

Lesbian, gay or bisexual identity as a risk factor for trauma and mental health problems in Northern Irish students and the protective role of social support

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ABSTRACT

Background: People identifying as lesbian, gay or bisexual (LGB) have been shown to experience more trauma and poorer mental health than their heterosexual counterparts, particularly in countries with discriminatory laws and policies. Northern Ireland is a post-conflict region with high rates of trauma and mental health problems, as well as significant levels of prejudice against the LGB community. To date, no studies in Northern Ireland have compared trauma exposure, social support and mental health status of LGB students to their heterosexual peers.

Objective: The present study aimed to assess whether LGB status was associated with more trauma exposure and poorer mental health, and whether social support mediated these associations.

Method: The sample was comprised of 1,116 university students. Eighty-nine percent ($n = 993$) identified as heterosexual and 11% ($n = 123$) identified as LGB. Path analysis was used to test the hypotheses.

Results: LGB status was significantly associated with increased trauma exposure and with symptoms of PTSD, depression and anxiety, but not with problematic alcohol use. These associations were mediated by social support from family only.

Conclusions: These results evidence vulnerabilities among Northern Irish students identifying as LGB in relation to trauma and mental health compared with their heterosexual peers. However, social support from family has the potential to mitigate risk. Educational initiatives should raise awareness of the importance of familial support for LGB youth, and those young people who lack family support should be considered an at-risk group, warranting particularly intensive targeting by relevant supports.

Identidad lésbica, gay o bisexual como factor de riesgo de trauma y problemas de salud mental en estudiantes de Irlanda del Norte y el papel protector del apoyo social

Antecedentes: Se ha demostrado que las personas que se identifican como lesbianas, gays o bisexuales (LGB) experimentan más traumas y peor salud mental que sus contrapartes heterosexuales, particularmente en países con leyes y políticas discriminatorias. Irlanda del Norte es una región post-conflicto con altas tasas de trauma y problemas de salud mental, así como niveles significativos de delitos de odio dirigidos a la comunidad LGB. Hasta la fecha, ningún estudio en Irlanda del Norte se ha propuesto específicamente comparar la exposición al trauma y el estado de salud mental de los estudiantes LGB con sus pares heterosexuales.

Objetivo: El presente estudio tuvo como objetivo evaluar si la condición LGB estaba asociada con tasas más altas de exposición al trauma y peor salud mental, y si el apoyo social mediaba estas asociaciones.

Método: La muestra estuvo compuesta por 1.116 estudiantes universitarios de Irlanda del Norte. El ochenta y nueve por ciento ($n = 990$) se identificó como heterosexual y el 11% restante ($n = 126$) identificándose como LGB. El análisis de pautas se usó para probar las hipótesis de estudio.

Resultados: el estado LGB se asoció con una mayor exposición al trauma y síntomas de TEPT, depresión y ansiedad, pero no con el consumo problemático de alcohol. Las asociaciones significativas fueron mediadas solamente por el apoyo social de miembros de la familia. El apoyo familiar se asoció con niveles más bajos de exposición al trauma y síntomas de salud mental para los jóvenes LGB.

Conclusiones: los estudiantes de Irlanda del Norte que se identifican como LGB tienen vulnerabilidades en relación con el trauma y la salud mental en comparación con sus

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关键词

LGBT; 心理健康; 创伤; 北爱尔兰; 性少数群体; 社会支持; 冲突后

HIGHLIGHTS

- The first study to compare trauma, social support and mental health problems of Northern Irish LGB students with their heterosexual peers.
- LGB status was associated with experiencing more trauma and symptoms of PTSD, depression and anxiety.
- The relationships between LGB status and trauma and mental health problems were mediated by social support from family, such that familial support reduced the likelihood of experiencing adverse outcomes.

compañeros heterosexuales. Sin embargo, el apoyo social de la familia tiene el potencial de mitigar esta relación. Las iniciativas educativas deberían crear conciencia sobre la importancia del apoyo familiar para los jóvenes LGB, y aquellos jóvenes que carecen de apoyo familiar deberían considerarse un grupo en riesgo, garantizándoles un apoyo particularmente intensivo por terceros significativos.

女同性恋, 男同性恋或双性恋身份作为北爱尔兰学生创伤与心理健康问题的风险因素和社会支持的保护因素

背景: 与异性恋者相比, 身份认同为同性恋或双性恋者 (LGB) 遭受的创伤更多, 心理健康状况更差, 尤其是在有歧视性法律和政策的国家。北爱尔兰是一个冲突后地区, 创伤和心理健康问题高发, 而且针对LGB群体的仇恨犯罪率很高。迄今为止, 北爱尔兰尚无专门比较LGB学生与同龄异性恋者创伤暴露和心理健康状况的研究。

目标: 本研究旨在评估LGB身份是否与较高的创伤暴露率和较差的心理健康相关, 以及社会支持是否中介了这些关联。

方法: 样本由北爱尔兰的1116名大学生组成。其中 89% ($n = 990$) 身份认同为异性恋, 其余 11% ($n = 126$) 身份认同为LGB。路径分析用于检验研究假设。

结果: LGB身份与增强的创伤暴露和PTSD症状, 抑郁和焦虑相关, 但与酗酒问题无关。显著的相关仅被来自家庭成员的社会支持中介。家庭支持与LGB年轻人的创伤暴露水平和心理健康症状降低相关。

结论: 与同龄异性恋者相比, 身份认同为LGB的北爱尔兰学生在创伤和心理健康方面更脆弱。但是, 来自家庭的社会支持可能减少这种关联。教育倡议应提高人们对于家庭支持对LGB青年重要性的认识, 那些缺乏家庭支持的年轻人应被视为高危人群, 确保有针对性地加强相关支持。

1. Introduction

People identifying as lesbian, gay or bisexual (LGB) are at a higher risk of experiencing trauma, mental health problems (Haas et al., 2010; Meyer, 2003; Roberts, Austin, Corliss, Vander Morris, & Koenen, 2010) and suicidal ideation (Haas et al., 2010; Mortier et al., 2018; O'Neill et al., 2018; Raifman, Moscoe, Austin, & McConnell, 2017) than heterosexuals. One US study ($n = 34,653$; Roberts et al., 2010) found that LGBs were twice as likely to develop post-traumatic stress disorder (PTSD; ORs 2.03–2.13). LGBs also tend to exhibit more complex psychiatric presentations, such as presenting with co-occurring substance abuse and mental health disorders (ORs 1.47–2.59; Mereish, Lee, Gamarel, Zaller, & Operario, 2015).

