



## Research Article

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# An Exploration of the Psychological Benefits of Participation in LGBTQ Sport

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## Abstract

Participation in sport has well-established physical and psychological health benefits for athletes. Despite widespread research relating to the benefits of sport participation for heterosexual athletes, the potential physical and psychological benefits for LGBTQ athletes who participate in LGBTQ-specific sports are not well documented. Preliminary research indicates that sporting spaces are a rife with prejudice and discrimination against LGBTQ athletes, which places LGBTQ people at an increased risk of psychological stress and psychiatric morbidity as a result. This exploratory study investigates if participation in LGBTQ-sport is associated with psychological health, including well-being, depression, anxiety, and stress. A sample of 124 LGBTQ participants completed an anonymous online survey measuring dimensions of psychological well-being, sexual prejudice and discrimination, LGBTQ identity, group connectedness, perceived support, athletic identity and involvement in LGBTQ-exclusive sport. Contrary to expectations, time associated with the sporting club/team and hours spent training/associating with team members did not predict well-being, depression, anxiety, or stress. Perceived club/team connectedness significantly predicted wider LGBTQ community connectedness. Several factors including perceived social support, self-esteem, club/team and LGBTQ community connectedness, positive feelings toward being LGBTQ, and internalized sexual prejudice, significantly predicted psychological health in LGBTQ athletes. Findings suggest that dimensions of LGBTQ identity formation and integration, social support and LGBTQ club/team and community connectedness and self-esteem are particularly important elements of the psychological health of LGBTQ athletes.

**Keywords:** LGBTQ Sport; Athlete; Minority Stress; Psychological Health

## An Exploration of the Psychological Benefits of Participation in LGBTQ Sport

Athletes who are lesbian, gay, bisexual, transgender or queer (LGBTQ) and participate in mainstream sporting environments are often subjected to experiences of sexual prejudice (i.e., negative attitudes [conscious or non-conscious] towards an individual based on their sexual orientation; [1, 2]). In addition to negativity, this can include intolerance, discrimination, and exclusion [3-6]. A prominent international study of 9500 athletes reported that 55% of Australian LGBTQ-athletes (where this study was conducted) actively conceal their sexual identity for fears of bullying, rejection by teammates, and discrimination against by coaches and officials [7]. The stigma, discrimination, and sexual prejudice that LGBTQ athletes experience in mainstream sport is often a mirror of experiences encountered in other parts of their lives and it is these experiences that have been attributed to reported health disparities [8]. The

major aim of this exploratory paper is to examine how sets of theoretically relevant factors (e.g., identity factors, health and wellbeing factors) correlate with participation in sport for LGBTQ athletes.

### The Benefits to Sports Participation for LGBTQ Athletes

There are clear physical benefits to regular participation in physical activity. Research has demonstrated that regular physical activity helps prevent and treat common chronic diseases, such as cardiovascular disease, stroke, diabetes mellitus, depression, cancer, obesity, and osteoporosis [8], and is otherwise essential for overall good health [9]. Athletes, by definition, regularly participate in structured physical activities ranging from regular training to competitions, and they consistently (and unsurprisingly) experience enhanced physical health through sporting activity [10].

However, there are also psychological and social benefits to sport participation, including enhanced social connection, improved self-esteem, increases in 'feel good' hormones, and improvements to negative health symptomology, including reduced symptoms of stress and anxiety [9,11]. However, while substantial evidence exists highlighting the physical and mental health benefits that sport participation offers for heterosexual individuals, there is also evidence suggesting that the experiences of sexual prejudice endured by LGBTQ athletes in sport may actually serve to negate these benefits [4,12].

In recent years, Australia has witnessed an unprecedented surge in the formation of LGBTQ-specific sporting clubs, teams, and social and competitive sport-based competitions [4,13]. Studies have begun to investigate the underlying motivations for participation within these clubs in an attempt to understand this surge. Across such studies, an overarching and shared theme is the need for established 'safe' sporting spaces void of hegemonic masculinity, heteroaggression and sexual prejudice, where LGBTQ athletes can 'be themselves' without needing to conceal their sexual identity or be fearful of being 'outed' [4,14]. Other motivations include factors such as the desire to connect with other LGBTQ individuals and the LGBTQ community, increased support, formation of new friendships and romantic relationships, health and fitness, enhanced body image, and for coping with stress [4,9,13]. However, despite these findings, LGBTQ-exclusive sporting spaces have not been well described in the literature.

Limited research exists as to whether participation in LGBTQ-specific sport contributes to the psychological health of LGBTQ athletes [15]. One study of athletes who took part in the 1998 Gay Games reported that athletes experienced an enhanced sense of LGBTQ community connectedness and support, increased LGBTQ identity integration, increased pride in their sexuality, and increased self-esteem and well-being [4]. In addition, athletes reported using their involvement in the Gay Games as a platform to facilitate disclosure of their LGBTQ identity to friends and family [4, 16-18]. The purpose of this study is to extend the existing literature to explore whether participation in LGBTQ sports has the potential to deliver similar psychological benefits as mainstream sport, but for LGBTQ athletes. In order to understand and explore the benefits of LGBTQ sport participation, it is important to first understand the unique stressors faced by LGBTQ people.

## Minority Stress: Theory and Application to Sports Settings

Research indicates that the mental health and well-being disparities experienced by LGBTQ individuals can be explained using the concept of minority stress. Elaborating on social stress theories [19] defined the term 'minority stress' as a specific set of stressors that are uniquely experienced as part of being a minority group member. The minority stress framework suggests that mental health disparities are a product of living in a heterosexist environment characterized by anti-LGBTQ sentiment, stigma, and prejudice [20-22]. Furthermore, sexual minority groups are more likely to experience greater stress, conflict and social isolation as a result of social heterosexual-preferred expectations and norms [23-27]. Where social stress theory emphasizes external stressors such as discrimination and concealment of stigmatized sexual identity as primary forms of stress experienced by LGBTQ individuals, minori-

ty stress theory has expanded this to include internalization of stigmatized and heteronormative attitudes and beliefs in individuals who identify as LGBTQ [21,22,24].

Meyer's [34] minority stress model highlights three prominent and connecting forms of minority stress experienced by the LGBTQ community: internalized sexual prejudice; concealment of sexual identity; and stigma consciousness [28-30]. *Internalized sexual prejudice* is an internalization of society's homophobic attitudes and the adoption of negative global attitudes toward sexual minority groups [31-33]. Internalized sexual prejudice has been associated with low self-regard, self-deprecating attitudes, anxiety associated with disclosure of sexual orientation, discomfort with LGBTQ sexual activity and withdrawal from the LGBTQ community [33,34]. *Sexual identity concealment* is achieved through direct avoidance and minimizing of anti-LGBTQ discrimination in hostile environments by appearing aligned with heteronormative societal expectations [25]. Identity concealment has been reported to impede LGBTQ identity development resulting in stress from maintaining the distinction between private and social self, which is known to both cause psychological distress and exacerbate existing distress [35]. Individuals who are high in *stigma consciousness* believe that anti-LGBTQ stereotypes, attitudes and beliefs constantly permeate their interactions with others and that their stereotyped status is permanently fixed [29]. Additionally, research has shown that the continual strain of stigma consciousness depletes an individual's psychological and biological resources leading to poor physical and mental health [29,36]. Taken together, research suggests that internalized sexual prejudice, sexual identity concealment, and stigma consciousness can lead to a host of negative outcomes for LGBTQ individuals [28-30].

