Social Science & Medicine 156 (2016) 64–72

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Bisexuality, poverty and mental health: A mixed methods analysis

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ARTICLE INFO

Article history:
Received 29 October 2015
Received in revised form
9 February 2016
Accepted 9 March 2016
Available online 10 March 2016

Keywords:
Canada
Bisexuality
Poverty
Socioeconomic status
Mental health
Mixed methods

ABSTRACT

Bisexuality is consistently associated with poor mental health outcomes. In population-based data, this is partially explained by income differences between bisexual people and lesbian, gay, and/or heterosexual individuals. However, the interrelationships between bisexuality, poverty, and mental health are poorly understood. In this paper, we examine the relationships between these variables using a mixed methods study of 302 adult bisexuals from Ontario, Canada. Participants were recruited using respondent-driven sampling to complete an internet-based survey including measures of psychological distress and minority stress. A subset of participants completed a semi-structured qualitative interview to contextualize their mental health experiences. Using information regarding household income, number of individuals supported by the income and geographic location, participants were categorized as living below or above the Canadian Low Income Cut Off (LICO). Accounting for the networked nature of the sample, participants living below the LICO had significantly higher mean scores for depression and posttraumatic stress disorder symptoms and reported significantly more perceived discrimination compared to individuals living above the LICO. Grounded theory analysis of the qualitative interviews suggested four pathways through which bisexuality and poverty may intersect to impact mental health: through early life experiences linked to bisexuality or poverty that impacted future financial stability; through effects of bisexual identity on employment and earning potential; through the impact of class and sexual orientation discrimination on access to communities of support; and through lack of access to mental health services that could provide culturally competent care. These mixed methods data help us understand the income disparities associated with bisexual identity in population-based data, and suggest points of intervention to address their impact on bisexual mental health.

1. Introduction

Mental health conditions, particularly depression and anxiety, represent a high burden of disease worldwide (Whiteford et al., 2013) and are strongly associated with low socioeconomic status (SES) (Muntaner, et al., 2004). Two hypotheses have been advanced to explain this relationship: the social selection hypothesis (wherein mental health problems result in socioeconomic disadvantage, a phenomenon often termed 'drift') and the social causation hypothesis (wherein low SES causes mental health problems, for example, through distress associated with poverty) (Dohrenwend et al., 1992). There is empirical evidence to support both hypotheses, although evidence for the social causation hypothesis predominates (Hudson, 2005).

Poverty, one component of the broader construct of SES (Baker, 2014), has independently been associated with onset of mental health problems in longitudinal research (Kiely et al., 2015). In Canada (as elsewhere), children, women, unattached people, the elderly, and Aboriginal people are disproportionately impacted by poverty (Collin and Jensen, 2009). Though less well studied, sexual minority people (lesbian, gay or bisexual people) also experience income disparities relative to heterosexuals. Using US General

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http://dx.doi.org/10.1016/j.socscimed.2016.03.009

Social Survey data, Badgett (2003) estimates that non-heterosexual men earn 22% less than heterosexual men. While the individual incomes of non-heterosexual women are on average higher than those of their heterosexual counterparts (Badgett, 2003), due to the wage gap between genders, household incomes of female couples are significantly less than couples in which one partner is a man (Ahmed et al., 2011).

Using data from three US population-based surveys, after adjustment for personal, geographic and family predictors of poverty, same-sex couples are significantly more likely to live below the poverty line than married male/female couples (Albelda et al., 2009). Further, female couples have higher poverty rates than either male/female or male couples, and children of same-sex couples are twice as likely to live in poverty as are children of male/female married couples (Albelda et al., 2009).

Bisexual people constitute the largest sexual minority group, outnumbering gay or lesbian people in most studies (Gates, 2011). Paradoxically, bisexual people have received little research attention (Kaestle and Ivory, 2012); however, studies that examined bisexual people relative to other groups have identified important disparities. Population-based studies indicate that poor health outcomes associated with sexual orientation tend to be more marked in bisexuals relative to both heterosexual and lesbian/gay individuals (though for most studies, heterosexuals have been the reference group) (e.g., Jorm et al., 2002). Although most examinations of income or poverty among sexual minorities have combined data for bisexual people with those of lesbian or gay people, those studies that examined bisexual people independently suggest they have lower incomes than individuals of other sexual orientations (Carpenter, 2005) and are more likely to live in poverty than lesbian or gay people (Albelda et al., 2009). One recent study including over 10,000 sexual minority respondents revealed health disparities among bisexuals relative to those of other sexual orientations in unadjusted models. However, adjusted models revealed that indicators of socioeconomic disadvantage (including household income) were important contributors to these disparities (Gorman et al., 2015). These findings suggest that further exploration of the socioeconomic conditions of bisexual individuals, and in particular, examination of the relationship between poverty and bisexuality, may help us understand and address health disparities.

The current study aims to enhance understanding of the relationships between bisexuality, poverty, and mental health. We asked: a) (How) is poverty (defined as living below the Low Income Cut-Off, LICO) associated with mental health among bisexual people in Ontario? b) Do individuals living below vs. above the LICO differ in social factors that have been associated with poor mental health among bisexual people, specifically disclosure of sexual orientation and perceived experiences of discrimination? and c) How do bisexuality and experiences related to poverty intersect to impact health and well-being?

