a phase, bisexuality does not exist as a sexual identity or sexual orientation, bisexuals are sexually promiscuous, bisexuals must have an equal attraction to men and women, and bisexuals cannot make up their minds about which gender they prefer (Barker & Langdridge, 2008; Barker et al., 2012; Bostwick et al., 2010a; Dobinson et al., 2005; Erickson-Schroth & Mitchell, 2009; Israel & Mohr, 2004; McLean, 2008; Mulick & Wright,

2002; Rust, 1995, 2000a, 2002; van Anders, 2012). For instance, it has been found that heterosexual women display more negative attitudes towards bisexual than towards lesbian women (Herek, 2002). In addition, a recent study found that, during a social evaluation task, heterosexual men and women rated bisexual men as less trustworthy, more confused, less willing to have monogamous relationships, and as less skilled at long-term relationships than gay and heterosexual men (Zivony and Lobel, 2014). The link between bisexual stigma/discrimination and mental health has been empirically supported by both quantitative and qualitative research (Ross et al., 2010).

It has been argued bisexuality has been delegitimized as a valid sexual orientation due to society's preference towards single-gender orientations (known as monosexism) (Barker et al., 2008; Barker & Langdridge, 2008; Bradford, 2004; Diamond & Butterworth, 2008; Erickson-Schroth & Mitchell, 2009; Kaestle & Ivory, 2012; Klein, 1993; Ross et al., 2010; Rust, 2000a, 2002; Suresha & Alexander, 2008; Yoshino, 2000). In research, bisexuality has been made invisible by excluding bisexual individuals from data analysis or by lumping them together with homosexual or heterosexual participants (Barker et al., 2008; Barker et al., 2012; Kaestle & Ivory, 2012; Pallotta-Chiarolli & Martin, 2009; Rust, 2000b, 2002; van Anders, 2012; Volpp, 2010).

Despite the historical imposed invisibility of bisexuality, it indubitably exists. Epidemiological data document that bisexuality is the second most commonly reported sexual orientation after heterosexuality (Herbenick et al., 2010a, 2010b; Laumann et al., 1994) and bisexual patterns of sexual attraction and behaviour may be "more common than exclusive same-sex patterns" (Diamond, 2008b, p. 5; Mercer et al., 2013; Wellings & Johnson, 2013). Illustratively, two of the main findings from the just published third British National Survey of Sexual Attitudes and Lifestyles (NATSAL) is that lifetime female same-sex experiences has quadrupled from 1990 (for women aged 16 to 44), namely from 4 percent then (Johnson et al., 1994) to 16 percent currently, and that more women self-define as bisexual than as gay/lesbian. It is unclear whether there has been a similar longitudinal trend in the United States because, in contrast to the national probability sample analyzed by Herbenick et al. (2010), the 1992 National Health and Social Life Survey (see Laumann et al., 1994) did not inquire about the gender of respondents' oral and mutual masturbation sex partners. As pointed out by Herbenick et al. (2010) "Little is known about same-sex behaviors from nationally representative studies, as

none—including ours—have oversampled those who identify as homosexual or bisexual, leaving the numbers too few for adequate statistical analysis" (p. 262).

Further, Diamond's longitudinal work on female sexual fluidity has been influential in terms of shedding light on female bisexuality and what it implies in terms of behaviour, and romantic and sexual attractions over time. In short, her research has given credibility to bisexuality as a distinct sexual orientation (Diamond, 1998, 2000, 2003, 2005, 2008a, 2008b).

It is still unclear how female bisexuality is best measured and conceptualized. As van Anders (2012) points out, many researchers use the Kinsey scale to measure sexual orientation, which implies bisexual individuals endorse an equal attraction to males and females. In addition, some researchers use past-year behavioral data to classify bisexuality, which may be biased because this measure might not capture bisexual identity (Bauer & Brennan, 2013). Further, many epidemiological studies classify participants based on one question only, namely asking them to choose between a list of sexual orientations, usually heterosexual, homosexual, bisexual, or unsure/don't know/other (Fredriksen-Goldsen et al., 2010; Herbenick et al., 2010b; Jorm et al., 2002). However, recent research suggests a five-category approach, in which "mostly heterosexual" and "mostly lesbian" are included, may be more valid in light of evidence suggesting these two represent distinct sexual orientations (Savin-Williams & Vrangalova, 2013; Vrangalova & Savin-Williams, 2012). In addition, considering that sexual orientation is usually conceptualized as a combination of cognitive, behavioral, and affective components (Laumann et al., 1994), it is important to know how these elements overlap among women classified as bisexual in research; results may be influenced by whether individuals are categorized based on their behaviour, their identity, their stated attractions and desires, or any combination of the above (Bostwick et al., 2010a; Herek & Garnets, 2007; Mayer et al., 2008; Savin-Williams, 2008, 2009).

The present exploratory research was conducted to shed light on the sexual and emotional experiences of bisexual, mostly lesbian, and mostly heterosexual women in comparison to monosexual (exclusively heterosexual and lesbian) women. Considering that female bisexuality has been previously understudied, this study explored a multitude of factors potentially relevant to bisexual women's sexuality and mental health in the hope that this would lead to new testable hypotheses regarding risk and resilience. Further, another goal of this research was to investigate how bisexuality may be best measured and conceptualized by assessing how self-reported sexual

orientation, sexual identity, sexual behaviour, and attraction overlapped. Although mental health outcomes were not assessed in this study, knowing the answer to how different dimensions of sexual orientation converge may have implications for future research investigating the link between sexual orientation and mental health.

Method

Participants and Recruitment

Data for this study were collected from 352 women between the ages of 18 and 66 (M = 24.50, SD = 6.50) through an online confidential survey developed by the authors, titled *Women's Experiences of Sexuality and Intimacy*. This survey took approximately 1.5 hours to complete and included questions about demographics, substance abuse, childhood abuse, sexual orientation, sexual identity, sexual behaviour, sexual/romantic/emotional attractions, sexual arousal/desire/orgasm, and symptoms of depression and anxiety. The survey was available in both English and French. Of the women who started the survey, the completion rate was 70%. Eighteen percent of participants answered the survey in French. The Concordia University Human Research Ethics Committee approved all procedures.

Participants included in the current data set responded between April 2011 (launch of the survey) and July 2013. Participants were recruited through a variety of means. Forty-two percent of the participants answered the survey through the Psychology Participant Pool at Concordia University in Montreal and received course credit for their participation. The remaining 58% consisted of a diversity of women recruited though the community. These women were entered into a draw to win $250. The survey was advertised on Craigslist and Kijjii, which are both websites that post classified advertisements locally. The study was regularly advertised on these two websites in both English and French in Montreal, Ottawa, Toronto, and Vancouver. An advertisement for the study was also posted once in two free weekly newspapers in Montreal. Between April 2011 and until the end of 2012, fliers advertising the survey were also regularly posted around all of the four university campuses in Montreal and around the city of Montreal, generally. On two occasions, the study was advertised to Montreal university students not part of the Participant Pool at Concordia University by classroom announcement in courses on gender and sexuality. The study was also posted once to the listserv of the Sexual and Gender Identity Section of the Canadian Psychological Association. Finally, the study was advertised by contacting LGBTQ student groups at universities across Canada.

In order to avoid biasing recruitment towards any one sexual orientation group to the greatest extent possible, the majority of the advertisement for the study called for "women to participate in a questionnaire-based study addressing sexual orientation and identity, sexual and emotional experiences, sexual desire and arousal, and mental health." Around halfway through data collection, the advertisements posted on Craigslist and Kijjii were changed to "looking for women who self-identify as non-heterosexual" in order to boost the number of sexual minority women. Interested women were directed to send an email to express their interest, at which point they were given a participant code and a link to the survey.

Definition of Measured Variables

Four dimensions were included to assess sexuality, namely sexual orientation, sexual identity, sexual behaviour, and sexual attraction (by the Kinsey sexual, romantic, and fantasy scales) (Kinsey, Pomeroy, & Martin, 1948). Sexual orientation and sexual identity were assessed as follows: "What is your sexual orientation?" and "What is your sexual identity?" Sexual behaviour was assessed by participants' responses to the questions: "Do you have sex with male partners?" and "Do you have sex with female partners?" Participants who positively endorsed both questions were coded as having bisexual behaviour. Sexual behaviour was defined as: "Any activity of a sexual nature. It can be done exclusively for the pleasure inherent in sexual gratification and orgasm, or to achieve an intimate bond with another person. It can include any type of genital stimulation" (Mah & Binik, 2002).

Sexual culture was assessed by: "What do you consider your main sexual culture to be?" Openness about sexual orientation was evaluated by four categorical questions: "Are you open about your sexual orientation with family, with friends, with acquaintances, with colleagues?"

Non-gender based sexual attraction was assessed by: "Can you respond sexually to someone you have a strong personal connection with, regardless of that person's gender?" Sexual promiscuity and risky sexual behaviour was measured by: "Would you label yourself as sexually promiscuous?" and by: "Do you engage in risky sexual behaviour?" All of the above questions were categorical.

The second part of the analysis was restricted to bisexual women only, including 25 categorical questions about how they experience their sexual orientation. Further, their experiences with males and females were compared by analyzing mean scores to eight continuous questions about sexual contact, sexual partners, and satisfaction with relationships.

Results

Demographics

Table 1 shows socio-demographic data split by sexual orientation. Of the 352 women, 165 (46.9%) self-defined as heterosexual, 43 (12.2%) as mostly heterosexual, 59 (16.8%) as bisexual, 31 (8.8%) as mostly lesbian, 45 (12.8%) as lesbian, and 9 (2.6%) as "unsure." In terms of sexual identity, 193 (54.8%) endorsed heterosexual/straight, 52 (14.8%) endorsed lesbian, 47 (13.4%) endorsed bisexual, 33 (9.4%) endorsed unlabelled, and 27 (7.7%) endorsed "other. In the "other" group, 67% defined as queer, 26% as pansexual, and 7% as bi-curious. Of the total sample, 85 (24.1%) reported bisexual behaviour, 202 (57.4%) reported heterosexual behaviour, 58 (16.5%) reported lesbian behaviour, 5 (1.4%) reported no sexual behaviour, and 2 (0.6%) reported past bisexual behavior. There were no differences in age based on sexual orientation, sexual identity, or sexual behaviour.

Overlap Between the Different Dimensions of Sexual Orientation

Descriptive statistics, namely frequencies, were used in order to identify how the different dimensions of sexuality overlapped for the five sexual orientation groups.

Table 2 demonstrates the overlap between sexual orientation and sexual identity. There was a high degree of overlap between sexual orientation and sexual identity for both heterosexuals (99.8%) and for lesbians (88.9%). Only two out of 59 bisexual women claimed a monosexual identity; the majority of them identified as bisexual (59.3%), as unlabelled (16.6%) or as "other (20.3%)." The majority of women who fell in the mostly heterosexual range identified as heterosexual (67.4%) or as unlabelled (20.9%). None of the women who claimed a mostly lesbian sexual orientation identified as heterosexual; they were spread out across the other sexual identity categories.

Tables 3 and 4 illustrate how sexual orientation and sexual identity overlapped with sexual behaviour. Most of the heterosexuals and lesbians endorsed heterosexual or lesbian behaviour, 95.2% and 84.4%, respectively. Among the mostly heterosexuals, none of them claimed lesbian behaviour; 60.5% claimed heterosexual behaviour, while 37.2% claimed bisexual behaviour. Among the mostly lesbians, 12.9% endorsed heterosexual behaviour, 41.9% endorsed bisexual behaviour, and 45.2% endorsed lesbian behaviour. Of the bisexuals, 69.5% claimed bisexual behaviour, 18.6% percent claimed heterosexual behaviour, and 8.5% percent claimed lesbian behaviour.

The majority of bisexually identified, unlabeled, and "other" women endorsed bisexual behaviour, 70.2%, 51.5%, and 51.9%, respectively. In contrast, only 7.3% and 30.5% of women who identified as heterosexual or as lesbian, respectively, claimed bisexual behaviour.

Table 5 presents percentages for how the three Kinsey scales overlapped with sexual orientation. The Kinsey romantic and sexual scales only captured 22% and 32.2% of bisexuals (if bisexual is identified by the Kinsey mid-point), respectively. However, if bisexual was to include the three midpoints on these two scales, they captured, respectively, 59.3% and 67.8% of the bisexuals. Mostly heterosexuals and mostly lesbians have been referred to in the literature as "Kinsey 1s" ("men mostly but women occasionally") and "Kinsey 5s" ("women mostly but men occasionally") (Savin-Williams & Vrangalova, 2013; Vrangalova & Savin-Williams, 2012). On the Kinsey romantic scale, 34.9% of mostly heterosexuals fell into the Kinsey 1 category, whereas 45.2% of mostly lesbians fell into the Kinsey 5 category. On the Kinsey sexual scale, the percentages were 60.5 and 67.7, respectively.

On the Kinsey fantasy scale, 57% of heterosexuals indicated only fantasizing about men, 46.7% of lesbians indicated only fantasizing about women, 46.5% of mostly heterosexuals indicated fantasizing about men mostly, 25.8% of mostly lesbians indicated fantasizing about women mostly, and 22% of bisexuals indicated fantasizing about men and women equally.

Association Between Sexual Orientation and the Kinsey Scales

The Kinsey romantic, sexual, and fantasy scales were all significantly correlated with sexual orientation, $r = .92$, $r = .92$, and $r = .83$, respectively (all ps $< .001$). Multivariate analysis of variance showed that the five-category sexual orientation question was significantly associated with the three Kinsey scales, F (4, 338) = 114.61, $p < .001$, Wilks' $\lambda = .08$, $\eta^2 = .56$. Tukey's post hoc tests revealed that all of the five sexual orientation groups significantly differed from each other on the Kinsey romantic, sexual, and fantasy scales (all ps $<.05$), except for the lesbian and mostly lesbian groups on the fantasy scale.

Social Factors by Sexual Orientation

Table 6 presents social factors split by sexual orientation. The majority of bisexuals (64.4%) indicated belonging to the bisexual culture, whereas 13.6% indicated not belonging to any sexual culture. The majority of mostly heterosexuals (67.4%) endorsed being part of the heterosexual culture. In contrast, the minority of mostly lesbians (45.2%) indicated being part of

the gay/lesbian culture. Most of the lesbians (91.1%) endorsed affiliation with gay/lesbian culture.

Bisexuals reported being less open about their sexual orientation with family (52.5%), acquaintances (62.7%), and colleagues (37.3%) than lesbians (84.4%, 80%, and 73.3%, respectively). The same pattern was observed for the mostly heterosexuals and for the mostly lesbians, who reported to be 51.2% and 67.7% open with family, 67.4% and 64.4% open with acquaintances, and 53.5% and 54.8% open with colleagues, respectively.

Sexual Factors by Sexual Orientation

Table 7 presents sexual factors split by sexual orientation. Among bisexuals, 96.6% reported ever having had sexual contact with a male, whereas 83.1% reported ever having had sexual contact with a female. Of note, only bisexual women reported currently having both a male and a female sexual partner (11.9%). Among bisexual women, 52.5% indicated their current sexual partner as male, while 13.6% indicated female. The mostly heterosexual, bisexual, and mostly lesbian women reported higher levels of sexual promiscuity than the heterosexuals and lesbians, 30.2%, 32.2%, and 22.6%, respectively, compared to 15.8% and 13.3%, respectively. Of note, more than 62.7% of bisexual women reported risky sexual behaviour, which was the highest reported among all the sexual orientation groups. Almost all bisexual women (98.3%) claimed they can respond sexually to someone regardless of gender, whereas 74.4 % of mostly heterosexuals and 74.2% of mostly lesbians indicated they can. In contrast, the majority of heterosexuals (75.2%) and lesbians (57.8%) claimed they cannot respond sexually regardless of gender.

Categorical Analyses for Bisexual Women

Table 8 includes 25 categorical variables intended to provide an overview of how the bisexual women in the current study reported experiencing their sexual orientation.

The majority of bisexual women (69.5%) reported becoming sexually attracted to different characteristics in men and women. In contrast, the minority (37.3%) reported becoming emotionally attracted to different characteristics in men and women. Most (71.2%) said that their most significant romantic relationship and sexual attraction has been with a man, 71.2% and 52.5%, respectively. The majority reported their attractions towards men as both sexual and emotional (94.9%), whereas towards women it was 76.3%.

Around half (57.6%) indicated believing sexual orientation is transitory, 57.6% imagined their sexual orientation will be bisexual ten years into the future, and 16.9% said they are not sure what their sexual orientation will be; less than ten percent thought they will be heterosexual or lesbian. Less than ten percent (8.5%) reported thinking that they will be with a women ten years into the future; 42.4% imagined they will be with a male, while 39% said they do not know which gender(s) they will be with.

The majority reported that they do not choose to have attractions to males and to females (79.9%), and that they are not bisexual because they are confused (69.5%). Further, 74.6% and 66.1% reported they would "feel bad" if they were to be in a "monogamous relationship with a woman or with a man for the rest of their life without being able to act on their other-gender attraction." Half indicated they would be "most happy" if they could have a boyfriend and a girlfriend at the same time. Nevertheless, 55.9% reported they do not feel it is difficult to make a choice between a male and a female in terms of a long-term relationship. The majority (55.9%) claimed their sexual attraction towards women appeared unexpectedly; however, that was not the case for their sexual attraction towards men (20.3% unexpected).

Paired-samples *t*-tests for Bisexual Women

Paired-samples *t*-tests with Bonferroni corrections were used to analyze bisexual women's experiences with males versus females (see Table 9). Bisexual women reported more male than female sexual partners, $t\ (45) = 3.51$, more romantic relationships with males than with females, $t\ (31) = 6.05$, longer romantic relationships with males than with females, $t\ (33) = 2.30$, and sex with males more frequently than with females, $t\ (41) = 3.65$, (all ps $< .01$). However, they did not report any difference in their satisfaction with sexual and romantic relationships with males versus with females.

Discussion

This study sought to provide an in-depth analysis of the sexual and emotional characteristics of bisexual women in comparison to women of other sexual orientations. Bisexual women tended to self-identify as bisexual, unlabeled, queer, or pansexual. Further, the majority of them reported bisexual behaviour. Overall, findings suggest there may be important within-group differences in how bisexual women experience their sexuality. In general, our analysis of the sexual orientation, sexual identity, and sexual behaviour questions indicated heterosexual and lesbian women are similar in that they showed the greatest overlap between the different

dimensions. Further, our results suggest mostly heterosexual and mostly lesbian women represent distinct sexual orientations.

Bisexual Women in Comparison to Other Sexual Orientation Groups

There were different degrees of overlap between the various dimensions of sexual orientation typically examined in research. For heterosexual and lesbian women it appears that sexual orientation, identity, behaviour, and attraction overlap to a great extent. However, for women who do not fall into the heterosexual or lesbian range, the picture is more complex. Illustratively, around 70 percent of mostly heterosexual women claimed a heterosexual identity. Therefore, it is possible that using sexual identity rather than orientation in research may incorrectly identity risk among this group. For instance, one recent study found that mostly heterosexual participants reported the highest rates of substance abuse (McCabe et al., 2012).

Of all the sexual orientation and sexual identity groups, the bisexual group reported the highest percentage of bisexual behaviour, followed by the mostly lesbian and mostly heterosexual groups. These data are consistent with recent research which has found that mostly heterosexual women are more same-sex oriented than heterosexual women but less same-sex oriented than bisexual women, whereas mostly lesbian women are less same-sex oriented than lesbians but more same-sex oriented than bisexuals (Savin-Williams & Vrangalova, 2013; Vrangalova & Savin-Williams, 2012).

The current study indicates the Kinsey romantic and sexual scales successfully capture heterosexuals and lesbians. However, as with the other dimensions of sexual orientation discussed in this study, the picture is more complex for the non-monosexual groups. In general, our findings are in line with recent guidelines that have not only cautioned against using the Kinsey scale as an exclusive measure of bisexuality, but also against combing bisexuals with heterosexuals or lesbians (Barker et al., 2012; van Anders, 2012).

Our findings shed light on how mostly heterosexual or mostly lesbian women score on the Kinsey scales. As previously pointed out, individuals who score a 1 or a 5 on the Kinsey scales have been referred to as mostly/primarily/mainly/predominantly heterosexual/straight or homosexual/gay/lesbian (Kinsey et al., 1948; Savin-Williams & Vrangalova, 2013). However, our results illustrate that there is not a one-to-one association between self-identifying as mostly heterosexual or mostly lesbian and scoring, respectively, a 1 or a 5 on the Kinsey scales. For instance, on the Kinsey romantic scale, more than 50 percent of mostly heterosexuals fell into the

exclusively heterosexual category. Considering that approximately 40 percent of the mostly heterosexuals reported bisexual behaviour, the Kinsey romantic scale may be limited in terms of correctly classifying these individuals. Of note, the Kinsey sexual scale was better at capturing the "mostly" groups; only around 10 percent of mostly heterosexuals fell into the exclusively heterosexual category while only around 20 percent of mostly lesbians fell into the exclusively lesbian category. It is possible that these two groups experience their sexual and emotional attractions differently; for instance, mostly heterosexual women may direct their emotional attraction more towards men, but their sexual attractions may be more bisexual. This will need to be examined in future research. Of note, although the Kinsey scales may be limited in terms of correctly classifying any one individual, our multivariate analysis showed that, overall, these scales are valid. In short, findings indicated that scores on the Kinsey romantic, sexual, and fantasy scales effectively separated the five sexual orientation groups.

In contrast to past research suggesting bisexual women lack in-group community support (Ross et al., 2010), we found that close to 65 percent of bisexuals reported being part of the bisexual community. In their qualitative study, Ross and colleagues (2010) found that bisexual individuals value being part of a bisexual community; future research should explore how a sense of belonging to the bisexual community may be associated with mental health resilience. Further, although most bisexual women are equally open about their sexual orientation with friends as the other sexual orientation groups, they are the least open with colleagues. It has been documented that disclosing one's sexual orientation may protect against stress, which, in turn, may be associated with health (Juster, Smith, Ouellet, Sindi, & Lupien, 2013). However, this research combined lesbian and bisexual women and it is therefore unknown whether the benefits of "coming out of the closet" differ between these two groups of women. It is possible that the health benefits of disclosing a bisexual orientation may be lower than disclosing a homosexual orientation considering bisexuals may be more stigmatized than homosexuals (for example, Herek, 2002). Future studies may investigate how openness about sexual orientation is associated with mental health outcomes for non-monosexual individuals.

We also found that bisexual women reported more risky sexual behaviour and sexual promiscuity than heterosexuals and lesbians. Although there is limited data on sexual risk among bisexual women, it has recently been found that they report more severe adult sexual victimization experiences than lesbians do (Hequembourg et al., 2013). Further, it has been

documented that 78 percent of bisexual women report lifetime sexual victimization, which is 40 percent higher than what has been found among exclusively heterosexual women (Hughes et al., 2010). Very recent findings have also indicated that that the rate of sexually transmitted infections may be elevated among bisexual women and heterosexually identified women who have sex with women (Everett, 2013). It is suggested future research further explore whether sexual risk factors may mediate the relationship between female bisexuality and mental health.

Overall, mostly heterosexuals and mostly lesbians appear more similar to bisexuals than to heterosexuals or lesbians, which are far more similar to one another, sexually and socially. Despite previous findings indicating obvious differences in sexuality between lesbian and heterosexual women in areas such as patterns of sexual arousal (e. g., Chivers et al., 2007), it is still possible that they may be similar in social or emotional aspects of their lives. It is conceivable that in a liberal city like the one most of our sample comes from, and in a country where social policies are protective of homosexual rights, the lived experiences of lesbian women do not differ much from those of their heterosexual counterparts. Moreover, the lesbian and heterosexual groups have one major variable in common, namely that they are monosexual. It has been argued that society tends to value a dichotomous understanding of sexuality, that is, one is either homosexual or one is heterosexual (Ross et al., 2010; Rust, 2002). On a structural level, the lesbian and heterosexual groups are the same (due to their single-gender orientation), while the mostly lesbian, bisexual, and mostly heterosexual groups are the same (due to their "in-betweenness"). It may be that the experience of not fitting neatly into one category or the other may be what is driving the similarities observed between the "mostly" groups and the bisexuals; as biphobia exists, "mostly heterosexual/mostly lesbian phobia" may also exist.

Within-Group Comparisons for Bisexual Women

In general, our data do not support the notion that bisexuality implies an equal degree of experience with males and females. Rather, most bisexual women in our sample indicated more sexual experiences with men than women. Nonetheless, they described feeling equally satisfied with their male and female sexual and romantic relationships. Although, to the best of our knowledge, no past research has directly compared bisexual women's experiences with males versus females, it has been documented that the majority of bisexual women do not feel identically attracted to men or women (Rust, 2000a).

There appears to be a difference in how bisexual women understand their sexual and emotional attractions. Almost 70 percent said they become sexually attracted to different characteristics in men and women, whereas less than 40 percent said they become emotionally attracted to different characteristics in men and women. This finding supports qualitative research that has documented bisexual women may perceive their emotional and sexual attractions towards men and women as subjectively different (Rust, 2000). In future research, it would be interesting to explore mental health differences between bisexual women who may have a similar ratio of sexual and emotional attractions to males and female versus those who tend to be mostly sexually attracted to men but mostly emotionally attracted to women or vice versa. It has been found that women whose sexual identity is incongruent with their sexual behaviour report lower mental, physical, and sexual well-being compared to women who are congruent in their sexual identity and behaviour (Schick et al., 2012). It is possible these results could translate to women who report incongruent sexual and emotional attractions.

Our data also do not support the stereotypes of bisexual women being confused about their sexual orientation and that they are in an experimental phase. Previous work has also discredited the notion that bisexuality is a transitional stage towards heterosexuality or lesbianism. For example, in her ten-year longitudinal study, Diamond (2008b) found that the overall number of women identifying as bisexual did not decline over time. Although bisexuality may be a stable sexual orientation, it does not necessarily imply bisexual women believe their sexuality is immutable; close to 60 percent of women in this study reported believing sexual orientation is transitory, which supports the notion of bisexuality as "a heightened capacity for fluidity" (Diamond, 2008b, p. 7).

Approximately 56 percent of bisexual women agreed that it is difficult to choose between a man or a woman in terms of a long-term relationship, and half said they would be most happy if they could have a boyfriend and a girlfriend at the same time. These findings may be socially and politically loaded as one common stereotype about bisexuals is that they cannot make up their minds about which gender they prefer for a relationship and that they are sexually promiscuous and unable to make a commitment (Ross et al., 2010). However, we contend it is important to cast light on the lived experiences of bisexual women and that these data do not necessarily support common stereotypes. Many of the women in our study reported being in a monogamous relationship (around 40 percent) while around 14 percent report being in a

committed but non-monogamous relationship. It has been found that bisexual individuals who are in open or in polyamorous relationships are committed to honesty rather than to secrecy and infidelity (McLean, 2011; Weitzman, 2006). It is possible that bisexual individuals who prefer non-monogamy to monogamy may face more stigma than bisexual individuals in monogamous relationships due to the additional burden of facing society's preference for monogamy. In future research, it may be valuable to investigate how the mental health of bisexual women may be associated with monogamy versus non-monogamy.

Limitations

An important limitation of this study is that the data may not generalize to women from non-urban settings or to women who live in places less liberal and accepting of sexual minorities. In the United States, it has been found that LGBT people who live in states with protective policies for sexual minorities (e.g., policies against hate crimes and bullying based on sexual orientation) report better mental health than those who live in states without such policies (Hatzenbuehler & Keyes, 2013; Hatzenbuehler, Keyes, & Hasin, 2009; Hatzenbuehler, Keyes, & McLaughlin, 2011; Hatzenbuehler, McLaughlin, Keyes, & Hasin, 2010; Hatzenbuehler et al., 2012). Further, although we attempted to be as inclusive in our recruitment strategy as possible, our sample may be biased towards women who are interested in sexuality and perhaps more open in discussing their own sexuality with others. In addition, the percentage of sexual minority women is overrepresented on purpose in our sample, and thus not representative of population base rates for North America (Herbenick et al., 2010a, 2010b). Moreover, our subgroups of sexual minorities were relatively small and it is possible, which could have inflated or even deflated group differences. This was an exploratory study and we did not statistically test differences between the five sexual orientation groups, which means findings should be interpreted with caution. Findings are merely suggestive of hypotheses that might be valuable to test in future research, such as whether sexual orientation disclosure and risky sexual behaviour may mediate the relationship between bisexuality and mental health. Most of our questions were categorical ("yes" versus "no") which could have missed subtleties by forcing women to choose between two categories when responding to potentially loaded questions. Finally, although almost all of the bisexuals included said they can respond sexually to someone regardless of gender, we only included comparisons between males and females, which may have forced participants to restrict their answers.

Conclusion

These results indicate that heterosexual and lesbian women show a great degree of overlap between self-defined sexual orientation, sexual identity, sexual behaviour, and can be defined in a monosexual range using the Kinsey scales. This implies that it may not matter which dimension is used to classify these women for research purposes. However, for non-monosexual women, the four dimensions of sexual orientation included in this study may not be interchangeable. Our results demonstrate that the Kinsey scales perform poorly in terms of capturing bisexual women when only the mid-point is used. We would therefore recommend that these scales not be used as the sole classifier for female bisexuality. One pattern emerged from our analysis, namely that women who have single-gender attractions are similar and that women who have multi-gender attractions are similar. It is possible that in a culture accepting of homosexuality it may be more detrimental to not fit into a sexual orientation dichotomy than to be a member of a well-recognized sexual orientation group, such as lesbian.

Our data also indicate that bisexual women do not report an equal number of sexual and romantic experiences with males and females. In general, bisexual women report more experience with males; however, more experience with males does not translate into higher sexual and romantic relationship satisfaction with males than with females. Our findings do not support stereotypes about bisexuality that suggest that it is a transitional phase towards homosexuality or heterosexuality, nor that bisexual women are confused about their sexual orientation.

Finally, these findings have important implications for understanding how different dimensions of sexual orientation overlap or diverge, which in turn may help us understand why bisexual women appear to be at increased risk of poor mental health. Developing better theoretical models of risk and resilience factors for bisexual women should help generate more effective public health strategies tailored specifically to this sexual minority group.

