

Minority stressors and the life satisfaction of sexual minority adults

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Abstract

According to minority stress theory, minority stressors (e.g., discrimination, internalized homophobia) negatively impact sexual minorities' life satisfaction by acting as an additional burden to general stress. Individual differences in their life satisfaction are thought to be related to the frequency of minority stress. Despite these adverse effects, minority stress theory suggests that social support, LGBTQ+ community connectedness, and the centrality of one's sexual identity to the self may moderate these impacts. We tested the assumptions of minority stress theory by examining the effects of three external (discrimination, stigmatization, victimization), two internal (internalized homophobia, identity concealment), and a measure of general stress on life satisfaction in an American sample of 1507 sexual minority adults. We additionally examined the moderating role of the aforementioned moderators highlighted in minority stress theory. We conducted a mega-analysis using specification curve analysis to estimate multiple linear regression models to examine the robustness of all these effects. We found that discrimination, stigmatization, and identity concealment negatively impacted life satisfaction. Minority stressors did, however, explain additional variance in life satisfaction when accounting for more general stress. Finally, we found that proposed moderators played no role in the influence of minority stressors. Discussion centers around our findings of minority stress and contextualizing sexual minority experiences.

Keywords: minority stress, life satisfaction, sexual minorities, social support, community connectedness, identity centrality

Minority stressors and the life satisfaction of sexual minority adults

Promoting the life satisfaction of sexual minorities has become of increased concern. Given that the consequences of lower life satisfaction transcend many aspects of people's lives including poorer health and relationship and occupation success (e.g., Gómez-López et al., 2019; Grant et al., 2009), research has prioritized identifying the factors that promote and exacerbate sexual minority well-being (Mustanski & Macapagal, 2023). Sexual minorities are theorized to report lower life satisfaction because of the additional burden of unique, identity-based stressors (i.e., minority stress; Meyer, 1995). For example, sexual minorities are more likely to experience acts of violence because of their identity (Flores et al., 2022) and are at greater risk of internalizing negative feelings about their sexual identity (Herek et al., 2009). Life satisfaction differences among sexual minorities are also thought to occur in part because of more frequent minority stress (Meyer, 2007). As such, examining the robustness of the effects of various minority stressors on life satisfaction among sexual minorities can help determine which stressors are most potent at the population level and guide interventions and policy changes to protect against them. In this study, we examined the effects of five minority stressors on life satisfaction in a sample of sexual minority adults from the United States. We also examined moderators theorized to influence the degree to which minority stressors affect life satisfaction among sexual minorities. In the following sections, we discuss the life satisfaction of sexual minorities and the implications of minority stress.

Life Satisfaction of Sexual Minorities

Life satisfaction reflects an individual's global evaluation of the quality of their life and the extent to which they are satisfied across various domains of life (i.e., family, work, health) (Diener et al., 1985). Given the importance of life satisfaction as mentioned above, researchers

are interested in how and why life satisfaction varies across sexual identities. The extant literature largely suggests that sexual minorities generally report lower life satisfaction than heterosexuals (e.g., Bartram, 2023; Bejakovich & Flett, 2018; Powdthavee & Wooden, 2015; Tolmacz et al., 2023; Urwin et al., 2021; Yan et al., 2023), with effects generalizing across different age groups (De Vries et al., 2020; Semlyen et al., 2016) and cultures (De Miguel et al., 2018; Petrou & Lemke, 2018). Knowing that sexual minorities and heterosexuals differ in their levels of life satisfaction invites questions as to what drives these differences.

Minority stress theory (Meyer, 2003) is one of the most popular theoretical frameworks used to explain health and well-being disparities for sexual minorities. Minority stress theory argues that minority stressors work similarly to general stressors that all people can experience (i.e., relationship and financial stress) in negatively affecting life satisfaction (see Figure 1). Minority stress acts as an additional burden to general stress by increasing the overall amount of stress sexual minorities can experience, thereby explaining why sexual minorities report lower life satisfaction. Similarly, life satisfaction differences among sexual minorities are thought to be related to the amount and frequency of minority stress. Investigating the robustness of different minority stressors is therefore essential to understanding life satisfaction differences among sexual minorities. In this study, we tested the effects of five minority stressors (discrimination, stigmatization, victimization, identity concealment, and internalized homophobia) on life satisfaction. We also examined whether minority stressors accounted for additional variance in life satisfaction when accounting for general stress. We review previous findings of each minority stressor and their impact on life satisfaction below.