1.1. Theoretical approach

Our study is informed by the minority stress model, which posits that the burden of stigma and discrimination associated with a minority sexual identity accounts for the mental health disparities observed among sexual minority people relative to their heterosexual counterparts (Meyer, 2003). Research has indicated that bisexual people experience discrimination associated with minority sexual orientation in general (i.e., homophobia, heterosexism), but also with bisexual identity in particular (i.e., biphobia, monosexism) (Ross et al., 2010), and further that they experience discrimination at the hands of not only heterosexual, but also lesbian/gay individuals (Ross et al., 2010). It has been posited that this extra burden of discrimination may explain why bisexual people have higher rates of mental health problems than either lesbian/gay or heterosexual people (Friedman et al., 2014). Our investigation of poverty as a determinant of bisexual mental health attends to the role that discrimination may play in this relationship, through inclusion of perceived discrimination as a variable in our quantitative analysis, and attention to participants' descriptions of experience of discrimination in our analysis of qualitative data.

Our work is further informed by intersectionality theory, initially explicated by Kimberlé Crenshaw (1989) and later applied to health disparities by Hankivsky and others (Hankivsky and Christoffersen, 2008). Intersectionality theory attends to the interrelationships between mutually reinforcing structural discrimination based on race, class, and gender, among others (Collins, 1999). Initially concerned with drawing attention to intersecting racism and sexism experienced by Black women, intersectionality theory has been applied to other identities and experiences associated with oppression and/or privilege, including class and sexual orientation (Veenstra, 2011). For this analysis, we acknowledge both social class (determined in part by income) and sexual orientation (including bisexual identity) as axes of social power and oppression that intersect in the lives of bisexual people. We aim to understand the experiences that may be produced at this intersection, particularly as they pertain to mental health.

2. Methods

Our analysis is based on data from the Risk and Resilience Study of Bisexual Mental Health (Ross et al., 2014), a community-based, mixed methods study. We undertook a secondary analysis to explore the relationship between poverty and mental health using a sequential explanatory mixed methods design, wherein a quantitative strand is followed by a qualitative strand with the goal of explaining quantitative findings (Creswell and Clark, 2007). Specifically, we examined the relationship between poverty and mental health outcomes in our quantitative survey data, and then analyzed our qualitative interview data to explain the quantitative findings.

SES is a complex construct that typically includes a person's income, education, and occupation (Baker, 2014). We selected poverty (specifically, living below the low income cut-off) as the primary independent variable in our quantitative analysis, due to a) existing research on income disparities associated with minority sexual orientations broadly (e.g., Albelda et al., 2009); b) the lack of research examining poverty among bisexual people; and c) our transformative research goal (Mertens, 2003) to produce meaningful social change for the communities under study. In order to maximize the opportunity for social change, we focused our analysis on the variable that was an indicator of the greatest need (i.e., poverty specifically rather than income more generally).

2.1. Quantitative survey

2.1.1. Sample

Quantitative recruitment and data collection have been described elsewhere (Ross et al., 2014). In brief, we used respondent-driven sampling (Heckathorn, 1997) to recruit a networked sample of 405 bisexual individuals. Eligibility criteria included attraction to more than one sex/gender, residence in Ontario, Canada, and being 16 years of age or older. For the present quantitative analysis, we limited our sample to the 302 respondents aged 25 and older, considering that household income data may not accurately reflect poverty among youth, due, for example, to student status.

2.1.2. Data collection

Eligible participants completed an internet-based, English language survey including the following variables:

2.1.2.1. Poverty. We operationalize poverty as living below Canada's Low Income Cut-Off (LICO), a threshold below which a family is estimated to spend at least 20% more than the average family on food, shelter and clothing (Statistics Canada, 2008). To calculate LICO, household income was queried, with eight fixed options ranging from less than $10,000 to greater than $100,000. The mid-point of each category was used, with the highest income category re-coded to have a mid-point of $134,900 (the average income for the top 10% of Canadians based on the 2011 National Household Survey, Statistics Canada, 2013a), and the lowest income category recoded to $5000. On the basis of the first two digits of the postal code, all participants were categorized by population size and region of Ontario (Northern, Central, Eastern, Southwestern, or Metropolitan Toronto), and assigned the LICO value appropriate to their region and self-reported household size. The values for Canada's 2012 LICO after tax, for a household of four using 1992 as a base year, were used for the following population sizes: rural, 30,000–99,999, 100,000–499,999, and 500,000 or greater (Statistics Canada, 2013b). Those participants with a household income below the calculated LICO value were assigned to the 'below LICO' group.

2.1.2.2. Demographics. The internet survey collected demographic information, including age, sex assigned at birth, gender identity, racial/ethnic/cultural identity, country of birth, education, employment status and relationship status. Details regarding response options for these items have been reported elsewhere (Ross et al., 2014).