Table 1
Socio-demographic Data Split by Sexual Orientation

Characteristic	Heterosexual (*n* =165)	Mostly heterosexual (*n* =43)	Bisexual (*n* = 59)	Mostly lesbian (*n* =31)	Lesbian (*n* = 45)	Unsure (*n* = 9)	Total (*n* = 352)
Mean age in years (*SD)*	24.55 (6.83)	23.50 (3.83)	23.80 (4.60)	25.94 (8.32)	25.56 (8.02)	24.67 (4.18)	24.55 (6.50)
Suffer from illness/take medication (%)							
- No	141 (85.5)	37 (86)	44 (74.6)	24 (77.4)	35 (77.8)	4 (44.4)	285 (81)
- Yes	24 (14.4)	6 (14)	15 (25.4)	7 (22.6)	10 (22.2)	5 (55.6)	67 (19)
Nationality (%)							
- Canadian	123 (75)	33 (77)	49 (83)	25 (81)	37 (82)	8 (89)	275 (78)
- European	21 (12.5)	5 (11.5)	6 (10)	4 (13)	5 (11)	1 (11)	42 (12)
- Other	21 (12.5)	5 (11.5)	4 (7)	2 (6)	3 (7)	0 (0)	35 (10)
First language (%)							
- English	91 (55)	23 (53)	47 (80)	25 (81)	31 (69)	7 (78)	224 (64)
- French	33 (20)	10 (23.5)	6 (10)	3 (9.5)	7 (15.5)	0 (0)	59 (17)
- Other	41 (25)	10 (23.5)	6 (10)	3 (9.5)	7 (15.5)	2 (22)	69 (19)
Religion currently practiced (%)							
- No religion	73 (44.2)	27 (62.8)	38 (64.4)	20 (64.5)	30 (66.7)	6 (66.7)	194 (55.1)
- Catholic	34 (20.6)	4 (9.3)	3 (5.1)	1 (3.2)	4 (8.9)	1 (11.1)	47 (13.4)
- Jewish	17 (10.3)	2 (4.7)	1 (1.7)	0 (0)	0 (0)	1 (11.1)	21 (6)
- Muslim	3 (1.8)	0 (0)	1 (1.7)	0 (0)	0 (0)	0 (0)	4 (1.1)
- Protestant	8 (4.8)	2 (4.7)	1 (1.7)	3 (9.7)	3 (6.7)	0 (0)	17 (4.8)
- Hindu	0 (0)	1 (2.3)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0.3)
- Other	17 (10.3)	1 (2.3)	10 (16.9)	3 (9.7)	3 (6.7)	0 (0)	34 (9.7)
- Spiritual	13 (7.9)	6 (14)	5 (8.5)	4 (12.9)	5 (11.1)	1 (11.1)	34 (9.7)
SES background (%)							
- Lower class	19 (11.50)	4 (9.3)	15 (25.4)	7 (22.6)	7 (15.6)	1 (11.1)	53 (15.1)
- Middle class	126 (76.4)	34 (79.1)	40 (67.8)	24 (77.4)	35 (77.8)	8 (88.9)	267 (75.9)
- Upper class	20 (12.1)	5 (11.6)	4 (6.8)	0 (0)	3 (6.7)	0 (0)	32 (9.1)
Mean (*SD)* number of years living in							
- City	19.60 (9.45)	17.86 (8.08)	18.45 (8.83)	16.18 (10.85)	21.29 (10.70)	20.67 (8.57)	19.13 (9.50)
- Rural area	5.45 (9.30)	5.52 (7.93)	5.22 (7.23)	8.97 (10.64)	5.11 (7.94)	4 (7.38)	5.65 (8.74)
Highest level of education (%)							
- Some high school	2 (1.2)	0 (0)	3 (5.1)	0 (0)	0 (0)	0 (0)	5 (1.4)
- Graduated high school	6 (3.6)	1 (2.3)	8 (13.6)	3 (9.7)	4 (8.9)	0 (0)	22 (6.3)
- Vocational/trade/school	2 (1.2)	1 (2.3)	4 (6.8)	0 (0)	2 (4.4)	0 (0)	9 (2.6)
- Community college	11 (6.7)	3 (7)	8 (13.6)	3 (9.7)	3 (6.7)	0 (0)	28 (8)
- Undergraduate	118 (71.5)	31 (72.1)	30 (50.8)	20 (64.5)	25 (55.6)	8 (88.9)	232 (65.9)
- Graduate	26 (15.8)	7 (16.3)	6 (10.2)	5 (16.1)	11 (24.4)	1 (11.1)	56 (15.9)

Table 2
Sexual Identity by Sexual Orientation

	Heterosexual *n* (%)	Mostly Heterosexual *n* (%)	Bisexual *n* (%)	Mostly Lesbian *n* (%)	Lesbian *n* (%)	Unsure *n* (%)	Total *n* (%)
Sexual Identity							
- Heterosexual	163 (99.8)	29 (67.4)	1 (1.7)	0 (0)	0 (0)	0 (0)	193 (54.8)
- Lesbian	0 (0)	0 (0)	1 (1.7)	11 (35.5)	40 (88.9)	0 (0)	52 (14.8)
- Bisexual	1 (0.6)	3 (7)	35 (59.3)	7 (22.6)	0 (0)	1 (11.1)	47 (13.4)
- Unlabelled	1 (0.6)	9 (20.9)	10 (16.6)	6 (19.4)	1 (2.2)	6 (66.7)	33 (9.4)
- Other	0 (0)	2 (4.7)	12 (20.3)	7 (22.6)	4 (8.9)	2 (22.2)	27 (7.7)

Table 3
Sexual Behaviour by Sexual Orientation

	Heterosexual *n* (%)	Mostly Heterosexual *n* (%)	Bisexual *n* (%)	Mostly Lesbian *n* (%)	Lesbian *n* (%)	Unsure *n* (%)	Total *n* (%)
Sexual behaviour							
- Heterosexual	157 (95.2)	26 (60.5)	11 (18.6)	4 (12.9)	2 (4.4)	2 (22.2)	202 (57.4)
- Bisexual	4 (2.4)	16 (37.2)	41 (69.5)	13 (41.9)	5 (11.1)	6 (66.7)	85 (24.1)
- Lesbian	0 (0)	0 (0)	5 (8.5)	14 (45.2)	38 (84.4)	1 (11.)	58 (16.5)
- No sex	4 (2.4)	0 (0)	1 (1.7)	0 (0)	0 (0)	0 (0)	5 (1.4)
- Past bisexual	0 (0)	1 (2.3)	1 (1.7)	0 (0)	0 (0)	0 (0)	2 (0.6)

Table 4
Sexual Behaviour by Sexual Identity

	Heterosexual *n* (%)	Lesbian *n* (%)	Bisexual *n* (%)	Unlabelled *n* (%)	Other *n* (%)	Total *n* (%)
Sexual behaviour						
- Heterosexual	175 (90.7)	4 (7.7)	9 (19.1)	9 (27.3)	5 (18.5)	202 (57.4)
- Bisexual	14 (7.3)	7 (30.5)	33 (70.2)	17 (51.5)	14 (51.9)	85 (24.1)
- Lesbian	0 (0)	41 (78.8)	4 (8.5)	6 (18.2)	7 (25.9)	58 (16.5)
- No sex	4 (2.1)	0 (0)	0 (0)	0 (0)	1 (3.7)	5 (1.4)
- Past bisexual	0 (0)	0 (0)	1 (2.1)	1 (3.0)	0 (0)	2 (0.6)

Table 5
Kinsey Scales by Sexual Orientation

	Heterosexual *n* (%)	Mostly Heterosexual *n* (%)	Bisexual *n* (%)	Mostly Lesbian *n* (%)	Lesbian *n* (%)	Total *n* (%)
Kinsey Romantic						
- Women only	0 (0)	1 (2.3)	0 (0)	12 (38.7)	36 (80)	49 (14.3)
- Women mostly, men occasionally	1 (0.6)	0 (0)	7 (11.9)	14 (45.2)	8 (17.8)	30 (8.7)
- Women mostly, men frequently	0 (0)	0 (0)	5 (8.5)	5 (16.1)	0 (0)	10 (2.9)
- Women and men equally	0 (0)	2 (4.7)	13 (22)	0 (0)	1(2.2)	16 (4.7)
- Men mostly, women frequently	0 (0)	2 (4.7)	17 (28.8)	0 (0)	0 (0)	19 (5.5)
- Men mostly, women occasionally	13 (7.9)	15 (34.9)	16 (27.1)	0 (0)	0 (0)	44 (12.8)
- Men only	151 (91.5)	23 (53.5)	1 (1.7)	0 (0)	0 (0)	175 (51)
Kinsey Sexual						
- Women only	1 (0.6)	0 (0)	0 (0)	6 (19.4)	29 (64.4)	36 (10.5)
- Women mostly, men occasionally	0 (0)	0 (0)	8 (13.6)	21 (67.7)	16 (35.6)	45 (13.1)
- Women mostly, men frequently	0 (0)	1 (2.3)	12 (20.3)	4 (12.9)	0 (0)	17 (5)
- Women and men equally	0 (0)	4 (9.3)	19 (32.2)	0 (0)	0 (0)	23 (6.7)
- Men mostly, women frequently	1 (0.6)	7 (16.3)	9 (15.3)	0 (0)	0 (0)	17 (5)
- Men mostly, women occasionally	42 (25.5)	26 (60.5)	10 (16.9)	0 (0)	0 (0)	78 (22.7)
- Men only	121 (73.3)	5 (11.6)	1 (1.7)	(0)	0 (0)	127 (37)
Kinsey Fantasy						
- Women only	0 (0)	1 (2.3)	2 (3.4)	10 (32.3)	21 (46.7)	34 (9.9)
- Women mostly, men occasionally	1 (0.6)	2 (4.7)	18 (30.5)	8 (25.8)	17 (37.8)	46 (13.4)
- Women mostly, men frequently	1 (0.6)	1 (2.3)	5 (8.5)	4 (12.9)	3 (6.7)	14 (4.1)
- Women and men equally	9 (5.5)	5 (11.6)	13 (22)	8 (25.8)	3 (6.7)	38 (11.1)
- Men mostly, women frequently	5 (3)	10 (23.3)	8 (13.6)	1 (3.2)	1 (2.2)	25 (7.3)
- Men mostly, women occasionally	55 (33.3)	20 (46.5)	13 (22)	0 (0)	0 (0)	88 (25.7)
- Men only	94 (57)	4 (9.3)	0 (0)	0 (0)	0 (0)	98 (28.6)

Table 6

Social Factors Split by Sexual Orientation

Characteristic	Heterosexual *n* (%)	Mostly heterosexual *n* (%)	Bisexual *n* (%)	Mostly lesbian *n* (%)	Lesbian *n* (%)	Unsure *n* (%)	`Total *n* (%)
Sexual culture							
- Feel I don't belong	4 (2.4)	5 (11.6)	8 (13.6)	3 (9.7)	0 (0)	3 (33.3)	23 (6.5)
- Heterosexual/straight	160 (97)	29 (67.4)	2 (3.4)	1 (3.2)	1 (2.2)	0 (0)	193 (54.8)
- Bisexual	1 (0.6)	4 (9.3)	38 (64.4)	7 (22.6)	0 (0)	5 (55.6)	55 (15.6)
- Gay/Lesbian	0 (0)	0 (0)	0 (0)	14 (45.2)	41 (91.1)	0 (0)	55 (15.6
- Other	0 (0)	5 (11.6)	11 (18.7)	6 (19.4)	3 (6.7)	1 (11.1)	26 (7.4)
Openness sexual orientation (family)							
- No	23 (13.9)	21 (48.8)	28 (47.5)	10 (32.3)	7 (15.6)	6 (66.7)	95 (27)
- Yes	142 (86.1)	22 (51.2)	31 (52.5)	21 (67.7)	38 (84.4)	3 (33.3)	257 (73)
Openness sexual orientation (friends)							
- No	1 (0.6)	2 (4.7)	1 (1.7)	1 (3.2)	0 (0)	1 (11.1)	6 (1.7)
- Yes	164 (99.4)	41 (95.3)	58 (98.3)	30 (96.8)	45 (100)	8 (88.9)	346 (98.3)
Openness sexual orientation (acquaintances)							
- No	23 (13.9)	14 (32.6)	22 (37.3)	11 (35.5)	9 (20)	5 (55.6)	84 (23.9)
- Yes	142 (86.1)	29 (67.4)	37 (62.7)	20 (64.5)	36 (80)	4 (44.4)	268 (76.1)
Openness sexual orientation (colleagues)							
- No	27 (16.4)	20 (46.5)	37 (62.7)	14 (45.2)	12 (26.7)	7 (77.8)	117 (33.2)
- Yes	138 (83.6)	23 (53.5)	22 (37.3)	17 (54.8)	33 (73.3)	2 (22.2)	235 (66.8)

Table 7
Sexual Factors Split by Sexual Orientation

Characteristic	Heterosexual *n* (%)	Mostly heterosexual *n* (%)	Bisexual *n* (%)	Mostly lesbian *n* (%)	Lesbian *n* (%)	Unsure *n* (%)	Total *n* (%)
First sexual contact with							
- Male	150 (91.5)	30 (69.8)	42 (71.2)	26 (83.9)	25 (55.6)	8 (88.9)	281 (80.1)
- Female	12 (7.3)	13 (30.2)	17 (28.8)	5 (16.1)	18 (40)	1 (11.1)	66 (18.8)
Ever had sexual contact with							
- Male	160 (97)	43 (100)	57 (96.6)	24 (77.4)	30 (66.7)	9 (100)	323 (91.8)
Female	56 (33.9)	31 (72.1)	49 (83.1)	27 (87.1)	39 (86.7)	7 (77.8)	209 (59.4)
Sexual Promiscuity							
- No	139 (84.2)	30 (69.8)	40 (67.8)	24 (77.4)	39 (86.7)	8 (88.9)	280 (79.5)
- Yes	26 (15.8)	13 (30.2)	19 (32.2)	7 (22.6)	6 (13.3)	1 (11.1)	72 (20.5)
Risky Sexual Behaviour							
- No	97 (58.8)	22 (51.2)	22 (37.3)	18 (58.1)	32 (71.1)	4 (44.4)	195 (55.4)
- Yes	68 (41.2)	21 (48.8)	37 (62.7)	13 (41.9)	13 (28.9)	5 (55.6)	157 (44.6)
Current Sexual Partner							
- None	44 (26.7)	9 (20.9)	10 (16.9)	9 (29)	11 (24.4)	2 (22.2)	85 (24.1)
- A woman	1 (0.6)	0 (0)	8 (13.6)	17 (54.8)	34 (75.6)	2 (22.2)	62 (17.6)
- A man	117 (70.9)	30 (69.8)	31 (52.5)	0 (0)	0 (0)	5 (55.6)	183 (52)
- A woman and a man	0 (0)	0 (0)	7 (11.9)	0 (0)	0 (0)	0 (0)	7 (2)
- 2 women	1 (0.6)	0 (0)	1 (1.7)	4 (12.9)	0 (0)	0 (0)	6 (1.7)
- 2 men	2 (1.2)	3 (7)	1 (1.7)	0 (0)	0 (0)	0 (0)	6 (1.7)
- Other	0 (0)	1 (2.3)	1 (1.7)	1 (3.2)	0 (0)	0 (0)	3 (0.9)
Relationship Status							
- Not in one	43 (26.1)	10 (23.3)	12 (20.3)	9 (29)	10 (22.2)	2 (22.2)	86 (24.4)
- Committed & monogamous	98 (59.4)	23 (53.5)	23 (39)	16 (51.6)	30 (66.7)	5 (55.6)	195 (55.4)
- Non-committed & non-monogamous	17 (10.3)	8 (18.6)	12 (20.3)	4 (12.9)	2 (4.4)	2 (22.2)	45 (12.8)
- Committed and non-monogamous	4 (2.4)	2 (4.7)	8 (13.6)	1 (3.2)	0 (0)	0 (0)	15 (4.3)
- Other	3 (1.8)	0 (0)	4 (6.8)	1 (3.2)	3 (6.7)	0 (0)	11 (3.1)
Respond Sexually Regardless of Gender							
- No	124 (75.2)	4 (25.6)	1 (1.7)	8 (25.8)	26 (57.8)	1 (11.1)	171 (48.6)
- Yes	41 (24.8)	32 (74.4)	58 (98.3)	23 (74.2)	19 (42.2)	8 (88.9)	181 (51.4)

Table 8.
Sexual and Experiential Factors for Bisexual Women Only

Ten years from now, imagine you will be with (%):	
Male	42.4
Female	8.5
Both male and female	5.1
Don't know	39
Other	5.0
Ten years from now, imagine your sexual orientation to be (%):	
Heterosexual	8.5
Mostly heterosexual	3.4
Bisexual	57.6
Mostly lesbian	5.1
Lesbian	1.7
Not sure	16.9
Other	6.8
Become sexually attracted to different characteristics in men and women (% yes)	69.5
Become emotionally attracted to different characteristics in men and women (% yes)	37.3
Believe sexual orientation is transitory (% yes)	57.6
Most happy if could have a boyfriend and girlfriend at the same time (% yes)	47.5
Miss something if only in a relationship with a man and do not act on attractions to females (% yes)	42.4
Miss something if only in a relationship with a woman and do not act on attractions to males (% yes)	52.5

Bisexual behaviour because confused (% yes)	20.3
Choose to have attractions to both men and women (% yes)	17
Difficult to make a choice between man and woman for long-term relationship (% yes)	39
Attractions towards women appeared unexpectedly (% yes)	55.9
Attractions towards men appeared unexpectedly (% yes)	20.3
Feel bad if imagining to be in a life-long monogamous relationship with a woman (% yes)	74.6
Feel bad if imagining to be in a life-long monogamous relationship with a man (% yes)	66.1
Most significant romantic relationship been with (%)	
- Male	71.2
- Female	18.6
- Equal	10.2
Most significant sexual attraction been towards	
- Male	52.6
- Female	23.7
- Equal	23.7
Experience attraction to men (%)	
- Both as sexual and emotional	94.9
- Only sexual	5.1
Experience attraction to women (%)	
- Both as sexual and emotional	84.7
- Only sexual	15.3
Desire to have sex with women more frequently than currently do (% yes)	64.1

Desire to have sex with men more frequently than currently do (% yes)	50.0
Feel threatened by (% yes)	
- Romantic relationships with women	34.6
- Feel threatened by romantic relationship with men	20.7
- Feel threatened by sexual contact with women	21.1
- Feel threatened by sexual contact with men	25.4

Table 9

Age of First Sexual Contact, Number of Sexual Partners, and Satisfaction with Relationships Males versus Females for Bisexual Women

Measure	Males *M (SD)*	Females *M (SD)*	*n*	*p*
Age of noticing sexual attraction towards	11.50 (4.57)	13.44 (5.24)	59	.019
Age of first sex	15.51 (2.50)	16.60 (5.90)	47	.214
Frequency of sex (from sometimes to daily)	3.02 (1.40)	1.90 (1.02)	42	.001*
Number of sexual partners[a]	15.80 (18.30)	5.40 (7.34)	46	.001*
Number of romantic relationships[b]	3.90 (1.90)	1.56 (.90)	32	.001*
Average satisfaction romantic relationships (from not at all to extremely)[a]	2.52 (.71)	2.36 (.90)	33	.432
Average satisfaction sexual relationships (from not at all to extremely) [b]	2.60 (.96)	2.58 (1.17)	45	.918
Longest duration of romantic relationship (in months)	25.18 (19.22)	11.76 (17.85)	34	.002*

[a] 1 missing data point
[b] 2 missing data points
* significant with Bonferroni correction

Bridge Between Manuscript II and Manuscript III

In the general introduction to this thesis and in Manuscript I, it was pointed out that little is known about bisexual women, except that they appear to have poorer mental health than lesbian and heterosexual women. Further, it was reviewed how bisexual women have generally been excluded from research on female sexual arousal. In addition, Manuscript I discussed how recent research has suggested that "mostly heterosexual" and "mostly lesbian" women may represent distinct sexual orientation categories (Vrangalova & Savin-Williams, 2012). Traditionally, these women have been placed into monosexual categories in research on female sexual arousal.

Manuscript II found that "mostly heterosexual" and "mostly lesbian" appear to represent distinct sexual orientations that may have more in common with bisexual than monosexual orientations. Further, findings indicated that there might be important differences among bisexual women in how they experience their sexual orientation.

Considering gaps in the literature, Manuscript III compared heterosexual, mostly heterosexual, bisexual, mostly lesbian, and lesbian women's subjective sexual arousal and desire ratings with men and with women. As previously reviewed, it is unclear if sexual orientation is best conceptualized one-dimensionally or bi-dimensionally for non-monosexual women. In light of this and in light of the fact that Manuscript I found that non-monosexual women may experience their attractions to men and to women differently, Manuscript III analyzed arousal and desire ratings separately for sexual contact with men and with women. Finally, in order to assess which dimension(s) of sexual arousal and desire may be most relevant to female sexual orientation, four dimensions were measured, namely a physiological, a cognitive, a motivational, and a negative dimension.

Manuscript III. Comparing Subjective Ratings of Sexual Arousal and Desire in Partnered Sexual Activities from Women of Different Sexual Orientations

Tonje J. Persson, MSc[1] ● Andrew G. Ryder, PhD[2] ● James G. Pfaus, PhD[1]

[1]Center for Studies in Behavioral Neurobiology, Department of Psychology (SP 244), Concordia University, Montreal, QC, H4B 1R6 CANADA

[2] Culture, Health, and Personality Lab, Department of Psychology (PY 153-2), Concordia University, Montreal, QC, H4B 1R6 CANADA

Abstract

Little is known about non-monosexual women's sexual arousal and desire. Typically, bisexual women have been excluded from research on sexual arousal and desire, whereas mostly heterosexual and mostly lesbian women have been placed into monosexual categories. This research 1) compares the subjective sexual arousal and desire of self-identified heterosexual, mostly heterosexual, bisexual, mostly lesbian, and lesbian women in partnered sexual activities with men and with women, and 2) compares within-group differences for subjective sexual arousal and desire with men versus women for the five groups. Participants included 388 women (Mean age = 24.40, *SD* = 6.40, 188 heterosexual, 53 mostly heterosexual, 64 bisexual, 32 mostly lesbian, 51 lesbian) who filled out the *Sexual Arousal and Desire Inventory* (SADI). Sexual orientation was associated with sexual arousal and desire in sexual activities with both men and with women. Bisexuals reported higher sexual arousal and desire for women than heterosexuals and lesbians while lesbians reported lower sexual arousal and desire with men than the other groups. Heterosexuals and mostly heterosexuals scored higher on the male than on the female motivational dimension of the SADI, while the reverse was found for lesbians and mostly lesbians. Findings indicate non-monosexuals have higher sexual arousal and desire in sexual activities with women than monosexuals. Further, bisexual women do not differentiate their sexual arousal with men versus women while the other sexual orientation groups differentiate in terms of their motivation to engage in sexual activity. These findings may have implications for how female sexual orientation is conceptualized.

Keywords: Sexual arousal and desire, sexual minority women, lesbian, mostly lesbian, bisexual, mostly heterosexual, heterosexual

Introduction

Little is known scientifically about the sexual arousal and desire of women that do not subscribe to a monosexual orientation. In general, physiological studies include only heterosexual and/or lesbian women (e. g., Bossio, Suschinsky, Puts, & Chivers, 2013; Chivers et al., 2010; Chivers, 2010; Chivers & Bailey, 2005, 2007; Chivers et al., 2004, 2007; Chivers & Timmers, 2012; Kukkonen, Binik, Amsel, & Carrier, 2007; Laan & Janssen, 2007; Laan, Sonderman, & Janssen, 1995; Suschinsky & Lalumière, 2012; Suschinsky et al., 2009). A major finding of these studies is that heterosexual women's genital arousal, as measured by vaginal plethysmography, is not category-specific but can be activated by a variety of erotic stimuli that depict both heterosexual and lesbian themes. In short, heterosexual women's physiological arousal appears overall bisexual (Bailey, 2009).

Findings for heterosexual women's category-specificity regarding subjective sexual arousal are mixed (Chivers & Bailey, 2005; Chivers et al., 2004, 2007). For instance, Chivers et al. (2004) found that their subjective sexual arousal was higher to erotic films featuring female-male intercourse than to female-female intercourse. However, in another study, they reported higher arousal to female than to male stimuli, indicating lack of category-specificity (Chivers et al., 2007). It is still unclear why heterosexual women would report greater subjective arousal to female than to male stimuli. As pointed out by Chivers et al. (2007): "Further research is needed on the appraisal and meaning of sexual stimuli and on the relationship between these cognitive processes and physiological sexual response [for women] (p.1117). Research has also assessed the concordance between physiological and subjective measures of sexual arousal in these women. A meta-analysis by Chivers et al. (2010) revealed that, for women overall, this relationship is positive but small (Pearson $r = .26$). Thus vaginal arousal may be a poor predictor of self-reported sexual arousal and orientation, at least for heterosexual women (Bailey, 2009).

Some studies have indicated lesbian women may be more category-specific than heterosexual women, both in terms of subjective and genital sexual arousal (Bailey, 2009; Chivers et al., 2004, 2007). For instance, Chivers et al. (2004) found that lesbian women reported the highest subjective sexual arousal to erotic stimuli featuring only women, a finding which was replicated in Chivers et al. (2007). Further, although lesbian women tend to display non-specific genital arousal, they may do so to a lesser extent than heterosexual women (Chivers et al., 2004, 2007). For example, Chivers et al. (2004) documented that while heterosexual women showed

the same level of genital arousal to erotic videos depicting male-male couples, female-female couples, and male-female couples, lesbian women were slightly, although not significantly, more aroused genitally by female-female-stimuli compared to male-male stimuli. Further, in contrast to heterosexual women, lesbian women show significantly greater genital arousal to stimuli featuring nude women exercising and masturbating than to the same stimuli featuring men (Chivers et al., 2007). The specificity of female sexual arousal may be related to sexual orientation (Chivers, 2010), and specifically to a contrast of sexual experiences that lesbians have had relative to heterosexual women (e.g., conscious awareness of greater arousal to female sex-related cues than to male sex-related cues).

Self-identified bisexual women have typically been excluded from sexual psychophysiology studies. As an example, Chivers et al. (2007) wrote that they "opted to exclude […] women who reported equal sexual attraction to both genders to maximize the clarity of the research design with respect to the category-specificity of gender preferences" (p. 1112). In contrast, "mostly heterosexual" and "mostly lesbian" women, who may represent distinct sexual orientation categories (Savin-Williams & Vrangalova, 2013; Vrangalova & Savin-Williams, 2012), have generally been included with heterosexuals and lesbians, respectively (Chivers & Bailey, 2005; Chivers et al., 2004, 2007; Suschinsky et al., 2009). The notable lack of physiological research including non-monosexual women has not only been linked to scientists' preference for methodological and conceptual clarity, but has also been considered to be a reflection of doubts surrounding the existence of bisexuality as a legitimate sexual orientation (Rust, 2000b; Savin-Williams & Vrangalova, 2013; van Anders, 2012).

Although no conclusions may be drawn about the specificity of non-monosexual women's sexual arousal based on findings from sexual psychophysiology, some research using non-genital measures of sexual interest suggests bisexual women's response patterns may differ from their lesbian and heterosexual counterparts. Two viewing-time studies have compared heterosexual, bisexual, and lesbian women's category-specificity (Ebsworth & Lalumière, 2012; Lippa, 2013). Both of these studies found that bisexual women displayed bisexual patterns of sexual interest; they looked equally long at pictures of men and of women and rated the images similarly. In contrast, findings were more mixed for the heterosexual women. Whereas they looked longer at pictures of men than of women and rated them as more attractive in the study by Lippa et al. (2013), they displayed non-specificity in the study by Ebsworth and Lalumière

(2012; for a similar finding, see Israel & Strassberg, 2009). The lesbian women, as in other viewing time research (Rullo, Strassberg, & Israel, 2010), looked longer at pictures of women than of men and rated them as more appealing, indicating a greater degree of category-specificity. In short, although women's genital arousal may be non-specific, other aspects of their sexual orientation may be category-specific, especially for bisexual and lesbian women.

Even if sexual orientation has typically been conceptualized as a combination of attraction (desire), sexual behaviour and pleasure, identity, nature of romantic relationships, and physiological arousal (Bailey, 2009; Laumann et al., 1994; Mustanski et al., 2002), there is evidence to suggest that these separate dimensions may not *necessarily* overlap or predict each other (Diamond, 2008b; Lhomond et al., 2013; Savin-Williams, 2006, 2009). As noted previously, women's genital arousal does not necessarily correspond with their self-reported sexual orientation, which suggests that female genital responding is flexible (see Baumeister, 2000, for a review). Further, researchers have not yet reached a consensus on how to best define or measure female sexual orientation (Diamond, 2003b; Mustanski et al., 2002; Savin-Williams, 2006, 2009; Savin-Williams & Vrangalova, 2013; Vrangalova & Savin-Williams, 2012). Based on sexual psychophysiology findings, Bailey (2009) raised the question: "Whether anything sexually orients women" (p. 61), whereas Diamond (2003) asked: "What does sexual orientation orient?"

Despite there being no definite agreement on how to assess female bisexuality, past research measuring women's self-reported attractions to men and women have, nevertheless, tended to adopt a proportional approach (e. g., Diamond, 1998, 2000, 2003a, 2005, 2008a, 2008b). Although this uni-dimensional methodology may be valid (Rust, 1992), it is possible some women report both high (or low) same-sex and other-sex attractions (Shively & De Cecco, 1977; Storms, 1980; Vrangalova & Savin-Williams, 2012). For instance, one recent study found support for the notion that same-sex and other-sex attractions are not necessarily inversely related; the authors concluded, "Although traditionally the one-dimensional approach has been favored when assessing sexual orientation, we suggest that the two-dimensional model is a better fit to individual lives" (Vrangalova & Savin-Williams, 2012, p. 97).

Some research has suggested that high sex drive is associated with female bisexuality (Lippa, 2006, 2007). Sex drive, a hypothetical construct, is typically considered to be a reflection of sexual attitudes, behaviour, and desire (Baumeister, 2000). Lippa (2006, p. 46) has called it "a

generalized energizer of sexual behaviors." In a series of studies, Lippa (2006, 2007) has found that, for most women (lesbians may be an exception), high sex drive is positively correlated with attraction to both men and to women (supporting the hypothesis that attraction may be bi-dimensional). Further, in that study bisexual women reported higher general sex drive than both lesbian and heterosexual women. If there is indeed a link between non-monosexuality and higher sex drive, then one would expect there to be greater similarity between the sexual arousal and desire of mostly heterosexual, mostly lesbian, and bisexual women than between any of these groups and either lesbians or heterosexuals.

The current research had three goals. The first was to examine similarities and differences in the subjective sexual arousal and desire of heterosexual, bisexual, and lesbian women engendered by partnered sexual activity. Due to the general lack of research investigating the sexual arousal and desire of non-monosexual women, women of five sexual orientation groups were included, along with their subjective ratings of sexual arousal and desire in partnered sexual activities with men and with women. Based on Lippa's (2006, 2007) findings, we expected that the non-monosexual women would rate their sexual arousal and desire higher than the monosexual women. The second goal was to assess whether sexual arousal and desire is one-dimensional or two-dimensional. Based on the viewing-time research discussed above, we hypothesized that the bisexual women would rate their arousal and desire with men and with women similarly whereas the other groups would not. The third goal was to investigate which dimension(s) of sexual arousal and desire may be more relevant to how women define their sexual orientation. Based on the sexual psychophysiology research reviewed in the introduction, we expected that women who have had sexual contact with both men and women, regardless of their sexual orientation, would not differentiate based on physiological responses but rather on motivational responses.

Method

Participants

Participants included 388 women (Mean age = 24.40, *SD* = 6.40, Range = 18-66). Of these, 188 (48.5%) self-defined their sexual orientation as heterosexual, 53 (13.7%) as mostly heterosexual, 64 (16.5%) as bisexual, 32 (8.2%) as mostly lesbian, and 51 (13.1%) as lesbian. The majority reported English as their first language (63%), with 17.5% reporting French and 19.5% reporting "other." Most endorsed English-Canadian as their main cultural affiliation

(63%), 13% endorsed French-Canadian, and 24% endorsed "other." Seventy-five percent of participants were Canadian nationals and most (90%) were currently living in an urban setting. Most of the participants were from a middle-class background (76%), while 15% reported being from a lower class background and 9% reported being from an upper class background. More than half of the sample reported being non-religious (56.3%), while 13.4% were Catholic, 5.7% were Jewish, 5.2% were Protestant, and 19.4% reported religion as "other." The vast majority of participants (71%) were students; of the overall sample, 78% reported having completed or currently completing a college degree, 15% reported having completed or currently completing a post-graduate degree, and 7% reported a high-school degree or less.

Procedures

Data for the current study were collected through an online confidential survey developed by the authors, *Women's Experiences of Sexuality and Intimacy*. This survey takes 1.5 hours to complete and includes questions about demographics, substance abuse, childhood abuse, sexual orientation, sexual identity, sexual behaviour, sexual/romantic/emotional attractions, sexual arousal/desire/orgasm, and symptoms of depression and anxiety. The survey was available in both English and French. Of the women who started the survey, the completion rate was 70%. Eleven percent of the participants answered the survey in French. The Concordia University Human Research Ethics Committee approved all procedures.