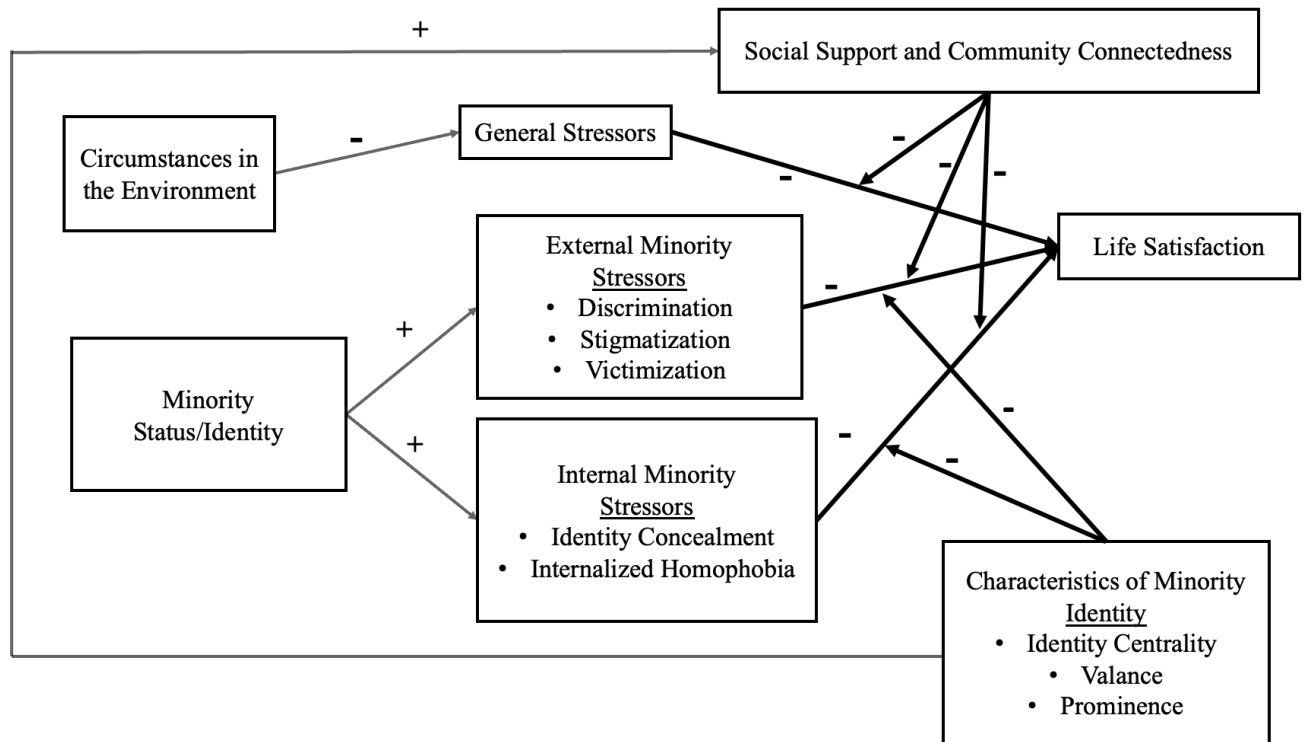


Figure 1. The theoretical model of minority stress theory proposed by Meyer (2003). Plus (+) and minus (-) signs indicated the expected, theoretical direction of effects. Bolded, darker arrows indicate the pathways tested in this study.

Minority Stressors and Life Satisfaction

According to minority stress theory, sexual minorities who experience more minority stress should report lower levels of life satisfaction. Minority stressors can be broadly categorized as either external (i.e., stress acted upon the individual by social others or systems) or internal (i.e., inner turmoil surrounding one's identity) (Meyer, 2003).

In this study, we examined three external minority stressors: discrimination, stigmatization, and victimization. Discrimination is the intentional act of treating someone with less respect or insulting them because of their identity (Williams et al., 1997). Stigmatization reflects negatively biased attitudes toward sexual minorities by others and society (Herek, 2009). Finally, victimization refers to violent acts against someone (i.e., physical assault, theft; Flores et al., 2022). Previous research indicated a clear link between lower life satisfaction and greater stigmatization (e.g., Hatzenbuehler, 2016; Perales & Todd, 2018; Van Der Star et al., 2021) and victimization (e.g., Nguyen et al., 2016; Petrou & Lemke, 2018; Van Der Star et al., 2021). However, the effects of discrimination are mixed (e.g., Barry et al., 2022; Cramer et al., 2017; Van Der Star et al., 2021). Overall, the extant research supports the idea that external minority stressors negatively impact life satisfaction. As such, we expected greater reports of these external stressors to negatively impact life satisfaction.