2.1.2.3. Mental health indicators. Depression was measured using the Patient Health Questionnaire's Depression Scale (PHQ-9). This 9-item questionnaire uses Likert scales ranging from 0 = not at all to 3 = nearly every day (total score ranging from 0 to 27) to represent depressive symptoms over the last two weeks (Kroenke et al., 2001). The Overall Anxiety Severity and Impairment Scale (OASIS) is a 5-item scale used to measure *anxiety* symptoms in the past week by using Likert scales ranging from 0 = little or none to 4 = extreme or constant (total score ranging from 0 to 20) (Campbell-Sills et al., 2009). *Posttraumatic stress disorder (PTSD)* was measured by the PTSD Checklist–Civilian version (PCL-C) (Ruggiero et al., 2003). This 17-item scale measured PTSD symptoms over the past month with symptoms ranging from 1 = not at all to 5 = extremely (total score ranging from 17 to 85). Internal reliability in our sample was high for all three of these measures (Cronbach's alphas ranging from 0.87 to 0.92). *Suicidality* was determined by the yes/no questions "Have you seriously considered committing suicide or taking your own life in the past 12 months?" and "Have you attempted to commit suicide or tried taking your own life in the past 12 months?" from the Canadian Community Health Survey (CCHS) Cycle 4.1.

2.1.2.4. Social context variables. Outness was measured using the Mohr Outness Scale and the Savin-Williams Scale (MOSSWS) which were modified by our team to account for modern family structures (Mohr and Fassinger, 2000; Savin-Williams, 1989). These measures indicate how open someone is about their sexual identity to various individuals using response options ranging from 1 = I know for a fact that they know and we have talked about it to 4 = They don't know and don't suspect. Responses were averaged to range between 1 and 4 with lower scores indicating greater outness. This scale had Cronbach's alphas of 0.76 in our sample. The Perceived Discrimination Scale (PDS) measures both major discriminatory events and every-day discrimination or microaggressions (Brown, 2001). If participants responded yes to any of the questions regarding whether they had experienced discrimination (e.g. "I have been unfairly prevented from moving into a neighbourhood because a landlord or realtor refused to sell or rent") they were asked to select which bias(es) they felt the discrimination was based upon. Options were check-all-that-apply and included age or perceived age, your bisexuality, your gender identity, your income level/social class, your level of ability, your perceived sexual orientation, your physical appearance, your race/ethnicity, your relationship status, your relationship structure, your religion, your sex, or something else about you (please specify). Responses were summed to obtain a total score ranging from 0 to 208 with each discriminatory event and bias increasing the score. The PDS had high internal reliability with Cronbach's alphas of 0.86.

2.2. Qualitative interviews

2.2.1. Sample

The qualitative sampling and data collection procedures have been described elsewhere (MacKay et al., in press). In brief, survey participants were asked their interest in a follow-up interview. From those who expressed interest, 41 individuals were purposively selected (on the basis of gender, racialization, SES, geographic location, among other variables). The resulting sample included approximately equal numbers of men and women, and also included people of non-binary genders. Most participants identified as white (85%), one-fifth of the sample identified as Aboriginal (20%), and Black Caribbean, Latin American and South Asian identities were also represented (note that this was a 'check all that apply' question). Income was skewed towards a lower bracket, with 64% of the sample reporting an individual income less than $29,000 per year, despite the fact that over half of the sample had completed college or university. The sample spanned the age range of our original study (ages 16–66 years), with seven participants being under age 25. We felt that qualitative data from youth could provide valuable information towards answering our research question, considering that the interviews provided detailed context regarding participants' economic circumstances which cannot always be gleaned from quantitative survey data.

2.2.2. Data collection

Semi-structured, in person interviews of approximately one hour were conducted by one of the authors between March 2012 and February 2013 at a location of the participant's choice. Participants were asked to reflect on the relationships between their bisexuality, other salient identities or experiences, mental health, and mental health supports (e.g., "What other [besides bisexuality] identities or life experiences have been important to you?"; "Is there anything about your identity or circumstances that might make accessing services more challenging?"). Identities and experiences related to poverty and related constructs were probed if participants did not mention them spontaneously (e.g., "Do you have a particular class identity?"; "Is it ever a problem to be able to afford services you need?"). At the beginning of each interview, participants were paid an honorarium of $25.

3. Data analysis

All quantitative analyses were conducted using SAS version 9.4 survey procedures, with a domain analysis to limit to participants age 25 years and over. All analyses were weighted using RDS II methods (Volz and Heckathorn, 2008). Weights were calculated using the inverse of degree (the number of other potential eligible

participants known), rescaled to sum to the sample size. For weighted analyses, variances were adjusted for clustering by shared recruiter. 95% confidence intervals were estimated using Taylor linearization. To test for differences between income groups, Rao-Scott chi-square tests were used for categorical variables, and weighted and variance-adjusted t-tests were used for continuous variables. Weighted linear regression models were fitted to produce unadjusted and adjusted estimates for the effect of being below the LICO (in poverty) on mental health and social context outcomes. Suicide outcomes were not included in adjusted analyses due to small cell sizes. Adjusted models included as covariates age and all variables that were associated with LICO at $p < 0.05$.

Analysis of the qualitative data was based upon Charmaz's grounded theory approach (2006), as described elsewhere (MacKay et al., in press). In brief, transcripts were verified by the interviewer and coded using an open coding procedure. Coded transcripts were entered into Dedoose software for data management. The first author re-examined the data that had been coded under the open code "Class/Income", and performed text searches of the entire data set using terms such as "money", "afford", and "poor". Full transcripts of interviews including rich discussion of relevant issues were re-reviewed in their entirety to recontextualize the coded data. Finally, the first author developed a conceptual model of pathways to explain the relationships between bisexuality, poverty, and mental health. This model was first validated by the interviewers, and following refinements, by the entire author team. Qualitative rigour was attended to through processes of thick, rich description, peer review (in this case, review of the interpretation by other members of the team not directly involved in the analytical process), and triangulation (Morse, 2015).