Participants included in the current data set responded between April 2011 (launch of the survey) and February 2014. Participants were recruited through a variety of means. Forty-seven percent of the participants answered the survey through the Psychology Participant Pool at Concordia University in Montreal and received course credit for their participation. The remaining 53% consisted of a diversity of women recruited though the community. These women were entered into a draw to win $250. The survey was advertised on Craigslist and Kijjii, which are both websites that post classified advertisements locally. The study was regularly advertised on these two websites in both English and French in Montreal, Ottawa, Toronto, and Vancouver. An advertisement for the study was also posted once in two free weekly newspapers in Montreal. Between April 2011 and until the end of 2012, fliers advertising the survey were also regularly posted around all of the four university campuses in Montreal and around the city of Montreal, generally. On two occasions, the study was advertised to Montreal university students not part of the Participant Pool at Concordia University by classroom announcement in

courses on gender and sexuality. The study was also posted once to the listserv of the Sexual and Gender Identity Section of the Canadian Psychological Association. Finally, the study was advertised by contacting LGBTQ student groups at universities across Canada.

In order to avoid biasing recruitment towards any one sexual orientation group to the greatest extent possible, the majority of the advertisement for the study called for "women to participate in a questionnaire-based study addressing sexual orientation and identity, sexual and emotional experiences, sexual desire and arousal, and mental health." Halfway through data collection, the advertisements posted on Craigslist and Kijjii were changed to "looking for women who self-identify as non-heterosexual" in order to boost the number of sexual minority women. Interested women were directed to send an email to express their interest, at which point they were given a participant code and a link to the survey.

Measures

The Sexual Arousal and Desire Inventory (Toledano & Pfaus, 2006). The Sexual Arousal and Desire Inventory (SADI) is a 54-item descriptive self-report scale intended to measure subjective sexual arousal and desire. Descriptors are rated on a five-point Likert scale, from 0 = "does not describe it at all" to 5 = "describes it perfectly." The overall scale is composed of four sexual arousal and desire dimensions, namely, a "Evaluative" (or cognitive- emotional) component (27 items), a "Physiological" (autonomic and endocrine) component (17 items), a "Motivational" component (10 items), and a "Negative/ Aversive" (or inhibitory) component (17 items). Examples of descriptors for the Evaluative component are "happy" and "attractive"; for the Physiological, "hot" and "throbs in genital area"; for the Motivational, "driven" and "anticipatory", and, for the Negative, "anxious" and "unattractive." The SADI defines sexual arousal "as the physiological responses that accompany or follow sexual desire" whereas sexual desire is defined as "an energizing force that motivates a person to seek out or initiate sexual contact and behavior."

Participants were instructed to "indicate to what extent each word describes how you have normally felt while having sex, with a man or with a woman by placing the number that describes the feeling most accurately." The items for males and females were the same and participants rated their responses for male versus female in alternating order. Cronbach's alphas for the Evaluative dimensions (male and female), the Physiological Dimension (male and female), the Motivational Dimension (male and female), and the Negative Dimension (male and

female) were .93, .92, .88, .85, .80, .80, .87, and .82, respectively.

Data for the SADI were analyzed for people who reported ever having had sexual contact with a man, with a woman, or with both a man and a woman (as a sexually mature adult). Sexual contact was defined as any sexually motivated intimate contact (any oral sex, vaginal sex, and/or anal sex that was consensual).

In addition to the SADI, results were analyzed for the following variables: current sexual partner (none, male, female, several), historical number of sexual partners (male, female, and total), the average number of times having sex with men and with women per week (coded as 0, 1 (1-4), 2 (5-8), and 3 (9 or more), the average number of times desiring to have sex per week (coded as 0, 1 (1-4), 2 (5-8), and 3 (9 or more), and frequency of masturbation (on a scale from 1 = "sometimes" to 5 = "daily"). Frequency of masturbation was only analyzed for those reporting masturbation (n = 354).

Results

Demographics

There were no significant age differences between the sexual orientation groups or in English language fluency. The bisexual group reported less fluency in French than the heterosexual group ($M_{bisexual}$ = 3.10; $M_{heterosexual}$= 3.70), t (1,250) = 3.02, p = .003. The groups did not differ in cultural affiliation or in nationality. However, the lesbians reported living longer in an urban setting than did the mostly lesbians ($M_{lesbian}$ = 22.04 years; $M_{mostly\ lesbian}$ = 16.02 years), t (1,81) = 2.50, p = .015. The heterosexuals reported being more religious than the other groups, $\chi 2$ (4) = 14.58, p = .006.

The groups differed in socioeconomic background (SES), Welch's F (4, 116.70) = 3.70, p = .007. The mostly lesbian group reported lower SES than the mostly heterosexual group ($M_{mostly\ lesbian}$ = 1.75; $M_{mostly\ heterosexual}$ = 2.04), t (1, 83) = 2.90, p = .004. Further, the bisexuals were less educated than the heterosexual and mostly heterosexual groups, ($M_{bisexual}$ = 5.30; $M_{heterosexual}$ = 5.90), t (1, 250) = 4.14, p = .001; ($M_{bisexual}$ = 5.30; $M_{mostly\ heterosexual}$ = 5.94), t (1, 115) = 3.11, p = .002.

Measured Sexual Variables

Of the total sample, 9 (2.3%) reported never having had sexual contact, 158 (40.7%) reported ever having had sexual contact with a male only, 27 (7%) reported ever having had sexual contact with a female only, and 194 (50%) reported ever having had sexual contact with

both a male and a female. Figure 1 illustrates how sexual contact with male and female varied as a function of sexual orientation, while Figure 2 illustrates current sexual partner based on sexual orientation.

There were no significant differences between the sexual orientation groups in total number of sexual partners (approached significance for bisexual versus heterosexual, $p = .071$). Lesbians reported significantly more female sexual partners than the heterosexuals and mostly heterosexuals, ps = .001. Further, the lesbians reported significantly fewer male sexual partners than the bisexuals and mostly heterosexuals, $p = .014$ and $p = .028$, respectively. Figure 3 illustrates number of sexual partners based on sexual orientation.

The lesbians and mostly lesbians reported having sex more often with women per week than all the other sexual orientation groups (all ps = .001 for lesbian to heterosexual, mostly heterosexual, and bisexual; $p = .001$ for mostly lesbian to heterosexual and mostly heterosexual; $p = .033$ for mostly lesbian to bisexual). The bisexuals reported having sex with women more often than the mostly heterosexuals ($p = .023$). Further, the lesbians and mostly lesbians reported having sex less often with men per week than all the other sexual orientation groups (all ps = .001). The other groups did not differ from each other.

Of the total sample, 34 (8.8%) women reported not masturbating. In terms of frequency of masturbation, there were no significant differences between the sexual orientation groups. However, there was a trend towards bisexuals and mostly heterosexuals reporting more frequent masturbation than heterosexuals ($p = .082$ and $p = .086$, respectively). Further, there were also no significant differences between the groups for self-reported weekly desire for sex. Table 1 reports the means and standard deviations, split by sexual orientation group, for sex per week (with men and with women), frequency of masturbation, and weekly desire for sex.

Between-group Differences for the SADI

In order to investigate between-group differences in self-reported sexual arousal and desire for sexual contact with men and with women for the five sexual orientation groups, multivariate analysis of variance (MANOVA) was used. Two separate MANOVAs were run for the four male and the four female dimensions of the SADI. Sexual orientation was entered as the independent variable and the SADI evaluative, negative, physiological, and motivational dimensions were entered as dependent variables.

Overall, sexual orientation was significantly associated with the four male dimensions of

the SADI, F (4, 335) = 7.61, $p < .001$, Wilks' $\lambda = .71$, $\eta^2 = .08$. The univariate tests indicated that sexual orientation was significantly related to all four male dimensions of the SADI (see Table 2). Table 2 also reports Games-Howell post hoc test results.

As a whole, it was found that sexual orientation was significantly associated with the four female dimensions of the SADI, F (4, 203) = 4.09, $p < .001$, Wilks' $\lambda = .73$, $\eta^2 = .08$. Univariate analyses revealed that sexual orientation was significantly related to all female dimensions of the SADI, except for the negative one (see Table 3). Table 3 also reports Games-Howell post hoc test results.

Within-group Differences for the SADI

In order to test within-group differences in self-reported sexual arousal and desire for sexual contact with men and with women, paired-samples *t*-tests were run for the five sexual orientation groups separately. Overall, it was found that there were no significant differences in self-reported sexual arousal and desire with men versus women for any of the sexual orientation groups, except for on the motivational dimension. Heterosexual and mostly heterosexual women had higher scores on the male motivational dimension than on the female motivational dimension, $p = .001$ and $p = .005$, respectively, while the reverse was found for lesbian and mostly lesbian women, $p = .001$ and $p = .025$, respectively. For the bisexual group, there were no differences. See Table 4 for the paired-samples *t*-test descriptive statistics.

Discussion

The findings of this study indicate that a substantial percentage of women define themselves as mostly heterosexual, bisexual, or as mostly lesbian, and that these women's subjective sexual arousal and desire in partnered sexual activities differ from those of heterosexual and lesbian women, further validating mostly heterosexual and mostly lesbian as distinct sexual orientations (Savin-Williams & Vrangalova, 2013; Vrangalova & Savin-Williams, 2012). For sexual contact with women, bisexual women reported the highest sexual arousal and desire of all the sexual orientation groups, and at levels significantly higher than *both* lesbian and heterosexual women. However, the three non-monosexual groups did not differ from each other, which suggests these women's subjective sexual experiences with women may be more similar to each other than to those of heterosexual and to lesbian women.

The results for sexual contact with men were more mixed. Although bisexual women reported the highest levels of sexual arousal and desire, the results were not significant. Lesbian

women scored lower than the other groups, underlining their consistently lower arousal and desire towards men compared to other women, who do not tend to differ from each other.

Overall, results of this research indicate that women who have had sexual contact with men and with women, regardless of their sexual orientation, do not rate their sexual arousal and desire with men versus women differently, except for in their motivation to engage in sexual activity. In short, these findings suggest sexual arousal and desire towards men versus women may not be inversely related, especially for bisexual women. One theory that follows from these findings is that women define their sexual orientation in terms of their motivation to engage in sexual activity with men versus women and not in terms of how they feel when they are actually engaging in sexual activity. In short, bisexual women may be bisexual because they feel equally sexually motivated with men and with women while that may not be the case for the other sexual orientation groups.

The motivational factor of the SADI is similar to the concept of female proceptivity, which is considered a woman's motivation to initiate sexual contact (Beach, 1976; Diamond, 2007; Diamond & Wallen, 2011). In her book on female sexual fluidity (2008b), Diamond contends female sexual orientation is only "coded" into proceptivity (p. 202) and not into arousability, which she defines as "a person's capacity to become aroused once certain triggers, cues, or situations are encountered' (p. 202). The findings of the current study support Diamond's (2008) assertion: women rated men and women the same, *except* for on the motivational dimension. Further, Chivers (2010) has argued female non-concordance and non-specificity are examples of, "a relative independence between physiological, psychological, and behavioural aspects of sexual arousal in women" (p. 416). The fact that the women included in this study did not differentiate men and women on the physiological dimension of the SADI, regardless of their stated sexual orientation, further underlines the fact that sexual orientation for women is *not* equal to their autonomic responses per se.

The within-group analyses did not support the idea that sexual arousal and desire towards men versus women is inversely related, at least for women who have had sexual contact with both genders. Although parts of sexual orientation may be one-dimensional, such as sexual motivation, our results suggest that other parts of sexual orientation may not be. Illustratively, Vrangalova and Savin-Williams (2012) found that mostly heterosexual and mostly lesbian women were equally high in opposite and same-sex sexuality as heterosexual and lesbian

women, implying that being less exclusive does not mean less attraction to men or to women, as would be expected if sexual orientation is one-dimensional.

The fact that the bisexual women in the current study reported higher sexual arousal and desire scores than the heterosexual and the lesbian women (although not significantly so for males) is in line with Lippa's 2007 findings, which documented higher sex drive among bisexual than heterosexual and lesbian women. Lippa (2007) argued bisexual women's high sex drive may "energize" latent same sex-attractions (or other-sex attractions), and it is possible the same mechanism may be at work for mostly heterosexual and mostly lesbian women. In short, the finding that the lesbian women in this research did not report higher sexual arousal and desire towards women than the heterosexual women did could be a reflection of a generalized lower sex drive among monosexual than non-monosexual women.

Other research has found that, cross-culturally, bisexual women score higher on sociosexuality than heterosexual and lesbian women do (Schmitt, 2005). Bisexual women's higher sex drive and greater sociosexuality could help explain why they scored significantly higher than lesbians and heterosexuals on the female dimensions of the SADI but not on the male dimensions. Lippa (2007) made the assumption that bisexual women are mostly heterosexual women with a high sex drive; considering that heterosexuality is considered normative, high sex drive may only be evident in non-normative sexuality, in effect, lesbianism. Basically, bisexual women's high sex drive may not be obvious in heterosexual activities because they do not have to "energize" what is non-normative.

Even if the bisexual women in the current study reported higher levels of sexual arousal and desire than the heterosexual and lesbian women did, they did not proclaim a greater number of total sexual partners, more frequent masturbation, or elevated levels of weekly sexual desire. In short, the current research does not support the stereotype that bisexual women are sexually promiscuous (Israel & Mohr, 2004; Rust, 1995, 2000a). In sum, bisexual women may have the "best of both worlds," in that they report high levels of arousal and desire, without this translating into promiscuity.

Strengths and Limitations

One of the main strengths of this research is that women were broadly recruited and that there was not a call for participants based on any one specific sexual orientation. Past research on sexual minorities may have been limited due to mainly recruiting participants from LGBT

community organizations and LGBT student groups and we attempted to avoid this limitation by recruiting from diverse settings. Further, participants varied in age, nationality, language, and demographics, implying results may be generalized to women from divergent backgrounds. However, despite attempting to get a heterogeneous sample, participants were still only recruited in Canada, and mainly in Montréal, QC.

Further, we only measured subjective sexual arousal and desire. As noted previously, subjective and genital sexual arousal in women may not show concordance (for a meta-analysis, see Chivers et al., 2010). In addition, women's subjective ratings here were based on their memory of sexual contact with men, with women, or with both men and women. Therefore, memory bias cannot be ruled out.

Due to limited sample sizes, we did not control for women's current sexual partner status or length of time since their last sexual contact. As Diamond (2008a, 2008b) has demonstrated, female sexual attractions may fluctuate over time and by relationship status. Therefore, it is possible results could have been different if we had taken into account the gender of the women's current sexual partner.

Also, our research speaks to subjective trait, and not subjective state, differences in sexual arousal and desire. Future laboratory sexual arousal and desire studies should include bisexual, mostly heterosexual, and mostly lesbian women in order to assess whether they differ from monosexual women in response to sexual stimuli. Our findings of subjective trait sexual arousal and desire indicate future studies measuring genital and subjective sexual arousal may benefit from analyzing mostly heterosexual, bisexual, and mostly lesbian women separately from the exclusive categories. However, if collapsing categories is necessary to increase group sizes, our findings suggest it may be more valid combining the three non-monosexual groups rather than placing them into a heterosexual or a lesbian category.

Finally, there has been a call for research to include sexual identity as a covariate when analyzing sexual arousal and desire in response to sexual stimuli (Goldey & van Anders, 2012). The current study underlines the importance of separating women based on a five-category sexual orientation approach and we contend that future studies on sexual arousal and desire should follow this methodology rather than excluding non-monosexual women.

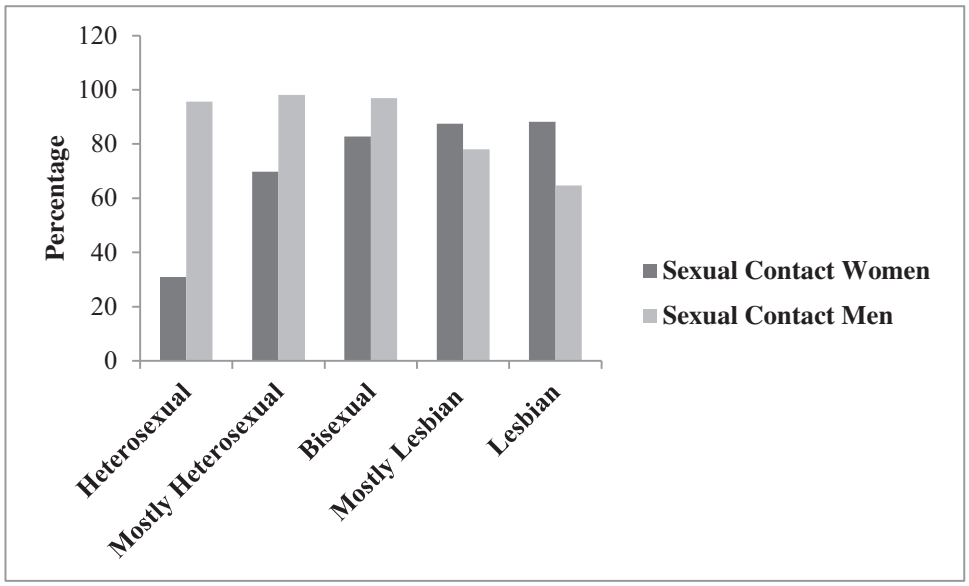

Figure 1. Percentage of women reporting sexual contact with men and with women by sexual orientation

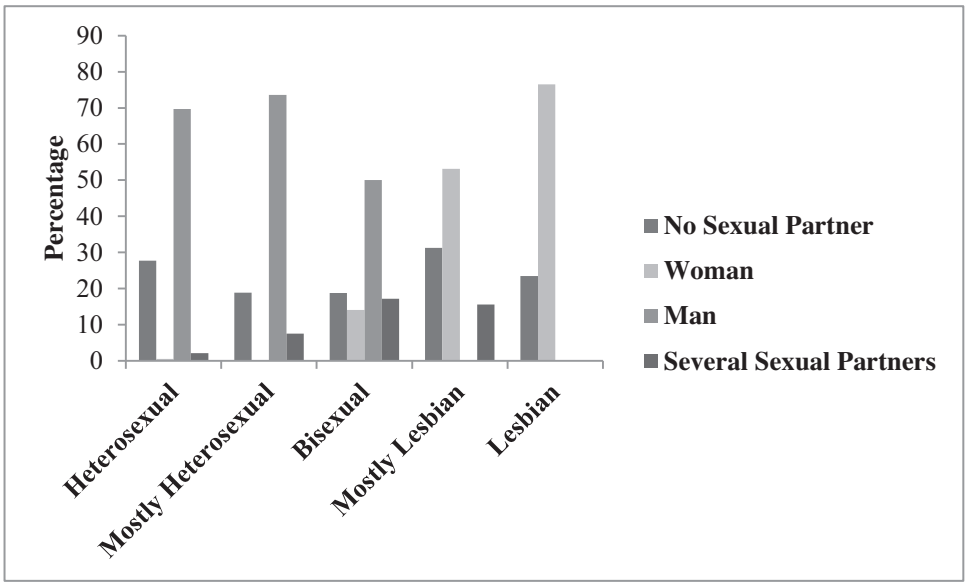

Figure 2. Percentages for current sexual partner status (no sexual partner, male sexual partner, female sexual partner, several sexual partners) by sexual orientation

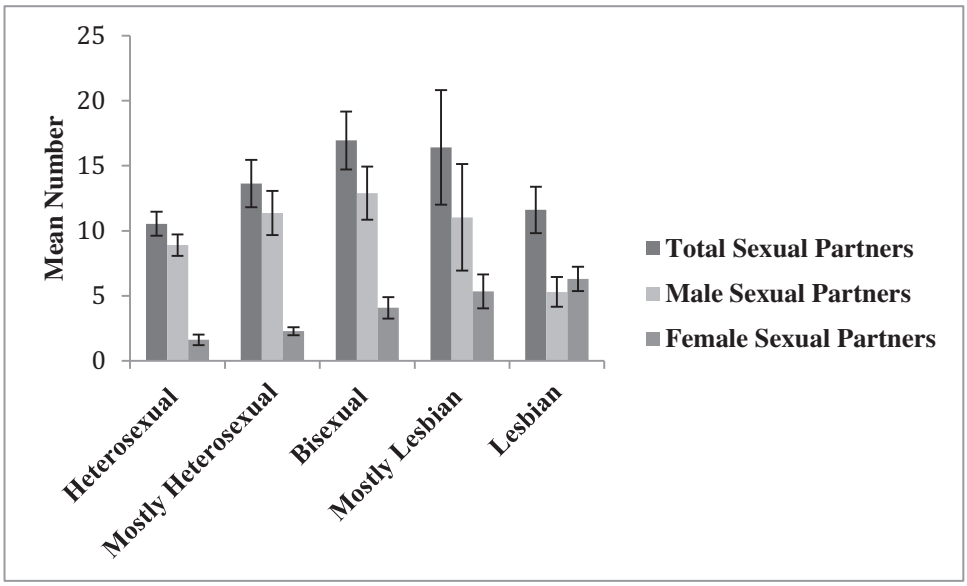

Figure 3. Mean number of sexual partners (total, male, female) by sexual orientation

Table 1
Sex per Week (with Female and Male), Frequency of Masturbation, and Weekly Desire for Sex Split By Sexual Orientation

	Heterosexual (*n* = 188)		Mostly Heterosexual (*n* = 53)		Bisexual (*n* = 64)		Mostly Lesbian (*n* = 32)		Lesbian (*n* = 51)	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Sex per week with female	.10	.41	.06	.23	.27*	.48	.66**	.65	.90**	.74
Sex per week with male	.88	.69	.85	.63	.88	.70	.16**	.45	.12**	.38
Frequency of masturbation***	2.51	1.28	3.06	1.31	3.00	1.33	3.13	1.32	2.80	1.32
Weekly desire for sex	1.64	.82	1.55	.80	1.63	.79	1.72	.85	1.65	.82

*$p < .05$
**$p < .001$
***34 people did not report masturbation and were not included in the calculations

Table 2
Sexual Arousal and Desire Scores for Men Split by Sexual Orientation

Dependent variable	Sexual Orientation	*N*	*Mean*	*SD*	95% Confidence Interval	
					Lower bound	Upper bound
	Heterosexual	172	99.90	25.32	96.21	103.58
Evaluative	Mostly heterosexual	51	96.98	25.57	90.21	103.74
F (4, 335) = 10.41, p <. 01, $\eta 2$ = .11	Bisexual	61	102.16	18.65	95.88	108.35
	Mostly lesbian	25	90.24	20.48	80.58	99.90
	Lesbian	31	70.99[a]	30.99	62.31	79.67
	Heterosexual	172	11.83	12.57	9.84	13.82
Negative	Mostly heterosexual	51	13.86	13.40	10.21	17.52
F (4, 335) = 2.90, p <. 05, $\eta 2$ = .03	Bisexual	61	17.79[b]	12.31	14.45	21.13
	Mostly lesbian	25	16.58	17.34	11.36	21.80
	Lesbian	31	16.45	14.87	11.77	21.14
	Heterosexual	172	57.45	16.17	55.02	59.89
Physiological	Mostly heterosexual	51	56.86	18.39	52.39	61.33
F (4, 335) = 7.30, p <. 01, $\eta 2$ = .08	Bisexual	61	60.00	13.35	55.91	64.09
	Mostly lesbian	25	56.88	13.47	50.50	63.26
	Lesbian	31	41.74[c]	19.57	36.01	47.47
	Heterosexual	172	32.38	8.56	31.07	33.69
Motivational	Mostly heterosexual	51	32.55	9.05	30.14	34.96
F (4, 335) = 22.31, p <. 01, $\eta 2$ = .21	Bisexual	61	34.85	7.25	32.65	37.05
	Mostly lesbian	25	25.88[d]	9.13	22.44	29.32
	Lesbian	31	18.55[a]	11.24	15.46	21.64

[a] Lesbian to heterosexual, to mostly heterosexual, and to bisexual, $p < .01$
[b] Bisexual to heterosexual, $p < .05$
[c] Lesbian to heterosexual, to mostly heterosexual, to bisexual, and to mostly lesbian, $p \leq .01$
[d] Mostly lesbian to heterosexual and to mostly heterosexual, $p < .05$, and to bisexual, $p < .01$

Table 3
Sexual Arousal and Desire Scores for Women Split by Sexual Orientation

Dependent variable	Sexual Orientation	*N*	*Mean*	*SD*	95% Confidence Interval	
					Lower bound	Upper bound
	Heterosexual	51	76.86	33.76	69.95	83.78
Evaluative	Mostly heterosexual	34	98.97[a]	22.60	90.50	107.44
F (4, 203) = 8.43, p <. 01, $\eta 2$ = .14	Bisexual	51	103.73[b]	18.18	98.81	110.64
	Mostly lesbian	28	93.36	20.63	84.03	102.69
	Lesbian	44	87.82	24.33	80.37	95.26
	Heterosexual	51	17.55	12.45	14.11	20.99
Negative	Mostly heterosexual	34	15.09	13.88	10.88	19.30
F (4, 203) = .92, ns, $\eta 2$ = .02	Bisexual	51	17.04	12.06	13.60	20.48
	Mostly lesbian	28	14.71	11.08	10.08	19.35
	Lesbian	44	13.25	12.54	9.55	16.95
	Heterosexual	51	45.35	18.88	41.08	49.62
Physiological	Mostly heterosexual	34	58.29[a]	14.45	53.06	63.53
F (4, 203) = 9.52, p <. 01, $\eta 2$ = .16	Bisexual	51	62.25[b]	12.37	57.98	66.53
	Mostly lesbian	28	55.36	13.65	49.59	61.12
	Lesbian	44	48.86	16.13	44.27	53.46
	Heterosexual	51	23.02[c]	12.99	20.32	25.72
Motivational	Mostly heterosexual	34	30.65	9.15	27.35	33.95
F (4, 203) = 9.42, p <. 01, $\eta 2$ = .16	Bisexual	51	34.69[b]	7.83	31.99	37.38
	Mostly lesbian	28	30.61	9.93	26.97	34.25
	Lesbian	44	29.36	7.51	26.46	33.27

[a] Mostly heterosexual to heterosexual, $p < .01$
[b] Bisexual to heterosexual and to lesbian, $p < .01$
[c] Heterosexual to mostly heterosexual, to mostly lesbian, and to lesbian, $p < .05$

Table 4
Paired-Samples T-Test for Sexual Arousal and Desire Scores by Sexual Orientation

	Sexual Orientation																		
	Heterosexual				Mostly heterosexual				Bisexual				Mostly lesbian				Lesbian		
	n	*M*	*SD*	*t*	*N*	*M*	*SD*	*t*	*N*	*M*	*SD*	*t*	*n*	*M*	*SD*	*t*	*n*	*M*	*SD*	*t*
EvaluativeM	50	85.62	26.75	1.93	34	99.38	21.85	.35	49	103.04	17.36	-.09	22	86.95	18.71	-.56	26	63.45	24.71	-1.81
EvaluativeW		76.56	34.03			98.97	22.60			103.14	18.24			89.14	19.21			75.50	20.86	
NegativeM	51	18.75	12.57	.93	34	14.68	14.68	-.68	49	18.22	12.20	1.38	22	18.70	17.44	1.29	27	18.44	14.83	.51
NegativeW		17.65	12.56			15.09	13.90			17.31	12.04			15.32	10.47			17.48	11.91	
PhysiologicalM	49	47.35	14.93	.98	34	57.47	15.77	-.84	49	60.86	12.91	-1.07	22	54.68	12.44	.83	27	37.07	16.31	-.63
PhysiologicalW		44.71	18.99			58.30	14.45			61.80	12.37			52.45	12.40			39.90	12.97	
MotivationalM	54	29.94	9.69	3.47*	34	33.44	7.50	3.03*	49	35.18	6.74	.83	22	24.32	8.23	-.2.42**	26	15.88	9.07	-5.11*
MotivationalW		23.14	12.46			30.65	9.15			34.51	7.81			29.95	9.16			28.15	7.80	

*$p < .01$
**$p < .05$

Bridge Between Manuscript III and Manuscript IV

Manuscript I reviewed how it has been found that, overall, bisexual women face mental health disparities. Most research has hypothesized bisexual women have poorer mental health than their heterosexual and lesbian counterparts due to experiencing higher levels of minority stress (e. g., stigma and discrimination) (Meyer, 2003). Potential mediating factors other than minority stress, such as childhood abuse and risky sexual behaviour, have not been extensively studied.

Manuscript III demonstrated that a substantial percentage of women define themselves as mostly heterosexual, bisexual, or as mostly lesbian, and that these women's subjective sexual arousal and desire in partnered sexual activities differ from those of heterosexual and lesbian women. Findings echoed those of Manuscript II, which found that, in general, mostly heterosexual and mostly lesbian women appear more similar to bisexual than to heterosexual or lesbian women, which are far more similar to one another, sexually and socially.

Based on findings from Manuscripts II and III, Manuscript IV collapsed mostly heterosexual, bisexual, and mostly lesbian women into a non-monosexual category and heterosexual and lesbian women into a monosexual category. This approach was taken in order to have sufficient group sizes for statistically testing how childhood abuse, risky sexual behaviour, and sexual orientation disclosure may mediate the relationship between sexual orientation and mental health.

Building on past research, we expected that non-monosexual women would report higher levels of depression and anxiety, childhood abuse, and risky sexual behaviour than monosexual women. Further, we expected that childhood abuse would moderate risky sexual behaviour, and that risky sexual behaviour would mediate the relationship between sexual orientation and mental health. Second, we explored the association between sexual orientation disclosure and mental health. We expected lesbian women to be more open that mostly heterosexual, bisexual, and mostly lesbian women, and that openness would mediate the relationship between sexual orientation and mental health.

Manuscript IV. Explaining Mental Health Disparities for Bisexual Women: Abuse History and Risky Sex, or the Burdens of Non-disclosure?

Tonje J. Persson, MSc[1] ● James G. Pfaus, PhD[1] ● Andrew G. Ryder, PhD[2]

[1]Center for Studies in Behavioral Neurobiology, Department of Psychology (SP 244), Concordia University, Montreal, QC, H4B 1R6 CANADA

[2] Culture, Health, and Personality Lab, Department of Psychology (PY 153-2), Concordia University, Montreal, QC, H4B 1R6 CANADA

Abstract

Research has found that bisexual women report worse mental health than their heterosexual and lesbian counterparts. The reasons for these mental health discrepancies are unclear. This study investigated whether higher levels of child abuse and risky sexual behaviour, and lower levels of sexual orientation disclosure, may help explain poorer mental health among non-monosexual women. Participants included 388 women (Mean age = 24.40, *SD* = 6.40, 188 heterosexual, 53 mostly heterosexual, 64 bisexual, 32 mostly lesbian, 51 lesbian) who filled out the Beck Depression and Anxiety Inventories. Participants were collapsed into non-monosexual versus monosexual categories. Non-monosexual women reported more child abuse, risky sexual behaviour, less sexual orientation disclosure, and more symptoms of depression and anxiety than monosexual women. Statistical mediation analyses, using conditional process modelling, revealed that sexual orientation disclosure and risky sexual behavior uniquely, but not sequentially, mediated the relation between sexual orientation and mental health. Sexual orientation disclosure and risky sexual behavior both predicted mental health. Childhood abuse did not moderate mental health or risky sexual behaviour. Findings indicate that elevated levels of risky sexual behavior and deflated levels of sexual orientation disclosure may in part explain mental health disparities among bisexual women. Results highlight potential targets for preventive interventions aimed at decreasing negative mental health outcomes for non-monosexual women, such as public health campaigns targeting bisexual stigma and the development of sex education programs for the most vulnerable sexual minority women.