Minority stress has been shown to play a suppressive role in the development of a fully formed LGBTQ identity [37]. Research indicates that for those failing to effectively integrate their LGBTQ identity, they are at greater risk for anxiety, depression, psychological distress and suicide [38,39]. However, research suggests that individuals who are able to integrate their LGBTQ identities with other aspects of their life are better able to cope with discrimination and sexual prejudice if they embrace their LGBTQ identity, rather than denying or hiding it [37,40,41].

According to Meyer's [38] minority stress model, community support through the formation of social connections serves as a buffer against the negative effects of minority stress. Community connectedness, both perceived and through physical activism (e.g., volunteering), has been shown to help facilitate a more positive social identity, enhanced self-appraisal, as well as providing coping support against experiences of sexual prejudice [42]. Research has shown that group identification is a crucial predictor of well-being, and, through a possession of multiple group connections, one can protect themselves by increasing the chances that at least one established group connection will endure over time [36,41,43]. Establishing a personal connection with the LGBTQ community also has shown to be pivotal in sexual identity development and integration, assisting with identity disclosure, abatement of internalized sexual prejudice, and becoming sure of oneself and one's place in the world [38]. Consistent with Social Identity Theory [44], as LGBTQ individuals identify with their community via LGBTQ-specific groups, an assimilation of positive group norms and attitudes occurs that assists with the development of a more fully integrated

LGBTQ identity [42,45].

Previous research concerned with the psychological health of the LGBTQ community has particularly investigated the social support that comes from group identification and exposure [46,47]. For LGBTQ individuals, having a sense of belonging to the wider LGBTQ community has been linked with a range of positive outcomes, including better physical health, mental health and general well-being [47,48]. Research suggests that increased perceived support arising from LGBTQ group connectedness assists members of the LGBTQ community in coping with the unique stressors associated with sexual prejudice and stigma [48]. Indeed, the nature of the social support is important, with support provided through LGBTQ affiliated networks shown to be more effective for coping with minority stress compared with support offered from heterosexual peers and parents [49]. While not investigated in the specific LGBTQ context, mounting evidence suggests that sports participation is associated with an increased perception of connectedness and social support [46].

Besides social support, involvement in sport is likely to form an important part of one's identity [50]. Athletic identity has been described as the sport-specific portion of an athlete's multidimensional self-concept and is the degree to which an individual identifies with the sporting role and how the athlete searches for acknowledgment of that role through others [50,51]. Athletic identity forms through sports training, participation and the acquisition of skills, self-confidence, and social interactions. This identity has an important part to play in how one evaluates their competence and self-worth, which by extension may influence their psychological health and wellbeing [50]. Research has demonstrated that athletic identity is significantly negatively correlated with depression and suicidal behavior in athletes [52]. Athletic identity can also buffer against depression through the development of a prosocial athletic identity, which has been shown to mediate the relationship between team sports participation and depression [52]. As with social support literature, substantial research exists regarding the benefits of athletic identity. However, for LGBTQ athletes participating in LGBTQ-exclusive sport, the resulting benefits have not been investigated.

## The Present Study

The physical and psychological health outcomes through sports participation for athletes have been well documented, but there has been less consideration of these outcomes for LGBTQ athletes [15]. In addition, there exists little evidence as to whether participation in LGBTQ-specific sporting events and teams can contribute to the psychological health of LGBTQ athletes and how potential mediating factors may operate to support this. Additionally, previous research studies have tended to adopt qualitative methods of investigation. While the limited number of studies focused on LGBTQ athletes have found that LGBTQ-exclusive sporting spaces can provide both positive physical and mental health outcomes for LGBTQ athletes [7,9], more research is needed to examine the potential psychological benefits that LGBTQ sports participation offers for LGBTQ athletes. Therefore, this study seeks to expand the existing psychological health research of mainstream sporting environments to include that of the LGBTQ sporting community. This study will adopt an exploratory approach to investigate whether partici-

pation in LGBTQ sports has the potential to deliver similar psychological benefits as mainstream sport, but for LGBTQ athletes. The study will also consider what factors identified in the literature as being associated with better psychological health (higher well-being and lower depression, anxiety, and stress), such as perceived support, self-esteem, sexual identity disclosure, perceived stigma, LGBTQ identity integration, club and LGBTQ community connectedness and athletic identity, can explain psychological health in LGBTQ athletes. Specifically, based on reviews on the literature for both heterosexual and LGBTQ athletes and theories predicting the protective nature of social connectedness and identities [36,45], the following hypotheses will be examined:

*H1 - Exploring if Sports Participation Predicts Mental Health* - we predicted that greater amounts of time participating in sport and the length of time associated with the team/club would predict better mental health and wellbeing.

*H2 - Exploring if Community Connectedness Factors Predict Mental Health* - we predicted that increases in LGBTQ Community connectedness and club/team connectedness would predict better mental health and wellbeing.

*H3 - Exploring if LGBTQ and Athlete Identity Factors Predict Mental Health* - we predicted that increases in LGBTQ and/or athletic identity would predict better mental health and wellbeing.

*H4 - Exploring if Athlete Community Connectedness Predicts LGBTQ Community Connectedness* - we predicted that greater amounts of time participating in sport, length of time associated with the team/club, and athlete identity would predict LGBTQ community connectedness.

## Method

### Participants

Participants were adult ( $\geq 18$  years) LGBTQ athletes from across Australia who participated in a variety of sports. A total of 154 participants commenced the survey, however, 26 individuals did not provide data beyond answers to the screening and demographic questions and were excluded along with four participants who did not meet the screening criteria. The final sample consisted of 124 participants ( $M = 39.8$  years,  $SD = 11.5$ ), the majority of whom were male (86%) and identified as gay (83%).

### Measures

#### Demographics questions

The survey consisted of a series of demographic questions involving one initial set of screening questions to confirm participant's age as being at least 18 years, having an LGBTQ identity, and regular participation in sport. Additional items asked about gender, sexual identity, age, residential Australian state, type of LGBTQ sport participated in, length of time associated with sporting club or association, and hours per week spent interacting with their sporting club and its members. Demographic questions were predominantly open-ended but required only one- or two-word responses. Full characterizing of the sample is presented in Table 1, and the distribution of sports that participants were involved in are reported in Table 2.

**Table 1:** Descriptive Statistics for LGBTQ Athlete Participants.

	<b>n (%)</b>	<b>M (SD)</b>
<i>Sex presumed at birth</i>		
Male	109 (87.9)	
Female	14 (11.3)	
Not disclosed	1 (0.8)	
<i>Gender Identity</i>		
Male	107 (86.3)	
Female	12 (9.7)	
Gender Neutral	1 (0.8)	
Gender Fluid	1 (0.8)	
Non-Binary	2 (1.6)	
Two-Spirit	1 (0.8)	
<i>Age (years)</i>		39.78 (11.49)
<i>Sexual Identity</i>		
Lesbian	12 (9.7)	
Gay	103 (83.1)	
Bisexual	4 (3.2)	
Pansexual	1 (0.8)	
Asexual	1 (0.8)	
Demisexual	1 (0.8)	
Queer	1 (0.8)	
<i>State</i>		
Queensland	49 (39.5)	
New South Wales	35 (28.2)	
Western Australia	20 (16.1)	
Victoria	16 (12.9)	
South Australia	3 (2.4)	
<i>Time spent playing/associating with members per week (hours)</i>		5.07 (3.30)
<i>Time associated with club/team (months)</i>		
First Quartile	25 (20.0%)	
Second Quartile	22 (17.7%)	
Third Quartile	43 (34.6%)	
Fourth Quartile	31 (24.9)	