Meyer's (2003) Minority Stress Theory posits that mental health disparities between LGBs and heterosexuals are caused by stress-inducing environments related to experiences and perceptions of prejudice and discrimination. LGB status is associated with a range of adverse experiences; LGB and transgender young people in the US have been found to have a 120% increased risk of homelessness, often resulting from familial rejection ($n = 26,161$; Morton, Dworsky, & Samuels, 2017). They are more likely to experience violence, to be exposed to more traumas and to experience trauma at a younger age (Roberts et al., 2010). The increased violence experienced by LGBs is partly due to hate crime (e.g. Herek, 2009), but the risk of other types of victimization is also elevated (Edwards et al., 2015; Porter & Williams, 2011).

Mental health outcomes for sexual minorities are worse in jurisdictions with discriminatory laws and policies (Hatzenbuehler, McLaughlin, Keyes, & Hasin, 2010; Raifman et al., 2017), and exposure to

'devaluing' public discourse, such as that related to public votes on same-sex marriage, is associated with reduced mental wellbeing among LGBs (Frost & Fingerhut, 2016). At the time when data for the present study was gathered, same-sex marriage was illegal in Northern Ireland. Although attitudes in the region are now changing (McAlister, Carr, & Neill, 2014), social conservatism and homophobia have historically been very prevalent (Duggan, 2012).

There are several indications to suggest that LGB people in Northern Ireland experience significant adversity and poor mental health. LGB status has been found to be associated with suicide and self-harm behaviours among Northern Irish students (Mortier et al., 2018; O'Neill et al., 2018). One survey ($n = 31,625$), found that Northern Ireland was the most homophobic nation in the Western world (Borooah & Mangan, 2007). LGB young people there are more likely to experience bullying, less likely to receive support at school (McNamee, Lloyd, & Schubotz, 2008) and more likely to leave school early (Gray, Horgan, & Leighton, 2013) than their heterosexual counterparts.

Significant levels of homophobic hate crime and other types of sexuality-related victimization have been reported in Northern Ireland (Duggan, 2010; Jarman & Tennant, 2003; O'Doherty, 2009; Quiry, 2002). Between June 2018 and June 2019, 287 hate-motivated incidents were reported to the police (PSNI, 2019). The rates of hate crime are not directly comparable between Northern Ireland, England, Wales, Scotland and the Republic of Ireland due to definitional and reporting differences. However, the largest UK-wide survey of LGBT issues ($n = 108,100$; Government Equalities Office, 2018) found that residents of

Northern Ireland were the most likely of any region in the UK to report experiencing or being offered some form of 'conversion therapy' (12%). The next highest rate identified was in the London region (8%).

The presence of social support may have potential to partially mitigate adverse outcomes for LGBs, acting as a protective factor against the detrimental effects of minority stress (e.g. Meyer, 2003; Mustanski & Liu, 2013). Longitudinal research conducted during the 'emerging adulthood' developmental period (i.e. between age 18–25; Arnett, 2000) identified that young people in this stage with greater perceived social support reported fewer depressive symptoms (Pettit, Roberts, Lewinsohn, Seeley, & Yaroslavsky, 2011).

Potential sources of social support include family, friends and romantic partners (Pettit et al., 2011). Specific research on lesbian and gay individuals in emerging adulthood has also evidenced the protective effects of social support against low self-esteem and depressive symptoms (Spencer & Patrick, 2009). One study found that perceived social support from families, but not peers, acted protectively among LGBs (Mustanski & Liu, 2013), while others have suggested that LGB-specific social support and a sense of connectedness to the LGB community confers stronger benefits (Munoz-Plaza, Quinn, & Rounds, 2002).

Trauma experienced by sexual minorities in general is an under-researched area (Edwards et al., 2015), and this is particularly true within post-conflict settings such as Northern Ireland (Duggan, 2012; McNamee et al., 2008). The present study aims to build on previous findings by investigating trauma, mental health and social support in a large student sample ($n = 1,116$) comparing LGBs with their heterosexual peers. Based on existing data, and rooted to Minority Stress Theory (Meyer, 2003), three hypotheses were formulated: 1) LGB students will be more likely than their heterosexual peers to report a higher number of potentially traumatic experiences (PTEs); 2) LGB students will report more symptoms of PTSD, depression, anxiety and problematic alcohol use; and 3) The association between LGB status and traumatic experiences and mental health problems will be mediated by social support, whereby social support will be negatively associated with traumatic experiences and mental health problems.

2. Methods

2.1. Participants

Data was gathered as part of a larger study on trauma and mental health among students in Northern Ireland (see Lagdon et al., 2018). Data was gathered between October 2014–March 2015; 25,000 invitations to

participate were distributed to all students via the internal mailing system of Ulster University.

A total of 1,416 students started the survey, constituting a response rate of 5.66%. Of these, 1,116 indicated their sexuality. 89% ($n = 993$) identified as heterosexual, with the remaining 11% ($n = 123$) identifying as lesbian, gay or bisexual (LGB). Seventy-three percent ($n = 818$) were women, 25% were men ($n = 273$). Data on gender was missing for 2.2% ($n = 25$). The mean age was 24.38 ($SD = 7.46$; range 18–61). Demographic information of the overall sample was compared with information from the university about enrolled students. This indicated that the sample demographics were comparable to those of the wider university population. However, representativeness of the LGB community cannot necessarily be inferred.