Keywords: Bisexual women, sexual minority women, mental health, risky sexual behavior, sexual orientation disclosure, child abuse, statistical mediation

Introduction

Several studies have found that bisexual women report higher levels of psychological distress, suicidality, and substance abuse than their heterosexual and lesbian counterparts (e. g., Bostwick, Boyd, Hughes, & McCabe, 2010; Cochran & Mays, 2007; Cochran, Sullivan, & Mays, 2003; Dobinson, Macdonnell, Hampson, Clipsham, & Chow, 2005; Eady, Dobinson, & Ross, 2011; Fredriksen-Goldsen, Kim, Barkan, Balsam, & Mincer, 2010; Hequembourg, Livingston, & Parks, 2013; Hughes et al., 2010; Jorm, Korten, Rodgers, Jacomb, & Christensen, 2002; Kerr, Santurri, & Peters, 2013; King et al., 2008; Koh & Ross, 2006; Lea, Wit, & Reynolds, 2014; McCabe, Hughes, Bostwick, West, & Boyd, 2009; Schick & Dodge, 2012; Steele, Ross, Dobinson, Veldhuizen, & Tinmouth, 2009). Research suggests negative stereotypes exist about bisexuality, such as: bisexuality does not exist as a sexual identity or as a sexual orientation; bisexuals are confused and unable to make up their minds about which gender they prefer; and bisexuals are sexually promiscuous and non-monogamous (e. g., Barker & Langdridge, 2008; Herek, 2002; Israel & Mohr, 2004; McLean, 2008; Mulick & Wright, 2002; Ochs, 1996; Ochs & Deihl, 1992; Rust, 1992, 1993; Rust, 1995; Rust, 2002; Zivony & Lobel, 2014). While identity confusion, risky sexual behavior, and so on might predict maladjustment, there is another possibility: that the negative social reality created by the stereotypes *themselves* help explain the greater prevalence of mental health problems among bisexuals.

For instance, it has been found that heterosexual women hold more negative attitudes towards bisexual women than towards lesbian women (Herek, 2002). Due to these negative stereotypes, it has been assumed that bisexual individuals are subjected to minority stress, in the form of stigma and discrimination (see Meyer, 2003, for a review of the minority stress model), which is in turn hypothesized to relate to their elevated levels of psychological distress. Several studies indicate that there is an association between minority stress and female bisexual mental health (e. g., Bostwick, 2012; Lea et al., 2014; Lehavot & Simoni, 2011; McCabe, Bostwick, Hughes, West, & Boyd, 2010; Ross, Dobinson, & Eady, 2010). For instance, one qualitative study found that bisexual women linked experiences of discrimination based on their sexual orientation to negative mental health outcomes (Ross et al., 2010), while a quantitative study revealed a positive association for bisexual women between their endorsement of bisexual stigma and depressive symptomatology (Bostwick, 2012).

Generally, in mental health research, bisexual women have been studied as one homogeneous group. Consequently, there is a notable lack of research investigating mental health risk and resilience factors within this population (Schick & Dodge, 2012). Further, although minority stress may be a good model for bisexual mental health disparities overall, it is conceivable that factors other than stigma and discrimination may be relevant. Illustratively, in 2012, *the Journal of Bisexuality* published a special issue on bisexuality and health (volume 12, issue 2). In the introduction to this issue, the editors underlined how past research may have masked relevant risk and resilience factors by grouping bisexuals together as one homogeneous group, and encouraged researchers to explore how bisexual health may be mediated by other variables than minority stress (Schick & Dodge, 2012). In conclusion, rather than asking whether bisexual women as a group face mental health disparities, it may be more useful to ask which bisexual women are at risk.

Indeed, there is evidence that there might be more to the story than negative stereotyping. Some studies have explored the association between childhood adversity and sexual orientation (e. g., Alvy, Hughes, Kristjanson, & Wilsnack, 2013; Austin et al., 2007; Austin, Roberts, Corliss, & Molnar, 2008; Balsam, Rothblum, & Beauchaine, 2005; Drabble, Trocki, Hughes, Korcha, & Lown, 2013; Friedman et al., 2011; Hequembourg et al., 2013; Jun et al., 2010; Lehavot, Molina, & Simoni, 2012; McLaughlin, Hatzenbuehler, Xuan, & Conron, 2012; Roberts, Glymour, & Koenen, 2013; Roberts, Austin, Corliss, Vandermorris, & Koenen, 2010; Rothman, Exner, & Baughman, 2011). A meta-analysis has found that sexual minority adolescents are 3.8 times and 1.2 times more likely to experience childhood sexual abuse and parental physical abuse, respectively, than non-minority adolescents (Friedman et al., 2011). Bisexual females reported higher mean absolute prevalence for both sexual (40.4%) and parental physical abuse (33.4%) compared to both lesbian (32.1% and 31.2%, respectively) and heterosexual (16.9% and 18.4%, respectively) females. In addition, bisexuality was found to moderate the relation between sexual orientation and parental physical abuse. Further, recent data has indicated that exposure to victimization and adversity in childhood and adolescence mediates the association between bisexuality and mental health (McLaughlin et al., 2012), and between bisexuality and substance abuse (Jun et al., 2010). In short, childhood adversity may in part explain the link between female bisexuality and mental health disparities.

Research has documented there may be a link between childhood sexual abuse and adult sexual victimization (for a meta-analysis, see Roodman & Clum, 2001) and between childhood sexual abuse and risky sexual behavior in adulthood (e. g., Senn & Carey, 2010; Walsh, Latzman, & Latzman, 2013). A recent study, including females between the ages of 15 and 20, found that bisexual females reported more sexual risk behaviors (e. g., use of emergency contraception, number of male partners) then their heterosexual and lesbian counterparts (Tornello, Riskind, & Patterson, 2013) (for a similar finding, see Steele et al., 2009). Compared to heterosexual females, both lesbian and bisexual females were more likely to report being forced to have sex with a male. The above-mentioned findings fit with other research suggesting bisexual women are more likely to experience adult sexual victimization than other women (Hequembourg et al., 2013; Hughes, McCabe, Wilsnack, West, & Boyd, 2010; Hughes et al., 2010; Lehavot et al., 2012; McLaughlin et al., 2012; Rothman et al., 2011). For instance, Lehavot et al. (2012) found that bisexual women were more likely to report adult sexual assault than lesbian women. Further, Hequembourg et al. (2013) found that bisexual women exposed to childhood sexual abuse were more likely to report adult sexual victimization compared to lesbian women exposed to childhood sexual abuse.

In sum, studies have found that bisexual women report more childhood adversity, more adult sexual victimization, more adult risky sexual behavior, and worse mental health than their heterosexual and lesbian counterparts. A report on bisexual health by the National Gay and Lesbian Task Force (2007) listed sexual health among the top ten health issues relevant to the bisexual community; the report underlined that bisexual women report higher risk sexual behavior than heterosexual women and that they have higher rates of combining substance/alcohol use with sex than both heterosexual and lesbian women (Miller, André, Ebin, & Bessonova, 2007). In short, there has been a call for research to further explore sexual risk among bisexual women (Hequembourg et al., 2013).

Sexual orientation disclosure may be positively associated with physical and mental health (Durso & Meyer, 2013; Juster, Smith, Ouellet, Sindi, & Lupien, 2013; Morris, Waldo, & Rothblum, 2001). For instance, Juster et al. (2013) found that disclosure protects against stress, as measured by diurnal cortisol levels. However, this research combined lesbian and bisexual women and it is therefore unknown whether the benefits of "coming out of the closet" differ between these two groups of women. Recent research has documented that bisexual women are

less likely than lesbian women to disclose their sexual orientation to healthcare providers (Durso & Meyer, 2013). In this study, at one year-follow-up, the researchers found that concealment of sexual orientation was associated with poor psychological wellbeing. The link between disclosure and mental health may be mediated by reactions to the disclosure (Rosario, Schrimshaw, & Hunter, 2009). As previously discussed, bisexual women may be more stigmatized than lesbian women, which, in turn, could be the reason they are less likely to disclose (Ross et al., 2010). For instance, a qualitative study found that bisexual individuals mainly reported negative experiences with mental health service providers (Eady et al., 2011). In contrast, Durso and Meyer (2013) found that expectations of rejection and discrimination did not predict disclosure. In sum, findings regarding the link between disclosure and mental health for bisexual women are mixed.

Recent research has suggested "mostly heterosexual" and "mostly lesbian" represent distinct sexual orientations (Savin-Williams & Vrangalova, 2013; Vrangalova & Savin-Williams, 2012), and that these women's mental health, rates of childhood abuse, and risky sexual behavior are similar to bisexual women's (Alvy et al., 2013; Austin et al., 2008; Corliss, Austin, & Molnar, 2009; Hughes et al., 2010; Loosier & Dittus, 2010; McCabe, Hughes, Bostwick, Morales, & Boyd, 2012). Although the reasons for these observed similarities are still unclear, it has been suggested that mostly heterosexual and mostly lesbian women, as bisexual women, may experience marginalization and low levels of social support (Corliss et al., 2009; Hughes et al., 2010). To the best of our knowledge, no past research has explored the association between sexual orientation disclosure and mental health, including mostly heterosexual and mostly lesbian women.

The purposes of the current research were three-fold. First, we explored the association between female sexual orientation, childhood abuse, risky sexual behaviour, and mental health. Analyses were conducted with both sexual orientation (non-monosexual versus monosexual) and sexual behavior (bisexual versus non-bisexual). Based on the above-mentioned findings, we expected that bisexual women would report higher levels of depression and anxiety, childhood abuse, and risky sexual behavior than monosexual women. Further, we expected that childhood abuse would moderate mental health and risky sexual behaviour, and that risky sexual behavior would mediate the relationship between sexual orientation and mental health. Second, we explored the association between sexual orientation disclosure (to family, acquaintances, and

colleagues) and mental health. We expected lesbian women to be more open than mostly heterosexual, bisexual, and mostly lesbian women, and that openness would mediate the relationship between sexual orientation and mental health. Third, we explored whether there would be sequential mediation, with sexual orientation/behavior predicting sexual orientation disclosure, in turn predicting risky sexual behavior and therefore mental health.

Method

Participants

Participants were 388 women (Mean age = 24.40, *SD* = 6.40, Range = 18-66), of whom 188 (48.5%) self-defined their sexual orientation as heterosexual, 53 (13.7%) as mostly heterosexual, 64 (16.5%) as bisexual, 32 (8.2%) as mostly lesbian, and 51 (13.1%) as lesbian. The majority (63%) reported English as their first language, with 17.5% reporting French and 19.5% reporting "other." Most endorsed English-Canadian as their main cultural affiliation (63%), 13% endorsed French-Canadian, and 24% endorsed "other." Seventy-five percent of participants were Canadian nationals and most (90%) were currently living in an urban setting. Most of the participants were from a middle-class background (76%), while 15% reported being from a lower class background and 9% reported being from an upper class background. More than half of the sample reported being non-religious (56.3%), while 13.4% were Catholic, 5.7% were Jewish, 5.2% were Protestant, and 19.4% reported religion as "other." The vast majority of participants (71%) were students; of the overall sample, 78% reported that they have completed or are currently completing a university degree, 15% reported that they have completed or are currently completing a post-graduate degree, and around 7% reported a high-school degree or less.

Procedures

Data for the current study were collected through an online confidential survey developed by the authors, *Women's Experiences of Sexuality and Intimacy*. This survey took 1.5 hours to complete and included questions about demographics, substance abuse, childhood abuse, sexual orientation, sexual identity, sexual behaviour, sexual/romantic/emotional attractions, sexual arousal/desire/orgasm, and symptoms of depression and anxiety. The survey was available in both English and French. Of the women who started the survey, the completion rate was 70%.

Eleven percent of the participants answered the survey in French. The Concordia University Human Research Ethics Committee approved all procedures.

Participants included in the current data set responded between April 2011 (launch of the survey) and February 2014. Participants were recruited through a variety of means. Forty-seven percent of the participants answered the survey through the Psychology Participant Pool at Concordia University in Montreal and received course credit for their participation. The remaining 53% consisted of a diversity of women recruited though the community. These women were entered into a draw to win $250. The survey was advertised on Craigslist and Kijjii, which are both websites that post classified advertisements locally. The study was regularly advertised on these two websites in both English and French in Montreal, Ottawa, Toronto, and Vancouver. An advertisement for the study was also posted once in two free weekly newspapers in Montreal. Between April 2011 and until the end of 2012, fliers advertising the survey were also regularly posted around all of the four university campuses in Montreal and around the city of Montreal, generally. On two occasions, the study was advertised to Montreal university students not part of the Participant Pool at Concordia University by classroom announcement in courses on gender and sexuality. The study was also posted once to the listserv of the Sexual and Gender Identity Section of the Canadian Psychological Association. Finally, the study was advertised by contacting LGBTQ student groups at universities across Canada.

In order to avoid biasing recruitment towards any one sexual orientation group to the greatest extent possible, the majority of the advertisement for the study called for "women to participate in a questionnaire-based study addressing sexual orientation and identity, sexual and emotional experiences, sexual desire and arousal, and mental health." Halfway through data collection, the advertisements posted on Craigslist and Kijjii were changed to "looking for women who self-identify as non-heterosexual" in order to boost the number of sexual minority women. Interested women were directed to send an email to express their interest, at which point they were given a participant code and a link to the survey.

Measures

Mental health outcomes

The Beck Depression Inventory – II (BDI-II) (Beck, Steer, & Brown, 1996). The BDI-II is a 21-item self-report inventory that inquires about depressive symptoms. Each item, reflecting a depressive symptom, is rated on a 4-point Likert scale, ranging from 0 to 3. Participants are

instructed to pick the statements that best describe how they have been feeling during the past two weeks. The BDI-II has excellent internal consistency, test-retest reliability, convergent and divergent validity in both clinical and community samples (Beck et al., 1996; Steer & Clark, 1997). The Cronbach's alpha was .93 for the current study.

The Beck Anxiety Inventory (BAI) (Beck, Epstein, Brown, & Steer, 1988; Beck & Steer, 1990). The BAI is a 21-item self-report inventory that measures state anxiety. Each item, reflecting a symptom of anxiety, is rated on a 4-point Likert scale, ranging from 0, "not at all," to 3, "severely." Participants are instructed to indicate to which extent they have been bothered by each symptom during the last week. The BAI has excellent internal consistency, test-retest reliability, convergent and divergent validity in both clinical and community samples (Beck & Steer, 1990; Creamer, Foran, & Bell, 1995). The Cronbach's alpha was .94 for the current study.

Included variables

Sexual Orientation. Two dimensions, namely, self-identification and sexual behaviour, were used to assess sexual orientation. Self-identification included the question: "What is your sexual orientation?" Participants were given seven options, namely, heterosexual, mostly heterosexual, bisexual, mostly lesbian, lesbian, asexual, and unsure. None chose "asexual." The 11 who chose "unsure" were excluded due to low sample size.

In order to increase power, we combined heterosexual and lesbian women into a monosexual category (n = 239), whereas mostly heterosexual, bisexual, and mostly lesbian women were combined into a non-monosexual category (n = 149). This approach has not previously been used in research. Traditionally, in diverse types of studies, mostly heterosexual and mostly lesbian women have been placed into heterosexual or lesbian categories, respectively, comparing those two groups to bisexual women (e. g., Austin et al., 2007; Chivers, Seto, & Blanchard, 2007; Corliss, Rosario, Wypij, Fisher, & Austin, 2008; Kerr et al., 2013; King et al., 2008; McLaughlin et al., 2012). Our research approach was based on three lines of reasoning. First, studies have indicated non-monosexual women face mental health disparities compared to both heterosexual and lesbian women, and that mostly heterosexual and mostly lesbian women may be more similar to bisexual than to monosexual women (e. g., Austin et al., 2008; Corliss et al., 2009; Hughes et al., 2010; Loosier & Dittus, 2010; McCabe et al., 2012). Further, a meta-analysis found that bisexuality moderated the relationship between sexual orientation and childhood physical abuse; the differences between bisexual and heterosexual individuals were

larger than those between gay/lesbian and heterosexual individuals (Friedman et al., 2011). Second, our previous research (Persson, Ryder, Kyres, & Pfaus, 2014; Persson, Ryder, & Pfaus, 2014) has suggested that mostly heterosexual and mostly lesbian women are more similar to bisexual than to heterosexual or lesbian women, which are far more similar to one another, sexually and socially. Third, the lesbian and heterosexual groups have one major characteristic in common, namely that they are monosexual. It has been argued that society tends to value a dichotomous understanding of sexuality, that is, one is either homosexual or one is heterosexual (Ross et al., 2010; Rust, 2002). On a structural level, the lesbian and heterosexual groups are the same, due to their single-gender orientation, while the mostly lesbian, bisexual, and mostly heterosexual groups are the same, due to their dual-gender orientation.

Sexual behavior was assessed by participants' responses to the questions: "Do you have sex with male partners?" and "Do you have sex with female partners?" Participants who positively endorsed both questions (n = 85) were coded "bisexual behaviour," whereas those who endorsed sex only with males or only with females (n = 293) were coded "monosexual behaviour." Sexual behavior was defined as: "Any activity of a sexual nature. It can be done exclusively for the pleasure inherent in sexual gratification and orgasm, or to achieve an intimate bond with another person. It can include any type of genital stimulation" (Mah & Binik, 2002). Ten participants reported not having sex and were excluded from analyses in which sexual behavior was used as the predictor.

Child abuse. Child abuse was assessed with the categorical question: "Do you have a history of child abuse?" Those who answered "yes," specified which type(s): Sexual, emotional, and/or physical. Due to low sample sizes, statistical analyses were conducted based only on "yes" versus "no."

Risky sexual behavior. Risky sexual behavior was assessed with the continuous question: "Do you engage in risky sexual behaviour?" Answers were on a 7-point Likert scale, from 0, "never", to 6, "always."

Sexual orientation disclosure. Sexual orientation disclosure was assessed with four categorical questions: "Are you open about your sexual orientation with 1) family, with 2) friends, with 3) acquaintances, with 4) colleagues?" Their answers were summed into one continuous variable. With all four variables included, the Chronbach's alpha was .69. Considering that item-total statistics indicated the Chronbach's alpha would increase to .75 if the

item for openness with friends were excluded, we opted to use the scale without this item. Of note, 97.6% of participants reported being open with their friends.

Outliers and Missing Data

The variables were screened for missing data and outliers. There was no missing data for the BDI-II, BAI, child abuse, or sexual orientation disclosure. There were two missing data points for risky sexual behavior, which were coded as "999." Outliers were identified for the BDI-II, BAI, risky sexual behavior, and sexual orientation disclosure in accordance with recommendations outlined by Tabachnick and Fidell (2013). Univariate outliers (2 for the BDI-II, 2 for the BAI, 13 for risky sexual behavior, and 0 for sexual orientation disclosure) were Winsorized according to within plus or minus 3.3 standard deviations. Multivariate outliers were identified by Mahalanobis distance; none were found.

Results

Demographics

There were no significant age differences between the sexual orientation groups ($p = .13$) or in English language fluency ($p = .67$). The bisexual group reported less fluency in French than the heterosexual group ($M_{bisexual} = 3.10$; $M_{heterosexual} = 3.70$), t (1,250) = 3.02, $p < .01$. The groups did not differ in cultural affiliation (English-Canadian, French-Canadian, "other"), χ^2 (8) = 14.16, $p = .08$, or in nationality (Canadian versus "other"), $\chi 2$ (4) = 1.42, $p = .84$. However, the lesbians reported living longer in an urban setting than did the mostly lesbians ($M_{lesbian} = 22.04$ years; $M_{mostly\ lesbian} = 16.02$ years), t (1,81) = 2.50, $p < .05$. The heterosexuals reported being more religious than the other groups, $\chi 2$ (4) = 14.58, $p < .01$.

The groups differed in socioeconomic background (SES), Welch's F (4, 116.70) = 3.70, $p < .01$. The mostly lesbian group reported lower SES than the mostly heterosexual group ($M_{mostly\ lesbian} = 1.75$; $M_{mostly\ heterosexual} = 2.04$), t (1, 83) = 2.90, $p < .01$. Further, the bisexuals were less educated than the heterosexual and mostly heterosexual groups, ($M_{bisexual} = 5.30$; $M_{heterosexual} = 5.90$), t (1, 250) = 4.14, $p < .01$; ($M_{bisexual} = 5.30$; $M_{mostly\ heterosexual} = 5.94$), t (1, 115) = 3.11, $p < .01$.

Preliminary analyses

Child abuse

Chi-square analysis indicated non-monosexual women were more likely to report

childhood abuse (33.6%) than monosexual women (15.5%), χ^2 (1) = 17.24, $p < .001$, $\phi = .21$, $p < .001$. Further, women with bisexual behavior were more likely to report child abuse (37.6%) than women without bisexual behavior (18.1%), χ^2 (1) = 14.46, $p < .001$, $\phi = .20$, $p < .001$.

Risky sexual behavior

One-way ANOVA revealed that non-monosexual women reported more risky sexual behavior than monosexual women, ($M_{non\text{-}monosexual} = 0.96$; $M_{monosexual} = 0.63$), F (1, 384) = 7.04, $p < .01$. Further, women with bisexual behavior reported more risky sexual behavior than women without bisexual behaviour, ($M_{bisexual} = 1.13$; $M_{non\text{-}bisexual} = 0.65$), F (1, 374) = 10.42, $p < .01$. Note that the reduced sample sizes were due to two missing responses.

Openness sexual orientation

One-way ANOVA revealed that non-monosexual women reported being less open about their sexual orientation than lesbian women, ($M_{non\text{-}monosexual} = 1.69$; $M_{lesbian} = 2.37$), F (1, 198) = 16.20, $p < .001$. Further, women with bisexual behavior reported being less open than women without bisexual behaviour, ($M_{bisexual} = 1.71$; $M_{non\text{-}bisexual} = 2.35$), F (1, 376) = 25.04, $p < .001$.

Mental health outcomes

One-way ANOVA showed that non-monosexual women reported more symptoms of depression than monosexual women, ($M_{non\text{-}monosexual} = 13.46$; $M_{monosexual} = 10.90$), F (1, 386) = 5.74, $p < .01$, and more symptoms of anxiety than monosexual women, ($M_{non\text{-}monosexual} = 17.91$; $M_{monosexual} = 14.00$), F (1, 386) = 8.75, $p < .01$. Further, women with bisexual behavior reported more symptoms of depression than women without bisexual behaviour, ($M_{bisexual} = 15.13$; $M_{non\text{-}bisexual} = 10.79$), F (1, 376) = 12.42, $p < .001$, and more symptoms of anxiety than women without bisexual behaviour, ($M_{bisexual} = 19.32$; $M_{non\text{-}bisexual} = 14.32$), F (1, 376) = 10.19, $p < .01$.

Mediation and moderation analyses

Statistical mediation and moderation analyses were conducted using the PROCESS macro for SPSS (Hayes, 2009; Hayes, 2013; Preacher, Rucker, & Hayes, 2007). PROCESS calculates a bias-corrected and accelerated bootstrapped confidence interval for the size of each indirect effect (5000 resamples used in the current study). Significant mediation is indicated by a confidence interval that does not contain zero.

The analyses consisted of four main steps: (1) Testing whether childhood abuse moderated the association between sexual orientation/behavior and depression/anxiety (PROCESS Model 1 - simple moderation); (2) Testing a moderation-mediation model, in which

child abuse was entered as a moderator, risky sexual behavior as a mediator, sexual orientation/behavior as independent variables, and depression/anxiety as dependent variables (PROCESS Model 7 - moderation-mediation); (3) Testing whether risky sexual behavior and openness about sexual behavior uniquely mediated the relationship between sexual orientation/behavior and depression/anxiety (PROCESS Model 4 - simple mediation); and (4) Testing whether risky sexual behavior and openness about sexual orientation sequentially mediated the relationship between sexual orientation/behavior and depression/anxiety (PROCESS Model 6 – sequential mediation). The monosexual group was coded as zero and the non-monosexual group as 1. Childhood abuse was included as a moderator rather than as a mediator in the statistical models because PROCESS does not allow for categorical mediators.

PROCESS Model 1 – Child abuse as a moderator

Model 1 was tested four times: (1) sexual orientation as a predictor with depression as an outcome; (2) sexual orientation as a predictor with anxiety as an outcome; (3) sexual behavior as a predictor with depression as an outcome; and (4) sexual behavior with anxiety as an outcome. Overall, we found that child abuse did not moderate the relationship between sexual orientation/behavior and mental health. The results were as follows: (1) R^2_{ch} = .0008, F (1, 384) = .34, p = .56; (2) R^2_{ch} = .0040, F (1, 384) = 1.60, p = .21; (3) R^2_{ch} = .0002, F (1, 374) = .07, p = .80; and (4) R^2_{ch} = .0018, F (1, 374) = .69, p = .41. Although childhood abuse was not a moderator, it predicted depression and anxiety with sexual orientation as a predictor, unstandardized coefficient = 5.10, p = .0048, 95% CI [1.56, 8.64], unstandardized coefficient = 6.03, p = .0076, 95% CI [1.61, .10.45], respectively, and depression with sexual behavior as a predictor, unstandardized coefficient = 3.46, p = .0220, 95% CI [.50, 6.42].

PROCESS Model 7 – Moderation-mediation child abuse and risky sexual behaviour

See Fig. 1 for the hypothesized relationships. Childhood abuse did not predict risky sexual behaviour, with sexual orientation and sexual behavior as predictors, unstandardized coefficient = .06, p = .78, 95% CI [-.36, .48], and unstandardized coefficient = .13, p = .49, 95% CI [-.23, .49], respectively. Contrary to expectations, childhood abuse did not moderate the relationship between sexual orientation and risky sexual behavior or between sexual behavior and risky sexual behaviour, unstandardized coefficient = .21, p = .48, 95% CI [-.38, .80], and unstandardized coefficient = .07, p = .84, 95% CI [-.58, .71], respectively. For sexual orientation with depression as an outcome, the index of moderated mediation was .28, 95% CI [-.48, 1.29],

whereas for anxiety as an outcome, it was .34, 95% CI [-.63, 1.43]. For sexual behavior with depression as an outcome, the index of moderated mediation was .08, 95% CI [-.84, 1.15], whereas for anxiety as an outcome, it was .10, 95% CI [-1.03, 1.41]. Considering there was no evidence of moderation of risky sexual behavior by childhood abuse, childhood abuse was not included in the subsequent analyses.

PROCESS Model 4 – Simple mediation with risky sexual behaviour and sexual orientation disclosure (openness) as independent mediators

See Fig. 2 for an illustration. Risky sexual behavior and sexual orientation disclosure were both found to mediate the relationship between sexual orientation/behavior and mental health (see Table 1 for indirect and direct effects with risky sexual behavior as the mediator and Table 2 for indirect and direct effects with sexual orientation disclosure as the mediator). Further, risky sexual behavior and sexual orientation disclosure directly predicted mental health scores. Considering that results were stronger when sexual behavior rather than sexual orientation was used as the independent variable, sexual orientation was not used as an independent variable for the last set of analyses.

PROCESS Model 6 – Sequential mediation

See Fig. 3 for an illustration. Sexual behavior was entered as the independent variable, depression and anxiety as the dependent variables, and risky sexual behavior and sexual orientation disclosure as the mediators, resulting in two sequential mediation models.

As previously demonstrated by the simple mediation models, risky sexual behavior and sexual orientation disclosure uniquely fed into mental health and mediated the association between sexual behavior and mental health. However, sexual orientation disclosure did not uniquely predict risky sexual behaviour, unstandardized coefficient = -.09, p = .1151, 95% CI [-.21, -.02], and the model for sequential mediation was not significant for depression, effect = .07, 95% CI [-.01, .24], or for anxiety, effect = .08, 95% CI [-.01, .32] (See Table 3 for indirect effects for depression and anxiety). Although the sequential mediation model was not significant, it is worth noting that the lower bound of the confidence interval was close to zero.

Discussion

Findings of this research suggest that higher levels of risky sexual behavior and lower levels of sexual orientation disclosure may in part explain why bisexual, mostly heterosexual, and mostly lesbian women report poorer mental health than their lesbian and heterosexual

counterparts. Contrary to expectations, childhood abuse did not moderate the relationship between sexual orientation and mental health nor between sexual orientation and risky sexual behaviour. In short, although non-monosexual women were found to report higher levels of childhood abuse, it did not interact with their mental health outcomes. In general, results were stronger when sexual behavior rather than sexual orientation was used as the predictor, in line with recent data suggesting that research findings relevant to sexual orientation may be sensitive to which dimension of sexual orientation is used (McCabe et al., 2012; Savin-Williams, 2009).

In line with past research, non-monosexual women reported more childhood abuse (e. g., Friedman et al., 2011), more risky sexual behavior (e. g., Steele et al., 2009; Tornello et al., 2013), less sexual orientation disclosure (e. g., Durso & Meyer, 2013), and higher symptoms of depression and anxiety (e. g., Kerr et al., 2013) than monosexual women. In short, results of this study support a growing body of research documenting mental health disparities, higher reported levels of childhood adversity, sexual health concerns, and greater sexual orientation concealment among bisexual, mostly heterosexual, and mostly lesbian women.

Childhood Abuse as a Moderator of Risky Sex

Research has found that childhood sexual abuse predicts risky sexual behavior in adulthood (e. g., Arriola, Louden, Doldren, & Fortenberry, 2005; Hequembourg et al., 2013; Paolucci, Genuis, & Violato, 2001; Senn & Carey, 2010; Sweet & Welles, 2012; Sweet, Polansky, & Welles, 2013; Walsh et al., 2013) and that this association may be stronger for bisexual than lesbian women (Hequembourg et al., 2013). Although there may be a link between childhood sexual abuse and risky sexual behavior in adulthood, one study including heterosexual and mostly heterosexual women, found that even if the mostly heterosexual women reported more childhood sexual abuse and more risky sexual behavior than did heterosexual women, childhood sexual abuse did not mediate the relationship between sexual orientation and sexual risk behaviors (Austin et al., 2008).

Our findings reflect those of Austin et al. (2008): we found that non-monosexual women reported both more childhood abuse and higher levels of risky sexual behavior than monosexual women but that childhood abuse did not moderate the association between sexual orientation and risky sex. In contrast to this study, however, childhood abuse did not predict risky sexual behavior in our sample. Our results may be a reflection of study limitations, such as collapsing sexual, emotional, and physical abuse into one general abuse category, which may have masked

differential effects of the three types of abuse. For instance, one study found a significant positive correlation between childhood sexual abuse and adult risky sex but not between childhood physical abuse and adult risky sex (Walsh et al., 2013). In a study including childhood sexual, physical, and psychological abuse, along with neglect, all predicted female adult risky sexual behavior (Senn & Carey, 2010). However, when controlling for the other forms of abuse, it was found that only childhood sexual abuse was uniquely associated with adult risky sexual behavior. Further, a meta-analysis investigating the link between female childhood sexual abuse and adult re-victimization found that studies which used more inclusive definitions of childhood abuse yielded smaller effect sizes than studies with narrower definitions (Roodman & Clum, 2001). In our study, childhood abuse was coded as a categorical rather than as a continuous variable, making it impossible to account for childhood abuse severity. Hequembourg et al. (2013) found that more severe childhood sexual abuse was associated with more severe adult sexual victimization. It is possible we did not find a link between childhood abuse and risky sexual behavior because our abuse category may have included women who have only experienced minimal levels of abuse.