4. Ethical considerations

The study was reviewed and approved by the Research Ethics Board of the Centre for Addiction and Mental Health. For the internet survey, all participants were required to check a box indicating their consent to participate. All participants in the qualitative portion of the study provided written informed consent prior to the interview.

5. Results

5.1. Quantitative findings

Demographic characteristics for the quantitative survey sample are given in Table 1, along with comparisons between those living below and above the LICO. Of the 302 adult respondents, 296 provided all data required to calculate the LICO and are included in these analyses. Seventy-six (25.7%) of these participants were living below the poverty line, and those living below the LICO were significantly more likely to identify their gender as trans and to currently be a student, and marginally more likely to identify as Aboriginal/First Nations ($p = 0.05$) compared to those living above the LICO.

Table 2 provides adjusted and unadjusted models examining the effects of poverty on mental health and social context variables. In both adjusted and unadjusted analyses, those below the LICO had higher mean scores for two of the three indicators of psychological distress (PHQ-9; PCL-C). There were no significant differences for suicidal ideation or attempt (data not shown), although weighted prevalence rates of suicidal ideation were higher in the below LICO group (24.1% vs. 12.2%, $p = 0.11$).

With respect to social context variables, in unadjusted analyses there was no significant difference in reported disclosure of sexual orientation ("outness") between individuals living below or above the LICO; however, after adjustment for age, gender, ethnoracial group and student status, individuals living below LICO had significantly lower outness scores (i.e., were more "out") than individuals living above the LICO ($p < 0.05$). In both adjusted and unadjusted analyses, participants living below the LICO reported significantly more experiences of perceived discrimination than those living above the LICO ($p <$ or $= 0.05$).

5.2. Qualitative findings

Our data suggest that bisexuality, poverty and mental health inter-relate through four primary pathways, illustrated in Fig. 1. In our analysis of the data, we found that participants' discussions of poverty were interconnected with other elements of the broader construct of socioeconomic status, including education, employment, and discrimination associated with social class. Our contextualized understanding of the relationships between bisexuality, poverty and mental health therefore references these related constructs as well. Pseudonyms have been assigned to participants in order to protect their confidentiality, and supporting quotations are provided in Table 3 (Online supplement).

Pathway 1: Early life experiences related to bisexuality or poverty impact both poverty and mental health in later life

Some participants report experiences during childhood or adolescence, linked directly or indirectly to bisexuality, that have impacted their current income and/or mental health. For example, Michael, a 51 year old Aboriginal/First Nations and white man who was on social assistance, describes being gang raped at the age of 15. While this would have mental health impact for most people, it was particularly fraught with guilt and confusion for Michael because he was in the process of exploring his sexual identity. He dealt with his feelings by turning to substance use and risky sexual behaviour during a period of life that he termed his 'lost decade'. That this coincided with his prime years for education and work productivity almost certainly had a lifelong impact on his earning potential and class status.

Multiple participants reported losing middle class status when they left home before they were financially self-sufficient, often due to family conflict related directly or indirectly to their sexuality. Others described delaying disclosure of their bisexuality out of fear that such conflict would result; in some cases this decision was made to avoid risking loss of insurance coverage for mental health treatment.

Some participants described early life experiences related to poverty that impacted on adulthood mental health. For example, growing up poor affected their sense of entitlement and ability or willingness to advocate for themselves, including in relation to needed supports. For example, Alex, a 33 year old self-employed Aboriginal/First Nations and white two-spirit and gender queer person, talks about "welfare Christmases", when available money was used to buy gifts for younger siblings: "The messaging behind that for a young child can be that you're not as important … so it instilled a double-edged sword in me, that aspect of being compassionate and being understanding and giving to others, but also feeling like I didn't deserve it. And it's actually a running theme in my life around what I do and don't deserve."

Some participants were conversely aware of the impact of class privilege on their ability to access mental health care. For example, in response to a question about whether anything made it easier to access mental health services, Marie, a 32 year old Black Caribbean woman who was working full-time, said: "I think just the sense of entitlement you have when certain things are true. I was raised in a middle class family. I have a high level of education. Good communication skills based on all those pieces. I think there's a lot

Table 1
Estimated demographic characteristics of bisexual Ontarians age 25 and over, based on the low income cut-off (LICO).