**Table 2:** Sport Type Description (N = 125).

<b>Sport</b>	<b>n (%)</b>
Badminton	6 (4.8)
Cycling	1 (0.8)
Dance	2 (1.6)
Dodgeball	2 (1.6)
Dragon Boat Racing	6 (4.8)
Hockey	1 (0.8)
Netball	1 (0.8)
Powerlifting	1 (0.8)
Rock Climbing	1 (0.8)
Roller Derby	1 (0.8)
Rugby	12 (9.6)
Running	13 (10.4)



Soccer	9 (7.2)
Squash	2 (1.6)
Swimming	17 (13.6)
Tennis	5 (4.0)
Touch Football	2 (1.6)
Track and Field	1 (0.8)
Volleyball	1 (0.8)
Water Polo	38 (30.4)
Wrestling	1 (0.8)

## Mental Health Variables (Outcome Measures)

### Well-being

The *PERMA Profiler* (Butler & Kern, 2016) measures general well-being by tapping into the five dimensions of positive emotion, engagement, relationships, meaning, and accomplishment. The PERMA Profiler well-being scale consists of 15 items, adopting an 11-point Likert-type response scale for each ranging from 0 (*Not at all/terrible/never*) to 10 (*Completely/always/excellent*), where respondents report their thoughts and feelings generally. Responses were averaged, with higher scores indicating greater well-being. The PERMA Profiler has consistently yielded strong estimates of reliability in the literature (e.g.,  $\alpha = .93$ ) [53], and there were good estimates of reliability in the current sample ( $\alpha = .89$ ).

### Depression, Anxiety, and Stress

The 21-item *Depression, Anxiety and Stress Scale* (DASS) [54] is a set of three self-report scales (seven items per subscale) designed to measure depression, anxiety, and stress symptoms over the last week on a 4-point Likert-type scale ranging from 0 (*did not apply to me at all*) to 3 (*applied to me very much or most of the time*). Individual subscale scores are calculated by summing the scores for the individual items and then multiplying by two to come to a final score, which can then be compared against the original 42-item DASS norms [54]. Higher scores indicate higher levels of relevant symptomology. The DASS-21 has also consistently yielded good estimates of reliability in the literature ( $\alpha$ s = .91, .80, and .84 for Depression, Anxiety, and Stress, respectively; [55]), and this was true again for the current sample ( $\alpha$ s = .94, .77, & .87, respectively).

## Connectedness, LGBTQ Identity, and Athlete Identity (Predictor Variables)

### Connectedness

The *Group Identity Scale GIS*: [56] was used to assess connected to both the sports team/club and the broader community LGBTQ. The GIS is a 4-item scale, with each item rated on a Likert-type scale with responses ranging from 1 (*I strongly disagree*) to 7 (*I strongly agree*). A factor score is calculated by summing scores for each item, with higher scores reflecting a greater sense of belonging with the relevant group. The scale has good reliability estimates reported in the literature ( $\alpha = .74$ ) [56], and also yielded good reliability estimates in the current sample (club connectedness:  $\alpha = .82$ ; LGBTQ community connectedness:  $\alpha = .95$ ).

### Internalised Sexual Prejudice

Internalised sexual prejudice was assessed using the *Internal-*

*ised Homophobia Scale* [57]. The scale contains eight items consisting of a four-point Likert-type scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Positively worded items were reverse scored, before a total factor score was calculated. Higher scores indicate greater internalised sexual prejudice. The internalised Homophobia Scale has good reliability estimates reported in the literature (e.g.,  $\alpha = .89$ ) [57], and yielded an acceptable reliability estimate in the current sample ( $\alpha = .71$ ).

### Sexual Identity Disclosure

Sexual identity disclosure was measured using the *Outness Inventory* [58]. The Outness Inventory is an 11-item scale designed to assess the degree to which LGBTQ individuals are open about their sexual orientation ranging on a Likert-type response scale from 1 (*definitely does not know/never talked about*) to 7 (*definitely knows/openly talked about*). A factor score was calculated by averaging the responses, with higher scores reflecting greater openness about one's sexual identity. The scale has good reliability estimates reported in the literature ( $\alpha = .83$ ) [59], and also yielded a good reliability estimate in the current sample ( $\alpha = .83$ ).

### LGBTQ Identity

The *Lesbian, Gay, and Bisexual Identity Scale* (LGBIS); [59] was utilized to measure the levels of LGBTQ identity of participants. The LGBIS is a 27-item Likert-type scale with responses ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Individual subscales are used to assess the dimensions of LGBTQ identity. Subscale scores are obtained by calculating the mean for each subscale. The scale has good reliability estimates reported in the literature (range of  $\alpha = .76$  to .89) [60], and also yielded good reliability estimates in the current sample (i.e., concealment motivation:  $\alpha = .70$ ; identity uncertainty:  $\alpha = .82$  difficult process:  $\alpha = .82$ ; acceptance concerns:  $\alpha = .76$ ; identity superiority:  $\alpha = .74$ ; identity centrality:  $\alpha = .85$ ; identity affirmation:  $\alpha = .85$ ). This scale has an additional subscale (internalised homonegativity), which we did not include since we already have a measure of internalised sexual prejudice.

### Athletic Identity

Athletic Identity was measured utilizing the 7-Item *Athletic Identity Measurement Scale* (AIMS) [61]. The AIMS is a 7-item measure adopting a Likert-type scale with responses ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). A factor score is obtained by summing all items, and higher scores reflect a stronger sense of athletic identity. The scale has good reliability estimates reported in the literature ( $\alpha = .81$  to .93) [51], and yielded a good reliability estimate in the current sample ( $\alpha = .92$ ).

## Procedure

The online survey tool SurveyMonkey was used to collect data. Participants were identified by contacting LGBTQ-specific sporting clubs across Australia. Sporting organizations that agreed to disseminate the study provided the relevant information to their members through their internal communication channels and so-

cial media platforms (e.g., Facebook). Potential participants were provided with a brief blurb and link to the anonymous online survey, where they were initially presented with an information sheet. Those who gave consent were re-directed to the survey, and completed the screening and demographic items, and then the remaining measures were presented in a randomized order. Upon completion, participants were thanked and debriefed.

## Results

### Data Cleaning and Preparation

**Table 3:** Normality Statistics (and Standard Errors) Before and After Square-Root Transformations

	Pre-transformation		Post-transformation	
	Skew (SE)	Kurtosis (SE)	Skew (SE)	Kurtosis (SE)
Well-being	-0.90 (0.22)	0.88 (0.44)	-0.38 (0.22)	-0.32 (0.44)
Depression	1.54 (0.23)	-2.18 (0.45)	0.66 (0.23)	-0.27 (0.45)
Anxiety	1.45 (0.23)	2.18 (0.45)	0.65 (0.23)	-0.35 (0.45)
Stress	0.69 (0.23)	0.16 (0.45)	-0.07 (0.23)	-0.57 (0.45)

Data was screened for univariate ( $z$  scores of  $\pm 3.29$ ) and multivariate (using Mahalanobis distance,  $p < .001$ ) outliers (Field, 2018). No multivariate outliers were detected, with nine univariate outlier cases identified and truncated. Next, the data were screened for normality of the distribution for the dependent variables. Well-being, depression, anxiety, and stress were all non-normally distributed, and square-root transformations were used in order to achieve normality (Table 3).