Childhood Abuse as a Moderator of Mental Health

In the first study to assess how childhood adversity may explain sexual orientation disparities in mental health, childhood sexual abuse and physical abuse were shown to be partial mediators of the association between sexual orientation and mental health disparities (McLaughlin et al., 2012). This study separately compared gay/lesbian and bisexual to heterosexual participants and did not perform analyses split by gender. Therefore, it is unknown how the association between childhood abuse and mental health may directly vary between lesbian and bisexual women. Although we did not find childhood abuse to moderate the relation between sexual orientation and mental health, in line with past research (e. g., (McLaughlin et al., 2010), we found that childhood abuse directly predicted worse mental health. In short, there was a main effect of sexual orientation and childhood abuse on mental health but no interaction between the two. The fact that childhood abuse was not a moderator of mental health could be associated with the methodological limitations pointed out above.

Further, although our methodological approach of combining monosexual women into one group and non-monosexual women into another may be well reasoned, it is nevertheless possible that childhood abuse was not found to interact with mental health because the childhood

abuse rates reported by the lesbian women may have been more similar to those reported by the non-monosexual than the heterosexual women (e. g., Alvy et al., 2013; Austin et al., 2007). If the lesbian women included did in fact experience similar levels of childhood abuse as the non-monosexual women, this could imply that our mediation analyses may have been compromised, due to the previously documented link between childhood abuse, risky sex, and mental health diversity. In short, combining lesbian with heterosexual women should have decreased group differences. However, despite these potential limitations, we found that non-monosexual women reported both more risky sex and worse mental health.

Risky Sexual Behavior and Sexual Orientation Disclosure as Mediators of Mental Health

It was found that risky sexual behavior and sexual orientation disclosure both independently mediated the relationship between sexual orientation and mental health. Although recent research has found that mental health mediates the link between childhood sexual abuse and sexual risk for both heterosexual and homosexual groups (Sweet et al., 2013), to the best of our knowledge, this is the first study to assess how sexual risk may explain sexual orientation disparities in mental health. In other words, previous research had explored the pathway from mental health to sexual risk but not the other way around (for a systematic review, see Meade & Sikkema, 2005).

Our results suggest that the association between mental health and risky sexual behavior may be bidirectional rather than unidirectional. Although it is unclear why sexual risk would mediate the relation between sexual orientation and mental health, it is possible that risky sexual behavior is a reflection of overall poor adjustment, which may feed into depression and anxiety. For instance, sexual risk taking has been associated with externalizing behaviors among adolescent girls (Starr, Donenberg, & Emerson, 2012). Further, it has been found that emotion dysregulation is linked to risky sexual behavior, in turn linked to adult sexual victimization (Messman-Moore, Walsh, & DiLillo, 2010). For sexual minority adolescent girls, it has been documented that unwanted sexual experiences predict higher risk of sexually transmitted diseases (Oshri, Handley, Sutton, Wortel, & Burnette, 2014). Past research has shown that bisexual women engage in more risky sexual behaviors and report more adult sexual victimization than monosexual women (Hequembourg et al., 2013; Lehavot et al., 2012; Tornello et al., 2013). In a study including lesbian and bisexual women, adult sexual victimization predicted elevated psychological distress (Morris & Balsam, 2003).

Further, risky sexual behavior has been linked to substance use problems (Cooper, 2002; Walsh et al., 2013), in turn associated with poor mental health among sexual minorities (for a meta-analysis, see Goldbach, Tanner-Smith, Bagwell, & Dunlap, 2013). Bisexual women have been found to report the highest rates of heavy/hazardous drinking (Hughes et al., 2010; Midanik, Drabble, Trocki, & Sell, 2006; Wilsnack et al., 2008), and to be more likely to combine substance/alcohol use with sex than both heterosexual and lesbian women (Miller et al., 2007). Further, mostly heterosexual women have been found to report the highest rates of adult sexual assault and to be at higher risk of hazardous drinking than heterosexual women (Hughes et al., 2010). In conclusion, it is conceivable that risky sexual behavior mediated mental health through an association with adult sexual victimization and/or alcohol use. We recommend that future studies assess mediation models in which risky sexual behaviour, adult sexual victimization, and alcohol use are all included.

The fact that sexual orientation disclosure mediated mental health concurs with other research indicating concealment may increase risk of psychological distress (Durso & Meyer, 2013). In his minority stress model, Meyer (2003) suggests that sexual orientation concealment is part of a proximal process in which sexual minorities hide their sexuality in an effort to cope with "their stigmatizing attribute" (p. 681). However, as he points out, hiding part of the self can become stressful and may lead to negative mental health outcomes. Although the current study did not inquire about fear of discrimination and stigma, the observation that lesbian women were more open that non-monosexual women may be a reflection of a Canadian social climate in which homosexuality is well recognized and protected by social policies, such as equal marriage rights. Canadian qualitative research has shown that bisexual individuals report being fearful of disclosing their sexual orientation due to concerns of being dismissed and pathologized (Eady et al., 2011; Ross et al., 2010). Very recent research in the Unites States has found that bisexual individuals face prejudice, stigma, and discrimination from both heterosexual and homosexual individuals, and that close to 15 percent do not trust that bisexuality is a legitimate sexual orientation (Friedman et al., 2014). The authors argue that the stigma faced by bisexual people may lead to them hiding their sexuality, in turn resulting in social isolation and negative mental health outcomes. The doubts surrounding the existence of bisexuality is not only evident in research studies, but also depicted in the media, recently by an article in *the New York Times*, entitled *The Scientific Quest to Prove Bisexuality Exists* (Denizet-Lewis, 2014).

Although sexual orientation disclosure did not uniquely predict risky sexual behavior and the sequential mediation model was not significant, it is nevertheless worth mentioning that the model was close to significance. Future studies, including larger samples than ours, should continue to explore how sexual orientation disclosure affects sexual health, in addition to mental health. The observation that bisexual women are less likely to disclose their sexual orientation to health care providers than lesbian women (Durso & Meyer, 2013) could mean that they are receiving less culturally competent sexual health education, which may increase their sexual risk.

Implications

The findings of this research highlight targets for preventive interventions aimed at decreasing negative mental health outcomes for non-monosexual women, such as public health campaigns targeting bisexual stigma and the development of sex education programs for the most vulnerable sexual minority women. In their study of attitudes towards bisexual individuals in the United States, Friedman and colleagues (2014) suggested that interventions should be developed to reduce bisexual stigma both in heterosexual and homosexual communities: "Reducing levels of perceived and endured stigma will likely lead to increased disclosure of bisexual behavior and identity to families, peers, partners, and medical and mental healthcare providers. Increased disclosure of bisexuality will ideally in turn lead to lower levels of isolation and higher levels of social support, as has been demonstrated in the "gay liberation" movement by gay men and lesbian women." (p. 6). Further, Durso and Meyer (2013) has suggested that health care providers may benefit from cultural competency training discussing differences between sexual minority groups. Our study is the first to show how sexual risk and sexual orientation disclosure mediate the link between sexual orientation and mental health. The fact that non-monosexual women may face mental health disparities indirectly through lower levels of sexual orientation disclosure and higher levels of sexual risk, underline the importance of improving the social climate for bisexual women.

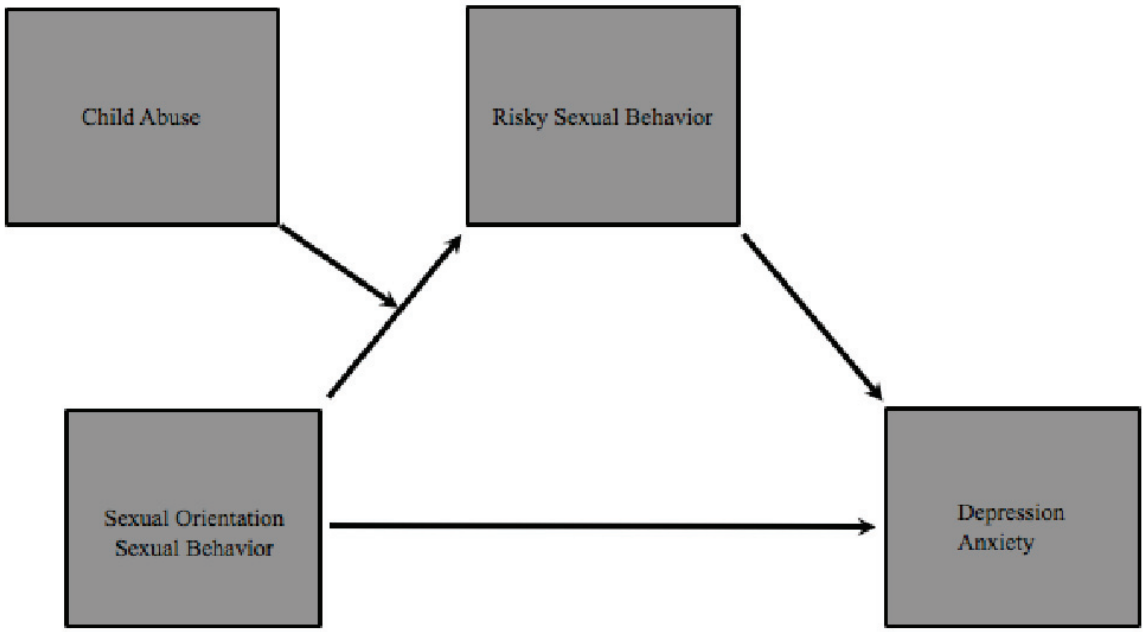

Figure 1. Theoretical model depicting potential moderating and mediating relationships between sexual orientation/behaviour, child abuse, risky sexual behavior, and depression/anxiety

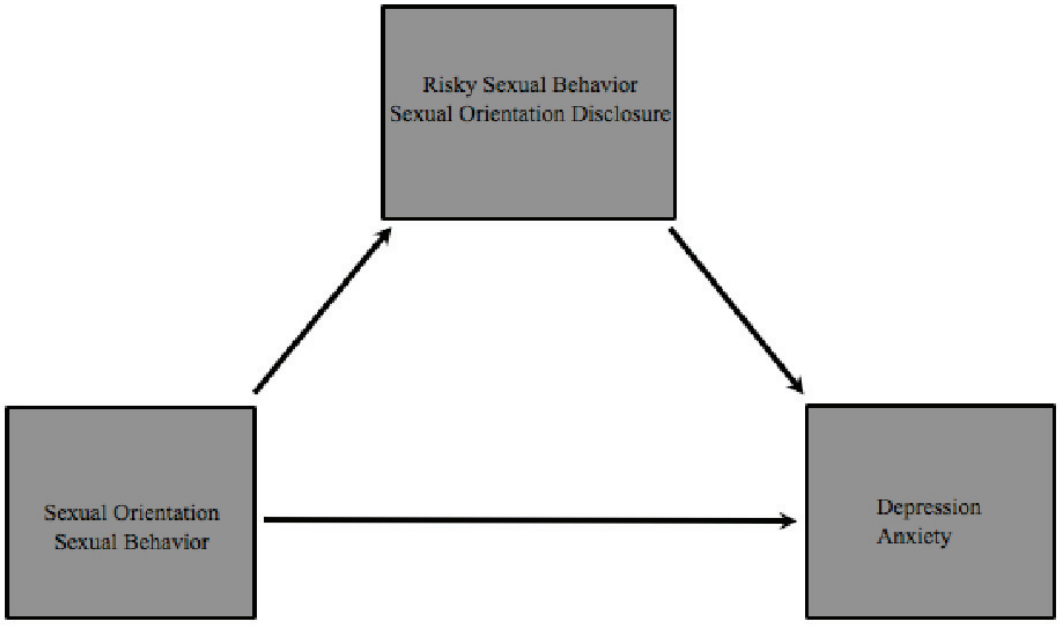

Figure 2. Theoretical model depicting potential simple mediating relationships between sexual orientation/behaviour, risky sexual behavior, sexual orientation disclosure, and depression/anxiety

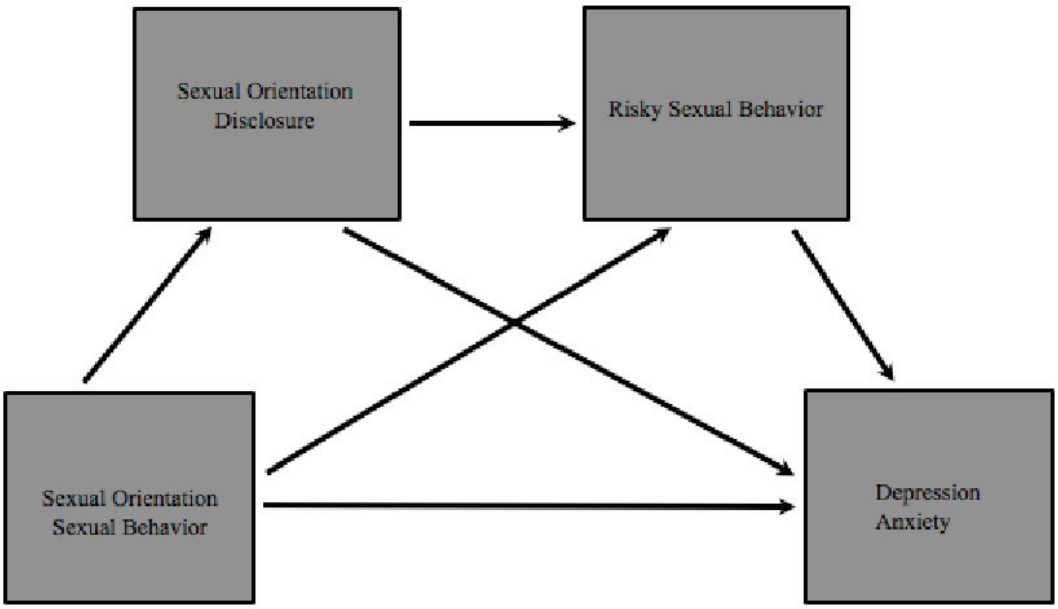

Figure 3. Theoretical model depicting potential sequential mediating relationships between sexual behaviour, risky sexual behavior, sexual orientation disclosure, and depression/anxiety

Table 1

Indirect and Direct Effects for the Simple Mediation Model Including Risky Sexual Behavior

	Unstandardized Coefficient	*t* (df)	*p*	95% CI
Sexual orientation → depression, mediated by risky sex (Estimate = 0.44, 95% CI [0.11, 1.02])				
Sexual orientation → depression	1.97	1.85 (383)	.0651	-0.12, 4.06
Sexual orientation → risky sex	0.33	2.65 (384)	.0083	0.09, 0.58
Risky sex → depression	1.31	3.06 (383)	.0024	0.47, 2.15
Sexual orientation → anxiety, mediated by risky sex (Estimate = 0.53, 95% CI [0.12, 1.23])				
Sexual orientation → anxiety	3.26	2.46 (383)	.0142	0.66, 5.87
Risky sex → anxiety	1.59	2.98 (383)	.0031	0.54, 2.63
Sexual behavior → depression, mediated by risky sex (Estimate = 0.62, 95% CI [0.21, 1.38])				
Sexual behavior → depression	3.49	2.82 (373)	.0051	1.06, 5.93
Sexual behavior → risky sex	0.48	3.23 (374)	.0014	0.19, 0.77
Sexual behavior → anxiety, mediated by risky sex (Estimate = 0.77, 95% CI [0.23, 1.67])				
Sexual behavior → anxiety	4.05	2.56 (373)	.0108	0.94, 7.16

Table 2

Indirect and Direct Effects for the Simple Mediation Model Including Sexual Orientation Disclosure

	Unstandardized Coefficient	*t* (df)	*p*	95% CI
Sexual orientation[a] → depression, mediated by sexual orientation disclosure (Estimate = 1.42, 95% CI [0.50, 2.90])				
Sexual orientation → depression	0.88	0.50 (197)	.6194	-2.61, 4.37
Sexual orientation → sexual orientation disclosure	-0.67	-4.02 (198)	.0001	-1.00, -0.34
Sexual orientation disclosure → depression	-2.10	-2.92 (197)	.0040	-3.53, -0.68
Sexual orientation → anxiety, mediated by sexual orientation disclosure (Estimate = 1.02, 95% CI [-0.10, 2.51])				
Sexual orientation → anxiety	2.08	0.96 (197)	.3368	-2.18, 6.35
Sexual orientation disclosure → anxiety	-1.51	-1.72 (197)	.0876	-3.25, 0.23
Sexual behavior → depression, mediated by sexual orientation disclosure (Estimate = 1.11, 95% CI [0.46, 2.18])				
Sexual behavior→ depression	3.23	2.58 (375)	.0104	0.76, 5.69
Sexual behavior→ sexual orientation disclosure	-0.64	-5.00 (376)	.0001	-0.89, -0.39
Sexual behavior →anxiety, mediated by sexual orientation disclosure (Estimate = 0.77, 95% CI [0.23, 1.67])				
Sexual behavior → anxiety	3.71	2.32 (375)	.0207	0.57, 6.86

[a] Note that the reduced sample size for sexual orientation is due to the fact that heterosexual women were excluded from the monosexual group

Table 3

95% BC Confidence intervals of the indirect effect of the mediators for depression and anxiety

	Indirect effect key	Effect	Boot SE	BC 95% Bootstrapped CI[a]
	Depression			
Total		1.58	0.49	0.80, 2.74
Ind. 1	Bisexual behaviour → disclosure → depression	1.01	0.41	0.38[b], 2.04
Ind. 2	Bisexual behaviour → disclosure → risky sex → depression	0.07	0.06	-0.01, 0.24
Ind. 3	Bisexual behaviour → risky sex → depression	0.50	0.27	0.12[b], 1.21
	Anxiety			
Total		1.88	0.59	0.89, 3.24
Ind. 1	Bisexual behaviour → disclosure → anxiety	1.18	0.50	0.38[b], 3.26
Ind. 2	Bisexual behaviour → disclosure → risky sex → anxiety	0.09	0.07	-0.01, 0.32
Ind. 3	Bisexual behaviour → risky sex → anxiety	0.62	0.35	0.14[b], 1.53

[a] BC confidence intervals are bias-corrected.

[b] Confidence intervals that do not contain zero are deemed to be significant.

General Discussion

"I think choosing between men and women is like choosing between cake and ice cream. You'd be daft not to try both when there are so many different flavors." Björk

The main goals of this thesis were to shed light on why female bisexuality has been understudied and stigmatized and to provide novel findings relevant to bisexual women's sexuality and mental health. These goals were met by a review paper tracking female bisexuality in the history of psychology and sexology and by empirical data collected over a three-year period from an online confidential survey answered by 388 women of five sexual orientations living in Canada. Results of this dissertation have implications for the measurement of female bisexuality, the conceptualization of female sexual orientation, and the identification of risk and resilience factors associated with bisexual women's mental health.

This thesis started by discussing an article in *the New York Times*, entitled *The Scientific Quest to Prove Bisexuality Exists* (Denizet-Lewis, 2014). Bisexual stigma and discrimination are still very real phenomena, underlined both by popular media, such as the article above, and by scientific research, which has found that heterosexual individuals display more negative attitudes towards bisexual than towards heterosexual and homosexual individuals (Friedman et al., 2014; Herek, 2002; Zivony & Lobel, 2014). A recent American survey found that approximately 15 percent of respondents doubted that bisexuality is a legitimate sexual orientation (Friedman et al., 2014). In addition, both heterosexual and homosexual participants endorsed negative attitudes towards bisexuality, suggesting that bisexual individuals face double discrimination.

Although the existence of bisexuality is questioned, it undeniably exists; its prevalence has been documented both by epidemiological and longitudinal data (Diamond, 2008a, 2008b; Herbenick et al., 2010a, 2010b; Laumann et al., 1994; Mercer et al., 2013; Wellings & Johnson, 2013). Findings from this dissertation show that a substantial percentage of women define themselves as bisexual, mostly lesbian, or as mostly heterosexual, and that these women's emotional and sexual lives differ from those of lesbian and heterosexual women. In short, there is no doubt that female bisexuality exists.

"The relative invisibility of bisexuality in the history of sexology and psychology is not evidence of its non-existence but rather of its systematic exclusion." The fore-mentioned theory was the overarching theme of the first manuscript included in this thesis. In the form of a review

paper, the historical and current study of bisexuality was discussed along with suggestions for future research. The paper was organized into sevens sections, namely, the prevalence of bisexuality, the history of bisexuality, bisexuality and epistemology, defining and measuring bisexuality, bisexual mental health, etiology of bisexual mental health: potential risk and resilience factors, and implications of review findings. The main arguments of the review were that an "imposed invisibility" of female bisexuality is related to the simplicity of using dichotomous sexual orientation categories (monosexism), the gay movement's desire to establish homosexuality as constitutional, feminist lesbians' fight against male patriarchy, and queer theorists' neglect of including bisexuality in their discourse. It was pointed out that even if bisexuality has received increased research attention following results of the first community survey to separately analyze the mental health of bisexual individuals (Jorm et al., 2002), many questions pertinent to the sexual and mental health of behaviorally and self-identified bisexual women still remain unanswered (Schick & Dodge, 2012). Considering that the study of bisexuality is still in its nascent stage, there is a general lack of research relevant to bisexual risk and resilience within-in group factors, a knowledge gap also pointed out in the introduction to a 2012 special issue devoted to bisexual health in *the Journal of Bisexuality* (Schick & Dodge, 2012). Further, the review paper underlined how the study of bisexuality has been and still is faced with a definitional problem due to a lack of consensus among researchers about how sexual orientation is most adequately defined and measured (Savin-Williams, 2006, 2008, 2009; Savin-Williams & Vrangalova, 2013).

In sum, the review paper concluded that bisexuality has been the blindspot of modern cultural and scientific depictions of sexuality, that is has been understudied in psychology despite evidence it exists, that it is unclear how bisexuality should be defined and measured in research, and that, apart from data documenting mental health disparities (King et al., 2008), little is known about the sexual and emotional experiences of bisexual women. In light of these observations, a call was made for scientists to include rather than exclude bisexual participants. A greater amount of research might lead to new theories relevant to the sexual and mental health of bisexual women, which, in turn, may translate into improved public health prevention and intervention strategies.

Based on findings of the review paper, the second manuscript aimed to investigate how female bisexuality may be best measured and defined, along with an exploratory investigation of

the sexual and emotional characteristics of bisexual women in comparison to heterosexual, lesbian, mostly heterosexual, and mostly lesbian women. Following the exploration into these characteristics, the paper suggested new hypotheses about mental health risk and resilience factors relevant to bisexual women.

Much of past research has typically either excluded non-monosexual women or placed them into monosexual categories (Chivers & Bailey, 2005; Chivers et al., 2007; Rust, 2000b; Savin-Williams & Vrangalova, 2013; van Anders, 2012). Findings of the second manuscript indicate that bisexual women should not be placed into monosexual categories, and that "mostly heterosexual" and "mostly lesbian" women represent distinct sexual orientations that may have more in common with bisexual than monosexual orientations. Our results also demonstrated that the Kinsey scales perform poorly in terms of capturing bisexual women when only the mid-point is used. Further, whereas there is great overlap between sexual orientation, sexual identity, sexual behaviour, and the Kinsey scales (sexual, romantic, fantasy) (Kinsey et al., 1948; Kinsey et al., 1953) for heterosexual and lesbian women, these different dimensions of sexual orientation may not be interchangeable for non-monosexual women. In short, results imply that it may not matter which dimension of sexual orientation is used to classify heterosexual and lesbian women for research purposes. However, studies including non-monosexual women should not solely rely on the Kinsey scales as classifiers of female bisexuality.

The comparison of sexual and emotional characteristics suggested that women who have single-gender attractions are similar and that women who have multi-gender attractions are similar. It is possible that in a culture accepting of homosexuality it may be more detrimental to not fit into a sexual orientation dichotomy than to be a member of a well-recognized sexual orientation group, such as lesbian (see Friedman et al., 2014, for a similar argument). Further, it was found that even if bisexual women reported more sexual experiences with men than with women, they described feeling equally satisfied with their male and female sexual and romantic relationships. In addition, it was documented that there may be important within-group differences among bisexual women, for instance, in relation to how their experience their sexual versus emotional attractions to men and women. The exploration of factors potentially relevant to bisexual mental health identified sexual risk behaviors and sexual orientation disclosure as possible mediators.

The third manuscript investigated the subjective sexual arousal and desire of heterosexual, mostly heterosexual, bisexual, mostly lesbian, and lesbian women in partnered sexual activities with men and women. Based on findings from the previous manuscripts documenting a lack of knowledge regarding the sexuality of non-monosexual women, it was deemed important to compare all five sexual orientation groups. The first part of the analyses compared between-group differences for these five categories of women (only for women who reported ever had sexual contact with men and/or women). It was found that bisexual women reported higher sexual arousal and desire for women than heterosexual and lesbian women while lesbian women reported lower sexual arousal and desire with men than the other groups. In general, the sexual arousal and desire of non-monosexual women in partnered sexual activities did not differ from each other, suggesting that these women's sexual experiences with both men and women may be similar.

The second part of the analyses compared within-group differences (men versus women) for the five sexual orientations. It was found that bisexual women did not differentiate their sexual arousal with men versus women while the other sexual orientation groups differentiated in terms of their motivation to engage in sexual activity. All of the sexual orientation groups reported similar physiological arousal with men and women.

Findings of this study have three main implications, namely that bisexual women may experience higher sexual arousal and desire than monosexual women, that the sexual arousal and desire of non-monosexual women is similar, and that women who have had sexual contact with both men and women may define their sexual orientation not in terms of physiological arousal but rather in their motivation to engage in sexual activity with men versus women. Further, this study underlined the importance of separately analyzing the sexual arousal and desire of women of these five sexual orientation groups. The observation that the "mostly" groups reported arousal and desire more similar to the bisexual than the heterosexual or lesbian women indicate that results of studies lumping these women into monosexual categories may be limited. If collapsing categories is necessary to increase group sizes, our findings suggest it may be more valid combining the three non-monosexual groups rather than placing them into a heterosexual or a lesbian category.

Based on findings from the above-mentioned manuscripts, the last manuscript investigated whether the mental health of non-monosexual women may be moderated by

childhood abuse and mediated by risky sexual behaviour and sexual orientation disclosure. It was found that non-monosexual women reported more childhood abuse, more risky sexual behaviour, less sexual orientation disclosure, and higher symptoms of depression and anxiety than monosexual women. Risky sexual behaviour and sexual orientation disclosure was found to mediate the relationship between sexual orientation and symptoms of depression and anxiety. Findings indicate elevated levels of risky sexual behaviour and deflated levels of sexual orientation disclosure may in part explain mental health disparities among bisexual women.

Implications

The end of this thesis echoes the beginning, namely the importance of addressing bisexual invisibility. Findings of the last manuscript indicated that lower levels of sexual orientation disclosure among bisexual women might in part explain why they report worse mental health than their heterosexual and lesbian counterparts. Further, low levels of disclosure could imply that healthcare providers may not be aware of the sexual and mental health concerns of most importance to bisexual women. The fact that risky sexual behaviour was also found to mediate mental health underscores the potential public health value of providing sex education specifically targeted towards bisexual women. However, in order for bisexual women to feel safe disclosing their sexual orientation, the social climate in which they live may have to become less distrusting of their sexual orientation. In their survey of attitudes towards bisexual men and women in the United States, Friedman and colleagues (2014, p. 6) concluded:

> Facilitating mechanisms to meaningfully increase social support from both heterosexual and gay/lesbian communities is critical to reducing the profound syndemic health disparities among bisexual men and women. Such interventions have the potential to bring about greater feelings of attachment and belonging—which could diminish disparities including depression, anxiety, and substance use. If they are able to impact disclosure rates to healthcare providers, interventions will contribute to higher uptake of relevant services, including HIV prevention, testing, and treatment for at-risk bisexual men and women.

In sum, public health campaigns aimed at addressing mental health disparities among bisexual women may have to start by breaking down negative social attitudes towards bisexuality.

References

Alarie, M., & Gaudet, S. (2013). “I don't know If she is bisexual or if she just wants to get attention”: Analyzing the various mechanisms through which emerging adults invisibilize bisexuality. *Journal of Bisexuality, 13*(2), 191-214. doi: 10.1080/15299716.2013.780004

Alvy, L. M., Hughes, T. L., Kristjanson, A. F., & Wilsnack, S. C. (2013). Sexual identity group differences in child abuse and neglect. *Journal of Interpersonal Violence, 28*(10), 2088-2111. doi: 10.1177/0886260512471081

Andre, A. (2012, May 15). The doctor is out... and outspoken: An interview with Dr. Lisa Diamond (Part 1). *Huffpost Gay Voices*. Retrieved from http://www.huffingtonpost.com/amy-andre/lisa-diamond-interview_b_1510910.html

Anton, B. S. (2010). Proceedings of the American Psychological Association for the legislative year 2009: Minutes of the annual meeting of the Council of Representatives and minutes of the meetings of the Board of Directors. *American Psychologist, 65*, 385-475.

Arriola, K. R. J., Louden, T., Doldren, M. A., & Fortenberry, R. M. (2005). A meta-analysis of the relationship of child sexual abuse to HIV risk behavior among women. *Child Abuse & Neglect, 29*(6), 725-746. doi: 10.1016/j.chiabu.2004.10.014

Austin, S. B., Jun, H. J., Jackson, B., Spiegelman, D., Rich-Edwards, J., Corliss, H. L., & Wright, R. J. (2007). Disparities in child abuse victimization in lesbian, bisexual, and heterosexual women in the Nurses' Health Study II. *Journal of Women's Health, 17*(4), 597-606. doi: doi:10.1089/jwh.2007.0450.

Austin, S. B., Roberts, A. L., Corliss, H. L., & Molnar, B. E. (2008). Sexual violence victimization history and sexual risk indicators in a community-based urban cohort of “mostly heterosexual” and heterosexual young women. *American Journal of Public Health, 98*(6), 1015-1020. doi: 10.2105/AJPH.2006.099473

Bailey, J. M. (2009). What is sexual orientation and do women have one? In D. A. Hope (Ed.), *Contemporary Perspectives on Lesbian, Gay, and Bisexual Identities* (Vol. 54, pp. 43-63). New York, NY: Springer.

Balsam, K. F., & Mohr, J. J. (2007). Adaptation to sexual orientation stigma: A comparison of bisexual and lesbian/gay adults. *Journal of Counseling Psychology, 54*(3), 306-319. doi: 10.1037/0022-0167.54.3.306

Balsam, K. F., Rothblum, E. D., & Beauchaine, T. P. (2005). Victimization over the life span: A comparison of lesbian, gay, bisexual, and heterosexual siblings. *Journal of Consulting and Clinical Psychology, 73*(3), 477-487. doi: doi: 10.1037/0022-006X.73.3.477

Barker, M., Bowes-Catton, H., Iantaffi, A., Cassidy, A., & Brewer, L. (2008). British bisexuality: A snapshot of bisexual identities in the UK. *Journal of Bisexuality, 8*(1&2), 141-162.

Barker, M., & Langdridge, D. (2008). II. Bisexuality: Working with a silenced sexuality. *Feminism & Psychology, 18*(3), 389-394. doi: 10.1177/0959353508092093

Barker, M., Yockney, J., Richards, C., Jones, R., Bowes-Catton, H., & Plowman, T. (2012). Guidelines for researching and writing about bisexuality. *Journal of Bisexuality, 12*(3), 376-392. doi: 10.1080/15299716.2012.702618

Bauer, G. R., & Brennan, D. J. (2013). The problem with 'behavioral bisexuality': Assessing sexual orientation in survey research. *Journal of Bisexuality, 13*(2), 148-165. doi: 10.1080/15299716.2013.782260

Baumeister, R. F. (2000). Gender differences in erotic plasticity: The female sex drive as socially flexible and responsive. *Psychological Bulletin, 126*(3), 347-374. doi: 10.1037/0033-2909.126.3.347

Baumeister, R. F. (2004). Gender and erotic plasticity: Sociocultural influences on the sex drive. *Sexual and Relationship Therapy, 19*(2), 133-139. doi: 10.1080/14681990410001691343

Beach, F. A. (1976). Sexual attractivity, proceptivity, and receptivity in female mammals. *Hormones and Behavior, 7*(1), 105-138. doi: 10.1016/0018-506X(76)90008-8

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*(6), 893-897. doi: 10.1037/0022-006X.56.6.893

Beck, A. T., & Steer, R. A. (1990). Manual for the Beck Anxiety Inventory. San Antonio, TX: Psychological Corporation.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). Manual for the Beck Depression Inventory-II. San Antonio, TX: Psychological Corporation.