2.2. Missing data

Of the sample of 1,416, 300 individuals did not answer the question about sexual orientation. Chi-square and t-tests showed that this group of 300 individuals did not differ significantly from the rest of the sample on age ($t(1128) = .953, p = .50$) or sex ($\chi^2(1) = .027, p = .87$). Further investigation showed that 99% ($n = 297$) of these had provided no responses on measures of trauma exposure, PTSD, and depression, and 99.3% ($n = 298$) provided no responses on the anxiety, alcohol abuse and social support measures. This precluded statistical analysis of differences between the 300 individuals and the overall sample on the outcome variables due to insufficient power. Little's Missing Completely at Random (MCAR; Little, 1988) test assessed whether data was missing at random across all variables; this was found to be the case $\chi^2(6028) = 6022.17, p = .52$, suggesting that systematic biases in missing data were unlikely. The 300 individuals with no response for the sexuality item were therefore excluded from further analysis, leaving a sample of $n = 1,116$.

2.3. Measures

2.3.1. Participant characteristics

Demographic characteristics included in the analysis were age (treated as a continuous variable) and sex (coded as 1 = female and 0 = male). Participants were asked to indicate whether they identified as gay, lesbian, bisexual or heterosexual (coded as 1 = gay, lesbian or bisexual and 0 = heterosexual).

2.3.2. Potentially traumatic experiences

The Stressful Life Events Screening Questionnaire (SLESQ; Goodman, Corcoran, Turner, Yuan, & Green, 1998) is a 13-item measure of lifetime traumatic exposure, such as having a life-threatening

illness, being threatened with a weapon, or experiencing abuse. The SLESQ shows good test-retest reliability (median $\kappa = .73$) and adequate convergent validity (median $\kappa = .64$). Trauma exposure was treated as a count variable in the present analysis (range 0–13).

2.3.3. Mental health problems

Symptoms of PTSD were measured using the PTSD Checklist for the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013). The PCL-5 (Weathers et al., 2013) is comprised of 20-items with five-point Likert scales where participants indicate the degree to which they have experienced each symptom (0 = 'not at all' to 4 = 'extremely') in the past month. Scores range from 0 to 80 with higher scores reflecting increased symptoms. Studies indicate that the PCL-5 is a psychometrically sound measure of PTSD symptomology (Blevins, Weathers, Davis, Witte, & Domino, 2015); the measure demonstrated strong internal consistency in the present sample ($\alpha = .96$).

Depression was measured using the Patient Health Questionnaire-9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001), which assesses the nine DSM-5 symptoms of depression. Respondents indicate the frequency with which they have experienced each symptom in the past two weeks on a four-point Likert scale from 0 ('not at all') to 3 ('nearly every day'). Totals range from 0–27, with higher scores reflecting increased symptoms. The PHQ-9 has been found to be a reliable and valid measure of depressive symptoms (Kroenke et al., 2001). Its internal consistency in the present sample was good ($\alpha = .92$).

Anxiety was measured using the Generalized Anxiety Disorder Assessment (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006), a seven-item questionnaire assessing symptoms experienced in the previous two weeks. The GAD-7 uses the same Likert response format as the PHQ-9 and total scores range from 0–27. The GAD-7 has been shown to be reliable for use in the general population (Löwe et al., 2008). Internal consistency was good within the present sample ($\alpha = .92$).

Problematic alcohol use was measured using the Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001), a ten-item screener for harmful and hazardous alcohol use and alcohol dependence. Responses are coded 0–4, where 0 corresponds to never engaging in a particular behaviour (e.g. having a drink containing alcohol) or having a particular experience (e.g. being injured as a result of drinking) and 4 corresponds to the highest frequency or positive endorsement of each statement. Some items ask the respondent to report how they 'typically' behave, others ask about the average frequency of certain behaviours 'during the last year.' Scores range from 0–40 with higher

scores reflecting increased levels of problematic alcohol use. The internal consistency of the AUDIT in the present study was good ($\alpha = .84$).

2.3.4. Social support

Social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). The MSPSS includes 12 items across three subscales measuring perceived social support from family, friends and a significant other. Participants indicate how they feel about statements such as 'my family really tries to help me' and 'there is a special person who is around when I am in need.' Each subscale has four items, measured using Likert responses from 1 ('very strongly disagree') to 7 ('very strongly agree'). Scores for the total measure are calculated by summing all scores and dividing by 12 (possible range 1–7). Subscale scores are calculated by summing the relevant item scores and dividing by 4 (possible range for all subscales 1–4). The MSPSS has been found to demonstrate good psychometric properties (Zimet et al., 1988; Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Internal consistency was good in the present sample; Cronbach's alpha for the entire scale was .95 and .94, .95 and .97 for the family, friends and significant other scales respectively.

2.4. Analysis

The hypotheses were tested using path analysis, with three nested models. Model nesting is a technique that allows incremental testing of a statistical model, where each model contains all the terms of the last, plus at least one new term. The model with fewer terms (the restricted model) contains all the terms of the complete model, but with constraints placed on some parameters, such as fixing them to zero (Bentler & Satorra, 2010). This allows meaningful comparison as to which model provides the better statistical fit to the data (Widaman & Thompson, 2003). Model 1 in the present analysis investigated the association between sexual orientation and trauma exposure and mental health problems. In this model, sexual orientation (heterosexual or LGB) was specified as a binary predictor, and trauma exposure and mental health problems (symptoms of PTSD, depression, anxiety and problematic alcohol use) were entered as criterion variables. The paths of the covariates (age and sex) and the mediator variables (the three types of social support) were fixed to zero.