We additionally examined two internal stressors: internalized homophobia and identity concealment. Navigating a world where one cannot accept oneself or must hide their identity is inherently stressful, as the ability to enjoy life is impeded by persistent negative feelings about one's identity (Meyer, 2003). Internalized homophobia refers to an individual's negative attitudes toward their sexual identity (Herek et al., 2009). Identity concealment refers to the process and decision of when and to whom to conceal one's sexual identity (Meyer et al., 2002).

There is clear evidence that sexual minority adults who report greater internalized homophobia report lower overall satisfaction with life (e.g., Conlin et al., 2019; Gómez et al., 2022; Petrou & Lemke, 2018; Ummak et al., 2023). The link between identity concealment and life satisfaction is more complicated. While coming out helps create a stable sense of self across contexts (Kranz & Pierrard, 2018), it can result in outright rejection from close others (Ryan et al., 2015; Solomon et al., 2015). The polarizing nature of identity disclosure can be difficult as individuals determine whether coming out will impact their safety and disrupt their current relationships (Conlin et al., 2019). The complex nature of sexual identity concealment is reflected in the literature as varying effects on life satisfaction are found (Anderson & Randlet, 1993; Bejakovich & Flett, 2018; De Miguel et al., 2018; Pachankis & Bränström, 2018; Wong & Tang, 2003). In line with previous work and minority stress theory, we expected greater internalized homophobia and greater identity concealment would negatively affect life satisfaction.

In sum, minority stress theory provides a framework for understanding the life satisfaction of sexual minorities as a function of minority stress. We expected sexual minority adults who reported greater minority stress to report lower life satisfaction. Minority stress theory additionally suggests that there may be factors that can protect against or exacerbate these effects (see Figure 1). Investigating potential moderators is not only useful for understanding sexual minority well-being but also provides insight for potential interventions. We therefore also examined theoretical moderators of the influence of minority stressors on life satisfaction.

Moderators of the Influence of Minority Stress on Life Satisfaction

Minority stress theory suggests that the adverse effects of minority stressors may be enhanced or dampened depending on various circumstances in one's life (Meyer, 2003). As displayed in Figure 1, support from others and feeling connected to the LGBTQ+ community

should buffer against minority stress. Minority stressors are also thought to be moderated by how the self and society view their sexual identity. This includes how central one's sexual identity is to their self-concept. In this study, we examined the moderating role of social support, LGBTQ+ community connectedness, and sexual identity centrality on the impact of minority stressors. We discuss the theoretical considerations and empirical findings of these moderators next.

Social Support and Community Connectedness

Minority stress theory integrates theoretical social buffering hypotheses into its framework, which suggests that support from close others can mitigate the negative effects of stress by promoting positive coping strategies (Cohen & Wills, 1985). Indeed, there is evidence that receiving more social support reduces the impact of minority stressors on life satisfaction (Huang & Chan, 2022; La Roi et al., 2022; Leahy & Chopik, 2020; Wong & Tang, 2003). Additionally, the content of one's social support network may also explain the buffering role of social support. While having support from heterosexual peers and family is certainly helpful, being connected to members of LGBTQ+ community is possibly a more potent form of social support given that these individuals share similar identities and experiences (Frost et al., 2022). The existing evidence suggests that greater connection to the LGBTQ+ community also buffers against minority stressors (Frost et al., 2016; Frost & Meyer, 2012; Sattler et al., 2016). We, therefore, expected that both greater social support and LGBTQ+ community connectedness would protect against the effects of minority stressors on life satisfaction.

Sexual Identity Centrality

As mentioned above, grappling with one's sexual identity can be a significant source of stress. Separating one's sexual identity through cognitive dissonance can lead to identity confusion, which can ultimately result in lower life satisfaction (Ghavami et al., 2011).

Reaffirming one's identity instead promotes positive identity development which can boost life satisfaction (Cain, 1991). Therefore, greater sexual identity centrality may protect against minority stress because it prevents sexual minority adults from internalizing negative feelings about their identity (Kranz & Pierrard, 2018). However, greater sexual identity centrality could exacerbate these effects because such identity-based threats may be more potent to one's self-concept. The existing research, however, found that stronger sexual identity centrality protected against the influence of minority stressors on life satisfaction (Bejakovich & Flett, 2018; Górska et al., 2023; Wong & Tang, 2003). In this study, we explored whether sexual identity centrality buffered against the impacts of minority stress given competing hypotheses.