Bell, A. P., Weinberg, M. S., & Hammersmith, S. K. (1981). *Sexual preference: Its development in men and women*. Bloomington, IN: Indiana University Press.

Bennet, K. (1992). Feminist bisexuality: A both/and option for an either/or world. In E. R. Weise (Ed.), *Close to home: Bisexuality and feminism* (pp. 205-231). Seattle, WA: The Seal Press.

Bergler, E. (1956). *Homosexuality: Disease or Way of Life*. New York, NY: Hill and Wang.

Bolton, S.-L., & Sareen, J. (2011a). Sexual orientation and its relation to mental disorders and suicide attempts: Findings from a nationally representative sample. *The Canadian Journal Of Psychiatry / La Revue Canadienne De Psychiatrie, 56*(1), 35-43.

Bolton, S.-L., & Sareen, J. (2011b). Sexual Orientation and its relation to mental disorders and suicide attempts: Findings from a nationally representative sample. *L'orientation sexuelle et sa relation aux troubles mentaux et aux tentatives de suicide : résultats d'un échantillon national représentatif., 56*(1), 35-43.

Bossio, J. A., Suschinsky, K. D., Puts, D. A., & Chivers, M. L. (2013). Does menstrual cycle phase influence the gender specificity of heterosexual women's genital and subjective sexual arousal? *Archives of Sexual Behavior*. doi: 10.1007/s10508-013-0233-7

Bostwick, W. (2012). Assessing bisexual stigma and mental health status: A brief report. *Journal of Bisexuality, 12*(2), 214-222. doi: 10.1080/15299716.2012.674860

Bostwick, W. B., Boyd, C. J., Hughes, T. L., & McCabe, S. E. (2010a). Dimensions of sexual orientation and the prevalence of mood and anxiety disorders in the United States. *American Journal of Public Health, 100*(3), 468-475. doi: 10.2105/ajph.2008.152942

Bostwick, W. B., McCabe, S. E., Horn, S., Hughes, T., Johnson, T., & Valles, J. R. (2007). Drinking patterns, problems, and motivations among collegiate bisexual women. *Journal Of American College Health, 56*(3), 285-292. doi: 10.3200/jach.56.3.285-292

Bradford, M. (2004). The bisexual experience. *Journal of Bisexuality, 4*(1-2), 7-23. doi: 10.1300/J159v04n01_02

Butler, J. (1990). *Gender Trouble: Feminism and the Subversion of Identity*. New York, NY: Routledge.

Callis, A. S. (2009). Playing with Butler and Foucault: Bisexuality and queer theory. *Journal of Bisexuality, 9*(3-4), 213-233. doi: 10.1080/15299710903316513

Callis, A. S. (2013). The black sheep of the pink flock: Labels, stigma, and bisexual identity. *Journal of Bisexuality, 13*(1), 82-105. doi: 10.1080/15299716.2013.755730

Case, P., Austin, B., Hunter, D. J., Manson, J. E., Malspeis, S., Willett, W. C., & Spiegelman, D. (2004). Sexual orientation, health risk factors, and physical functioning in the Nurses' Health Study II. *Journal of Women's Health (15409996), 13*(9), 1033-1047.

Chivers, M., Seto, M., Lalumière, M., Laan, E., & Grimbos, T. (2010). Agreement of self-reported and genital measures of sexual arousal in men and women: A meta-analysis. *Archives of Sexual Behavior, 39*(1), 5-56. doi: 10.1007/s10508-009-9556-9

Chivers, M. L. (2010). A brief update on the specificity of sexual arousal. *Sexual and Relationship Therapy, 25*(4), 407-414. doi: 10.1080/14681994.2010.495979

Chivers, M. L., & Bailey, J. M. (2005). A sex difference in features that elicit genital response. *Biological Psychology, 70*(2), 115-120. doi: 10.1016/j.biopsycho.2004.12.002

Chivers, M. L., & Bailey, J. M. (2007). The sexual psychophysiology of sexual orientation In E. Janssen (Ed.), *The psychophysiology of sex* (pp. 458-474). Bloomington, IN: Indiana University Press.

Chivers, M. L., Rieger, G., Latty, E., & Bailey, J. M. (2004). A sex difference in the specificity of sexual arousal. *Psychological Science, 15*(11), 736-744. doi: 10.1111/j.0956-7976.2004.00750.x

Chivers, M. L., Seto, M. C., & Blanchard, R. (2007). Gender and sexual orientation differences in sexual response to sexual activities versus gender of actors in sexual films. *Journal of Personality and Social Psychology, 93*(6), 1108-1121. doi: 10.1037/0022-3514.93.6.1108

Chivers, M. L., & Timmers, A. D. (2012). Effects of gender and relationship context in audio narratives on genital and subjective sexual response in heterosexual women and men. *Archives of Sexual Behavior, 41*(1), 185-197. doi: 10.1007/s10508-012-9937-3

Clark-Flory, T. (2013, December 01). The rise of girl-on-girl. *Salon*. Retrieved from www.salon.com/2013/12/01/the_rise_of_girl_on_girl/

Cochran, S. D., & Mays, V. M. (2007). Physical health complaints among lesbians, gay men, and bisexual and homosexually experienced heterosexual individuals: Results from the California Quality of Life Survey. *American Journal of Public Health, 97*(11), 2048-2055.

Cochran, S. D., & Mays, V. M. (2009). Burden of psychiatric morbidity among lesbian, gay, and bisexual individuals in the California Quality of Life Survey. *Journal of Abnormal Psychology, 118*(3), 647-658. doi: 10.1037/a0016501

Cochran, S. D., Sullivan, J. G., & Mays, V. M. (2003). Prevalence of mental disorders, psychological distress, and mental services use among lesbian, gay, and bisexual adults in the United States. *Journal of Consulting and Clinical Psychology, 71*(1), 53-61. doi: 10.1037/0022-006x.71.1.53

Connor, S. (2013, November 26). The truth about women and sex : They start younger and have more partners – and those are not necessarily men. *The Independent*. Retrieved from http://www.independent.co.uk/news/science/the-truth-about-women-and-sex--they-start-younger-and-have-more-partners--and-those-are-not-necessarily-men-8962997.html

Conron, K. J., Mimiaga, M. J., & Landers, S. J. (2010). A population-based study of sexual orientation identity and gender differences in adult health. *American Journal of Public Health, 100*(10), 1953-1960. doi: 10.2105/AJPH.2009.174169

Cooper, M. L. (2002). Alcohol use and risky sexual behavior among college students and youth: Evaluating the evidence. *Journal of Studies on Alcohol, SUPPL14*, 101-117.

Corliss, H. L., Austin, B., & Molnar, B. E. (2009). Sexual risk in "mostly heterosexual" young women: Influence of social support and caregiver mental health. *Journal of Women's Health, 18*(12), 2005-2010.

Corliss, H. L., Rosario, M., Wypij, D., Fisher, L. B., & Austin, S. B. (2008). Sexual orientation disparities in longitudinal alcohol use patterns among adolescents: Findings from the Growing Up Today Study. *Archives of Pediatrics and Adolescent Medicine, 162*(11), 1071-1078. doi: 10.1001/archpedi.162.11.1071

Creamer, M., Foran, J., & Bell, R. (1995). The Beck Anxiety Inventory in a non-clinical sample. *Behaviour Research and Therapy, 33*(4), 477-485. doi: 10.1016/0005-7967(94)00082-U

Denizet-Lewis, B (2014, March 20). The scientific quest to prove bisexuality exists. *The New York Times*. Retrieved from http://mobile.nytimes.com/2014/03/23/magazine/the-scientific-quest-to-prove-bisexuality-exists.html

Diamond, L. (1998). Development of sexual orientation among adolescent and young adult women. *Developmental Psychology, 34*(5), 1085-1095. doi: 10.1037/0012-1649.34.5.1085

Diamond, L., & Butterworth, M. (2008). Questioning gender and sexual identity: Dynamic links over time. *Sex Roles, 59*(5), 365-376. doi: 10.1007/s11199-008-9425-3

Diamond, L. M. (2000). Sexual identity, attractions, and behavior among young sexual-minority women over a 2-year period. *Developmental Psychology, 36*(2), 241-250. doi: 10.1037/0012-1649.36.2.241

Diamond, L. M. (2003). New paradigms for research on heterosexual and sexual-minority development. *Journal of Clinical Child and Adolescent Psychology, 32*, 490–498.

Diamond, L. M. (2003a). Was it a phase? Young women's relinquishment of lesbian/bisexual identities over a 5-year period. *Journal of Personality and Social Psychology, 84*(2), 352-364. doi: 10.1037/0022-3514.84.2.352

Diamond, L. M. (2003b). What does sexual orientation orient? A biobehavioral model distinguishing romantic love and sexual desire. *Psychological Review, 110*(1), 173-192. doi: 10.1037/0033-295x.110.1.173

Diamond, L. M. (2005). A new view of lesbian subtypes: Stable versus fluid identity trajectories over an 8-year period. *Psychology of Women Quarterly, 29*(2), 119-128. doi: 10.1111/j.1471-6402.2005.00174.x

Diamond, L. M. (2007). A dynamical systems approach to the development and expression of female same-sex sexuality. *Perspectives on Psychological Science, 2*(2), 142-161. doi: 10.1111/j.1745-6916.2007.00034.x

Diamond, L. M. (2007). The evolution of plasticity in female-female desire. *Journal of Psychology & Human Sexuality, 18*, 245-274.

Diamond, L. M. (2008a). Female bisexuality from adolescence to adulthood: Results from a 10-year longitudinal study. *Developmental Psychology, 44*(1), 5-14.

Diamond, L. M. (2008b). *Sexual fluidity: Understanding women's love and desire*. Cambridge, MA: Harvard University Press.

Diamond, L. M., & Wallen, K. (2011). Sexual minority women's sexual motivation around the time of ovulation. *Archives of Sexual Behavior, 40*, 237-246. doi: DOI: 10.1007/s10508-010-9631-2

Dobinson, C., Macdonnell, J., Hampson, E., Clipsham, J., & Chow, K. (2005). Improving the access and quality of public health services for bisexuals. *Journal of Bisexuality, 5*(1), 39-77. doi: 10.1300/J159v05n01_05

Dodge, B., & Sandfort, T. G. M. (2007). A review of mental health research on bisexual individuals when compared to homosexual and heterosexual individuals. In B. A.

Firestein (Ed.), *Becoming visible: Counseling bisexuals across the lifespan*. (pp. 28-51). New York, NY: Columbia University Press.

Drabble, L., Trocki, K. F., Hughes, T. L., Korcha, R. A., & Lown, A. E. (2013). Sexual orientation differences in the relationship between victimization and hazardous drinking among women in the National Alcohol Survey. *Psychology of Addictive Behaviors, 27*(3), 639-648. doi: 10.1037/a0031486

Durso, L., & Meyer, I. (2013). Patterns and predictors of disclosure of sexual orientation to healthcare providers among lesbians, gay men, and bisexuals. *Sexuality Research and Social Policy, 10*(1), 35-42. doi: 10.1007/s13178-012-0105-2

Eady, A., Dobinson, C., & Ross, L. (2011). Bisexual people's experiences with mental health services: A qualitative investigation. *Community Mental Health Journal, 47*(4), 378-389. doi: 10.1007/s10597-010-9329-x

Ebsworth, M., & Lalumière, M. L. (2012). Viewing time as a measure of bisexual sexual interest. *Archives of Sexual Behavior, 41*(1), 161-172. doi: 10.1007/s10508-012-9923-9

Eliason, M., & Elia, J. P. (2011). Reflections about bisexuality and the Journal of Bisexuality. *Journal of Bisexuality, 11*(4), 412-419. doi: 10.1080/15299716.2011.620463

Erickson-Schroth, L., & Mitchell, J. (2009). Queering queer theory, or why bisexuality matters. *Journal of Bisexuality, 9*(3-4), 297-315. doi: 10.1080/15299710903316596

Everett, B. G. (2013). Sexual orientation disparities in sexually transmitted infections: Examining the intersection between sexual identity and sexual behavior. *Archives of Sexual Behavior, 42*(2), 225-236. doi: 10.1007/s10508-012-9902-1

Festinger, L. (1957). *A theory of cognitive dissonance*. Evanston: IL: Row, Peterson.

Foucault, M. (1978). *The history of sexuality: Volume one*. New York: NY: Vintage Books.

Fredriksen-Goldsen, K. I., Hyun-Jun, K., Barkan, S. E., Muraco, A., & Hoy-Ellis, C. P. (2013). Health disparities among lesbian, gay, and bisexual older adults: Results from a population-based study. *American Journal of Public Health, 103*(10), 1802-1809. doi: 10.2105/ajph.2012.301110

Fredriksen-Goldsen, K. I., Kim, H.-J., Barkan, S. E., Balsam, K. F., & Mincer, S. L. (2010). Disparities in health-related quality of life: A comparison of lesbians and bisexual women. *American Journal of Public Health, 100*(11), 2255-2261. doi: 10.2105/ajph.2009.177329

Freud, S. (1937). Analysis Terminable and Interminable. *International Journal of Psychoanalysis, 18*, 373-405.

Freud S. (1951). A letter from Freud. *American Journal of Psychiatry , 107*, 786–787.

Friedman, M., Dodge, B., Schick, V., Goncalves, G., Herbenick, D., Hubach, R. D., & Reece, M. (2013). *"'Not a legitimate sexual orientation'": Attitudes toward bisexual men and women as a risk factor for HIV/AIDS*. Paper presented at the American Public Health Association's 141st Annual Meeting & Exposition, Boston

Friedman, M. R., Dodge, B., Schick, V., Herbenick, D., Hubach, R. D., Bowling, J., . . . Reece, M. (2014). From BIAS to bisexual health disparities: Attitudes toward bisexual men and women in the United States. *LGBT Health, 2*, 1-10. doi: doi:10.1089/lgbt.2014.0005.

Friedman, M. S., Marshal, M. P., Guadamuz, T. E., Wei, C., Wong, C. F., Saewyc, E. M., & Stall, R. (2011). A meta-analysis of disparities in childhood sexual abuse, parental physical abuse, and peer victimization among sexual minority and sexual nonminority individuals. *American Journal of Public Health, 101*(8), 1481-1494. doi: 10.2105/AJPH.2009190009

Garber, M. (2000). *Bisexuality and the eroticism of everyday life*. New York, NY: Routledge.

Goldbach, J. T., Tanner-Smith, E. E., Bagwell, M., & Dunlap, S. (2013). Minority stress and substance use in sexual minority adolescents: A meta-analysis. *Prevention Science*. doi: 10.1007/s11121-013-0393-7

Goldey, K. L., & van Anders, S. M. (2012). Sexual arousal and desire: Interrelations and responses to three modalities of sexual stimuli. *Journal of Sexual Medicine, 9*(9), 2315-2329. doi: 10.1111/j.1743-6109.2012.02845.x

Gooß, U. (2008). Concepts of Bisexuality. *Journal of Bisexuality, 8*(1-2), 9-23. doi: 10.1080/15299710802142127

Hatzenbuehler, M. L., & Keyes, K. M. (2013). Inclusive anti-bullying policies and reduced risk of suicide attempts in lesbian and gay youth. *Journal of Adolescent Health, 53*(1, Suppl), S21-S26. doi: 10.1016/j.jadohealth.2012.08.010

Hatzenbuehler, M. L., Keyes, K. M., & Hasin, D. S. (2009). State-level policies and psychiatric morbidity in lesbian, gay, and bisexual populations. *American Journal of Public Health, 99*(12), 2275-2281. doi: 10.2105/AJPH.2008.153510

Hatzenbuehler, M. L., Keyes, K. M., & McLaughlin, K. A. (2011). The protective effects of social/contextual factors on psychiatric morbidity in LGB populations. *International Journal of Epidemiology, 40*(4), 1071-1080.

Hatzenbuehler, M. L., McLaughlin, K. A., Keyes, K. M., & Hasin, D. S. (2010). The impact of institutional discrimination on psychiatric disorders in lesbian, gay, and bisexual populations: A prospective study. *American Journal of Public Health, 100*(3), 452-459. doi: 10.2105/AJPH.2009.168815

Hatzenbuehler, M. L., O'Cleirigh, C., Grasso, C., Mayer, K., Safren, S., & Bradford, J. (2012). Effect of same-sex marriage laws on health care use and expenditures in sexual minority men: A quasi-natural experiment. *American Journal of Public Health, 102*(2), 285-291. doi: 10.2105/AJPH.2011.300382

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs, 76*, 408-420. doi: 10.1080/03637750903310360

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: The Guilford Press.

Hequembourg, A. L., Livingston, J. A., & Parks, K. A. (2013). Sexual victimization and associated risks among lesbian and bisexual women. *Violence Against Women, 19*(5), 634-657. doi: 10.1177/1077801213490557

Herbenick, D., Reece, M., Schick, V., Sanders, S. A., Dodge, B., & Fortenberry, J. D. (2010a). Sexual behavior in the United States: Results from a national probability sample of men and women Ages 14–94. *The Journal of Sexual Medicine, 7*, 255-265. doi: 10.1111/j.1743-6109.2010.02012.x

Herbenick, D., Reece, M., Schick, V., Sanders, S. A., Dodge, B., & Fortenberry, J. D. (2010b). Sexual behaviors, relationships, and perceived health status among adult women in the United States: Results from a national probability sample. *Journal of Sexual Medicine, 7*, 277-290. doi: 10.1111/j.1743-6109.2010.02010.x

Herek, G. M. (2002). Heterosexuals' attitudes toward bisexual men and women in the United States. *The Journal of Sex Research, 39*(4), 264-274. doi: 10.1080/00224490209552150

Herek, G. M. (2010). Sexual orientation differences as deficits: Science and stigma in the history of American psychology. *Perspectives on Psychological Science (Sage Publications Inc.), 5*(6), 693-699. doi: 10.1177/1745691610388770

Herek, G. M., & Garnets, L. D. (2007). Sexual orientation and mental health. *Annual Review of Clinical Psychology, 3*, 353-375.

Hughes, T., McCabe, S. E., Wilsnack, S. C., West, B. T., & Boyd, C. J. (2010). Victimization and substance use disorders in a national sample of heterosexual and sexual minority women and men. *Addiction, 105*(12), 2130-2140. doi: 10.1111/j.1360-0443.2010.03088.x

Hughes, T., Szalacha, L. A., & McNair, R. (2010). Substance abuse and mental health disparities: Comparisons across sexual identity groups in a national sample of young Australian women. *Social Science & Medicine, 71*(4), 824-831.

Hughes, T. L., Szalacha, L. A., Johnson, T. P., Kinnison, K. E., Wilsnack, S. C., & Cho, Y. (2010). Sexual victimization and hazardous drinking among heterosexual and sexual minority women. *Addictive Behaviors, 35*, 1152-1156.

Israel, E., & Strassberg, D. (2009). Viewing time as an objective measure of sexual interest in heterosexual men and women. *Archives of Sexual Behavior, 38*(4), 551-558. doi: 10.1007/s10508-007-9246-4

Israel, T., & Mohr, J. J. (2004). Attitudes toward bisexual women and men: Current research, future directions. In R. C. Fox (Ed.), *Current Research on Bisexuality*. (pp. 117-134). Binghamton, NY: Harrington Park Press/The Haworth Press.

Johnson, A. M., Wadsworth, J., Wellings, K., & Field, J. (1994). *The National Survey of Sexual Attitudes and Lifestyles*. Oxford: Blackwell Scientific Press.

Jorm, A. F., Korten, A. E., Rodgers, B., Jacomb, P. A., & Christensen, H. (2002). Sexual orientation and mental health: results from a community survey of young and middle-aged adults. *The British Journal of Psychiatry, 180*(5), 423-427. doi: 10.1192/bjp.180.5.423

Jun, H.-J., Austin, S. B., Wylie, S., Corliss, H., Jackson, B., Spiegelman, D., . . . Wright, R. (2010). The mediating effect of childhood abuse in sexual orientation disparities in tobacco and alcohol use during adolescence: results from the Nurses' Health Study II. *Cancer Causes & Control, 21*(11), 1817-1828. doi: 10.1007/s10552-010-9609-3

Juster, R.-P., Smith, N. G., Ouellet, É., Sindi, S., & Lupien, S. J. (2013). Sexual orientation and disclosure in relation to psychiatric symptoms, diurnal cortisol, and allostatic load. *Psychosomatic Medicine, 75*(2), 103-116. doi: 10.1097/PSY.0b013e3182826881

Kaestle, C. E., & Ivory, A. H. (2012). A forgotten sexuality: Content analysis of bisexuality in the medical literature over two decades. *Journal of Bisexuality, 12*(1), 35-48. doi: 10.1080/15299716.2012.645701

Kerr, D. L., Santurri, L., & Peters, P. (2013). A comparison of lesbian, bisexual, and heterosexual college undergraduate women on selected mental health issues. *Journal of American College Health, 61*(4), 185-194. doi: 10.1080/07448481.2013.787619

Ketz, K., & Israel, T. (2001). The relationship between women's sexual identity and perceived wellness. *Journal of Bisexuality, 2*(2-3), 227-242. doi: 10.1300/J159v02n02_16

King, M., & Nazareth, I. (2006). The health of people classified as lesbian, gay and bisexual attending family practitioners in London: a controlled study. *BMC Public Health, 6*(1), 127.

King, M., Semlyen, J., Tai, S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry, 8*(1), 70.

Kinsey, A., Pomeroy, W. B., & Martin, C. E. (1948). *Sexual behaviour in the human male*. Bloomington, IN: Indiana University Press.

Kinsey, A. C., Pomeroy, W. B., Martin, C. E., & Gebhard, P. H. (1953). *Sexual behavior in the human female*. Philadelphia, PA: W. B. Saunders Company

Klein, F. (1993). *The Bisexual Option* New York, NY: Harrington Park Press.

Klein, F., Sepekoff, B., & Wolf, T. J. (1985). Sexual orientation. *Journal of Homosexuality, 11*(1-2), 35-49. doi: 10.1300/J082v11n01_04

Koh, A. S., & Ross, L. K. (2006). Mental health issues: A comparison of lesbian, bisexual and heterosexual women. *Journal of Homosexuality, 51*(1), 33-57. doi: 10.1300/J082v51n01_03

Kukkonen, T. M., Binik, Y. M., Amsel, R., & Carrier, S. (2007). Thermography as a physiological measure of sexual arousal in both men and women. *Journal of Sexual Medicine, 4*(1), 93-105. doi: 10.1111/j.1743-6109.2006.00399.x

Laan, E., & Janssen, E. (2007). How do men and women feel? Determinants of subjective experience of sexual arousal. In E. Janssen (Ed.), *The psychophysiology of sex* (pp. 278–290). Bloomington, IN: Indiana University Press.

Laan, E., Sonderman, M., & Janssen, E. (1995). *Straight and lesbian women's sexual responses to straight and lesbian erotica: No sexual orientation effects*. Poster presented at the The 21st Annual Meeting of the International Academy of Sex Research, Provincetown, MA.

Laumann, E. O., Gagnon, J. H., Michael, R. T., & Michaels, S. (1994). *The social organization of sexuality: Sexual practices in the United States*. Chicago. IL: University of Chicago Press.

Lea, T., Wit, J., & Reynolds, R. (2014). Minority stress in lesbian, gay, and bisexual young adults in Australia: Associations with psychological distress, suicidality, and substance use. *Archives of Sexual Behavior*, 1-8. doi: 10.1007/s10508-014-0266-6

Lehavot, K., Molina, Y., & Simoni, J. (2012). Childhood trauma, adult sexual assault, and adult gender expression among lesbian and bisexual women. *Sex Roles, 67*(5-6), 272-284. doi: 10.1007/s11199-012-0171-1

Lehavot, K., & Simoni, J. M. (2011). The impact of minority stress on mental health and substance use among sexual minority women. *Journal of Consulting and Clinical Psychology, 79*(2), 159-170. doi: 10.1037/a0022839

LeVay, S., & Valente, S. M. (2006). *Human sexuality* (2 ed.). Sunderland, MA: Sinauer Associates.

Lhomond, B., Saurel-Cubizolles, M.-J. p., & Michaels, S. (2013). A multidimensional measure of sexual orientation, use of psychoactive substances, and depression: Results of a national survey on sexual behavior in France. *Archives of Sexual Behavior*, 1-13. doi: 10.1007/s10508-013-0124-y

Lippa, R. (2013). Men and women with bisexual identities show bisexual patterns of sexual attraction to male and female 'swimsuit models'. *Archives of Sexual Behavior, 42*(2), 187-196. doi: 10.1007/s10508-012-9981-z

Lippa, R. A. (2006). Is high sex drive associated with increased sexual attraction to both sexes? It depends on whether you are male or female. *Psychological Science, 17*(1), 46-52. doi: 10.1111/j.1467-9280.2005.01663.x

Lippa, R. A. (2007). The relation between sex drive and sexual attraction to men and women: A cross-national study of heterosexual, bisexual, and homosexual men and women. *Archives of Sexual Behavior, 36*(2), 209-222. doi: 10.1007/s10508-006-9146-z

Loosier, P. S., & Dittus, P. J. (2010). Group differences in risk across three domains using an expanded measure of sexual orientation. *The Journal of Primary Prevention, 31*(5-6), 261-272. doi: 10.1007/s10935-010-0228-2

Lowder, J. B. (2013). Does coming out count if you reject labels? *Slate*.

MacDowall, L. (2009). Historicising contemporary bisexuality. *Journal of Bisexuality, 9*(1), 3-15. doi: 10.1080/15299710802659989

Mah, K., & Binik, Y. M. (2002). Do all orgasms feel alike? Evaluating a two- dimensional model of the orgasm experience across gender and sexual context. *The Journal of Sex Research, 39*, 104–113.

Mayer, K. H., Bradford, J. B., Makadon, H. J., Stall, R., Goldhammer, H., & Landers, S. (2008). Sexual and gender minority health: what we know and what needs to be done. *American Journal of Public Health, 98*, 989-995.

McCabe, S. E., Bostwick, W. B., Hughes, T. L., West, B. T., & Boyd, C. J. (2010). The Relationship between discrimination and substance use disorders among lesbian, gay, and bisexual adults in the United States. *American Journal of Public Health, 100*(10), 1946-1952. doi: 10.2105/ajph.2009.163147

McCabe, S. E., Hughes, T. L., Bostwick, W., Morales, M., & Boyd, C. J. (2012). Measurement of sexual identity in surveys: Implications for substance abuse research. *Archives of Sexual Behavior, 41*(3), 649-657. doi: 10.1007/s10508-011-9768-7

McCabe, S. E., Hughes, T. L., Bostwick, W. B., West, B. T., & Boyd, C. J. (2009). Sexual orientation, substance use behaviors and substance dependence in the United States. *Addiction, 104*(8), 1333-1345. doi: 10.1111/j.1360-0443.2009.02596.x

McCabe, S. E., West, B. T., Hughes, T. L., & Boyd, C. J. (2013). Sexual orientation and substance abuse treatment utilization in the United States: Results from a national survey. *Journal of Substance Abuse Treatment, 44*(1), 4-12. doi: 10.1016/j.jsat.2012.01.007

McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2010). Childhood adversities and adult psychopathology in the National Comorbidity Survey Replication (NCS-R) III: Associations with functional impairment

related to DSM-IV disorders. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences, 40*(5), 847-859. doi: 10.1017/S0033291709991115

McLaughlin, K. A., Hatzenbuehler, M. L., Xuan, Z., & Conron, K. J. (2012). Disproportionate exposure to early-life adversity and sexual orientation disparities in psychiatric morbidity. *Child Abuse & Neglect, 36*(9), 645-655. doi: 10.1016/j.chiabu.2012.07.004

McLean, K. (2008). Inside, outside, nowhere: Bisexual men and women in the gay and lesbian community. *Journal of Bisexuality, 8*(1-2), 63-80. doi: 10.1080/15299710802143174

McLean, K. (2011). Bisexuality and nonmonogamy: A reflection. *Journal of Bisexuality, 11*(4), 513-517. doi: 10.1080/15299716.2011.620857

Meade, C. S., & Sikkema, K. J. (2005). HIV risk behavior among adults with severe mental illness: A systematic review. *Clinical Psychology Review, 25*(4), 433-457. doi: 10.1016/j.cpr.2005.02.001

Mercer, C. H., Tanton, C., Prah, P., Erens, B., Sonnenberg, P., Clifton, S., . . . Johnson, A. M. (2013). Changes in sexual attitudes and lifestyles in Britain through the life course and over time: findings from the National Surveys of Sexual Attitudes and Lifestyles (Natsal). *The Lancet, 382*(9907), 1781-1794.

Messman-Moore, T. L., Walsh, K. L., & DiLillo, D. (2010). Emotion dysregulation and risky sexual behavior in revictimization. *Child Abuse & Neglect, 34*(12), 967-976. doi: 10.1016/j.chiabu.2010.06.004

Meyer, I. H. (1995). Minority stress and mental health in gay men. *Journal of Health & Social Behavior, 36*(1), 38-56.

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin, 129*(5), 674-697. doi: 10.1037/0033-2909.129.5.674

Meyer, I. H. (2007). Prejudice and discrimination as social stressors. In I. H. Meyer & M. E. Northridge (Eds.), *The health of sexual minorities: Public health perspectives on lesbian, gay, bisexual and transgender populations* (pp. 242-267). New York, NY: Springer.

Meyer, I. H. (2013). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychology of Sexual Orientation and Gender Diversity, 1*(S), 3-26. doi: 10.1037/2329-0382.1.S.3

Midanik, L. T., Drabble, L., Trocki, K., & Sell, R. L. (2006). Sexual orientation and alcohol use: Identity versus behavior measures. *Journal of LGBT Health Research, 3*(1), 25-35.

Miller, M., André, A., Ebin, J., & Bessonova, L. (2007). Bisexual health: An introduction and model practices for HIV/STI prevention programming. New York: National Gay and Lesbian Task Force Policy Institute, the Fenway Institute at Fenway Community Health, and BiNet USA.

Money, J. (1988). *Gay, straight, and in-between: The sexology of erotic orientation*. New York, NY: Oxford University Press.

Morris, J. F., & Balsam, K. F. (2003). Lesbian and bisexual women's experiences of victimization: Mental health, revictimization, and sexual identity development. *Journal of Lesbian Studies, 7*(4), 67-85. doi: 10.1300/J155v07n04_05

Morris, J. F., Waldo, C. R., & Rothblum, E. D. (2001). A model of predictors and outcomes of outness among lesbian and bisexual women. *American Journal of Orthopsychiatry, 71*(1), 61-71. doi: 10.1037/0002-9432.71.1.61

Mulick, P. S., & Wright, L. W. (2002). Examining the existence of biphobia in the heterosexual and homosexual populations. *Journal of Bisexuality, 2*(4), 45-64. doi: 10.1300/J159v02n04_03

Mustanski, B., Kuper, L., & Greene, G. J. (2014). Development of sexual orientation and identity. In D. L. Tolman, L. M. Diamond, J. A. Bauermeister, W. H. George, J. G. Pfaus & L. M. Ward (Eds.), *APA handbook of sexuality and psychology, Vol. 1: Person-based approaches*. (pp. 597-628). Washington, DC: American Psychological Association.