In Model 2, the paths from age and sex were freed, allowing them to be included as covariates. This model tested whether sexual orientation is associated with trauma exposure and mental health problems, adjusting for sex and age.

In Model 3, all paths were freely estimated, allowing for the estimation of the direct effects outlined in Models

1 and 2, as well as indirect associations between sexual orientation and trauma exposure and mental health problems via perceived social support (family, friends and a significant other). This model is depicted in Figure 1. The inclusion of multiple criterion variables within the same model corrects for multiplicity and reduces the risk of Type 1 error. Models were estimated with Mplus 8 (Muthén & Muthén, 1998–2017) using the robust maximum likelihood (MLR) estimator. Model selection was guided by the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC) and sample-size adjusted BIC (SSABIC). Lower values on these indices indicate better model fit.

3. Results

Table 1 presents the sample characteristics by group (heterosexual and LGB), outlining mean differences in trauma exposure and mental health symptoms. These comparisons indicate significant differences between LGBs and heterosexuals on all variables apart from alcohol abuse, social support from friends and social support from a significant other. The most common index experiences from the SLESQ (the event causing the most distress within the past month) among the heterosexual individuals were: the death of a family member or close friend (16%, $n = 158$), childhood sexual abuse (3.6%, $n = 36$) and being present when someone was killed or injured (2.7%, $n = 27$). Among the LGB group, the most common index experiences were: death of a family member or close friend (24.4%, $n = 30$), childhood sexual abuse, (4.9%, $n = 6$), and rape in adulthood (3.3%, $n = 4$).

Table 2 presents differences between groups on age, sex and each of the criterion variables. Age and sex were significantly associated with several of the criterion variables. Older age was positively associated with trauma exposure, and younger age was associated with

increased symptoms of alcohol abuse. Female sex was associated with symptoms of PTSD, depression and anxiety, while alcohol abuse was associated with male sex. Age and sex were therefore included in the model as covariates.

Fit statistics for the three models indicated that the full mediation model provided the best fit to the data. Model 3 was selected based on descending values for the AIC, BIC and SSABIC (see Table 3) Model 3 explained 12–14% of the variance in PTSD, depression and anxiety (see Table 4).

3.1. Direct effects

Direct and indirect effects from Model 3 are presented in Table 5. The mediation model indicates an association between LGB status and trauma exposure and symptoms of PTSD, depression and anxiety ($\beta = .07 - .36$), but not with problematic alcohol use. Age was significantly associated with trauma exposure ($\beta = .67$), whereby older age was related to increased exposure; and with alcohol abuse ($\beta = -.11$), where younger age was associated with more alcohol abuse. There were also associations between sex and all mental health variables; female sex was associated with increased likelihood of endorsing symptoms of PTSD, depression and anxiety ($\beta = .13 - .15$), whereas male sex was associated with alcohol abuse ($\beta = -.14$). Social support from family was negatively associated with trauma exposure and all mental health outcomes except alcohol abuse ($\beta = -.29$ to $-.57$).

3.2. Indirect effects

The mediation model indicated indirect effects whereby social support from family partially explained the associations between LGB status and

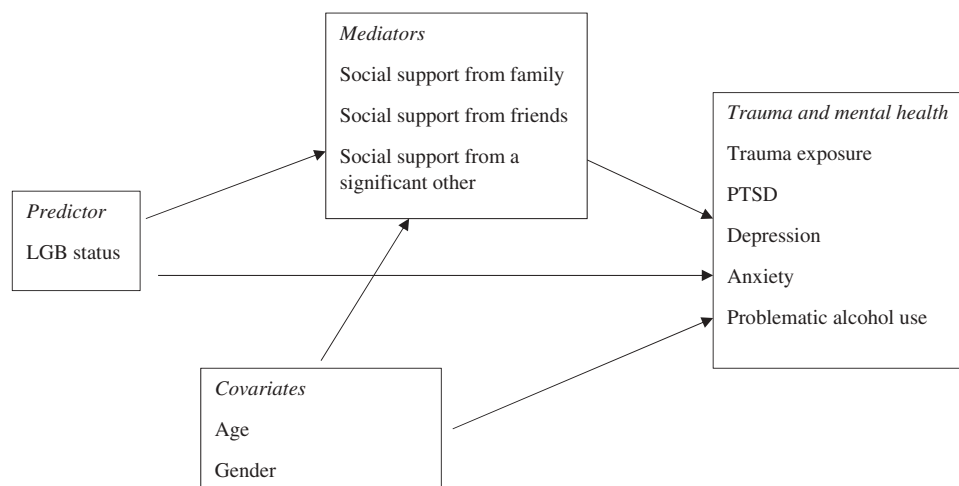


Figure 1. Final model of direct and indirect effects.

Table 1. Sample characteristics by sexual orientation.

Variable	Heterosexual group (n = 993)	LGB group (n = 123)	Chi-square and t-values	p
Age	M = 24.55, SD = 7.67	M = 22.96, SD = 5.21	t (183.69) = -2.94	0.004
Sex				
Female N (%)	738 (74)	80 (65)	$\chi^2 (1) = 4.28$	0.04
Trauma exposure	M = 1.55, SD = 1.86	M = 2.37, SD = 2.23	t (122.45) = 3.62	<0.001
No exposure N (%)	324 (33)	30 (24)	$\chi^2 (4) = 24.14$	<0.001
1 event	197 (20)	15 (12)		
2 events	131 (13)	14 (11)		
3 events	95 (10)	17 (14)		
4+ events	103 (10)	29 (24)		
PTSD				
Mean score	M = 16.02, SD = 18.20	M = 25.01, SD = 21.62	t (107.51) = 3.83	<0.001
Depression				
Mean score	M = 6.97, SD = 6.38	M = 10.46, SD = 7.37	t (117.60) = 4.51	<0.001
Anxiety				
Mean score	M = 5.83, SD = 5.54	M = 7.38, SD = 5.71	t (848) = 2.56	0.01
Alcohol use				
Mean score	M = 7.93, SD = 5.26	M = 8.83, SD = 6.32	t (101.33) = 1.26	0.21
Social support				
Mean overall	M = 5.14, SD = 1.58	M = 4.71, SD = 1.38	t (120.78) = -2.77	0.006
Friends	M = 5.00, SD = 1.75	M = 4.73, SD = 1.65	t (792) = -1.39	0.16
Family	M = 4.99, SD = 1.80	M = 4.29, SD = 1.77	t (796) = -3.48	0.001
Significant other	M = 5.46, SD = 1.87	M = 5.15, SD = 1.92	t (793) = -1.46	0.15

Significant results highlighted in bold.