The Present Study

In the current study, we tested the assumptions of minority stress theory on life satisfaction using data from a large study with an American sample of sexual minority adults. We specifically tested whether 1) minority stressors negatively impact life satisfaction and whether they explain similar or more variance in life satisfaction than general stress, 2) greater social support and LGBTQ+ community connectedness buffer against the effects of minority stress, and 3) explored the moderating role of sexual identity centrality.

Methods

Data & Participants

Data came from the Generations study (Meyer et al., 2020), which surveyed a probability sample of sexual minority adults in the United States. Participants were recruited into the study if they fell into certain birth years to create three different birth cohorts. Participants who were not born within these timeframes were excluded from the larger study. Additionally, transgender participants who indicated interest were invited to complete a different study (TransPop). More

information about the Generations study and its recruitment procedures can be found on the study's website (<http://www.generations-study.com/>).

A total of 1518 participants provided data. Participants who identified as both cisgender and heterosexual ($n = 11$) were removed given the focus of this study, resulting in a final sample size of $n = 1507$. Table 1 provides a breakdown of the demographic characteristics for the overall sample and for each age group as previously done in other studies using this dataset. Regarding the overall sample, the mean age was 36.52 years old ($SD = 14.71$ years), and 47.45% of participants had a college degree. The sample was diverse across sexual identities with 55.28% identifying as homosexual, 32.71% as bisexual, and 12.01% as another sexual identity. Additionally, 49.17% of participants identified as women, 44.59% as men, and 6.24% identified as non-binary or genderqueer. Lastly, 64.83% of participants were White, 19.58% were Latine, and 15.59% were Black/African American.

Measures

A full list of the study measures is available on the Generation study's website (<http://www.generations-study.com/methods>; Krueger et al., 2020). Descriptive information for all relevant study measures, including the raw mean and standard deviation, Cronbach's alpha, and McDonald's hierarchical omega are provided in Table 2. We detail the specific measures used in this study below.

Satisfaction with Life

The 5-item Satisfaction with Life Scale (Diener et al., 1985) was administered to assess global life satisfaction. Participants rated items on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Example items included: "In most ways, my life is close to ideal," "I am satisfied with life," and "So far I have gotten the important things I want in life."

Table 1.*Sample demographics of the overall sample and by age group.*

Age Group	n	Mean Age (SD)	<u>Sexual Identity</u>			<u>Gender Identity</u>			<u>Racial/Ethnic Identity</u>		
			Homosexual	Bisexual	Other Sexual Identity	Male	Female	Genderqueer / Non-Binary	White	Black	Latine
Young	664	22.14 (2.37)	37.05%	45.63%	17.32%	37.35%	53.46%	9.19%	54.67%	18.52%	26.81%
Middle	369	37.37 (2.32)	55.28%	33.60%	11.11%	44.44%	50.95%	4.61%	63.14%	18.43%	18.43%
Older	474	56.00 (2.34)	80.80%	13.92%	5.27%	54.85%	41.77%	3.38%	80.38%	9.28%	10.34%
Overall	1507	36.52 (14.71)	55.28%	32.71%	12.01%	44.59%	49.17%	6.24%	64.83%	15.59%	19.58%

Table 2.*Study variable descriptives, internal consistencies, and intercorrelations.*

Variable	Mean	SD	α / ω	Pearson's Correlation (<i>r</i>)								
				1	2	3	4	5	6	7	8	9
1. Life Satisfaction	4.33	1.63	.91 / .91									
2. General Stress	1.57	0.33	.64 / .64	-.47***								
3. Discrimination	1.91	0.69	.91 / .91	-.34***	.46***							
4. Felt Stigmatization	2.66	0.94	.70 / .72	-.28***	.23***	.29***						
5. Victimization	1.96	0.81	.83 / .83	-.21***	.28***	.42***	.21***					
6. Internalized Homophobia	1.62	0.75	.77 / .79	-.18***	.22***	.16***	.21***	.01				
7. Sexual Identity Concealment	1.00	0.93	.86 / .86	-.16***	.20***	.10***	.22***	-.06*	.25***			
8. Perceived Social Support	5.20	1.30	.93 / .93	.44***	-.30***	-.19***	-.23***	-.14***	-.13***	-.19***		
9. LGBTQ+ Community Connectedness	2.97	0.56	.86 / .86	.08***	-.05	.04	-.05	.04	-.18***	-.19***	.16***	
10. Sexual Identity Centrality	3.95	1.12	.83 / .84	-.01	-.02	.05	.00	.07**	-.24***	-.14***	.03	.46***

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Internal consistency was high as indicated by $\alpha = 0.91$ and $\omega = .91$.