### Descriptive Statistics

Descriptive scores on measures are reported in Table 4, and the correlations between these variables are presented in Table 5. Regarding the sporting factors, the median time associated with a club was 24 months (range = 1 - 312 months), while the median amount

of time spent training or associating with teammates per week was reported as 4 hours (range: 1- 15 hours per week). The most frequently reported sports played were water polo (30%), swimming (13%), and running (10%, see Table 2 for full list).

The bivariate correlations analysis resulted in mostly anticipated relationships. For instance, the health and wellbeing variables were all interrelated, as were the variables around athletics (e.g., athletic identity, hours per week training, length of time in club/team). Of note, the connectedness variables (both LGBTQ and club/team connectedness) were correlated with the majority of other variables in the analysis. The various LGBTQ identity variables correlated with each other and the remaining variables in somewhat sporadic ways.

**Table 4:** Descriptive Findings for all Key Variables in Study.

Factor	Min	Max	M	SD
<i>Outcome variables</i>				
Well-being	2.27	9.53	7.07	1.45
Depression	0.00	40.00	8.03	8.85
Anxiety	0.00	24.00	4.60	5.09
Stress	0.00	34.00	10.69	7.47
<i>Predictor variables</i>				
LGBTQ Community Connectedness	4.00	28.00	20.12	5.61
Club/Team Connectedness	9.00	28.00	22.89	4.40
(Sexual identity) Disclosure				
Internalised Sexual Prejudice	0.83	7.00	3.67	1.01
Concealment Motivation*	3.00	18.00	9.99	3.45
Identity Uncertainty*	4.00	15.00	5.59	2.59
Difficult Process*	3.00	18.00	11.13	4.15
Acceptance Concerns*	3.00	18.00	9.69	3.74
Identity Superiority*	3.00	16.00	6.55	3.12
Identity Centrality*	5.00	30.00	20.68	5.51
Identity Affirmation*	6.00	18.00	14.64	2.59
Athletic Identity	11.00	44.00	27.58	7.66

**Note:** \*subscale of LGBIS scale, see [59] for a review.

## Regression Analyses

### Assumption Testing

Prior to running the regression analyses, several assumptions were tested. In line with the recommendations of Field (2018), for the present study Central Limit Theory suggests that approximate normality can be assumed (where,  $N > 30$ ) as the Shapiro-Wilk's test may demonstrate significant results regardless of normality in a sample of this size. Therefore, normality was confirmed through a visual assessment of Q-Q plots, box and whisker plots and frequency distributions, while collinearity was assessed by a scatterplot of residuals (Field, 2018).

### Hypothesis Testing

#### H1 - Exploring if Sports Participation Predicts Mental Health

In order to test Hypothesis 1 - that greater amounts of time participating in sport (hours per week) and the length of time associated with the team/club (months) would predict higher levels of mental health - four multivariate linear regressions were conducted. In this cluster of analyses, 'time associated with the club/team' and 'time spent training/associating with team members per week' served as independent variables, and the dependent variables for each regression were (1) well-being, (2) depression, (3)

anxiety, and (4) stress, respectively. Contrary to predictions, sport participation did not predict any of the outcomes of mental health (wellbeing:  $R^2 = .02$ ,  $F[4, 114] = 0.45$ ,  $p = .770$ ; depression:  $R^2 = .02$ ,  $F[4, 109] = 0.54$ ,  $p = .710$ ; anxiety:  $R^2 = .04$ ,  $F[4, 109] = 1.06$ ,  $p = .377$ ; stress:  $R^2 = .06$ ,  $F[4, 109] = 1.65$ ,  $p = .166$ ).

#### H2 - Exploring if Community Connectedness Factors Predict Mental Health

In order to investigate the second hypothesis - that connectedness to LGBTQ and sporting communities predicts wellbeing - four multivariate linear regressions were conducted. In this cluster of analyses, LGBTQ Community connectedness and club/team connectedness served as independent variables, and the dependent variables for each regression were (1) well-being, (2) depression, (3) anxiety, and (4) stress. In the case of wellbeing and depression, there were significant models of prediction. For wellbeing, both the predictors LGBTQ community connectedness ( $\beta = .32$ ,  $p = .001$ ) and club/team connectedness ( $\beta = .29$ ,  $p = .002$ ) significantly contributed to the model predicting well-being, however, for depression only LGBTQ community connectedness ( $\beta = -.29$ ,  $p = .005$ ) was a significant predictor. The model for anxiety was not significant (at the  $p < .01$  level:  $R^2 = .05$ ,  $F(2, 11) = 3.25$ ,  $p = .042$ ), and the model for stress was significant, however neither LGBTQ community connectedness nor club/team connectedness uniquely contributed to the model,  $R^2 = .11$ ,  $F(2, 113) = 6.60$ ,  $p = .002$ . Details are presented in Table 6.

**Table 5:** Bivariate Correlations between Key Variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Well-being	-																
2. Depression	<b>-.69**</b>	-															
3. Anxiety	<b>-.28**</b>	<b>.51**</b>	-														
4. Stress	<b>-.45**</b>	<b>.66*</b>	<b>.67**</b>	-													
5. LGBTQ Community Connectedness	<b>.49**</b>	<b>-.42**</b>	<b>-.22*</b>	<b>-.30**</b>	-												
6. Club/Team Connectedness	<b>.48**</b>	<b>-.40**</b>	<b>-.19*</b>	<b>-.27**</b>	<b>.57**</b>	-											
7. (Sexual identity) Disclosure	<b>.25**</b>	<b>-.19*</b>	-.07	-.14	<b>.25**</b>	<b>.19*</b>	-										
8. Internalised Sexual Prejudice	<b>-.43**</b>	<b>.39**</b>	.17	<b>.31**</b>	<b>-.46**</b>	<b>-.28**</b>	-.18	-									
9. Concealment Motivation*	<b>-.21*</b>	<b>.22*</b>	<b>.24*</b>	<b>.20*</b>	<b>-.19*</b>	-.07	<b>-.43**</b>		-								
10. Identity Uncertainty*	-.03	.16	.15	.09	<b>-.18*</b>	.01	-.13	<b>.36**</b>		-							
11. Difficult Process*	-.01	.13	.01	.13	-.09	.03	<b>-.21*</b>	<b>.29**</b>	.18	.15	-						
12. Acceptance Concerns*	<b>-.29**</b>	<b>.37**</b>	<b>.19*</b>	<b>.36**</b>	<b>-.20*</b>	<b>-.17*</b>	-.13	<b>.38**</b>	<b>.25**</b>	.02	<b>.34*</b>	-					
13. Identity Superiority*	-.06	<b>.22*</b>	.07	.08	.05	<.01	<.01	-.13	.04	-.02	-.07	<b>.20*</b>	-				
14. Identity Centrality*	.10	-.05	-.18	-.06	<b>.41**</b>	<b>.28**</b>	.12	<b>-.33**</b>	<b>-.32**</b>	<b>-.21*</b>	.08	.01	<b>.24**</b>	-			
15. Identity Affirmation*	<b>.49**</b>	<b>-.49**</b>	-.11	-.16	<b>.64**</b>	<b>.53**</b>	<b>.32**</b>	<b>-.50**</b>	<b>-.22*</b>	-.11	-.11	<b>-.33**</b>	.04	<b>.40**</b>	-		
16. Athletic Identity	.08	-.12	-.16	<b>-.20*</b>	-.17*	<b>-.21*</b>	-.09	.02	.03	-.11	-.04	.02	-.14	<b>-.22**</b>	<b>-.22**</b>	-	
17. Hours per week training/associating	-.05	.09	.10	.16	.15	.15	-.02	-.03	.10	-.01	.14	.02	-.03	<b>-.03</b>	<b>.19*</b>	<b>-.22*</b>	-
18. Length of time in club/team	.08	-.15	-.10	<b>-.26**</b>	.14	<b>.27**</b>	.06	<b>-.29**</b>	-.12	-.16	-.13	-.16	-.06	<b>.23*</b>	<b>.20*</b>	<b>-.22*</b>	<.01

**Notes:** \* reflects a subscale of the LGBIS [59]. Significant correlations presented in bold; \*\* $p < .01$ , \* $p < .05$  (2-tailed).