Table 2. Differences between groups on age, sex and each of the criterion variables.

Variable	Sex*	p	Age**	p
Trauma exposure	t (929) = -1.50	0.13	t (524.34) = 5.81	<0.001
PTSD	t (430.20) = 4.19	<0.001	t (807) = 0.45	0.65
Depression	t (387.96) = 3.45	0.001	t (840) = -1.33	0.18
Anxiety	t (828) = 3.84	<0.001	t (819) = 1.28	0.20
Problematic alcohol use	t (241.85) = -3.57	<0.001	t (629.32) = -3.34	0.001

*Coded as 1 = female, 0 = male **Using mean age (24) as cut-point

Table 3. Fit statistics for the three successive models of associations between LGB status, social support, trauma and mental health.

	AIC	BIC	SSABIC
Model 1	40735.14	40860.60	40778.02
Model 2	40563.77	40737.48	40623.15
Model 3	40434.92	40724.45	40533.90

Table 4. R² estimates for the final mediation model.

Variable	R ²	SE	p
PTSD	0.13	0.03	<0.001
Depression	0.14	0.03	<0.001
Anxiety	0.12	0.02	<0.001
Alcohol problems	0.04	0.02	0.01
Social support (family)	0.02	0.01	0.03
Social support (friends)	0.00	0.00	0.57
Social support (significant other)	0.01	0.01	0.19

trauma exposure, PTSD, depression and anxiety ($\beta = .04 - .07$). Social support from family also mediated the relationship between age and each of these variables ($\beta = .02 - .04$). There were no significant indirect effects of social support from friends or from a significant other.

4. Discussion

The present study is the first to compare trauma, social support and mental health outcomes of LGB

and heterosexual students in Northern Ireland. Our results suggest the presence of profound vulnerabilities among Northern Irish LGB students compared with their heterosexual peers. LGB status was associated with trauma exposure and higher rates of endorsement of PTSD, depression and anxiety symptoms. The only mental health indicator that was not associated with LGB status was problematic alcohol use. The observed significant relationships were all partially mediated by perceived social support from family, but not friends or a significant other, indicating that the former type of support is protective for LGB students in Northern Ireland.

The findings in relation to LGB status as a risk factor for trauma exposure and mental health problems are consistent with previous international research (e.g. Haas et al., 2010; Meyer, 2003; Roberts et al., 2010); and with other Northern Irish research that found LGB status to be related to poorer outcomes with respect to self-harm and suicidality (Mortier et al., 2018; O'Neill et al., 2018) and with general mental health problems (McNamee et al., 2008).

The finding in relation to alcohol abuse was somewhat unexpected, although some longitudinal research has suggested that detection of significant differences in alcohol consumption between LGBs and heterosexuals may be less likely during university years (Hatzenbuehler, Corbin, & Fromme, 2008). Arnett (2000) also noted

Table 5. Standardized beta coefficients for the full mediation model.

Variable	Direct effects		Indirect effects		Friends		Significant other	
	Coefficient (SE)	p	Family Coefficient (SE)	p	Coefficient (SE)	p	Coefficient (SE)	p
Trauma exposure								
LGB status ^a	0.36 (0.08)	<0.001	0.07 (0.02)	0.001	0.00 (0.00)	0.75	0.00 (0.01)	0.58
Age	0.67 (0.07)	<0.001	0.04 (0.02)	0.04	0.00 (0.00)	0.71	0.00 (0.00)	0.66
Sex ^b	-0.15 (0.10)	0.11	-0.02 (0.02)	0.24	0.00 (0.01)	0.62	0.01 (0.01)	0.54
SS Family	-0.57 (0.09)	<0.001	-	-	-	-	-	-
SS Friends	0.07 (0.13)	0.58	-	-	-	-	-	-
SS Significant other	-0.08 (0.12)	0.54	-	-	-	-	-	-
PTSD								
LGB status	0.13 (0.04)	<0.001	0.04 (0.01)	0.001	0.00 (0.00)	0.70	0.00 (0.00)	0.23
Age	0.04 (0.03)	0.27	0.02 (0.01)	0.04	0.00 (0.00)	0.61	0.00 (0.00)	0.60
Sex	0.13 (0.03)	<0.001	-0.01 (0.01)	0.24	-0.00 (0.00)	0.38	0.00 (0.00)	0.14
SS Family	-0.29 (0.04)	<0.001	-	-	-	-	-	-
SS Friends	0.06 (0.04)	0.08	-	-	-	-	-	-
SS Significant other	0.07 (0.03)	0.05	-	-	-	-	-	-
Depression								
LGB status	0.14 (0.03)	<0.001	0.04 (0.01)	0.001	0.00 (0.00)	0.70	0.00 (0.00)	0.27
Age	-0.04 (0.03)	0.18	0.02 (0.01)	0.04	0.00 (0.00)	0.61	0.00 (0.00)	0.61
Sex	0.13 (0.03)	<0.001	-0.01 (0.01)	0.24	0.00 (0.00)	0.38	-0.01 (0.00)	0.17
SS Family	-0.30 (0.03)	<0.001	-	-	-	-	-	-
SS Friends	0.07 (0.04)	0.06	-	-	-	-	-	-
SS Significant other	0.06 (0.04)	0.09	-	-	-	-	-	-
Anxiety								
LGB status	0.07 (0.03)	0.03	0.04 (0.01)	0.001	0.00 (0.00)	0.69	0.00 (0.00)	0.26
Age	-0.01 (0.03)	0.81	0.02 (0.01)	0.04	0.00 (0.00)	0.61	0.00 (0.00)	0.62
Sex	0.15 (0.03)	<0.001	-0.01 (0.01)	0.24	0.00 (0.00)	0.39	-0.01 (0.00)	0.16
SS Family	-0.30 (0.03)	<0.001	-	-	-	-	-	-
SS Friends	0.07 (0.04)	0.08	-	-	-	-	-	-
SS Significant other	0.06 (0.03)	0.09	-	-	-	-	-	-
Problematic alcohol use								
LGB status	0.02 (0.04)	0.63	0.01 (0.01)	0.27	0.00 (0.00)	0.75	0.00 (0.00)	0.51
Age	-0.11 (0.03)	<0.001	0.00 (0.00)	0.30	0.00 (0.00)	0.72	0.00 (0.00)	0.68
Sex	-0.14 (0.04)	0.001	0.00 (0.00)	0.39	0.00 (0.00)	0.66	0.00 (0.01)	0.44
SS Family	-0.05 (0.04)	0.25	-	-	-	-	-	-
SS Friends	-0.02 (0.04)	0.64	-	-	-	-	-	-
SS Significant other	0.04 (0.04)	0.39	-	-	-	-	-	-