General Stress

We used an abridged version of the Chronic Strains Scale (Wheaton, 1999) to assess general stressors. Participants responded to 12 items on a 3-point Likert scale from 0 (*not true*) to 2 (*very true*). Example items included: “You’re trying to take on too many things at once,” “You wonder if you will ever find a partner or spouse,” “You are alone too much,” and “You have a lot of conflict with your partner/boyfriend/girlfriend.” Internal consistencies for α and ω were both .64.

Minority Stressors

Discrimination. Participants reported their experience with minor acts of discrimination based on their sexual orientation over the past year on a 4-point Likert scale using the Everyday Discrimination Scale (Williams et al., 1997). Items included “You were treated with less courtesy than other people,” “You were treated with less respect than other people,” and “You were called names or insulted.” Participants rated how often they experienced these forms of discrimination on a 4-point Likert scale from 1 (*often*) to 4 (*never*). All items were reverse coded so greater reports of discrimination reflected larger values. Both α and ω were 0.91.

Felt Stigma. The Felt Stigma Scale (Herek, 2009) assessed respondents’ awareness and experiences of minority stress to expectations of rejection and devaluation. Participants were asked to rate items such as “Most people where I live think less of a person who is LGB,” and “Most employers where I live will hire openly LGB people if they are qualified for the job” on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). We reverse-scored relevant items so that higher values represented greater felt stigmatization. For this scale, $\alpha = .70$ and $\omega = .72$.

Victimization. Participants completed a six-item measure that assessed the frequency of victimization experienced because of their sexual orientation since the age of 18 (Herek, 2009). Participants responded to items such as “being hit,” “being beaten,” and “someone threw an object at you” on a 4-point Likert scale from 1 (*never*) to 4 (*three or more times*). Both α and ω were .83 for this scale.

Internalized Homophobia. Internalized homophobia was assessed using the Internalized Homophobia Scale (Herek et al., 2009) on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Items included: “I have tried to stop being attracted to people who are the same sex as me,” “I wish I weren’t LGB,” and “I feel that being LGB is a personal shortcoming for me.” For this scale, $\alpha = .77$ and $\omega = .79$.

Sexual Identity Concealment. Participants rated their level of outness across various relationships on a 4-point Likert scale from 1 (*out to none*) to 4 (*out to all*) (Meyer et al., 2002). These relationships included: family, straight friends, co-workers, and healthcare providers. Both α and ω were .86 for this scale.

Perceived Social Support

The Perceived Social Support Scale (Zimet et al., 1988) was used to measure participants’ feelings of social support from family, friends, and significant others. On a 7-point Likert scale from 1 (*very strongly disagree*) to 7 (*very strongly agree*), participants responded to items such as “My family really tries to help me,” “I can count on my friends when things go wrong,” and “There is a special person with whom I can share my joys and sorrows.” For this scale, $\alpha = .93$ and $\omega = .94$.

LGBT Community Connectedness.

An adapted version of LGBT Community Scale (Frost & Meyer, 2012) was used to assess participants' feelings of connection to the LGBT community. Seven of the eight original items were included in the study, including "You feel you're a part of the LGBT community" and "You are proud of the LGBT community." Responses were recorded on a 4-point Likert scale ranging from 1 (*agree strongly*) to 4 (*disagree strongly*). Appropriate items were reverse-coded so that higher scores represented greater community connectedness. Both α and ω were .86 for this scale.

Sexual Identity Centrality

Participants reported how central their sexual identity was to their self-concept using a 5-item subscale of Mohr and Kendra's (2011) Lesbian, Gay, and Bisexual Identity Scale. Participants responded to each item on a 6-point Likert scale from 1 (*disagree strongly*) to 6 (*agree strongly*). Examples of items include: "My sexual orientation is an insignificant part of who I am" and "Being an LGB person is a very important aspect of my life". For this scale, $\alpha = .83$ and $\omega = .84$.

Analyses

All analyses were conducted in R (Version 4.3.0; R Core Team, 2023) using the *dplyr*, *lavaan*, *psych*, *semTools*, and *specr* packages (Jorgensen et al., 2022; Masur & Scharkow, 2020; Revelle, 2024; Rosseel, 2012; Wickham et al., 2023).