**Table 6:** Regression Analysis Summary for the Regression Models Predicting Mental Health from Community Connectedness Factors.

Outcome	Variable	B	SE (BE)	$\beta$	t	p	F	df	p
Wellbeing	(Constant)	2.03	7.77				24.50	2	<.001
	LGBTQ community connectedness	1.06	0.32	0.32	3.37	.001			
	Club/team connectedness	1.25	0.40	0.29	3.1	.002			
Depression	(Constant)	5.77	0.61				15.45	5	<.001
	LGBTQ Community Connectedness	-0.07	0.03	-0.29	-2.86	.005			
	Club/team Connectedness	-0.07	0.03	-0.23	-2.27	.025			
Anxiety	(Constant)	3.24	0.49				3.25	2	.042
	LGBTQ Community Connectedness	-0.03	0.02	-0.17	-1.5	.137			
	Club/team Connectedness	-0.02	0.03	-.09	-0.83	.406			
Stress	(Constant)	5	0.55				6.60	2	.002
	LGBTQ Community Connectedness	-0.04	0.02	-0.21	-1.94	.055			
	Club/team Connectedness	-0.04	0.03	-0.15	-1.41	.162			

### H3 - Exploring if LGBTQ and Athlete Identity Factors Predict Mental Health

Prior to investigating the third hypothesis - that LGBTQ and athlete identity factors would predict wellbeing - four multivariate linear regressions were conducted. In this cluster of analyses, there were ten factors that could serve as independent variables (i.e., nine LGBTQ identity factors: Outness, internalised sexual prejudice, and the seven subscales of the LGBIS [i.e., concealment motivation, identity uncertainty, difficult process, acceptance concerns, identity superiority, identity centrality, identity affirmation]), and the dependent variables for each regression were (1) well-being, (2) depression, (3) anxiety, and (4) stress. However, we deemed that the independent variables should be excluded from specific analyses in the instance that they were unrelated to the dependent variables. To be specific, we ran a series of correlation analyses on all relevant (continuous) independent variables to select which of these variables would be included in each regression model, and only those with statistically significant bivariate correlations (at  $p < .05$ ) were included in each analysis (i.e., any predictor variable that correlated with a particular dependent variable was included in the regression model for that dependent variable only). The different number of independent variables in each analysis can be seen in (Table 7) and are reflected in the varying degrees of freedom per analysis.

In the case of wellbeing, five independent variables were included in the model. Here, internalised sexual prejudice was a significant predictor of worse well-being ( $\beta = -.21, p = .033$ ) and identity affirmation was found to be a significant predictor of better well-being ( $\beta = .32, p = .002$ ). Disclosure, acceptance concerns, and concealment motivation were not significant contributors to the model. In the care of depression, the same five independent variables were included in the model. Here, identity affirmation

predicted less depression symptomology ( $\beta = -.32, p = .002$ ) and acceptance concerns predicted more depression symptomology ( $\beta = .21, p = .025$ ). Disclosure, internalised sexual prejudice, and concealment motivation were again not significant contributors to the model. In the case of anxiety, two independent variables were included in the model. Here, concealment motivation ( $\beta = .21, p = .032$ ) was a predictor of more anxiety symptomology. Acceptance concerns were not significant contributors to the model. In the care of stress, four independent variables were included in the model. Here, athletic identity ( $\beta = -.22, p = .011$ ) predicted less stress symptomology while, acceptance concerns ( $\beta = .27, p = .005$ ) and internalised sexual prejudice ( $\beta = .20, p = .034$ ) predicted more stress symptomology. Concealment motivation was not significant contributors to the model.

### H4 - Exploring if Athlete Community Connectedness Predicts LGBTQ Community Connectedness

In Order to investigate the fourth hypothesis - that club/team connectedness significantly predicted LGBTQ community connectedness - we conducted a multiple linear regression. In this model, club/team connectedness (operationalized using the measures of club/team connectedness; GIS [56]), time associated with the club, and hours per week spent training/interacting with team members served as the independent variables, and LGBTQ community connectedness served as the dependent variable. The analysis revealed that the model explained 35.5% of the variance and that the model was a significant predictor of LGBTQ community connectedness ( $R^2 = .36, F(5, 114) = 12.54, p < .001$ ). Of the individual predictors, club/team connectedness was the only significant predictor in the model ( $\beta = .73, p < .001$ ), predicting greater levels of LGBTQ community connectedness.



**Table 7:** Regression Analysis Summary for the Psychological Health Predictor Models.

Outcome	Variable	B	SE (BE)	$\beta$	t	p	F	df	p
Wellbeing	(Constant)	29.38	15.52				9.11	5	<.001
	Sexual Disclosure	1.58	1.72	0.09	0.92	.359			
	Internalised Sexual Prejudice	-0.84	0.39	-0.21	-2.17	.033			
	Acceptance Concerns	-0.43	0.45	-0.09	-1.00	.341			
	Concealment Motivation	-0.13	0.50	-0.02	-0.25	.805			
	Identity Affirmation	2.31	0.71	0.32	3.26	.002			
Depression	(Constant)	3.88	1.16				8.40	5	<.001
	Sexual Disclosure	-0.03	0.13	-0.02	-0.23	.823			
	Internalised Sexual Prejudice	0.03	0.03	0.11	1.11	.269			
	Acceptance Concerns	0.08	0.03	0.21	2.28	.025			
	Concealment Motivation	0.02	0.04	0.05	0.57	.570			
	Identity Affirmation	-0.17	0.05	-0.32	-3.22	.002			
Anxiety	(Constant)	1.19	0.33				4.54	2	.013
	Acceptance Concerns	0.04	0.03	0.13	1.48	.142			
	Concealment Motivation	0.06	0.03	0.21	2.18	.032			
Stress	(Constant)	2.36	0.51				7.67	4	<.001
	Athletic Identity	-0.03	0.01	-0.22	-2.58	.011			
	Internalised Sexual Prejudice	0.05	0.02	0.20	2.15	.034			
	Acceptance Concerns	0.08	0.03	0.27	2.86	.005			
	Concealment Motivation	0.03	0.03	0.09	1.01	.313			

## Discussion

The present study aimed to extend existing psychological health research from the heteronormative mainstream sporting environment to include that of the Lesbian, Gay, Bisexual, Transgender and Queer (LGBTQ) sporting community. This research specifically sought to determine whether LGBTQ athletes participating in LGBTQ-specific sporting environments experience similar psychological health and well-being benefits that their heterosexual peers receive through sports participation and what factors, if any, that may facilitate this.