^a Coded as LGB = 1, heterosexual = 0. ^b Coded as 1 = female, 0 = male.

that emerging adulthood is the peak period for engagement in risky behaviours such as binge drinking among young people in industrialized societies. This may lend support to the approach of treating mental health problems and alcohol abuse separately, and not using risky behaviour as a proxy for mental health problems, at least within the 18–25 age bracket. The baseline rate of alcohol abuse in the general population in Northern Ireland is also known to be high (13.2% lifetime prevalence, rising to 19.1% in the 18–34 age bracket; Bunting, Murphy, O'Neill, & Ferry, 2012). Despite recent trends towards a general decline in alcohol consumption in the UK (Fat, Shelton, & Cable, 2018; Office for National Statistics, 2013), alcohol-related deaths in Northern Ireland have risen sharply (40% increase from 2001–2017; Office for National Statistics, 2017). Alcohol abuse in Northern Ireland is likely related to the high rates of trauma and PTSD in the region (8.8% lifetime prevalence of PTSD; Bunting et al., 2012). This high rate of trauma might contribute to an equalizing of alcohol abuse problems between LGB and heterosexual students, whereby the post-conflict context produces vulnerabilities leading to problematic alcohol use in young people of all sexualities.

Previous research on LGBT populations has suggested that psychopathology manifests differently

depending on sex (e.g. Cochran, Sullivan, & Mays, 2003). Sex differences were also evident in the present sample; PTSD, depression and anxiety were all significantly associated with being female. In general, externalizing problems such as alcohol misuse are associated with male sex (e.g. Hicks et al., 2007), and this was also true of the present sample. Unfortunately, the number of LGB young people in the present sample precluded separate consideration of lesbian, gay and bisexual individuals, but we suggest that this will be an important priority of future research.

Consistent with minority stress theory (Meyer, 2003), social support acted as a buffer against trauma and poor mental health for LGBs in the present study. However, this effect was found only in relation to social support from family, and not from friends or a significant other. This aligns with previous research identifying social support from family as a protective factor for LGB youth (Mustanski & Liu, 2013). There may be grounds to differentiate in future studies between general social support and social support specifically in relation to sexuality in LGB people; such differentiation may uncover a protective role of social support friends or a significant other that was not detected in the present analysis.

The identified significance of family support for LGB young people in Northern Ireland warrants increased education to develop parents' awareness of the association between their support and the mental health of LGB young people. Conversely, these findings suggest that a lack of family support should be considered a significant risk factor for LGB young people; family rejection is detrimental to mental health in itself, and also puts LGB young people at risk of other adversities, such as homelessness (Morton et al., 2017). Young people in educational settings who have experienced familial rejection should therefore be considered highly vulnerable.

The mental health disparities between LGB and heterosexual students identified in the present study are cause for significant concern. Heterosexist laws (e.g. Hatzenbuehler et al., 2010; Raifman et al., 2017) and devaluing public discourses (Frost & Fingerhut, 2016) are associated with worse mental health in LGB people. Both of these factors are relevant to the Northern Irish context and it is likely that significant social and political change will be required to alleviate their adverse impact on the mental health of LGB young people there.

4.1. Limitations

Several limitations of the present study should be noted. The cross-sectional design precludes causal inferences. All information was self-report and thus open to biases such as social desirability and recall bias. The survey unfortunately did not allow participants to indicate gender options other than 'male' or 'female', preventing calculation of outcomes for transgender and non-binary individuals. Assessing mental health outcomes for gender, as well as sexual, minorities in Northern Ireland is an important priority for future research.

The data for the present study does not specifically capture victimization based on sexual orientation, preventing consideration of the extent to which experiences such as hate crime contributed to the elevations among LGBs. Further research in the area to elucidate the relationships between trauma exposure and the development of psychopathology among LGBs would be useful in this regard.