	Total (N = 302)			Below the LICO (N = 76)			Above the LICO (N = 220)			p
	N	%	95% CI	N	%	95% CI	N	%	95% CI	
Age										
25–34 years	177	60.6	(49.4, 71.7)	52	69.0	(49.5, 88.6)	123	58.5	(45.5, 71.6)	0.2814
35–44 years	79	22.8	(15.2, 30.5)	11	12.0	(1.7, 22.4)	66	26.1	(16.8, 35.4)	
45–54 years	34	12.0	(3.3, 20.7)	10	17.0	(0.0, 35.3)	22	9.9	(0.0, 19.9)	
55 + years	12	4.6	(0.0, 9.3)	3	2.0	(0.0, 4.3)	9	5.5	(0.0, 11.4)	
Sex at Birth										
Female	222	67.6	(57.1, 78.1)	57	69.8	(51.4, 88.2)	160	66.0	(54.0, 78.0)	0.7144
Male	80	32.4	(21.9, 42.9)	19	30.2	(11.8, 48.6)	60	34.0	(22.0, 46.0)	
Gender Identity[a]										
Woman	195	63.8	(53.5, 74.2)	42	57.5	(40.5, 74.4)	149	64.4	(52.5, 76.4)	0.4701
Man	79	31.8	(21.3, 42.3)	23	31.0	(13.7, 48.3)	55	33.0	(21.0, 45.0)	0.8370
Genderqueer	39	5.2	(3.0, 7.4)	15	11.0	(3.6, 18.4)	23	3.8	(1.7, 5.9)	**0.0114**[d]
2-spirited	17	3.5	(1.2, 5.8)	5	2.5	(0.0, 5.8)	11	3.4	(0.6, 6.1)	0.7045
Trans man	13	1.6	(0.4, 2.8)	9	6.2	(1.1, 11.3)	3	0.4	(0.0, 0.9)	<**0.0001**[d]
Trans woman	3	0.5	(0.0, 1.2)	2	2.3	(0.0, 6.0)	1	0.0	(0.0, 0.1)	<**0.0001**[d]
Identity not named above[b]	25	5.1	(2.2, 8.0)	10	13.0	(2.3, 23.6)	14	2.7	(0.6, 4.8)	**0.0035**[d]
Racial, Ethnic or Cultural Identity[a]										
White	254	85.4	(77.3, 93.5)	62	85.9	(75.8, 96.1)	186	84.6	(74.9, 94.2)	0.8308
Aboriginal/First Nations	30	7.0	(3.4, 10.7)	13	13.6	(2.9, 24.3)	16	5.2	(1.6, 8.7)	0.0511
Black	15	6.6	(0.0, 13.3)	1	0.3	(0.0, 0.9)	14	8.6	(0.2, 17.1)	<**0.0001**[d]
South Asian	9	2.0	(0.0, 4.0)	4	4.4	(0.0, 9.6)	5	1.4	(0.0, 3.8)	0.2633
Latin American	7	2.7	(0.4, 5.0)	3	4.6	(0.0, 12.4)	4	2.3	(0.1, 4.6)	0.5010
Chinese	3	1.0	(0.0, 2.1)	0	0.0	–	3	1.3	(0.0, 2.8)	–
Identity not named above[c]	21	6.1	(1.7, 10.5)	6	7.3	(0.0, 16.0)	14	5.9	(0.5, 11.3)	0.7805
Born in Canada	249	82.2	(74.2, 90.2)	62	83.5	(71.2, 95.8)	182	83.4	(74.9, 92.0)	0.9933
Education										
High school or less	15	5.1	(0.7, 9.4)	7	5.8	(0.8, 10.8)	8	5.1	(0.0, 10.6)	0.9791
Some or completed college/university	170	71.5	(63.7, 79.4)	40	71.0	(57.6, 84.4)	126	70.6	(61.0, 80.2)	
Graduate/professional degree	80	23.4	(16.8, 30.0)	18	23.2	(9.8, 36.5)	60	24.3	(16.3, 32.3)	
Current student	61	17.1	(10.9, 23.3)	23	29.5	(15.5, 43.4)	36	12.0	(6.3, 17.7)	**0.0085**[d]
Retired	4	1.1	(0.0, 2.5)	1	0.6	(0.0, 1.8)	3	1.3	(0.0, 3.0)	0.4798
Relationship Status[a]										
Married or partnered	144	50.6	(42.1, 59.1)	31	46.6	(29.2, 64.1)	112	53.8	(43.4, 64.3)	0.5093
Single	70	29.4	(20.9, 38.0)	22	26.5	(13.9, 39.0)	44	27.9	(18.0, 37.9)	0.8582
Multiple partners	132	29.5	(21.6, 37.5)	32	31.4	(18.5, 44.3)	98	29.1	(19.8, 38.5)	0.7793
Region of Ontario										
Eastern Ontario	37	15.1	(7.6, 22.6)	5	6.2	(0.2, 12.1)	32	17.4	(8.2, 26.7)	0.1946
Central Ontario	39	12.3	(6.2, 18.4)	9	19.7	(2.8, 36.6)	30	10.3	(5.0, 15.6)	
Metropolitan Toronto	169	51.4	(41.3, 61.4)	48	55.0	(37.9, 72.1)	121	50.4	(38.6, 62.2)	
Southwestern Ontario	39	16.0	(7.3, 24.7)	9	10.8	(0.3, 21.3)	30	17.3	(7.3, 27.4)	
Northern Ontario	12	5.3	(1.8, 8.8)	5	8.3	(0.0, 17.9)	7	4.5	(0.9, 8.1)	

[a] Percentages do not total 100% as participants could select more than one option.
[b] An additional 10 participants identified as 'bigendered', 6 as 'crossdresser', and 12 provided a different write-in gender identity (e.g., vamp).
[c] In addition, smaller number of participants identified as Arab, Filipino, Japanese, Korean, Southeast Asian, and West Asian, and a total of 14 participants provided a different write-in response (e.g., Jewish).
[d] denotes statistically significant at $p \leq 0.05$.