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

Ochs, R. (1996). Biphobia: It goes more than two ways. In B. A. Firestein (Ed.), *Bisexuality: The psychology and politics of an invisible minority* (pp. 217-239). Thousand Oaks, CA: Sage Publications.

Ochs, R., & Deihl, M. (1992). Moving beyond binary thinking. In W. J. Blumenfeld (Ed.), *Homophobia: How we all pay the price* (pp. 67-75). Boston, MA: Beacon Press.

Oshri, A., Handley, E. D., Sutton, T. E., Wortel, S., & Burnette, M. L. (2014). Developmental trajectories of substance use among sexual minority girls: Associations with sexual

victimization and sexual health risk. *Journal of Adolescent Health*. doi: 10.1016/j.jadohealth.2013.11.009

Pallotta-Chiarolli, M., & Martin, E. (2009). "Which sexuality? Which service?": Bisexual young people's experiences with youth, queer and mental health services in Australia. *Journal of LGBT Youth, 6*(2/3), 199-222. doi: 10.1080/19361650902927719

Paolucci, E. O., Genuis, M. L., & Violato, C. (2001). A meta-analysis of the published research on the effects of child sexual abuse. *Journal of Psychology: Interdisciplinary and Applied, 135*(1), 17-36. doi: 10.1080/00223980109603677

Persson, T. J., Ryder, A. G., Kyres, M., & Pfaus, J. G. (submitted). Women's experiences of sexuality and intimacy: A descriptive study of the sexual and emotional characteristics of bisexual women compared to straight and lesbian women.

Persson, T. J., Ryder, A. G., & Pfaus, J. G. (submitted). Comparing subjective ratings of sexual arousal and desire in partnered sexual activities from women of different sexual orientations.

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42*(1), 185-227. doi: 10.1080/00273170701341316

Roberts, A., Glymour, M. M., & Koenen, K. (2013). Does maltreatment in childhood affect sexual orientation in adulthood? *Archives of Sexual Behavior, 42*(2), 161-171. doi: 10.1007/s10508-012-0021-9

Roberts, A. L., Austin, S. B., Corliss, H. L., Vandermorris, A. K., & Koenen, K. C. (2010). Pervasive trauma exposure among US sexual orientation minority adults and risk of posttraumatic stress disorder. *American Journal of Public Health, 100*(12), 2433-2441. doi: 10.2105/ajph.2009.168971

Roodman, A. A., & Clum, G. A. (2001). Revictimization rates and method variance: A meta-analysis. *Clinical Psychology Review, 21*(2), 183-204. doi: http://dx.doi.org/10.1016/S0272-7358(99)00045-8

Rosario, M., Schrimshaw, E. W., & Hunter, J. (2009). Disclosure of sexual orientation and subsequent substance use and abuse among lesbian, gay, and bisexual youths: Critical role of disclosure reactions. *Psychology of Addictive Behaviors, 23*(1), 175-184. doi: 10.1037/a0014284

Ross, L. E., Dobinson, C., & Eady, A. (2010). Perceived determinants of mental health for bisexual people: A qualitative examination. *American Journal of Public Health, 100*(3), 496-502.

Rothman, E. F., Exner, D., & Baughman, A. L. (2011). The prevalence of sexual assault against people who identify as gay, lesbian, or bisexual in the United States: A systematic review. *Trauma, Violence, & Abuse, 12*(2), 55-66. doi: 10.1177/1524838010390707

Rullo, J., Strassberg, D., & Israel, E. (2010). Category-specificity in sexual interest in gay men and lesbians. *Archives of Sexual Behavior, 39*(4), 874-879. doi: 10.1007/s10508-009-9497-3

Rust, P. C. (1992). The politics of sexual identity: Sexual attraction and behavior among lesbian and bisexual women. *Social Problems, 39*(4), 366-386.

Rust, P. C. (1993). Neutralizing the political threat of the marginal woman: Lesbians' beliefs about bisexual women. *The Journal of Sex Research, 30*(3), 214-228.

Rust, P. C. (1995). *Bisexuality and the Challenge to Lesbian Politics: Sex, Loyalty, and Revolution*. New York New York University Press.

Rust, P. C. (2000a). Bisexuality: A comtemporary paradox for women. *Journal of Social Issues, 56*, 205-221.

Rust, P. C. (2000b). Criticisms of the scholarly literature on sexuality for its neglect of bisexuality. In P. C. R. Rust (Ed.), *Bisexuality in the United States: A reader and guide to the literature (pp. 5–10).*. New York, NY: Columbia University Press.

Rust, P. C. (2000). Two many and not enough -- The meanings of bisexual identities. *Journal of Bisexuality, 1*(1), 31 - 68.

Rust, P. C. (2002). Bisexuality: The state of the union. *Annual Review of Sex Research, 13*, 180.

Ryder, A. G., Alden, L. E., & Paulhus, D. L. (2000). Is acculturation unidimensional or bidimensional? A head-to-head comparison in the prediction of personality, self-identity, and adjustment. *Journal of Personality and Social Psychology, 79*(1), 49-65.

Savin-Williams, R. C. (2006). Who's gay? Does it matter? *Current Directions in Psychological Science, 15*(1), 40-44. doi: 10.1111/j.0963-7214.2006.00403.x

Savin-Williams, R. C. (2009). How many gays are there? It depends. In D. A. Hope (Ed.), *Contemporary perspectives on lesbian, gay, and bisexual identities* (Vol. 54, pp. 5-41). New York, NY: Springer.

Savin-Williams, R. C., & Vrangalova, Z. (2013). Mostly heterosexual as a distint sexual orientation group: A systematic review of the empirical evidence *Developmental review, 33*(1), 58-88.

Savin-Williams, R. G. (2008). Then and now: Recruitment, definition, diversity, and positive attributes of same-sex populations. *Developmental Psychology, 44*(1), 135-138.

Schick, V., & Dodge, B. (2012). Introduction to the Special Issue: Bisexual Health: Unpacking the Paradox. *Journal of Bisexuality, 12*(2), 161-167. doi: 10.1080/15299716.2012.674849

Schick, V., Rosenberger, J. G., Herbenick, D., Calabrese, S. K., & Reece, M. (2012). Bidentity: sexual behavior/identity congruence and women's sexual, physical and mental well-being. *Journal of Bisexuality, 12*(2), 178-197. doi: 10.1080/15299716.2012.674855

Schmitt, D. P. (2005). Sociosexuality from Argentina to Zimbabwe: A 48-nation study of sex, culture, and strategies of human mating. *Behavioral and Brain Sciences, 28*(2), 247-311. doi: 10.1017/S0140525X05000051

Seidman, S. (1994). Queering sociology, sociologizing queer theory: An introduction. *Sociological Theory, 12*(2), 166-177.

Sell, R. (1997). Defining and measuring sexual orientation: A Review. *Archives of Sexual Behavior, 26*(6), 643-658. doi: 10.1023/A:1024528427013

Senn, T. E., & Carey, M. P. (2010). Child maltreatment and women's adult sexual risk behavior: Childhood sexual abuse as a unique risk factor. *Child Maltreatment, 15*(4), 324-335. doi: 10.1177/1077559510381112

Shively, M. G., & De Cecco, J. P. (1977). Components of sexual identity. *Journal of Homosexuality, 3*(1), 41-48. doi: 10.1300/J082v03n01_04

Starr, L., Donenberg, G., & Emerson, E. (2012). Bidirectional linkages between psychological symptoms and sexual activities among African American adolescent girls in psychiatric care. *Journal of Clinical Child and Adolescent Psychology, 41*(6), 811-821. doi: 10.1080/15374416.2012.694607

Steele, L. S., Ross, L. E., Dobinson, C., Veldhuizen, S., & Tinmouth, J. M. (2009). Women's sexual orientation and health: Results from a Canadian population-based survey. *Women & Health, 49*(5), 353-367. doi: 10.1080/03630240903238685

Steer, R. A., & Clark, D. A. (1997). Psychometric characteristics of the Beck Depression Inventory–II with college students. *Measurement and Evaluation in Counseling and Development, 30*(3), 128-136.

Storms, M. D. (1980). Theories of sexual orientation. *Journal of Personality and Social Psychology, 38*, 783–792. doi: 10.1037/0022-3514.38.5.783.

Suetonius. (2010). *The Lives Of The First Twelve Cæsars, Translated From The Latin Of C. Suetonius Tranquillus: With Annotations, And A Review Of The Government And Lite*: BiblioLife.

Suresha, R. J., & Alexander, J. (2008). Kinsey and the case for bisexual civil rights: An interview with Yale legal scholar Kenji Yoshino. *Journal of Bisexuality, 8*(3-4), 199-204. doi: 10.1080/15299710802501496

Suschinsky, K., & Lalumière, M. (2012). Is sexual concordance related to awareness of physiological states? *Archives of Sexual Behavior, 41*(1), 199-208. doi: 10.1007/s10508-012-9931-9

Suschinsky, K. D., Lalumière, M. L., & Chivers, M. L. (2009). Sex differences in patterns of genital sexual arousal: Measurement artifacts or true phenomena? *Archives of Sexual Behavior, 38*(4), 559-573. doi: 10.1007/s10508-008-9339-8

Sweet, T., & L. Welles, S. (2012). Associations of sexual identity or same-sex behaviors with history of childhood sexual abuse and HIV/STI risk in the United States. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 59*(4), 400-408 410.1097/QAI.1090b1013e3182400e3182475.

Sweet, T., Polansky, M., & Welles, S. L. (2013). Mediation of HIV/STI risk by mental health disorders among persons living in the United States reporting childhood sexual abuse. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 62*(1), 81-89. doi: 10.1097/QAI.0b013e318273b0c7

Tabachnick, B., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed). Boston: Allyn and Bacon.

Toledano, R., & Pfaus, J. (2006). The Sexual Arousal and Desire Inventory (SADI): A multidimensional scale to assess subjective sexual arousal and desire. *Journal of Sexual Medicine, 3*(5), 853-877. doi: 10.1111/j.1743-6109.2006.00293.x

Tornello, S. L., Riskind, R. G., & Patterson, C. J. (2013). Sexual orientation and sexual and reproductive health among adolescent young women in the united states. *Journal of Adolescent Health*. doi: 10.1016/j.jadohealth.2013.08.018

US Institute of Medicine (2011). The health of lesbian, gay, bisexual, and transgender people: Building a foundation for better understanding. Washington, DC: US Institute of Medicine

van Anders, S. (2012). From one bioscientist to another: Guidelines for researching and writing about bisexuality for the lab and biosciences. *Journal of Bisexuality, 12*(3), 393-403. doi: 10.1080/15299716.2012.702621

Villarosa, L. (2013, May 09). Chirlane McCray: From gay trailblazer to politician's wife. *Essence Magazine*. Retrieved from http://www.essence.com/2013/05/09/politicians-wife-chirlane-mccray/

Volpp, S. Y. (2010). What about the "B" in LGB: Are bisexual women's mental health issues same or different? *Journal of Gay & Lesbian Mental Health, 14*(1), 41-51. doi: 10.1080/19359700903416016

Vrangalova, Z., & Savin-Williams, R. C. (2012). Mostly heterosexual and mostly gay/lesbian: evidence for new sexual orientation identities *Archives of Sexual Behavior, 2012*(41), 85-101.

Walsh, K., Latzman, N. E., & Latzman, R. D. (2013). Pathway from child sexual and physical abuse to risky sex among emerging adults: The role of trauma-related intrusions and alcohol problems. *Journal of Adolescent Health*. doi: 10.1016/j.jadohealth.2013.09.020

Weinberg, M. S., Williams, C. J., & Pryor, D. W. (1994). *Dual attraction: Understanding bisexuality* New York, NY: Oxford university press.

Weitzman, G. (2006). Therapy with clients who are bisexual and polyamorous. *Journal of Bisexuality, 6*(1-2), 137-164. doi: 10.1300/J159v06n01_08

Wellings, K., Field, J., Johnson, A. M., & Wadsworth, J. (1994). *Sexual behaviour in Britain*. London: Penguin.

Wellings, K., & Johnson, A. M. (2013). Framing sexual health research: adopting a broader perspective. *The Lancet*, *382*(9907), 1759-1762. doi:10.1016/S0140-6736(13)62378-8

Wilsnack, S. C., Hughes, T. L., Johnson, T. P., Bostwick, W. B., Szalacha, L. A., Benson, P., . . . Kinnison, K. E. (2008). Drinking and drinking-related problems among heterosexual and sexual minority women. *Journal of Studies on Alcohol and Drugs, 69*(1), 129-139.

Yoshino, K. (2000). The epistemic contract of bisexual erasure. *Stanford Law Review, 52*(2), 353–461.

Zivony, A., & Lobel, T. (2014). The invisible stereotypes of bisexual men. *Archives of Sexual Behavior*, 1-12. doi: 10.1007/s10508-014-0263-9

Appendices

Appendix A – Women's Experiences of Sexuality and Intimacy Questionnaire

Women's Experiences of Sexuality and Intimacy

This questionnaire inquires about your personal information, your background and sociodemographics, your sexual history and experiences, your sexual orientation, your sexual responses, your sexual arousal and desire, your quality of orgasm, your emotions in relation to sexuality, and degree of symptoms of depression and anxiety. This survey hopes to contribute to a better understanding of female sexuality and its relation to mental health.

Please read the directions and questions carefully. Either place a checkmark in the box that most applies to you, write your answer in the space provided, or circle the number that most applies to you. There are no right or wrong answers.

If a question does not apply to you, please write NA (not applicable) in the space provided. If you feel uncomfortable answering a question, please draw a slash over it and move on to the next question. Remember, your answers are confidential.

Your answers to this questionnaire are completely confidential and will remain so at all times. The participant ID is for administrative purposes only. Please answer as honestly as you possibly can.

Participant ID #: _____

Date: _____

INITIALS OF EXPERIMENTER: _____

Research conducted by the Pfauslab, Department of Psychology, Concordia University

The following questions ask about your personal information, background, and sociodemographics. Please read each question carefully and place a checkmark in the box of the answer that best describes you, or write your answer in the space provided. Remember, your answers are completely confidential.

1. Age: _____
2. Date of birth (DD/MM/YY): _____
3. Nationality: _____
4. Ethnicity: _____
5. What is your first language? _____
6. What is the religion you were brought up in?

☐ Catholic ☐ Protestant
☐ Jewish ☐ Hindu
☐ Muslim ☐ No religion
☐ Other_____

7. Which religion do you currently practice?

☐ Catholic ☐ Protestant
☐ Jewish ☐ Hindu
☐ Muslim ☐ No religion
☐ Other_____ ☐ No religion, but I consider myself spiritual

8. Did you grow up in a:

☐ Working-lower class family
☐ Middle-class family
☐ Upper-class family

9. Where do you currently live (Write the country and city or town/region on the line and tick the box to indicate whether it is city or small town)?

_____

☐ City ☐ Small-town/rural

10. Where did you grow up (Write the country and city or town/region on the line and tick the box to indicate whether it is city or small town)?

_____

☐ City ☐ Small-town/rural

11. Where were you born (Write the country and city or town/region on the line and tick the box to indicate whether it is city or small town?

_____

☐ City ☐ Small-town/rural

12. How long have you lived in an urban setting (years)?

_____

13. How long have you lived in a small-town/rural setting (years)?

_____

14. Please rate your level of fluency in English

	1	**2**	**3**	**4**	**5**	
Very Poor						Very Fluent

15. Please rate your level of fluency in French

	1	**2**	**3**	**4**	**5**	
Very Poor						Very Fluent

16. What do you consider your main cultural affiliation to be?

☐ English – Canadian
☐ French-Canadian
☐ Other (please explain) _____

17. What do you consider your main sexual culture to be?

☐ Heterosexual/straight
☐ Bisexual
☐ Gay/lesbian
☐ Transgendered
☐ Polyamorous
☐ Asexual
☐ I feel I don't belong to any sexual culture
☐ Other (please explain) _____

18. Relationship status:

☐ Single
☐ Dating 1 person
☐ Dating more than 1 person
☐ Engaged
☐ Widowed
☐ Married
☐ Common law
☐ Divorced

19. If you are currently in a relationship please state the length of that relationship (Note, if you are in more than one relationship, state the length of all of them):

_____ years OR _____ months
_____ years OR _____ months

20. How many children do you have? _____

21. Highest level of education completed:

- ☐ Completed grade 8
- ☐ Some high school completed (grades 9-11)
- ☐ Graduated from high school, or equivalent
- ☐ Vocational, trade or business school completed
- ☐ Community college: Currently attending or completed diploma
- ☐ University: Currently attending or completed bachelor's degree
- ☐ Graduate/professional school (MA, PhD, MBA, MD): Currently attending or completed degree

22 Are you currently a full-time student?

☐ Yes ☐ No

23. Are you currently employed at a paid job?

- ☐ Yes, full-time
- ☐ Yes, part-time
- ☐ No, full-time student
- ☐ No, currently unemployed
- ☐ No, retired
- ☐ No, full-time homemaker

If yes, what is your current position/title? _____

The following questions ask about some of your history and behaviours. Please read each question carefully and place a checkmark in the box of the answer that best describes you. If you feel uncomfortable answering a question, please draw a slash over it and move on to the next question.

1. Do you suffer from any serious illness or take any type of medication? If yes, please specify_____

2. Do you have a history of childhood abuse? ☐ Yes ☐ No ☐ I don't know

If yes, which form?

☐ Sexual ☐ Physical ☐ Emotional

3. Do you engage in risky sexual behaviour (e. g., unprotected sex, sex with unknown individuals)?

☐ Yes ☐ No

If yes, how often?

☐ Rarely (between 1% and 20% of sexual contacts)

☐ Fairly often (between 21% and 40% of sexual contacts)

☐ Often (between 41% and 60% of sexual contacts)

☐ Usually (between 61% and 80% of sexual contacts)

☐ Almost always (between 81% and 99% of sexual contacts)

☐ Always (100% of sexual contacts)

4. How often do you drink alcohol?

☐ Never ☐ 3-4 days/week

☐ Less than 1 day/week ☐ Everyday

☐ 1-2 days/week

5. How many drinks do you usually have on the days you drink alcohol?

☐ 1-2 drinks/day ☐ 5-8 drinks/day

☐ 3-4 drinks/day ☐ More than 9 drinks/day

6. How often do you smoke cigarettes?

☐ Never ☐ 3-4 days/week

☐ Less than 1 day/week ☐ Everyday

☐ 1-2 days/week

7. Have you ever tried marijuana?

☐ Yes ☐ No

If yes, at which age did your first try it? _____

If yes, have you used it in the past 12 months?

☐ Yes ☐ No

8. Have you ever tried illicit substances other than marijuana (e.g., cocaine, ecstasy/designer drugs, amphetamines, LSD, natural hallucinogens, tranquilizers, inhalants, heroin, barbiturates, steroids)?

☐ Yes ☐ No

If yes, at which age did your first try it? _____

If yes, which substances have you tried? _____

If yes, have you used it in the past 12 months?

☐ Yes ☐ No

If yes, which substances have you used in the past 12 months?

_____

The following questions ask about your romantic, sexual, and emotional attractions, sexual contacts (meaning any oral sex, vaginal sex, and/or anal sex that was consensual), and sexual identity. These questions apply for you as a sexually mature adult. Please read each question carefully and read the options presented after each question. Please place a check mark next to the response that best describes you.

1) Please think about the people you have typically been romantically attracted to. By "romantically" attracted we mean a deep emotional and sexual attraction that is more than friendship. Would you say that your romantic attractions are toward:
   ____ Women only
   ____ Women mostly, but men occasionally too
   ____ Women mostly, but men frequently (but not more than toward women)
   ____ Women and men about equally
   ____ Men mostly, but women frequently (but not more than toward men)
   ____ Men mostly, but women occasionally too
   ____ Men only

2) Please think about the people you have typically been sexually attracted to. By "sexually" attracted we mean you experience sexual desire or interest in someone. Would you say that your sexual attractions are toward:
   ____ Women only
   ____ Women mostly, but men occasionally too
   ____ Women mostly, but men frequently (but not more than towards women)
   ____ Women and men about equally
   ____ Men mostly, but women frequently (but not more than toward men)
   ____ Men mostly, but women occasionally too
   ____ Men only

3) Please think about the people you have typically been emotionally attracted to. By "emotionally" attracted we mean you experience a deep emotional attraction that is more than friendship. Would you say that your emotional attractions are toward:
   ____ Women only
   ____ Women mostly, but men occasionally too
   ____ Women mostly, but men frequently (but not more than towards women)
   ____ Women and men about equally
   ____ Men mostly, but women frequently (but not more than toward men)
   ____ Men mostly, but women occasionally too
   ____ Men only

4) Please think about the people you typically have sexual fantasies about. By a "sexual fantasy" we mean sexual scenarios or daydreams you think about, and may use when masturbating and/or having sex with a partner. Would you say your sexual fantasies are about:
   ____ Women only
   ____ Women mostly, but men occasionally too
   ____ Women mostly, but men frequently (but not more than towards women)
   ____ Women and men about equally
   ____ Men mostly, but women frequently (but not more than toward men)
   ____ Men mostly, but women occasionally too
   ____ Men only

5) Now, please think about having sexual contact with a man. How sexually interested or excited do you feel by the thought of having sex with a man?
   ____ Not at all
   ____ A little bit
   ____ Somewhat
   ____ Definitely
   ____ Extremely

6) Keep thinking about having sexual contact with a man. How "turned off" or disgusted do you feel by the idea of having sex with a man?
   ____ Not at all
   ____ A little bit
   ____ Somewhat
   ____ Definitely
   ____ Extremely

7) Now, please think about having sexual contact with a woman. How sexually interested or excited do you feel by the thought of having sex with a woman?
   ____ Not at all
   ____ A little bit
   ____ Somewhat
   ____ Definitely
   ____ Extremely

8) Keep thinking about having sexual contact with a woman. How "turned off" or disgusted do you feel by the idea of having sex with a woman?
   ____ Not at all
   ____ A little bit
   ____ Somewhat
   ____ Definitely
   ____ Extremely

9) What is your sexual orientation?

☐ Heterosexual/straight
☐ Mostly heterosexual/straight
☐ Bisexual
☐ Mostly lesbian/homosexual
☐ Lesbian/homosexual
☐ I am not sure what my sexual orientation is (I am confused)
☐ Asexual

10) Which sexual orientation do you think others would assign you?

☐ Heterosexual/straight
☐ Mostly heterosexual/straight
☐ Bisexual
☐ Mostly lesbian/homosexual
☐ Lesbian/homosexual
☐ That I not sure what my sexual orientation is (that I am confused)
☐ Asexual

11) What is your sexual identity label?

☐ Heterosexual/straight
☐ Lesbian/homosexual
☐ Bisexual
☐ Asexual
☐ Unlabelled
☐ Other, please explain_____

12) Which sexual identity label do you think others would give you?

☐ Heterosexual/straight
☐ Lesbian/homosexual
☐ Bisexual
☐ Asexual
☐ Unlabelled
☐ Other, please explain_____

13) Do you believe your sexual orientation is transitory?

☐ Not at all
☐ A little bit
☐ Somewhat
☐ Definitely
☐ Extremely
☐ I don't know

14) What do you imagine your sexual orientation to be 10 years from now?

☐ Heterosexual/straight
☐ Mostly heterosexual/straight
☐ Bisexual
☐ Mostly lesbian/homosexual
☐ Lesbian/homosexual
☐ I am not sure what my sexual orientation will be
☐ Asexual
☐ Other, please explain_____

15) Imaging yourself 10 years from now, do you think you will be with:

☐ a man
☐ a woman
☐ both with a man and a woman
☐ single
☐ I don't know
☐ Other, please explain_____

16) Do you act on your attractions towards women

☐ yes ☐ no ☐ NA, not attracted to women

17) Do you act on your attractions towards men

☐ yes ☐ no ☐ NA, not attracted to men

18) Are you comfortable with your sexual orientation?

☐ yes ☐ no

If yes, rate the degree of comfort

☐ A little bit ☐ Definitely
☐ Somewhat ☐ Extremely

19) Does your sexual orientation cause you distress?

☐ yes ☐ no

If yes, rate the degree of distress

☐ A little bit ☐ Definitely
☐ Somewhat ☐ Extremely

20) Are you open about your sexual orientation with:

- Family ☐ yes ☐ no
- Friends ☐ yes ☐ no
- Acquaintances ☐ yes ☐ no
- Colleagues ☐ yes ☐ no

21) Would you label yourself as sexually promiscuous?

☐ yes ☐ no

The following questions ask about your sexual/emotional/romantic experiences, responses, and history. These questions apply for you as a sexually mature adult. Please read each question carefully and read the options presented after each question. Please check the box next to the response that best describes you. If a question does not apply to you, write N. A.

1. Is your current sexual partner:

☐ a woman

☐ a man

☐ I have two sexual partners, both a woman and a man

☐ I have two sexual partners, both women

☐ I have two sexual partners, both men

☐ no current sexual partner

☐ other, please explain_____

2. Is your current romantic partner:

☐ my current romantic partner is the same as my sexual partner (as defined in the question above)

☐ a woman

☐ a man

☐ I have two romantic partners, both a woman and a man

☐ I have two romantic partners, both women

☐ I have two romantic partners, both men

☐ no current romantic partner

☐ other, please explain_____

3. What is your current sexual relationship status?

☐ I'm in a committed and monogamous sexual relationship

☐ I'm in a non-committed and non-monogamous sexual relationship

☐ I'm in a committed but non-monogamous sexual relationship

☐ I'm not in a sexual relationship

☐ Other, please explain_____

4. Do you desire to have sex with women more frequently than you currently do?

☐ Yes ☐ No

5. Do you desire to have sex with men more frequently than you currently do?

☐ Yes ☐ No

6. Can you respond sexually to someone you have a strong personal connection with, regardless of that person's gender?

☐ Yes

☐ No

Note: Sexual attraction means to experience sexual desire or interest in someone.
Emotional attraction means to experience a deep emotional attraction towards someone that's more than friendship.
Romantic attraction means to experience both sexual and emotional attraction towards someone that's more than friendship.

7. At what age did you first notice sexual attractions towards males (if you have never had any, write N.A.)?

_____

8. At what age did you first notice sexual attractions towards females (if you have never had any, write N.A.)?

_____

9. At what age did you first notice emotional attractions towards males (if you have never had any, write N.A.)? _____

10. At what age did you first notice emotional attractions towards females (if you have never had any, write N.A.)? _____

11. At what age did you first notice romantic attractions (both sexual and emotional) towards males (if you have never had any, write N.A.)? _____

12. At what age did you first notice romantic attractions (both sexual and emotional) towards females (if you have never had any, write N.A.)? _____

13. Do you feel you become sexually attracted to different characteristics in men and women? Write N.A. if you are only sexually attracted to men or only sexually attracted to women.

☐ Yes ☐ No ☐NA

If yes, what do you find most sexually attractive in men?

_____

In women? _____

14. Do you feel you become emotionally attracted to different characteristics in men and women? Write N.A. if you are only emotionally attracted to men or only emotionally attracted to women.

☐ Yes ☐ No ☐ NA

If yes, what do you find most emotionally attractive in men?

_____

In women? _____

15. How do you experience your attractions to women?

☐ Only sexual
☐ Only emotional
☐ Both as sexual and emotional
☐ Never been attracted to women on any level (except as friends)

16. How do you experience your attractions to men?

☐ Only sexual
☐ Only emotional
☐ Both as sexual and emotional
☐ Never been attracted to men on any level (except as friends)

17. Would you be most happy if you could have a boyfriend and a girlfriend at the same time (imagining this is socially acceptable)? Write N.A. if you are NOT both attracted to men and women at any level.

☐ Yes ☐ No ☐ NA

18. Who do you think you would be most happy with in a relationship?

☐ A woman ☐ A woman and a man at the same time
☐ A man ☐ Doesn't matter if it's a woman or a man
☐ I'm not sure

19. Do you feel you miss something if you are only in a relationship with a man and do not act on your attractions towards women? Write N.A. if you are NOT attracted to women at any level.

☐ Yes ☐ No ☐ I don't know ☐ NA

20. Do you feel you miss something if you are only in a relationship with a woman and do not act on your attractions towards men? Write N.A. if you are NOT attracted to men at any level.

☐ Yes ☐ No ☐ I don't know ☐ NA

21. Do you feel it is difficult to make a choice between a woman and a man in terms of a long-term relationship? Write N.A. if you are not attracted to *both* men and women.

☐ Yes ☐ No ☐ NA

22. Do you think you engage in both heterosexual/straight and lesbian/homosexual behaviour because you are confused about your sexual orientation? Write NA if you engage exclusively in just heterosexual/straight or just lesbian/homosexual behaviour.

☐ Yes ☐ No ☐ NA

If yes, rate your degree of confusion

☐ A little bit confused ☐ Definitely confused

☐ Somewhat confused ☐ Extremely confused

23. Do you think you choose to have attractions towards both men and women? Write NA if you only have attractions towards men or only have attractions towards women.

☐ Yes ☐ No ☐ NA

If you think you choose, how much control do you think you have over your choice

☐ No control at all ☐ Definite control

☐ A little bit control ☐ Extreme control

☐ Some control

24. Did your attractions towards women appear unexpectedly? Write NA if you have never had attractions towards women.

☐ Yes ☐ No ☐ NA

25. Did your attractions towards men appear unexpectedly? Write NA if you have never had attractions towards men.

☐ Yes ☐ No ☐ NA

26. How bad would you feel if imagining to be in a monogamous relationship with just a woman for the rest of your life (implying you would not be able to act on your attractions towards men)? Write NA if you only have attractions towards women.

☐ Not at all bad ☐ Definitely bad
☐ A little bit bad ☐ Extremely bad
☐ Somewhat bad ☐ NA

27. How bad would you feel if imagining to be in a monogamous relationship with just a man for the rest of your life (implying you would not be able to act on your attractions towards women)? Write NA if you only have attractions towards men.

☐ Not at all bad ☐ Definitely bad
☐ A little bit bad ☐ Extremely bad
☐ Somewhat bad ☐ NA

28. Do you *only* engage in lesbian/homosexual behaviour when intoxicated?

☐ Yes ☐ No ☐ I never engage in lesbian/homosexual behaviour

If yes, how often does this happen?

☐ Rarely (between 1% and 20% of times when intoxicated)
☐ Fairly often (between 21% and 40% of times when intoxicated)
☐ Often (between 41% and 60% of times when intoxicated)
☐ Usually (between 61% and 80% of times when intoxicated)
☐ Almost always (between 81% and 99% of times when intoxicated)
☐ Always (100% of times when intoxicated)

29. Do you *only* engage in heterosexual/straight behaviour when intoxicated?

☐ Yes ☐ No ☐ I never engage in heterosexual/straight behaviour

If yes, how often does this happen?

☐ Rarely (between 1% and 20% of times when intoxicated)
☐ Fairly often (between 21% and 40% of times when intoxicated)
☐ Often (between 41% and 60% of times when intoxicated)
☐ Usually (between 61% and 80% of times when intoxicated)
☐ Almost always (between 81% and 99% of times when intoxicated)
☐ Always (100% of times when intoxicated)

30. How satisfied are you with your romantic relationships (implying both sexual and emotional attraction) with women? Write NA if you have never had a romantic relationship with a woman.