Finally, in relation to the missing data on the sexual orientation item ($n = 300$), although the MCAR test suggested data in the overall sample was missing completely at random, the possibility remains that some individuals may have dropped out due to discomfort with disclosing their sexuality. Similarly, the narrow way in which this question was presented may have obscured sexuality-related issues among those who identify as mostly heterosexual. Younger people may be less likely to have a fully solidified sexual identity, particularly in a socially conservative context such as Northern Ireland (Schubotz & O'Hara, 2011). Mortier et al. (2018) identified a significant risk among heterosexual

individuals who experience same-sex attraction of suicidal thoughts and behaviours, and of progressing from having suicidal thoughts to suicidal plans. Future research should include a broader range of options for identifying sexual orientation than those used in the present study to improve validity and reliability of results.

5. Conclusions

Despite its limitations, the present study was the first to compare trauma exposure, social support and mental health outcomes between LGB and heterosexual students in Northern Ireland. The findings indicate significant disparities in outcomes such that LGB students are more vulnerable to experiencing multiple types of trauma, and symptoms of PTSD, depression and anxiety. The relationship between LGB status and these mental health problems are partially mediated by social support from family, suggesting that familial support is a protective factor against these outcomes. It is likely that political and societal change in Northern Ireland, such as legalization of same-sex marriage and further liberalization of cultural norms, will be required to produce increased levels of support and acceptance for LGB youth (Hatzenbuehler et al., 2010; Meyer, 2003). Future research should analyse distinctions between risk and protective factors for lesbian, gay, bisexual and transgender students so that public health and educational initiatives may be better specified to meet the challenges of each group.

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References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC.

- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55(5), 469.
- Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). *The alcohol use disorders identification test (AUDIT): Guidelines for use in primary care*. World Health Organization, Department of Mental Health and Substance Abuse. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/67205/WHO_MSD_MSB_01.6a.pdf;jsessionid=C0DECE8E7F6D59D58760025B2F59334C?sequence=1
- Bentler, P. M., & Satorra, A. (2010). Testing model nesting and equivalence. *Psychological Methods*, 15(2), 111.
- Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The posttraumatic stress disorder checklist for DSM-5 (PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress*, 28(6), 489–498.
- Borooah, V. K., & Mangan, J. (2007). Love thy neighbour: How much bigotry is there in Western countries? *Kyklos*, 60(3), 295–317.
- Bunting, B. P., Murphy, S. D., O'Neill, S. M., & Ferry, F. R. (2012). Lifetime prevalence of mental health disorders and delay in treatment following initial onset: Evidence from the Northern Ireland Study of Health and Stress. *Psychological Medicine*, 42(8), 1727–1739.
- Cochran, S. D., Sullivan, J. G., & Mays, V. M. (2003). Prevalence of mental disorders, psychological distress, and mental health services use among lesbian, gay, and bisexual adults in the USA. *Journal of Consulting and Clinical Psychology*, 71(1), 53.
- Duggan, M. (2010). Homophobic hate crime in Northern Ireland. In N. Chakraborti (Ed.), *Hate crime: Concepts, policy, future directions* (pp. 78–98). Cullompton: Taylor & Francis Ltd.
- Duggan, M. (2012). *Queering conflict: Examining lesbian and gay experiences of homophobia in Northern Ireland*. Surrey: Ashgate Publishing Limited.
- Edwards, K. M., Sylaska, K. M., Barry, J. E., Moynihan, M. M., Banyard, V. L., Cohn, E. S., ... Ward, S. K. (2015). Physical dating violence, sexual violence, and unwanted pursuit victimization: A comparison of incidence rates among sexual-minority and heterosexual college students. *Journal of Interpersonal Violence*, 30(4), 580–600.
- Fat, L. N., Shelton, N., & Cable, N. (2018). Investigating the growing trend of non-drinking among young people; analysis of repeated cross-sectional surveys in England 2005–2015. *BMC Public Health*, 18(1), 1090.
- Frost, D. M., & Fingerhut, A. W. (2016). Daily exposure to negative campaign messages decreases same-sex couples' psychological and relational well-being. *Group Processes & Intergroup Relations*, 19(4), 477–492.
- Goodman, L. A., Corcoran, C., Turner, K., Yuan, N., & Green, B. L. (1998). Assessing traumatic event exposure: General issues and preliminary findings for the stressful life events screening questionnaire. *Journal of Traumatic Stress: Official Publication of the International Society for Traumatic Stress Studies*, 11(3), 521–542.
- Government Equalities Office (2018). *National LGBT survey: Research report*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/721704/LGBT-survey-research-report.pdf
- Gray, A. M., Horgan, G., & Leighton, A. (2013). *Moving towards a sexual orientation strategy for Northern Ireland*. Policy brief. Retrieved from <https://www.ark.ac.uk/ARK/sites/default/files/2018-01/pbso.pdf>
- Haas, A. P., Eliason, M., Mays, V. M., Mathy, R. M., Cochran, S. D., D'Augelli, A. R., ... Russell, S. T. (2010). Suicide and suicide risk in lesbian, gay, bisexual, and transgender populations: Review and recommendations. *Journal of Homosexuality*, 58(1), 10–51.
- Hatzenbuehler, M. L., Corbin, W. R., & Fromme, K. (2008). Trajectories and determinants of alcohol use among LGB young adults and their heterosexual peers: Results from a prospective study. *Developmental Psychology*, 44(1), 81.
- 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.
- Herek, G. M. (2009). Hate crimes and stigma-related experiences among sexual minority adults in the USA: Prevalence estimates from a national probability sample. *Journal of Interpersonal Violence*, 24(1), 54–74.
- Hicks, B. M., Blonigen, D. M., Kramer, M. D., Krueger, R. F., Patrick, C. J., Iacono, W. G., & McGue, M. (2007). Gender differences and developmental change in externalizing disorders from late adolescence to early adulthood: A longitudinal twin study. *Journal of Abnormal Psychology*, 116(3), 433.
- Jarman, N., & Tennant, A. (2003). *An acceptable prejudice? Homophobic violence and harassment in Northern Ireland*. Belfast: Institute for Conflict Research. Retrieved from file:///C:/Users/atravers/AppData/Local/Temp/An_Acceptable_Prejudice_Homophobic_Violence_and_Ha.pdf
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16(9), 606–613.
- Lagdon, S., Ross, J., Robinson, M., Contractor, A. A., Charak, R., & Armour, C. (2018). Assessing the mediating role of social support in childhood maltreatment and psychopathology among college students in Northern Ireland. *Journal of Interpersonal Violence*, 0886260518755489.
- Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, 83(404), 1198–1202. Retrieved from <https://www.jstor.org/stable/2290157>
- Löwe, B., Decker, O., Müller, S., Brähler, E., Schellberg, D., Herzog, W., & Herzberg, P. Y. (2008). Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. *Medical Care*, 46(3), 266–274.
- McAlister, S., Carr, N., & Neill, G. (2014). *Queering the Family: Attitudes towards lesbian and gay relationships and families in Northern Ireland*. Available at SSRN 2688000.
- McNamee, H., Lloyd, K., & Schubotz, D. (2008). Same sex attraction, homophobic bullying and mental health of young people in Northern Ireland. *Journal of Youth Studies*, 11(1), 33–46.
- Mereish, E. H., Lee, J. H., Gamarel, K. E., Zaller, N. D., & Operario, D. (2015). Sexual orientation disparities in psychiatric and drug use disorders among a nationally representative sample of women with alcohol use disorders. *Addictive Behaviors*, 47, 80–85.
- 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.