Measurement Models

We used structural equation modeling to conduct Confirmatory Factor Analysis (CFA) models for all continuous variables. We deemed measurement models of good fit if Confirmatory Fit Index values (CFI) $> .95$ and Root Mean Square Error Approximation (RMSEA) $< .08$ per the recommendation of Hu and Bentler (1999). If models did not meet these

criteria, we allowed for dependencies between items and trimmed any poorly functioning items. If measurement models still did not reach our fit criteria, we noted this as a limitation and used the raw averaged scores. We used the resulting standardized factor scores from the measurement models in all specification curve analysis models.

Specification Curve Analysis

We used specification curve analysis with the *specr* package (Masur & Scharkow, 2020) to conduct our main analyses. One of the advantages of specification curve analysis is the ability to run numerous multiple linear regression models using various combinations of variables as predictors as a form of mega-analysis (Simonsohn et al., 2020). Therefore, we can estimate the main effect of each minority stressor and the adjusted effect when considering all possible combinations of minority stressors and general stress. We assessed our power to detect small to large effects using *WebPower* (Zhang & Mai, 2023) and found that we had greater than .97 power to detect small effects and 1.00 power to detect large effects across all our specification curve models. We used the standardized factor scores from the respective CFA models in the specification curves.

For our first set of analyses, we first examined the effects of our minority stressors on life satisfaction. Main effects for each stressor were considered significant at $p < .05$. As a robustness check, we took the average of all estimated effect sizes and the resulting confidence intervals from all models with and without controlling for all other stressor variables to estimate the adjusted effects for each stressor. We considered adjusted effect sizes to be significant if the minimum and maximum of all generated confidence intervals did not contain zero. We expected each minority stressor to negatively impact life satisfaction and remain significant even when adjusting for all other minority stressors and general stress. We considered negative effect sizes

and adjusted effect sizes whose confidence intervals did not overlap with zero as support for this hypothesis. We also examined whether the minority stressors explained additional variance in life satisfaction when accounting for more general stress by examining the change in R^2 for these models. We expected that minority stressors would explain additional variance in life satisfaction as theorized by minority stress theory.

In our next set of analyses, we tested whether social support, LGBTQ+ community connectedness, and sexual identity centrality moderated the effects of the stressors on life satisfaction. We ran three different specification curves for each moderator that included the moderator and interaction terms with each stressor. We expected social support and LGBTQ+ community connectedness to buffer against the effects of all stressors and explored whether sexual identity centrality also moderated these effects.

Results

All code, results, and supplementary materials for this study are provided on the project's GitHub page (<https://github.com/atnissen97/MSLS>). Table 2 provides all the Pearson's zero-order correlations between all study variables.

Measurement Models

All measurement models for continuous variables were examined using CFA in *lavaan* (Rosseel, 2012). We considered models of good fit if CFI values $> .95$ and RMSEA values $< .08$ (Hu & Bentler, 1999). If models did not meet this benchmark, we examined potential modification indices by introducing inter-item dependencies or trimming poorly functioning items. The fit indices of all measurement models can be found in Table S1.

Half of the measurement models originally did not meet our criteria for good fit before the inclusion of inter-item dependencies. However, most of these models met our criteria after

introducing inter-item correlations. There were three cases where models still did not fully meet our criteria for good fit. The first was for our discrimination measure (CFI = .969, RMSEA = .082) where only RMSEA did not meet our criteria for good fit even after the inclusion of inter-item correlations. Second, we trimmed one item for LGBTQ+ community connectedness and included two inter-item correlations which similarly resulted in RMSEA not meeting criteria (CFI = .984, RMSEA = .081). We decided to accept the fit for discrimination and LGBTQ+ community connectedness because of how close RMSEA values were to our cutoff value and to not oversaturate the model with dependencies. We therefore used the standardized factor scores from these measurement models in our specification curve models.

For the third and final case, the fit for the general stress measure was poor (CFI = .566, RMSEA = .103). Upon looking at the items, we decided that a reflective model may not best capture the structure of general stress given how different and varied item content was. We therefore used the raw averaged score for general stress in the specification curve models and noted this as a limitation of our study.

Impacts of Minority Stressors on Life Satisfaction

For our main analyses, we used specification curve analysis to run multiple linear regression models to determine whether minority stressors negatively impacted life satisfaction and whether these effects were robust when controlling for all other stressors. Main effects were considered significant at $p < .05$, while adjusted effect sizes were considered significant if none of the confidence intervals from relevant models contained zero.