Contrary to expectations, the study did not support the first hypothesis that well-being, depression, anxiety, and stress in LGBTQ athletes can be predicted by time associated with a LGBTQ-specific sporting club and intensity of participation. The finding that neither the length of time associated with the club/team nor that time spent playing/associating with team members significantly predicted increased well-being or decreased levels of depression, anxiety and stress was unexpected in the light of previous work [9,51,52], although we concede that the vast majority of existing evidence is based on heterosexual and cisgender athletes, and this simply might not generalise to LGBTQ athletes. There are several potential explanations for this finding. Firstly, it is possible that LGBTQ individuals choosing to participate in LGBTQ-specific sport already have heightened base-line levels of well-being and lower

levels of depression, anxiety, and stress preceding their engagement in sport, which was demonstrated in this study where participants scored on the higher end of the scale measuring well-being and lower on scales measuring depression, anxiety and stress, which we would need a comparison group (of non-LGBTQ athletes) to be able to verify. Another possibility is that improvements in psychological health through sport participation may occur rapidly during the initial stages of sports participation and thereafter may plateau and not significantly alter further. Indeed, participants in the sample had participated in sport for many years. It is also possible that generational (cohort) influences may be impacting the findings. The present sample had a diverse age spread and it may be that older and younger athletes differ in their overall levels of well-being, depression, anxiety and stress at the onset of sports participation. Furthermore, it may be that younger athletes psychological health may continue to develop with sports participation whereas older athletes may have pre-established higher levels of psychological health derived from other areas of their lives [42].

Examining the predictors of psychological health in the sample for the second and third hypotheses, several factors significantly predicted LGBTQ athlete psychological health, which was measured by levels of well-being, depression, anxiety and stress. In the case of hypothesis 2, wellbeing and (less) depression were both predicted by greater connectedness to club/team and LGBTQ community, aligning well with theories that posit social identity and social

connection are protective against health and wellbeing [36,45]. Utilizing the minority stress model [22] to explain this finding, club/team and LGBTQ community connectedness may serve as a buffer against the negative effects of minority stress by providing avenues of support and, therefore, reducing an individual's stress level and promoting overall psychological health [38]. Previous work has found that by joining a sporting club, the individual expands their social support network through the formation of new friendships, social connections and relationships [43].

In terms of identity-based predictors, the LGBTQ identity factors were good predictors (albeit the sub-constructs acted differently to each other in these models), aligning with theories of minority stress, identity development, and social identity theory [21,22,33,44]. Identity affirmation emerged as perhaps the most consistent protective factor (aligning with recent theoretical and meta-analytical work; [61-63]). Intuitively, this is not surprising, as the measure identity affirmation taps into a sense of group connectedness, feelings of pride and positive affect toward the group (in this case, the LGBTQ club/team and also the wider LGBTQ community). This process is described in Cass's (1979) Homosexual Identity Model and is synonymous with the stage 'identity pride', which has been demonstrated to play a role in the development of a person's self-esteem. Additionally, concealment motivation and acceptance concerns tap into worry about social stigmatization and social acceptance which, when viewed in light of the minority stress model [22], could explain how this leads to increased stress and reduced psychological health. Interestingly, and in contrast with propositions in the literature, identity disclosure was unrelated to health and well-being, suggesting that LGBTQ athletes are not impacted by being 'in the closet' [64].

The fourth hypothesis that club/team connectedness would significantly predict LGBTQ community connectedness, was supported by the analyses. Greater club/team connectedness was found to be a significant predictor of greater LGBTQ community connectedness. Support for this hypothesis may strengthen claims that involvement in LGBTQ-specific sporting clubs/teams fosters LGBTQ community connections leading to an increase in perceived wider LGBTQ community connectedness. In line with Social Identity Theory [44], it may be that in joining a sporting club the novice member learns and absorbs the norms and rules of the club. In this instance, the club is part of the LGBTQ community and is made up of LGBTQ athletes who inherently demonstrate not only the norms and rules of a sporting club but also the norms and rules of the wider LGBTQ community. It is through this affiliation that new members may discover their LGBTQ place among the greater LGBTQ community.

Interestingly, while the length of time associated with a club/team was shown to be positively and significantly correlated to club/team connectedness at the bivariate level, it did not significantly add to the predictor model when included with other variables in predicting LGBTQ connectedness. There are several potential explanations for this. Firstly, it is possible that LGBTQ community connectedness precedes sport participation and, therefore, precedes club/team connectedness. For example, there may exist a somewhat reciprocal relationship between the LGBTQ com-

munity and LGBTQ-exclusive sporting clubs, where established members of the LGBTQ community may seek out sport as a pleasurable activity or perhaps to extend their social circle with LGBTQ peers. Alternately, individuals who may be in the developmental stage of their LGBTQ identity may use LGBTQ-exclusive sport as an 'introductory' stage or initial platform to enter the LGBTQ community. However, it could also be that LGBTQ club/team connectedness occurs at approximately the same rate as LGBTQ community connectedness as the LGBTQ club itself is essentially an extension of the wider LGBTQ community and therefore there may be no real difference between the two groups.

## Limitations

There are several limitations to this study that should be considered when interpreting the findings. Firstly, there were significantly more respondents who were male and who identified as gay, with women and other sexual identities being underrepresented. Future studies would benefit from attempting to recruit a wider cross-section of the LGBTQ community in order to obtain a more representative sample. The sample was also relatively small (and so analyses could be under-powered) and included participants from quite diverse sports and player experience. This made it difficult to examine differences between groups in the data. Finally, the study was cross-sectional in design, and so the direction and causal nature of these relationships could not be inferred. In spite of these findings, this study is amongst the first to consider the psychological health of LGBTQ athletes participating in LGBTQ sporting environments.

## Conclusion

The present study sought to expand the existing psychological health research of mainstream sporting environments to include that of the LGBTQ sporting community. The study investigated whether participation in LGBTQ sports could deliver psychological benefits for LGBTQ athletes. Findings were mixed, with degree of participation in LGBTQ sport not significantly associated with the psychological health of LGBTQ athletes. However, the study did reveal that people with more fully integrated LGBTQ identities, and greater club/team and LGBTQ community connectedness, reported better psychological health and well-being. Taken together, the findings suggest that the psychological health of LGBTQ athletes may have less to do with participating in sport itself but rather relate to individual and social factors that participation in sport promotes, such as LGBTQ identity formation and integration, support and feelings of connectedness. As LGBTQ sport and psychological health is an emerging field of interest, future research could consider longitudinal aspects of research such as tracking athletes over time and perhaps examining generational differences when studying the LGBTQ sporting community. Such investigations are likely to be of particular interest to psychologists, government LGBTQ health initiatives, LGBTQ sporting clubs and the wider LGBTQ community.

## Ethics

The study was approved by the CQUniversity Human Research Ethics Committee (ethics approval number 2019-082).

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## Conflict of interest

No conflict of interest.