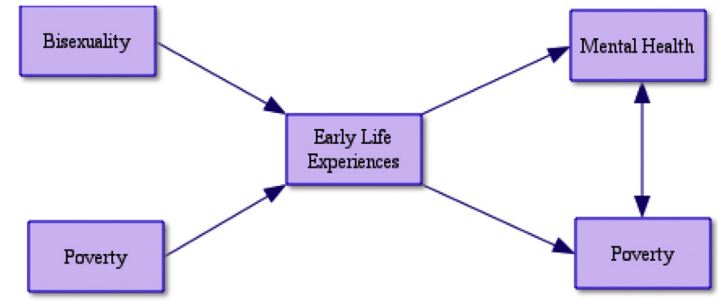
of things that make it easier to access services. I don't know whether or not I think they're fair things, necessarily, but I think that privilege makes it easier to access services."

Pathway 2: Bisexuality impacts employment experiences and/or earning potential, which in turn impact mental health

Table 2
Unadjusted and adjusted effects of poverty (below low-income cut-off) on mental health and social context for bisexual Ontarians age 25 and over.

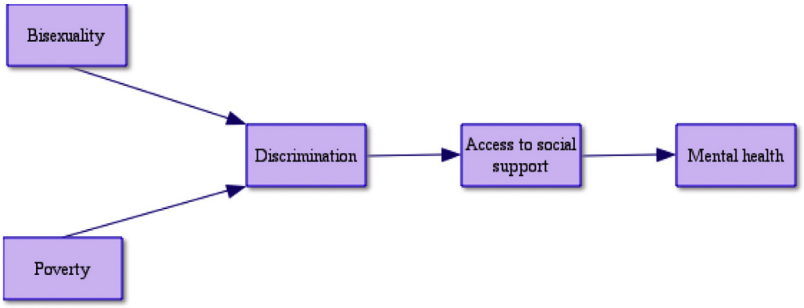
Poverty (below LICO) as a predictor of …	Unadjusted effects			Adjusted effects[a]		
	B	SE	p	B	SE	p
Depression, PHQ-9 ($\bar{x}$)	2.900	0.619	**0.0243**	3.177	1.415	**0.0263**
Anxiety, OASIS ($\bar{x}$)	1.009	0.931	0.2805	0.980	1.055	0.3548
Posttraumatic stress disorder, PCL-C ($\bar{x}$)	6.601	2.123	**0.0023**	6.471	2.251	**0.0047**
Total Outness score	−0.213	0.162	0.1886	−0.309	0.147	**0.0376**
Perceived Discrimination, PDS	6.310	2.538	**0.0141**	5.782	2.927	**0.0502**

PHQ-9: The Patient Health Questionnaire Depression Scale.
OASIS: Overall Anxiety Severity and Impairment Scale.
PCL-C: PTSD Checklist–Civilian Version.
PDS: Perceived Discrimination Scale.
Bold indicates findings with p values ≤ 0.05.
[a] Multivariable regression model adjusted for age, gender (cisgender man, cisgender woman, transmasculine person, transfeminine person), ethnoracial group (Aboriginal, non-Aboriginal racialized person of color, non-Aboriginal non-racialized), and current student status.

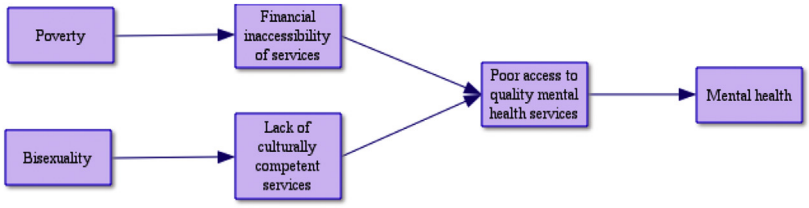


Pathway 1: Early life experiences linked to bisexuality or poverty impact both poverty and mental health

Pathway 2: Bisexuality impacts employment experiences and/or earning potential, which in turn impacts mental health.



Pathway 3: Poverty and/or bisexuality are associated with discrimination and, in turn, lack of access to social support, which impacts mental health.



Pathway 4: Poverty and bisexuality together limit access to appropriate and helpful mental health services, which in turn impacts mental health.

Fig. 1. Inter-relationships between bisexuality, poverty and mental health.

Bisexuality affected participants' employment opportunities and choices, and in turn, their incomes. Some participants described staying in lower paying jobs because they were safe and supportive spaces. Others noted that their work interests were in areas traditionally understood to be feminine (e.g., cooking, cleaning) and financially undervalued. Still others reported that they felt inclined not to look for work, despite financial instability, to avoid the stress of an unsupportive workplace. And finally, multiple participants reported that biphobic or homophobic discrimination was a factor in losing employment, being denied promotion, or not being considered for employment. As Jennifer, a 29 year old full-time employed Native Metis woman, described: "I got fired from working at a temp gig, because someone overheard me talking on my cell phone about a date I was going on with a woman. Unfortunately, at the time, I was working opening envelopes for [a socially conservative Canadian political party]." Some participants clearly articulated the relationship between their work situation and their mental health; Jila, a 28 year old unemployed South Asian trans woman, said: "I would feel like a planning, contributing member of society [if I had a paid job], instead of a burden and a waste of oxygen, like I do half the time these days."

Pathway 3: Poverty and/or bisexuality are associated with discrimination and in turn, lack of access to social support, which impacts mental health

Participants described how poverty led to discrimination and in turn, lack of support and community. For some, poverty impacted their ability to access family support, in that they felt hesitant to worry already overburdened parents, or undermine their parents' expectations of upward mobility for their children.