We first determined whether minority stressors explained additional variance in life satisfaction compared to general stress. We used the R^2 values from these models to examine the amount of variance explained. General stress explained about 28% of the variance in life

satisfaction as a singular predictor. We then examined all the models which included all possible combinations of minority stressors with general stress. Across all these models, minority stressors explained an additional 3.3% of the variance in life satisfaction on average with estimates ranging from .3% to 4.9% across models. These results indicate that minority stressors explained variance in life satisfaction above and beyond more general forms of stress.

Next, we examined the robustness of the effects of the five minority stressors. Figure 1 provides both the main and adjusted standardized effect sizes for each stressor across all estimations of the regression models in the specification curve (see Table 3 for corresponding values). Regarding the main effects, all stressor variables were found to negatively impact life satisfaction. However, when adjusting for all possible combinations of stressors, only general stress, discrimination, stigmatization, and identity concealment remained significant. The external minority stressor victimization ($b_{\text{avg}} = -.11$, 95% $\text{CI}_{\text{Min\&Max}} [-.31, .02]$) and the internal minority stressor internalized homophobia ($b_{\text{avg}} = -.09$, 95% $\text{CI}_{\text{Min\&Max}} [-.22, .02]$) were no longer significant given that minimum and maximum confidence intervals contained zero. Thus, we found some support for our hypothesis that minority stressors do negatively impact life satisfaction.

Moderators of Minority Stressors' Impact on Life Satisfaction

We examined whether greater perceived social support and LGBTQ+ community connectedness buffered against minority stress and explored the moderating role of sexual identity centrality. We included all moderators and interaction terms as predictors in separate specification curves and examined relevant models for the effects of the moderators. Main effects were similarly considered significant at $p < .05$ while adjusted effect sizes were considered significant if none of the confidence intervals from relevant models contained zero.