- Mortier, P., Auerbach, R. P., Alonso, J., Bantjes, J., Benjet, C., Cuijpers, P., ... O'Neill, S. (2018). Suicidal thoughts and behaviors among first-year college students: Results from the WMH-ICS project. *Journal of the American Academy of Child & Adolescent Psychiatry*, 57(4), 263–273.
- Morton, M. H., Dworsky, A., & Samuels, G. M. (2017). *Missed opportunities: Youth homelessness in America*. Chicago, IL: Chapin Hall at the University of Chicago.
- Munoz-Plaza, C., Quinn, S. C., & Rounds, K. A. (2002). Lesbian, gay, bisexual and transgender students: Perceived social support in the high school environment. *The High School Journal*, 85(4), 52–63. Retrieved from <https://www.jstor.org/stable/40364353>
- Mustanski, B., & Liu, R. T. (2013). A longitudinal study of predictors of suicide attempts among lesbian, gay, bisexual, and transgender youth. *Archives of Sexual Behavior*, 42(3), 437–448.
- Muthén, L. K., & Muthén, B. O. (1998–2017). *Mplus user's guide* (8th ed.). Los Angeles, CA: Muthén & Muthén.
- O'Doherty, J. (2009). *Through our eyes: Perceptions and experiences of lesbian, gay and bisexual people towards homophobic hate crime and policing in Northern Ireland*. Report produced for The Rainbow Project. Retrieved from <https://www.rainbow-project.org/Handlers/Download.ashx?IDMF=0f7bac61-c731-4a4b-8f03-f166c12085d8>
- O'Neill, S., McLafferty, M., Ennis, E., Lapsley, C., Bjourson, T., Armour, C., ... Murray, E. (2018). Socio-demographic, mental health and childhood adversity risk factors for self-harm and suicidal behaviour in College students in Northern Ireland. *Journal of Affective Disorders*, 239, 58–65.
- Office for National Statistics. (2013). *Opinions and lifestyle survey*. Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/compendium/opinionsandlifestylesurvey/2015-03-19>
- Office for National Statistics. (2017). *Alcohol-specific deaths in the UK: Registered in 2017*. Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/alcoholrelateddeathsintheunitedkingdom/registeredin2017>
- Pettit, J. W., Roberts, R. E., Lewinsohn, P. M., Seeley, J. R., & Yaroslavsky, I. (2011). Developmental relations between perceived social support and depressive symptoms through emerging adulthood: Blood is thicker than water. *Journal of Family Psychology*, 25(1), 127.
- Porter, J., & Williams, L. M. (2011). Intimate violence among underrepresented groups on a college campus. *Journal of Interpersonal Violence*, 26, 3210–3224.
- PSNI. (2019). *Incidents and crimes with a hate motivation recorded by the police in Northern Ireland: Update to 30 June 2019*. Retrieved from <https://www.psni.police.uk/globalassets/inside-the-psni/our-statistics/hate-motivation-statistics/2019-20/hate-motivation-bulletin-jun-19.pdf>
- Quiery, M. (2002). *A mighty silence: A report on the needs of lesbians and bisexual women in Northern Ireland*. Ballymena: LASI.
- Raifman, J., Moscoe, E., Austin, S. B., & McConnell, M. (2017). Difference-in-differences analysis of the association between state same-sex marriage policies and adolescent suicide attempts. *JAMA Pediatrics*, 171(4), 350–356.
- 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.
- Schubotz, D., & O'Hara, M. (2011). A shared future? Exclusion, stigmatization, and mental health of same-sex-attracted young people in Northern Ireland. *Youth & Society*, 43(2), 488–508.
- Spencer, S. M., & Patrick, J. H. (2009). Social support and personal mastery as protective resources during emerging adulthood. *Journal of Adult Development*, 16(4), 191–198.
- Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, 166(10), 1092–1097.
- Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). The ptsd checklist for dsm-5 (pcl-5). *Scale available from the National Center for PTSD at www.ptsd.va.gov*.
- Widaman, K. F., & Thompson, J. S. (2003). On specifying the null model for incremental fit indices in structural equation modeling. *Psychological Methods*, 8(1), 16.
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment*, 52(1), 30–41.
- Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. A. (1990). Psychometric characteristics of the multidimensional scale of perceived social support. *Journal of Personality Assessment*, 55(3–4), 610–617.