Ashley, a 36 year old white underemployed genderqueer woman, talked about the impact of discrimination associated with living in a housing co-op, particularly as this pertained to her

experience of poverty: "[Classmates of her daughter] are friends with her at school, and they like her, but she's not allowed over to their houses, and they're REALLY not allowed over to our house. Ever … [The parents] want their children to have 'positive' influences in their lives. They don't want them to think that it's okay to be poor." Other participants talked about class discrimination within LGBT communities. Sasha, a 27 year old white and Metis man who was a student, describes: "I think it's a class thing. A lot of middle class queers, gay people I see, are double-income, no kids … Myself, fitting into different spaces—I talked about race, class, sexuality – sometimes you're choosing what you can show and what you are when you're in a certain space in order to be safe."

Pathway 4: Poverty and bisexuality together limit access to appropriate and helpful mental health services, which in turn impacts mental health

Participants highlighted the financial inaccessibility of mental health services, and particularly counselling. The only provincially-funded mental health care option available to many participants seemed to be medication, which they often did not want or did not see as a solution. The few publicly-funded counselling services available were perceived to be poor in quality or inaccessible due to wait lists.

This inaccessibility was amplified for those seeking providers who could understand and support bisexual identity. Marci, a 32 year old full-time employed white woman, describes her experiences trying to find a provider: "I know through my employee benefits, I can get some counselling. That there's an employee health program and they have a list of counsellors that they will cover to a certain amount. But I'm under the pretty safe assumption that they are not going to have any queer counsellors on there … so, financially speaking, it would have been a better path to take, but it was more important to me to have someone I could be totally open with. So that puts me at a financial disadvantage. "

For those who needed practitioners who could work with multiple stigmatized identities (e.g., racialized bisexual person, bisexual person living with a disability who has recently immigrated to Canada), affordable services were even more limited. Publicly-funded services with an LGBT mandate, where they existed, had impossibly long wait lists, so timely access to LGBT-competent practitioners was typically only available if paid for out-of-pocket. Even so, LGBT organizations were not always competent regarding bisexuality, or were not perceived by participants to target bisexual people in particular as service users.

Virtually all participants felt privately-funded mental health services were financially inaccessible; only those with excellent insurance coverage through their employers could afford them on an ongoing basis. Most who had some insurance coverage found it limited, preventing them from dealing with issues in any depth. This financial inaccessibility of services, and particularly those that would be competent to address bisexual (and other significant) identity issues, meant that many participants were unable to address mental health concerns when they arose.

6. Discussion

Our study confirms prior research indicating that a substantial proportion of bisexual people live in poverty, and that poverty is associated with poor health among bisexual people (Gorman et al., 2015). We extend existing research to show that low income is associated with poor mental health, and symptoms of depression and posttraumatic stress disorder specifically, among bisexual people, even when broadly defined using an attraction-based, rather than identity-based, definition. Further, bisexual individuals living below the LICO report higher levels of reported perceived discrimination, and in adjusted analyses, higher levels of sexual orientation disclosure, relative to their higher income counterparts.

Our qualitative data extend our quantitative findings by pointing to mechanisms that may explain the relationships between bisexuality, poverty and mental health: early life experiences implicitly or explicitly linked to bisexuality that impacted future financial stability; effects of bisexuality on employment and earning potential; the impact of poverty and class discrimination on access to bisexual-friendly communities of support; and lack of access to mental health services that could provide culturally competent care. These findings are consistent with both intersectionality theory (Crenshaw, 1989) and the minority stress framework (Meyer, 2003): they indicate unique experiences at the intersection of bisexuality and low income, and further suggest that these unique experiences include experience of sexual identity and class-based discrimination that may have implications for mental health. Taken together, these mixed methods data help explain why low income has been associated with bisexuality in population-based data, and suggest points of intervention to address the impact on bisexual mental health.

Consistent with other research that has examined the relationship between SES and mental health, our qualitative data predominantly support the social causation hypothesis (Hudson, 2005), in that we find poverty impacts on mental health as a result of exposure to various associated stressors. In our data, employment stress, discrimination and lack of social support, and financial inaccessibility of mental health services are poverty-related stressors that impact on mental health. However, we also find some support for the social selection hypothesis in Pathways 1 and 2, in that participants did describe the impact of their mental health status on their ability to find and maintain paid employment. It is notable that in the pathways identified in our data, bisexuality (or more specifically, stigma associated with bisexuality) often operates alongside poverty in producing stressful experiences (including employment discrimination and lack of social or family support) that in turn have a negative impact on mental health.

Consistent with an intersectional lens (Crenshaw, 1989), both our quantitative and qualitative data draw attention to the impact of other intersecting identities and experiences, and in particular, the 'racialization of poverty' (Block and Galabuzi, 2011), particularly as this pertains to Indigenous people: Aboriginal-identified bisexuals were more likely than non-Aboriginal bisexuals to be living below the poverty line ($p = 0.05$), and our qualitative findings also draw extensively (though not exclusively) from interviews with Aboriginal and other racialized participants. With an intersectional analysis in mind, our purposive sampling strategy included a substantial proportion of racialized individuals in the qualitative arm of our study, which in part may explain the prominence of their experiences in our analysis. However, in light of our quantitative data, we might infer that Aboriginal participants were more likely than others to be dealing with poverty, and therefore to make connections to this in their interviews. In this context, interventions to address health and poverty-related concerns among bisexual people should be attentive to the impact of racism and legacies of colonization.