☐ Not at all satisfied ☐ Definitely satisfied
☐ A little bit satisfied ☐ Extremely satisfied
☐ Somewhat satisfied ☐ NA

31. How satisfied are you with your romantic relationships (implying both sexual and emotional attraction) with men? Write NA if you have never had a romantic relationship with a man.

☐ Not at all satisfied ☐ Definitely satisfied
☐ A little bit satisfied ☐ Extremely satisfied
☐ Somewhat satisfied ☐ NA

32. How satisfied are you with your sexual relationships with women? Write NA if you have never had a sexual relationship with a woman.

☐ Not at all satisfied ☐ Definitely satisfied
☐ A little bit satisfied ☐ Extremely satisfied
☐ Somewhat satisfied ☐ NA

33. How satisfied are you with your sexual relationships with men? Write NA if you have never had a sexual relationship with a man.

☐ Not at all satisfied ☐ Definitely satisfied
☐ A little bit satisfied ☐ Extremely satisfied
☐ Somewhat satisfied ☐ NA

33. How satisfied are you with your emotional relationships with women? Write NA if you have never had an emotional relationship with a woman.

☐ Not at all satisfied ☐ Definitely satisfied
☐ A little bit satisfied ☐ Extremely satisfied
☐ Somewhat satisfied ☐ NA

35. How satisfied are you with your emotional relationships with men? Write NA if you have never had a sexual relationship with a man.

☐ Not at all satisfied ☐ Definitely satisfied
☐ A little bit satisfied ☐ Extremely satisfied
☐ Somewhat satisfied ☐ NA

36. Was your first sexual contact (meaning any sexually motivated intimate contact) with a woman or with a man?

☐ Woman ☐ Man ☐ I've never had sexual contact

37. Have you ever had sexual contact with a woman? ☐ Yes ☐ No

If yes, how old were you when you had your first had sexual contact with a woman?

_____

How satisfying was this experience?

☐ Not at all satisfying ☐ Definitely satisfying
☐ A little bit satisfying ☐ Extremely satisfying
☐ Somewhat satisfying

38. With how many women have you had sexual contact? _____

Rate your overall/average satisfaction with these partners.

☐ Not at all satisfying ☐ Definitely satisfying
☐ A little bit satisfying ☐ Extremely satisfying
☐ Somewhat satisfying

39. Have you ever had sexual contact with a man? ☐ Yes ☐ No

If yes, how old were you when you had your first had sexual contact with a man?

_____

How satisfying was this experience?

☐ Not at all satisfying ☐ Definitely satisfying
☐ A little bit satisfying ☐ Extremely satisfying
☐ Somewhat satisfying

40. With how many men have you had sexual contact_____

Rate your overall/average satisfaction with these partners.

☐ Not at all satisfying ☐ Definitely satisfying
☐ A little bit satisfying ☐ Extremely satisfying
☐ Somewhat satisfying

41. Have you ever had an orgasm? ☐ Yes ☐ No

If yes, how old were you when you had your first orgasm? _____

42. Have you ever had an orgasm with a partner? ☐ Yes ☐ No

If yes, how old were you when you had your first orgasm with a partner? _____

If yes, was your first orgasm with a woman or with a man? _____

How satisfying was this orgasm?

☐ Not at all
☐ A little bit
☐ Somewhat
☐ Definitely
☐ Extremely

43. On average, how satisfying are your orgasms with men?

☐ Not at all
☐ A little bit
☐ Somewhat
☐ Definitely
☐ Extremely
☐ Never had an orgasm with a man

44. On average, how satisfying are your orgasms with women?

☐ Not at all
☐ A little bit
☐ Somewhat
☐ Definitely
☐ Extremely
☐ Never had an orgasm with a woman

45. How easy is it for you to have an orgasm with a woman?

☐ Not at all easy
☐ A little bit easy
☐ Somewhat easy
☐ Definitely easy
☐ Extremely easy
☐ Never had an orgasm with a woman

46. How easy is it for you to have an orgasm with a man?

☐ Not at all easy
☐ A little bit easy
☐ Somewhat easy
☐ Definitely easy
☐ Extremely easy
☐ Never had an orgasm with a ma

47. Have you ever had a romantic relationship (meaning both emotional and sexual attraction) with a woman? ☐ Yes ☐ No

If yes, how many romantic relationships have you had with women? _____

Rate your overall/average satisfaction with these relationships

☐ Not at all
☐ A little bit
☐ Somewhat
☐ Definitely
☐ Extremely

48. Have you ever had a romantic relationship (meaning both emotional and sexual attraction) with a man?

☐ Yes ☐ No

If yes, how many romantic relationships have you had with men? _____

Rate your overall/average satisfaction with these relationships

☐ Not at all
☐ A little bit
☐ Somewhat
☐ Definitely
☐ Extremely

49. Do you feel threatened by romantic relationships with women?

☐ Yes ☐ No ☐ NA

If yes, how threatened do you feel by romantic relationships with women?

☐ A little bit
☐ Somewhat
☐ Definitely
☐ Extremely

If you feel threatened, what makes you feel that way? Describe

_____

50. Do you feel threatened by romantic relationships with men?

☐ Yes ☐ No ☐ NA

If yes, how threatened do you feel by romantic relationships with men?

☐ A little bit
☐ Somewhat
☐ Definitely
☐ Extremely

If you feel threatened, what makes you feel that way? Describe

_____

51. Do you feel threatened by sexual contact with women?

☐ Yes ☐ No ☐ NA

If yes, how threatened do you feel by sexual contact with women?

☐ A little bit ☐ Definitely

☐ Somewhat ☐ Extremely

If you feel threatened, what makes you feel that way? Describe

_____

52. Do you feel threatened by sexual contact with men?

☐ Yes ☐ No ☐ NA

If yes, how threatened do you feel by sexual contact with men?

☐ A little bit ☐ Definitely

☐ Somewhat ☐ Extremely

If you feel threatened, what makes you feel that way? Describe

_____

53. Do you feel threatened by emotional intimacy with women?

☐ Yes ☐ No ☐ NA

If yes, how threatened do you feel by emotional intimacy with women?

☐ A little bit ☐ Definitely

☐ Somewhat ☐ Extremely

If you feel threatened, what makes you feel that way? Describe

_____

54. Do you feel threatened by emotional intimacy with men?

☐ Yes ☐ No ☐ NA

If yes, how threatened do you feel by emotional intimacy with men?

☐ A little bit ☐ Definitely

☐ Somewhat ☐ Extremely

If you feel threatened, what makes you feel that way? Describe

_____

55. Has your most significant sexual *attraction* been towards a

☐ Woman? ☐ Man? ☐ Equally woman and man?

56. Has your most significant emotional *attraction* been towards a

☐ Woman? ☐ Man? ☐ Equally woman and man?

57. Has your most significant romantic (both sexual and emotional attraction) *attraction* been towards a

☐ Woman? ☐ Man? ☐ Equally woman and man?

58. Has your most significant romantic (both sexual and emotional attraction) *relationship* been with a ☐ Woman? ☐ Man? ☐ Equally woman and man?

59. Has your most significant sexual *relationship* been with a

☐ Woman? ☐ Man? ☐ Equally woman and man?

60. Has your most significant emotional *relationship* been with a

☐ Woman? ☐ Man? ☐ Equally woman and man?

61. What's the longest duration of any romantic relationship with a woman?

_____

62. What's the longest duration of any romantic relationship with a man?

_____

The Sexual Arousal and Desire Inventory (SADI)

This inventory is concerned with **SEXUAL AROUSAL and DESIRE.** We define **sexual arousal** as **the physiological responses that accompany or follow sexual desire**. For example, when you feel sexually aroused, your heart might beat faster or your palms may get sweaty. Women may feel a moistness of the vagina. Sexual Arousal involves the more physiological aspects of wanting sex. We define **sexual desire** as **an energizing force that motivates a person to seek out or initiate sexual contact and behavior**. You can think of it as a hunger or a sexual "drive" that leads you to seek out sexual contact. Sexual Desire involves the more psychological aspects of wanting sex.

Below you will find a list of words describing how you may have felt the last time you experienced sexual aroual or desire. Different people experience **sexual arousal and desire** in distinct, individual ways. There is no "right" or "wrong" answer. Please indicate to what extent each word describes how you have normally felt while having sex, with a man or with a woman by placing the number that describes the feeling most accurately.

Please use the following scale to rate each of the words below. **Please rate all of the words. Do not skip any.**

0	**1**	**2**	**3**	**4**	**5**
does not describe it at all			describes it moderately well		describes it perfectly

Man: Anticipatory _____
Woman: Anticipatory _____

Woman: Frustrated _____
Man: Frustrated _____

Woman: Tingly all over _____
Man: Tingly all over _____

Man: Lustful _____
Woman: Lustful _____

Man: Restrained _____
Woman: Restrained _____

Woman: Entranced _____
Man: Entranced _____

Woman: Anxious _____
Man: Anxious _____

Man: Aversion _____
Woman: Aversion _____

Man: Driven _____
Woman: Driven _____

Woman: Hot _____
Man: Hot _____

Woman: Frigid _____
Man: Frigid _____

Man: Tempted _____
Woman: Tempted _____

Man: Sensitive to touch _____

Woman: Passionate _____

Woman: Sensitive to touch _____

Man: Passionate _____

Woman: Sluggish _____
Man: Sluggish _____

Man: Fantasize about sex _____
Woman: Fantasize about sex _____

Man: Urge to satisfy and/or be satisfied _____
Woman Urge to satisfy and/or be satisfied _____

Woman: Repressed _____
Man: Repressed _____

Woman: Enthusiastic _____
Man: Enthusiastic _____

Man: Disturbed _____
Woman: Disturbed _____

Man: Unhappy _____
Woman: Unhappy _____

Woman: Flushed _____
Man: Flushed _____

Man: Wet _____
Woman: Wet _____

Man: Impatient _____
Woman: Impatient _____

Woman: Quivering sensations _____
Man: Quivering sensations _____

Woman: Sensual _____
Man: Sensual _____

Man: Resistant _____
Woman: Resistant _____

Man: Breathe faster/ Pant _____
Woman: Breathe faster/ Pant _____

Woman: Warm all over _____
Men: Warm all over _____

Woman: Displeasure _____
Man: Displeasure _____

Man: Excited _____
Woman: Excited _____

Man: Stimulated _____
Woman: Stimulated _____

Woman: Tingling in genital area _____
Man: Tingling in genital area_____

Woman: Tingling sensation in gut_____
Man: Tingling sensation in gut_____

Man: Uninterested _____
Woman: Uninterested _____

Man: I forget about everything else _____
Woman: I forget about everything else ____

Woman: Pleasure _____
Man: Pleasure _____

Woman: Repulsion _____
Man: Repulsion _____

Man: Heart beats faster _____
Woman: Heart beats faster _____

Man: Sexy _____
Woman: Sexy _____

Woman: Happy _____

Woman: Horny

Man: Happy _____

Man: Lethargic _____
Woman: Lethargic _____

Woman: Alluring _____
Man: Alluring _____

Man: Naughty _____
Woman: Naughty _____

Woman: Angry _____
Man: Angry _____

Man: Attractive _____
Woman: Attractive _____

Woman: Powerful _____
Man: Powerful _____

Man: Horny

Woman: Throbs in genital area _____
Man: Throbs in genital area _____

Man: Good _____
Woman: Good _____

Woman: Unattractive _____
Man: Unattractive _____

Man: Insensible _____
Woman: Insensible _____

Woman: Seductive _____
Man: Seductive _____

Man: Genitals Reddish _____
Woman: Genitals Reddish ___

Female Orgasm Inventory

We are interested in finding out whether women experience different types of orgasm depending on the type of stimulation (e.g., masturbation vs. sex with a partner) and the level of arousal during sexual stimulation, and how certain words or descriptors convey those experiences.

If you have never experienced an orgasm through masturbation, sexual intercourse, or other forms of sexual activity, please do not fill out this inventory.

Definitions

Sexual behaviour seems so simple, yet even scholars and scientists cannot agree on a coherent definition. For example, is "having sex" something only done with a partner, or can masturbation by yourself be included in the definition?

For the purposes of this study, sexual activity can be *any* activity of a sexual nature. It can be done exclusively for the pleasure inherent in sexual gratification and orgasm, or to achieve an intimate bond with another person. It can include any type of genital stimulation (manual, oral, vaginal, anal, with sex toys, etc.) and can be achieved alone by masturbating or by having sex with one or more sex partners. For this study, we would like you to try to differentiate the orgasms you achieve through masturbation alone with those that you achieve by having sex with one or more partners.

We would also like you to introspect and see whether you feel the orgasms you achieve through masturbation or partnered sex are different if the level of subjective arousal is different. Sometimes sex can be highly arousing, whereas other times it is less so. Does the level of arousal you experience play any role in the intensity and pleasure you achieve from your orgasms?

The answers are split by male and female. Please answer the questions for both genders (if applicable to you), if only one gender applies to you (for any one question), please write N/A for the other gender.

1. Do you masturbate? YES___ NO_____

If yes, please use the following scale to rate your frequency:

1 **2** **3** **4** **5**
sometimes often daily

2. At what age did you first masturbate? _____

3. Do you have sex with female partners? YES ___ NO _____

If yes, please use the following scale to rate your frequency:

1 **2** **3** **4** **5**
sometimes often daily

4. Do you have sex with male partners? YES ___ NO _____

If yes, please use the following scale to rate your frequency:

1 **2** **3** **4** **5**
sometimes often daily

5. Have you ever had an orgasm with a female? YES ___ NO ___

If yes, please use the following scale to rate your frequency of having orgasms during sex with a female partner:

1 **2** **3** **4** **5**
sometimes often daily

6. Have you ever had an orgasm with a male? YES ___ NO ___

If yes, please use the following scale to rate your frequency of having orgasms during sex with a male partner:

1 **2** **3** **4** **5**
sometimes often daily

7. At what age did you have your first orgasm with a female? ____

8. At what age did you have your first orgasm with a male? ____

9. Please circle the type(s) of stimulation that brought you to your first orgasm:

1. Manual stimulation (masturbation alone OR mutual masturbation with a partner)

2. Oral stimulation

3. Sexual intercourse

10. How often would you say you experience the following difficulties while engaging in sexual activity with a female?

Insufficient sexual arousal

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

Lack of desire for sex

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

Difficulty achieving orgasm

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

Pain at penetration

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

Aversion to sexual activity

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

11. How often would you say you experience the following difficulties while engaging in sexual activity with a male?

Insufficient sexual arousal

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

Lack of desire for sex

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

Difficulty achieving orgasm

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

Pain at penetration

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

Aversion to sexual activity

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

Sexual Activity

The following questions pertain to your average sexual activity.

1. On average, how many times a week do you desire to have sex?

0 ____ 1-4 ____ 5-8 ____ 9 or more ____

2. On average, how many times a week do you masturbate?

0 ____ 1-4 ____ 5-8 ____ 9 or more ____

3. On average, how many times a week do you have sex with a female partner (oral, genital, and/or anal)?

0 ____ 1-4 ____ 5-8 ____ 9 or more ____

4. On average, how many times a week do you have sex with a male partner (oral, genital, and/or anal)?

0 ____ 1-4 ____ 5-8 ____ 9 or more ____

5. On average, how many times a week do you engage in other forms of sex play?

0 ____ 1-4 ____ 5-8 ____ 9 or more ____

6. On average, how would you rate the intensity of the pleasure you get from orgasms during:

Masturbation while thinking of a woman:

0	**1**	**2**	**3**	**4**	**5**
none	some		moderate		full

Masturbation while thinking of a man:

0	**1**	**2**	**3**	**4**	**5**
none	some		moderate		full

Sex with one or more partners

0	**1**	**2**	**3**	**4**	**5**
none	some		moderate		full

7. On average, how many times a week do you think about sex?

0 ____ 1-4 ____ 5-8 ____ 9 or more ____

8. Are there any times you think about sex more often than other times?
Please explain.

Types of Stimulation

The following questions pertain to the kinds of orgasms you might experience from different types of stimulation.

1. Can you experience orgasm by yourself from masturbation?
YES _____ NO _____

If YES, please indicate whether it occurs:

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

2. Can you experience orgasm from manual stimulation of your vagina by a partner?

YES _____ NO _____

If YES, please indicate whether it occurs:

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

3. Can you experience orgasm from oral stimulation of your vagina by a partner?

YES _____ NO _____

If YES, please indicate whether it occurs:

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

4. Can you experience orgasm from vaginal and/or anal penetration of a partner?

YES_____ NO _____

If YES, please indicate whether it occurs:

0	**1**	**2**	**3**	**4**	**5**
never	sometimes		often		always

Orgasms from Masturbation

Below is a list of words that might be used to describe the experience of an orgasm from masturbation.

Different people may use different words to describe their personal experience, and so there is no "right" answer. After each word, write the number that best indicates how well that word describes your experience during masturbation. **If you have never experienced an orgasm from masturbation, do not fill out this section.**

To rate each of the words below, use the following scale:

0	**1**	**2**	**3**	**4**	**5**
does not describe it at all					describes it perfectly

PLEASE RATE ALL OF THE WORDS USING THE SCALE ABOVE.
DO NOT SKIP ANY.

absorbed _____
blissful _____
building _____
close _____
ecstatic _____
elated _____
engulfing _____
euphoric _____
exciting _____
exploding _____
flooding _____
flowing _____
flushing _____
fulfilling _____
hot _____
*immersing*_____
loving _____
*passionate*_____
pulsating _____
quivering _____
rapturous _____
relaxing _____
rising _____
satisfying _____
shooting _____
shuddering _____
soothing _____
spreading _____
spurting _____
swelling _____
tender _____
throbbing _____
trembling _____
*uncontrolled*_____
unifying _____
unreal _____

peaceful _____ *warm* _____

*pleasurable*_____ *wild* _____

How would you rate the overall intensity of your orgasms from masturbation?

0	**1**	**2**	**3**	**4**	**5**
not at all	somewhat		moderately		extremely

Are there any situations that make your orgasm from masturbation more arousing?

YES _____ NO _____

If yes, please explain:

Orgasms from Manual Stimulation by a Partner

Below is a list of words that might be used to describe the experience of an orgasm from manual stimulation of your vagina by a partner. The answers are split by male and female. Please answer the questions for both genders (if applicable to you), if only one gender applies to you (for any one question), please write N/A for the other gender.

Different people may use different words to describe their personal experience, and so there is no "right" answer. After each word, write the number that best indicates how well that word describes your experience during manual stimulation. **If you have never experienced an orgasm from manual stimulation by a partner, do not fill out this section.**

To rate each of the words below, use the following scale:

0	**1**	**2**	**3**	**4**	**5**
does not describe it at all					describes it perfectly

PLEASE RATE ALL OF THE WORDS USING THE SCALE ABOVE FOR WOMEN.
DO NOT SKIP ANY.

absorbed _____
blissful _____
building _____
close _____
ecstatic _____
elated _____
engulfing _____
euphoric _____
exciting _____
exploding _____
flooding _____
flowing _____
flushing _____
fulfilling _____
hot _____
immersing _____
pulsating _____
quivering _____
rapturous _____
relaxing _____
rising _____
satisfying _____
shooting _____
shuddering _____
soothing _____
spreading _____
spurting _____
swelling _____
tender _____
throbbing _____
trembling _____
uncontrolled _____

loving _____ *unifying* _____

*passionate*_____ *unreal* _____

peaceful _____ *warm* _____

*pleasurable*_____ *wild* _____

To rate each of the words below, use the following scale:

0 **1** **2** **3** **4** **5**

does not describe it at all — describes it perfectly

PLEASE RATE ALL OF THE WORDS USING THE SCALE ABOVE FOR MEN. DO NOT SKIP ANY.

absorbed _____ *pulsating* _____

blissful _____ *quivering* _____

building _____ *rapturous* _____

close _____ *relaxing* _____

ecstatic _____ *rising* _____

elated _____ *satisfying* _____

engulfing _____ *shooting* _____

euphoric _____ *shuddering* _____

exciting _____ *soothing* _____

exploding _____ *spreading* _____

flooding _____ *spurting* _____

flowing _____ *swelling* _____

flushing _____ *tender* _____

fulfilling _____ *throbbing* _____

hot _____ *trembling* _____

*immersing*_____ *uncontrolled* _____

loving _____ *unifying* _____

*passionate*_____ *unreal* _____

peaceful _____ *warm* _____

*pleasurable*_____ *wild* _____

How would you rate the overall intensity of your orgasms from manual stimulation by a female partner?

0	**1**	**2**	**3**	**4**	**5**
not at all	somewhat		moderately		extremely

How would you rate the overall intensity of your orgasms from manual stimulation by a male partner?

0	**1**	**2**	**3**	**4**	**5**
not at all	somewhat		moderately		extremely

Are there any situations that make your orgasm from manual stimulation more arousing?

YES _____ NO _____

If yes. please explain:

Orgasms from Oral Stimulation by a Partner

Below is a list of words that might be used to describe the experience of an orgasm from oral stimulation by a partner. The answers are split by male and female. Please answer the questions for both genders (if applicable to you), if only one gender applies to you (for any one question), please write N/A for the other gender.

Different people may use different words to describe their personal experience, and so there is no "right" answer. After each word, write the number that best indicates how well that word describes your experience during oral stimulation. **If you have never experienced an orgasm from oral stimulation, do not fill out this section.**

To rate each of the words below, use the following scale:

0	**1**	**2**	**3**	**4**	**5**
does not describe it at all					describes it perfectly

PLEASE RATE ALL OF THE WORDS USING THE SCALE ABOVE FOR MEN.
DO NOT SKIP ANY.

absorbed _____
blissful _____
building _____
close _____
ecstatic _____
elated _____
engulfing _____
euphoric _____
exciting _____
exploding _____
flooding _____
flowing _____
flushing _____
fulfilling _____
pulsating _____
quivering _____
rapturous _____
relaxing _____
rising _____
satisfying _____
shooting _____
shuddering _____
soothing _____
spreading _____
spurting _____
swelling _____
tender _____
throbbing _____

hot _____
*immersing*_____
loving _____
*passionate*_____
peaceful _____
*pleasurable*_____
trembling _____
uncontrolled _____
unifying _____
unreal _____
warm _____
wild _____

To rate each of the words below, use the following scale:

0	**1**	**2**	**3**	**4**	**5**
does not describe it at all					describes it perfectly

PLEASE RATE ALL OF THE WORDS USING THE SCALE ABOVE FOR WOMEN. DO NOT SKIP ANY.

absorbed _____
blissful _____
building _____
close _____
ecstatic _____
elated _____
engulfing _____
euphoric _____
exciting _____
exploding _____
flooding _____
flowing _____
flushing _____
fulfilling _____
hot _____
*immersing*_____
loving _____
pulsating _____
quivering _____
rapturous _____
relaxing _____
rising _____
satisfying _____
shooting _____
shuddering _____
soothing _____
spreading _____
spurting _____
swelling _____
tender _____
throbbing _____
trembling _____
uncontrolled _____
unifying _____

*passionate*_____ *unreal* _____

peaceful _____ *warm* _____

*pleasurable*_____ *wild* _____

How would you rate the overall intensity of your orgasms from oral stimulation by a male?

0	**1**	**2**	**3**	**4**	**5**
not at all	somewhat		moderately		extremely

How would you rate the overall intensity of your orgasms from oral stimulation by a female?

0	**1**	**2**	**3**	**4**	**5**
not at all	somewhat		moderately		extremely

Are there any situations that make your orgasm from oral stimulation more arousing?

YES ____ NO ____

If yes, please explain:

Orgasms from Sexual Intercourse (vaginal and/or anal)

Below is a list of words that might be used to describe the experience of an orgasm from sexual intercourse with a partner (including finger penetration and/or the use of devices such as vibrators, dildos, etc). The answers are split by male and female. Please answer the questions for both genders (if applicable to you). If only one gender applies to you (for any one question), please write N/A for the other gender.

Different people may use different words to describe their personal experience, and so there is no "right" answer. After each word, write the number that best indicates how well that word describes your experience during partnered sex. **If you have never experienced an orgasm from sexual intercourse, do not fill out this section.**

To rate each of the words below, use the following scale:

0	**1**	**2**	**3**	**4**	**5**
does not describe it at all					describes it perfectly

PLEASE RATE ALL OF THE WORDS USING THE SCALE ABOVE FOR MEN.
DO NOT SKIP ANY.

absorbed _____
blissful _____
building _____
close _____
ecstatic _____
elated _____
engulfing _____
euphoric _____
exciting _____
exploding _____
flooding _____
flowing _____
flushing _____
fulfilling _____
pulsating _____
quivering _____
rapturous _____
relaxing _____
rising _____
satisfying _____
shooting _____
shuddering _____
soothing _____
spreading _____
spurting _____
swelling _____
tender _____
throbbing _____

hot _____
*immersing*_____
loving _____
*passionate*_____
peaceful _____
*pleasurable*_____
trembling _____
uncontrolled _____
unifying _____
unreal _____
warm _____
wild _____

To rate each of the words below, use the following scale:

0	**1**	**2**	**3**	**4**	**5**
does not describe it at all					describes it perfectly

PLEASE RATE ALL OF THE WORDS USING THE SCALE ABOVE FOR WOMEN. DO NOT SKIP ANY.

absorbed _____
blissful _____
building _____
close _____
ecstatic _____
elated _____
engulfing _____
euphoric _____
exciting _____
exploding _____
flooding _____
flowing _____
flushing _____
fulfilling _____
hot _____
*immersing*_____
loving _____
pulsating _____
quivering _____
rapturous _____
relaxing _____
rising _____
satisfying _____
shooting _____
shuddering _____
soothing _____
spreading _____
spurting _____
swelling _____
tender _____
throbbing _____
trembling _____
uncontrolled _____
unifying _____

*passionate*_____ *unreal* _____

peaceful _____ *warm* _____

*pleasurable*_____ *wild* _____

How would you rate the overall intensity of your orgasms from sexual intercourse with a female?

0	**1**	**2**	**3**	**4**	**5**
not at all	somewhat		moderately		extremely

How would you rate the overall intensity of your orgasms from sexual intercourse with a male?

0	**1**	**2**	**3**	**4**	**5**
not at all	somewhat		moderately		extremely

Are there any situations that make your orgasm from sexual intercourse more arousing?

YES _____ NO _____

If yes, please explain:

Is there a difference in the quality of an orgasm you experience from vaginal penetration vs. anal penetration?

YES _____ NO _____

If yes, please describe the differences.

Recall to the best of your ability the most recent orgasm you experienced during **sex with a partner**. This would include any sexual activity with your partner (male or female) in which you had orgasm while your partner was present.

1. Was the present partner male or female? _____

To the best of your memory, how did you have this orgasm with your partner? (circle letter)

a. through intercourse (vaginal/anal/other)
b. through oral stimulation from partner
c. through manual stimulation from partner
d. through manual stimulation from myself
e. other (describe briefly on line, e.g., clitoral stimulation/vaginal intercourse at same time

BAI

This questionnaire consists of a list of 21 symptoms associated with anxiety.
Please read each carefully and indicate, by circling a number (0 to 3), to what degree you have been affected by each of these symptoms in the last week

	Not at all	**A little**	**Somewhat**	**A lot**
1. Numbness or tingling.	0	1	2	3
2. Feeling hot.	0	1	2	3
3. Wobbliness in legs.	0	1	2	3
4. Unable to relax.	0	1	2	3
5. Fear of the worst happening.	0	1	2	3
6.Dizzy and lightheaded.	0	1	2	3
7. Heart pounding or racing.	0	1	2	3
8. Unsteady.	0	1	2	3
9. Terrified.	0	1	2	3
10. Nervous.	0	1	2	3
11. Feelings of choking.	0	1	2	3
12. Hands trembling.	0	1	2	3
13. Shaky.	0	1	2	3
14. Fear of losing control.	0	1	2	3
15. Difficulty breathing.	0	1	2	3
16. Fear of dying.	0	1	2	3
17. Scared.	0	1	2	3
18. Discomfort in abdomen	0	1	2	3
19. Faint.	0	1	2	3
20. Face flushed.	0	1	2	3
21. Sweating (not due to heat).	0	1	2	3

BDI-II

This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not circle more than one statement for each group.

1) Sadness
0 I do not feel sad.
1 I feel sad much of the time.
2 I am sad all the time.
3 I am so sad or unhappy that I can't stand it.

2) Pessimism
0 I am not discouraged about my future.
1 I feel more discouraged about my future than I used to be.
2 I do not expect things to work out for me.
3 I feel my future is hopeless and will only get worse.

3) Past Failure
0 I do not feel like a failure.
1 I have failed more than I should have.
2 As I look back, I see a lot of failures.
3 I feel I am a total failure as a person.

4) Loss of Pleasure
0 I get as much pleasure as I ever did from the things I enjoy.
1 I don't enjoy things as much as I used to.
2 I get very little pleasure from the things I used to enjoy.
3 I can't get any pleasure from the things I used to enjoy.

5) Guilty Feelings
0 I don't feel particularly guilty.
1 I feel guilty over many things I have done or should have done.
2 I feel quite guilty most of the time.
3 I feel guilty all the time.

6) Punishment Feelings
0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.

7) Self-Dislike
0 I feel the same about myself as ever.
1 I have lost confidence in myself.
2 I am disappointed in myself.
3 I dislike myself.

8) Self-Criticalness
0 I don't criticize or blame myself more than usual.
1 I am more critical of myself than I used to be.
2 I criticize myself for all the faults.
3 I blame myself for everything bad that happens.

9) Suicidal Thoughts or Wishes
0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10) Crying
0 I don't cry any more than I used to.
1 I cry more now than I used to.
2 I cry over every little thing.
3 I feel like crying but I can't.

11) Agitation
0 I am no more restless or wound up than usual.
1 I feel more restless or wound up than usual.
2 I am so restless or agitated that it's hard to stay still.
3 I am so restless or agitated that I have to keep moving or doing something.

12) Loss of Interest
0 I have not lost interest in people or activities.
1 I am less interested in other people or things than before.
2 I have lost most of my interest in other people or things.
3 It's hard to get interested in anything.

13) Indecisiveness

0 I make decisions about as well as ever.
1 I find it more difficult to make decisions than usual.
2 I have much greater difficulty in making decisions than I used to.
3 I have trouble making any decision.

14) Worthlessness

0 I do not feel I am worthless.
1 I don't consider myself as worthwhile and useful as I used to.
2 I feel more worthless as compared to other people.
3 I feel utterly worthless.

15) Loss of Energy

0 I have as much energy as ever.
1 I have less energy than I used to have.
2 I don't have enough energy to do very much.
3 I don't have enough energy to do anything.

16) Changes in Sleeping Pattern

0 I have not experienced any changes in my sleeping pattern.
1a I sleep somewhat more than usual.
1b I sleep somewhat less than usual.
2a I sleep a lot more than usual.
2b I sleep a lot less than usual.
3a I sleep most of the day.
3b I wake up 1-2 hours early and can't get back to sleep.

17) Irritability

0 I am no more irritable than usual.
1 I am more irritable than usual.
2 I am much more irritable than usual.
3 I am irritable all the time.

18) Changes in Appetite

0 I have not experienced any changes in my appetite.
1a My appetite is somewhat less than usual.
1b My appetite is somewhat greater than usual.
2a My appetite is much less than usual.
2b My appetite is much greater than usual.
3a I have no appetite at all.
3a I crave food all the time.

19) Concentration Difficulty

0 I can concentrate as well as usual.
1 I can't concentrate as well as usual.
2 It's hard to keep my mind on anything for very long.
3 I find I can't concentrate on anything.

20) Tiredness or Fatigue

0 I am no more tired or fatigued than usual.
1 I get more tired or fatigued more easily than usual.
2 I am too tired or fatigued to do a lot of the things I used to do.
3 I am too tired or fatigued to do most of the things I used to do.

21) Loss of Interest in Sex

0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.