## References

- Anderson JR, de la Piedad Garcia X, Falomir-Pichastor JM, Kaufmann LM (2023) Disentangling gender-based attitudes from sexuality-based attitudes: The person-based approach to measuring implicit attitudes toward gay men and lesbian women. *Journal of Homosexuality* 7: 1-34. <https://doi.org/10.1080/00918369.2023.2233657>
- Herek GM, McLemore KA (2013) Sexual prejudice. *Annual Review of Psychology* 64: 309-333. <https://doi.org/10.1146/annurev-psych-113011-143826>
- Elling A, Janssens J (2009) Sexuality as a structural principle in sport participation; Negotiating sports spaces. *International Review for the Sociology of Sport* 44(1): 71-86. <https://doi.org/10.1177/1012690209102639>
- Krane V, Barber H, McClung LR (2002) Social psychological benefits of Gay Games participation: A social identity theory explanation. *Journal of Applied Sport Psychology* 14(1): 27-42. <https://doi.org/10.1080/10413200209339009>
- O'Brien KS, Shovelton H, Latner JD (2013) Homophobia in physical education and sport: The role of physical/sporting identity and attributes, authoritarian aggression, and social dominance orientation. *International Journal of Psychology* 48(5): 891-899. <https://doi.org/10.1080/00207594.2012.713107>
- Zamboni B, Crawford I, Carrico A (2008) Predictors of sports motivation among gay and bisexual men. *Journal of Homosexuality* 54(4): 449-468. <https://doi.org/10.1080/00918360801991539>
- Denison E, Kitchen A (2015) *Out on the fields: The first international study on homophobia in sport*. Retrieved from Retrieved from www.outonthefields.com
- Miller KR, McClave SA, Jampolis MB, Hurt RT, Krueger K, et al. (2016) The health benefits of exercise and physical activity. *Current Nutrition Reports* 5: 204-212. <https://doi.org/10.1007/s13668-016-0175-5>
- Eime RM, Young J, Harvey J, Charity M, Payne W (2013) A systematic review of the psychological and social benefits of participation in sports for adults: Informing development of a conceptual model of health through sport. *International Journal of Behavioral Nutrition and Physical Activity* 10(135): 14-28. <https://doi.org/10.1186/1479-5868-10-135>
- Malm C, Jakobsson J, Isaksson A (2019) Physical activity and sports - real health benefits: a review with insight into the public health of Sweden. *Sports* 7(5): 127-155. <https://doi.org/10.3390/sports7050127>
- Asztalos M, Wijndaele K, De Bourdeaudhuij I, Philippaerts R, Matton L, et al. (2009) Specific associations between types of physical activity and components of mental health. *Journal of Science and Medicine in Sport* 12(4): 468-474. <https://doi.org/10.1016/j.jsams.2008.06.009>
- Baiocco R, Pistella J, Salvati M, Ioverno S, Lucidi F (2018) Sports as a risk environment: Homophobia and bullying in a sample of gay and heterosexual men. *Journal of Gay & Lesbian Mental Health* 22(4): 385-411. <https://doi.org/10.1080/19359705.2018.1489325>
- Jones L, McCarthy M (2010) Mapping the landscape of gay men's football. *Leisure Studies* 29(2): 161-173. <https://doi.org/10.1080/02614360903261487>
- Place G, Livengood J (2018) Motivation to participate in recreation/sport for gay athletes. *Journal of Physical Education and Sports Management* 5(1): 1-9. <https://doi.org/10.15640/jpesm.v5n1a1>
- Kulick A, Wernick LJ, Espinoza MAV, Newman TJ, Dessel AB (2018) Three strikes and you're out: Culture, facilities, and participation among LGBTQ youth in sports. *Sport, Education and Society* 24(9): 939-953. <https://doi.org/10.1080/13573322.2018.1532406>
- Baiocco R, Laghi F, Di Pomponio I, Nigito CS (2012) Self-disclosure to the best friend: Friendship quality and internalized sexual stigma in Italian lesbian and gay adolescents. *Journal of Adolescence* 35(2): 381-387. <https://doi.org/10.1016/j.adolescence.2011.08.002>
- Harrison TW (2003) Adolescent homosexuality and concerns regarding disclosure. *The Journal of School Health* 73(3): 107-112. <https://doi.org/10.1111/j.1746-1561.2003.tb03584.x>
- Legate N, Ryan RM, Weinstein N (2012) Is coming out always a "good thing"? Exploring the relations of autonomy support, outness, and wellness for lesbian, gay, and bisexual individuals. *Social Psychological and Personality Science* 3: 145-152. <https://doi.org/10.1177/1948550611411929>
- Lazarus RS, Folkman S (1984) *Stress, appraisal, and coping*. Springer publishing company.
- Flentje A, Heck NC, Brennan JM, Meyer IH (2020) The relationship between minority stress and biological outcomes: A systematic review. *Journal of Behavioral Medicine* 43(5): 673-694.
- Frost DM, Meyer IH (2023) Minority stress theory: Application, critique, and continued relevance. *Current Opinion in Psychology* 51: 101579. <https://doi.org/10.1016/j.copsyc.2023.101579>
- Meyer IH (2003) Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychological Bulletin* 129(5): 674-697. <https://doi.org/10.1037/0033-2909.129.5.674>
- Anderson JR, Koc Y (2020) Identity integration as a protective factor against guilt and shame for religious gay men. *The Journal of Sex Research* 57(8): 1059-1068. <https://doi.org/10.1080/00224499.2020.1767026>
- Bruce D, Harper GW, Bauermeister JA (2015) Minority stress, positive identity development, and depressive symptoms: Implications for resilience among sexual minority male youth. *Psychology of Sexual Orientation and Gender Diversity* 2(3): 287-296. <https://doi.org/10.1037/sgd0000128>
- Morandini JS, Blaszczyński A, Dar-Nimrod I, Ross MW (2015) Minority stress and community connectedness among gay, lesbian and bisexual Australians: A comparison of rural and metropolitan localities. *Australian and New Zealand Journal of Public Health* 39(3): 260-266. <https://doi.org/10.1111/1753-6405.12364>
- Tan KJ, Anderson JR (2024) Internalized Sexual Stigma and Mental Health Outcomes for Gay, Lesbian, and Bisexual Asian Americans: The Moderating Role of Guilt and Shame. *International Journal of Environmental Research and Public Health* 21(4): 384-397. <https://doi.org/https://doi.org/10.3390/ijerph21040384>
- Timmins L, Rimes KA, Rahman Q (2020) Minority stressors, rumination, and psychological distress in lesbian, gay, and bisexual individuals. *Archives of Sexual Behavior* 49(2): 661-680. <https://doi.org/10.1007/s10508-019-01502-2>
- Cohen JM, Blasey C, Taylor CB, Weiss BJ, Newman MG (2016) Anxiety and related disorders and concealment in sexual minority young adults. *Behavior Therapy* 47(1): 91-101. <https://doi.org/10.1016/j.beth.2015.09.006>
- Figueroa WS, Zoccola PM (2015) Individual differences of risk and resiliency in sexual minority health: The roles of stigma consciousness and psychological hardness. *Psychology of Sexual Orientation and Gender Diversity* 2(3): 329-338. <https://doi.org/10.1037/sgd0000114>
- Newcomb ME, Mustanski B (2011) Moderators of the relationship between internalized homophobia and risky sexual behavior in men who have sex with men: A meta-analysis. *Archives of Sexual Behavior* 40(1): 189-199. <https://doi.org/10.1007/s10508-009-9573-8>