The mixed methods design of this study is a significant strength. By examining both quantitative and qualitative data we offer a more complete understanding of the relationships between bisexuality, poverty and mental health than would be available based on only one strand of data. One potential limitation of this study is our use of an attraction-based definition of bisexuality (rather than a behavioural or identity-based definition). At the time

of study conceptualization, community feedback indicated that an attraction-based definition best encompassed the 'bisexual community' that this community-based research project was intended to study. However, there is emerging evidence of important differences in the experiences and health outcomes of non-monosexual people depending upon self-identity (e.g., Mitchell et al., 2015). Additional research using different definitions of bisexuality is therefore warranted.

Key strengths of the quantitative component of this study include the large sample and respondent driven sampling design, enabling population estimates. An important limitation of our quantitative design is that by virtue of the respondent driven sampling, only networked bisexuals were included in this study. It is likely, based on our data, that bisexual individuals living in poverty may be less likely than other bisexuals to be part of a strong network. As such, our findings may not be entirely reflective of bisexual people living in poverty. A further limitation of the quantitative strand is the lack of comparison group; we infer likely differences between this bisexual sample and individuals of other sexual orientations on the basis of prior literature, but these inferences should be confirmed in future research. Finally, although our sample is large relative to other studies of this nature, only 76 individuals were classified into our below LICO group. As a result, we lacked statistical power to examine potential effect modification. In particular, gender is strongly associated with both mental health (Rotondi et al., 2011) and poverty (Collin and Jensen, 2009), and so should be carefully examined in future research.

Strengths of the qualitative component include the purposefully selected sample and community validation of the interview guide. The primary limitation is that the research question for this study was not conceived at the time the interview guide was developed, and issues related to poverty were not always probed directly. Further, we opted to include data for all participants, and not solely those living below the LICO, since we felt that even those participants who were not living in poverty could provide data pertinent to our research question. For example, some participants had experienced poverty at other points in their lives, or had experiences that were directly relevant to income (e.g., being unable to afford needed mental health services). The pathways identified in this study should be tested in future research with samples of bisexual people currently living in poverty.

Overall, the results of this study are consistent with prior research on sexual minority people in general, and extend existing knowledge to focus on bisexual people in particular. Our finding that a substantial proportion (25.7%) of bisexual people in Ontario are living below the poverty line is consistent with limited research that has identified high rates of poverty among bisexual people in particular (Albelda et al., 2009). The higher frequency of perceived discrimination reported by our lower income respondents, and perceived impact of this discrimination on mental health in our qualitative data, also resonates with other research (Gamarel et al., 2012) and suggests that, consistent with the minority stress framework (Meyer, 2003), discrimination on the basis of poverty or social class may be associated with poor mental health among bisexual people.

Our finding that in adjusted analyses, individuals living below the LICO had higher levels of sexual orientation disclosure than those living above LICO is not consistent with the small body of literature on "outness" and social class in sexual minorities. For example, one recent study found that sexual identity disclosure was associated with a health penalty for low income sexual minority men (McGarrity and Huebner, 2014). Sexual orientation disclosure was not identified as a part of any of the pathways constructed from our qualitative data; the only reference to this made in relation to poverty referred to choices not to disclose (specifically, in order to avoid family alienation and as such, continue access to financial supports). To our knowledge, no prior studies have investigated the relationship between poverty and sexual identity disclosure among bisexual people specifically; it may be that bisexual people experience this relationship differently than their lesbian and gay counterparts. Additional qualitative research will be useful to further explore the choices low-income bisexual people make in relation to sexual identity disclosure.

This study has implications for researchers, clinicians, and policy makers. Our data suggest that the disproportionate number of bisexual people living in poverty may contribute to poor mental health amongst this population. Clinical services targeting bisexual people, then, must be prepared to address considerations related to poverty such as employment, education, and housing within the context of mental health care. Further, our data suggest a need to improve the accessibility of bisexual-specific or inclusive mental health services. In Ontario, these services are often delivered in the private sector, which makes them financially inaccessible for many bisexual people and particularly those of low income. Interventions to a) locate bisexual-inclusive services in the public sector, and/or b) require bisexual competency within existing public sector mental health services, may be warranted to address this need. At the same time, we heed the call of Mills (2015) to avoid 'the tendency to reconfigure structural problems as individual pathology' (pp. 218–219): structural interventions to address income inequality and discrimination associated with bisexual identity are ultimately needed to disrupt the pathways this research has identified between bisexuality, poverty and mental health. Future study is needed to clarify these relationships, and to identify and evaluate potential interventions.

Acknowledgements

This research was supported by an operating grant from the Institute of Gender and Health of the Canadian Institutes for Health Research, Funding Reference Number MOP 106609.

The authors wish to acknowledge our participants and co-investigators Cheryl Dobinson, Loralee Gillis and Ishwar Persad for their essential contributions to this research. We also wish to express thanks to Shamara Baidoobonso for assistance with data cleaning and coding, and the members of the Risk & Resilience Bisexual Community Advisory Committee for their contributions to all stages of the project. Finally, we thank all the staff and students of the Re:searching for LGBTQ Health Team (see www.lgbtqhealth.ca) who contributed to this project, and particularly Corey Flanders, Sarah Pinder and Nael Bhanji.

Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.socscimed.2016.03.009.

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