31. Anderson JR, Maugeri J (2024) A systematic literature review and meta-analysis of internalized sexual prejudice for bi+ people. *Psychology of Sexual Orientation and Gender Diversity*.
32. Barnes DM, Meyer IH (2012) Religious affiliation, internalized homophobia, and mental health in lesbians, gay men, and bisexuals. *American Journal of Orthopsychiatry* 82(4): 505-515. <https://doi.org/10.1111/j.1939-0025.2012.01185.x>
33. Nguyen J, Anderson JR, Pepping CA (2023) A systematic review and research agenda of internalized sexual stigma in sexual minority individuals: Evidence from longitudinal and intervention studies. *Clinical Psychology Review* 108: 102376. <https://doi.org/https://doi.org/10.1016/j.cpr.2023.102376>
34. Meyer IH (1995) Minority stress and mental health in gay men. *Journal of Health and Social Behavior* 36(1): 38-56. <http://www.jstor.org/stable/2137286>
35. Leleux-Labarge K, Hatton AT, Goodnight BL, Masuda A (2015) Psychological distress in sexual minorities: Examining the roles of self-concealment and psychological inflexibility. *Journal of Gay & Lesbian Mental Health* 19(1): 40-54. <https://doi.org/10.1080/19359705.2014.944738>
36. Hinton JD, De la Piedad Garcia X, Kaufmann LM, Koc Y, Anderson JR (2022) A systematic and meta-analytic review of identity centrality among LGBTQ groups: An assessment of psychosocial correlates. *The Journal of Sex Research* 59(5): 568-586. <https://doi.org/https://doi.org/10.1080/00224499.2021.1967849>
37. Rosario M, Schrimshaw EW, Hunter J (2011) Different patterns of sexual identity development over time: Implications for the psychological adjustment of lesbian, gay, and bisexual youths. *Journal of Sex Research* 48(1): 3-15. <https://doi.org/10.1080/00224490903331067>
38. Frost DM, Meyer IH (2012) Measuring community connectedness among diverse sexual minority populations. *Journal of Sex Research* 49(1): 36-49. <https://doi.org/10.1080/00224499.2011.565427>
39. White D, Stephenson R (2014) Identity formation, outness, and sexual risk among gay and bisexual men. *American Journal of Men's Health* 8(2): 98-109. <https://doi.org/10.1177/155798831348913>
40. Anderson JR, Kiernan E, Koc Y (2023) The protective role of identity integration against internalized sexual prejudice for religious gay men. *Psychology of Religion and Spirituality* 15(3): 379-388. <https://doi.org/10.1037/rel0000452>
41. Jetten J, Haslam C, Haslam SA, Branscombe NR (2009) The social cure. *Scientific American Mind* 20(5): 26-33. <https://doi.org/10.1038/scientificamericanmind0909-26>
42. Kertzner RM, Meyer IH, Frost DM, Stirratt MJ (2009) Social and psychological well-being in lesbians, gay men, and bisexuals: The effects of race, gender, age, and sexual identity. *American Journal of Orthopsychiatry* 79(4): 500-510. <https://doi.org/10.1037/a0016848>
43. Wakefield JRH, Sani F, Madhok V, Norbury M, Dugard P, et al. (2017) The relationship between group identification and satisfaction with life in a cross-cultural community sample. *Journal of Happiness Studies* 18(3): 785-807. <https://doi.org/10.1007/s10902-016-9735-z>
44. Tajfel H, Turner JC (1979) An integrative theory of intergroup conflict. In W. G. Austin & S. Worschel (Eds.), *The social psychology of intergroup relations*. Brooks/Cole pp: 33-47.
45. Jetten J, Haslam SA, Cruwys T, Greenaway KH, Haslam C, et al. (2017) Advancing the social identity approach to health and well-being: Progressing the social cure research agenda. *European Journal of Social Psychology* 47(7): 789-802. <https://doi.org/10.1002/ejsp.2333>
46. Hoyer R, Nicholson M, Brown K (2015) Involvement in sport and social connectedness. *International Review for the Sociology of Sport* 50(1): 3-21. <https://doi.org/10.1177/1012690212466076>
47. Nicholson M, Brown K, Hoyer R (2013) Sport's social provisions. *Sport Management Review* 16(2): 148-160. <https://doi.org/10.1016/j.smr.2012.08.003>
48. Frost DM, Meyer IH, Schwartz S (2016) Social support networks among diverse sexual minority populations. *American Journal of Orthopsychiatry* 86(1): 91-102. <https://doi.org/10.1037/ort0000117>
49. Doty ND, Willoughby BL, Lindahl KM, Malik NM (2010) Sexuality related social support among lesbian, gay, and bisexual youth. *Journal of Youth and Adolescence* 39(10): 1134-1147. <https://doi.org/10.1007/s10964-010-9566-x>
50. Brewer BW, Van Raalte JL, Linder DE (1993) Athletic identity: Hercules' muscles or Achilles heel? *International Journal of Sport Psychology* 24(2): 237-254.
51. Tasiemski T, Brewer BW (2011) Athletic identity, sport participation, and psychological adjustment in people with spinal cord injury. *Adapted Physical Activity Quarterly* 28(3): 233-250. <https://doi.org/10.1123/apaq.28.3.233>
52. Miller KE, Hoffman JH (2009) Mental well-being and sport-related identities in college students. *Sociology of Sport Journal* 26(2): 335-356. <https://doi.org/10.1123/ssj.26.2.335>
53. Ryan J, Curtis R, Olds T, Edney S, Vandelanotte C, et al. (2019) Psychometric properties of the PERMA Profiler for measuring wellbeing in Australian adults. *PLoS one* 14(12): e0225932. <https://doi.org/10.1371/journal.pone.0225932>
54. Lovibond PF, Lovibond SH (1995) The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy* 33(3): 335-343.
55. Sinclair SJ, Siefert CJ, Slavin-Mulford JM, Stein MB, Renna M, et al. (2012) Psychometric evaluation and normative data for the depression, anxiety, and stress scales-21 (DASS-21) in a nonclinical sample of US adults. *Evaluation & the Health Professions* 35(3): 259-279. <https://doi.org/10.1177/0163278711424282>
56. Sani F, Madhok V, Norbury M, Dugard P, Wakefield JR (2015) Greater number of group identifications is associated with healthier behaviour: Evidence from a Scottish community sample. *British Journal of Health Psychology* 20(3): 466-481. <https://doi.org/10.1111/bjhp.12119>
57. Puckett JA, Newcomb ME, Ryan DT, Swann G, Garofalo R, et al. (2017) Internalized homophobia and perceived stigma: A validation study of stigma measures in a sample of young men who have sex with men. *Sexuality Research and Social Policy* 14(1): 1-16. <https://doi.org/10.1007/s13178-016-0258-5>
58. Mohr J, Fassinger R (2000) Measuring dimensions of lesbian and gay male experience. *Measurement and Evaluation in Counseling and Development* 33(2): 66-90. <https://doi.org/10.1037/t07099-000>
59. Mohr JJ, Kendra MS (2011) Revision and extension of a multidimensional measure of sexual minority identity: The Lesbian, Gay, and Bisexual Identity Scale. *Journal of Counseling Psychology* 58(2): 234-245. <https://doi.org/10.1037/a0022858>
60. de Oliveira JM, Lopes D, Costa CG, Nogueira C (2012) Lesbian, Gay, and Bisexual Identity Scale (LGBIS): Construct validation, sensitivity analyses and other psychometric properties. *The Spanish Journal of Psychology* 15(1): 334-347. [https://doi.org/10.5209/rev\\_SJOP.2012.v15.n1.37340](https://doi.org/10.5209/rev_SJOP.2012.v15.n1.37340)
61. Brewer BW, Cornelius AE (2001) Norms and factorial invariance of the Athletic Identity Measurement Scale (AIMS). *Academic Athletic Journal* 15: 103-114. <https://hdl.handle.net/2097/43141>
62. Cavarra R, Pepping CA, Anderson JR (2024a) Factors associated with sexual minority identity affirmation: A quantitative meta-analysis. *Psychology of Sexual Orientation and Gender Diversity, Manuscript under review*.
63. Cavarra R, Pepping CA, Anderson JR (2024b) How does social support affirm identity in LGBQ adults?: A qualitative exploration. *Sexuality Research and Social Policy, Manuscript under review*.
64. Kaufmann LM, Williams B, Hosking W, Anderson J, Pedder DJ (2015) Identifying as in, out, or sexually inexperienced: Perception of sex-related personal disclosures. *Sensoria: A Journal of Mind, Brain & Culture* 11(1): 28-40.