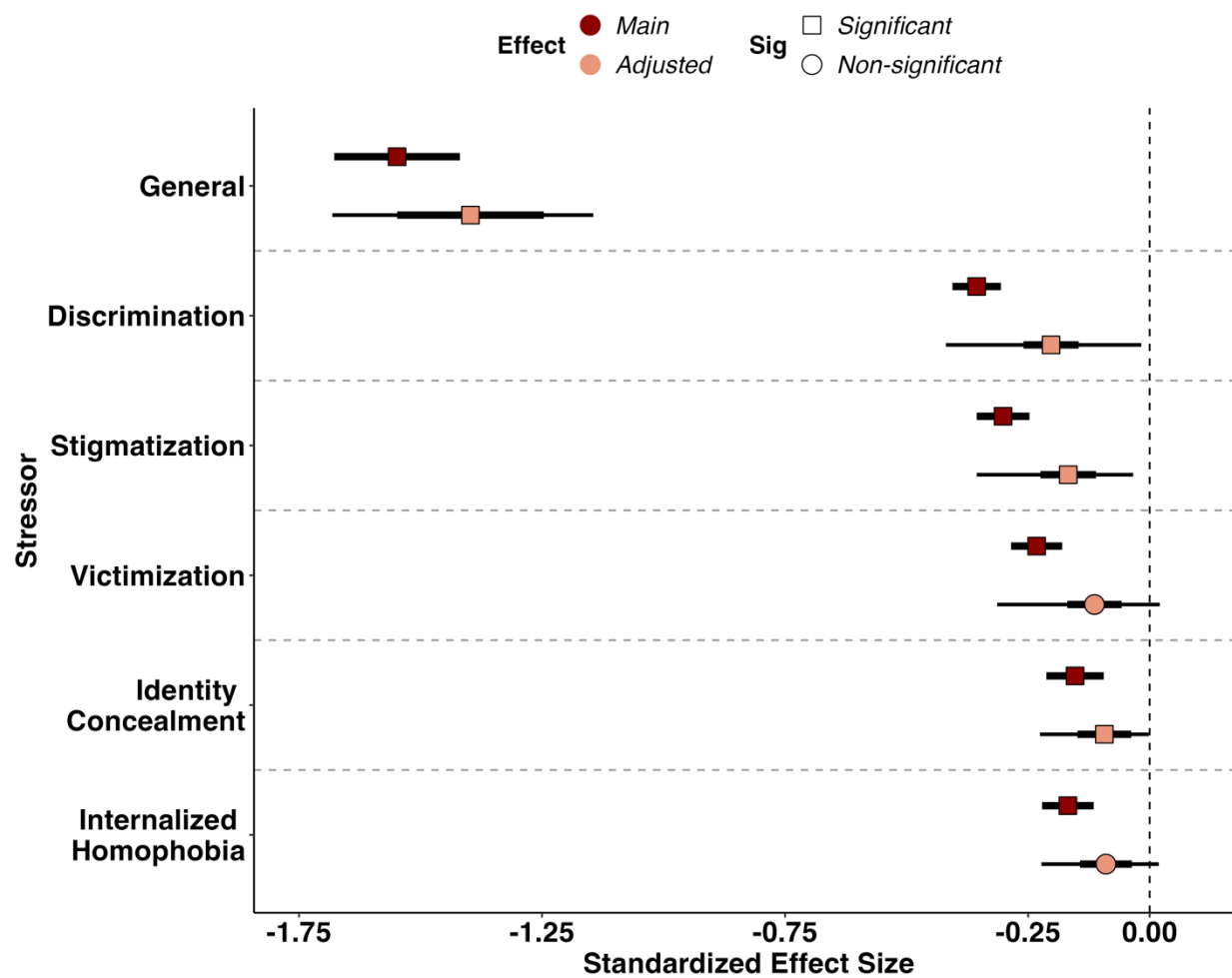


Figure 1. Standardized main and adjusted effects of stressors on life satisfaction.

Table 3.

Standardized main and adjusted effect sizes of minority stressors on life satisfaction.

Stressor	Main Effect 95% CI	<i>p</i>	Adjusted Effect with Min and Max 95% CI
General	-1.55*** [-1.68, -1.42]	<.001	-1.40 [-1.55, -1.25] Range = -1.68 to -1.14
Discrimination	-.36*** [-.41, -.31]	<.001	-.20 [-.26, -.15] Range = -.42 to -.02
Stigmatization	-.30*** [-.36, -.25]	<.001	-.17 [-.23, -.11] Range = -.36 to -.03
Victimization	-.23*** [-.29, -.18]	<.001	-.11 [-.17, -.06] Range = -.31 to .02
Internalized Homophobia	-.17*** [-.22, -.12]	<.001	-.09 [-.14, -.04] Range = -.22 to .02
Identity Concealment	-.15*** [-.21, -.09]	<.001	-.09 [-.15, -.04] Range = -.23 to -.00

Note. Bolded values indicate significant effects. Brackets represent 95% confidence intervals. *** $p < .001$.

These models indicated that perceived social support positively impacted life satisfaction as a single predictor ($b = .35$, 95% CI [.31, .39], $p < .001$) and when adjusting for the other stressors ($b_{\text{avg}} = .27$, 95% CI_{Min&Max} [.18, .39]). The main effect of LGBTQ+ community connectedness was positive and significant ($b = .10$, 95% CI [.05, .15], $p < .001$), but became nonsignificant when adjusting for the other predictors ($b_{\text{avg}} = .07$, 95% CI_{Min&Max} [-.02, .16]). Sexual identity centrality was found to be unrelated to life satisfaction when considered as a predictor (main effect: $b = -.02$, 95% CI [-.07, .04], $p = .521$; adjusted effect: $b_{\text{avg}} = -.01$, 95% CI_{Min&Max} [-.13, .07]). Surprisingly, none of the interaction terms reflecting the moderation effects were significant for any of these three variables (see Table 4 and Figure S1).

Discussion

In the present study, we tested multiple assumptions of minority stress theory concerning life satisfaction. We examined the robustness of the effects of five different minority stressors (discrimination, stigmatization, victimization, internalized homophobia, and identity concealment) and three proposed moderators (social support, community connectedness, and sexual identity centrality). There were three main findings: 1) minority stressors explained additional variance in life satisfaction above and beyond controlling for general stress, 2) three of the five tested minority stressors negatively impacted life satisfaction, and 3) none of the examined moderators proposed by minority stress theory moderated the impacts of minority stress on life satisfaction. We discuss our findings below.

Some Minority Stressors Negatively Impact Life Satisfaction

According to minority stress theory, the effects of minority stress transcend across many aspects of sexual minority adults' livelihood, including their well-being (Meyer, 2003). Minority stressors are theorized to act as additional burdens to more general stress, thereby explaining

Table 4.*Standardized effect sizes of moderator interaction terms.*

Stressor	Perceived Social Support			LGBTQ+ Community Connectedness			Sexual Identity Centrality		
	Main	<i>p</i>	Adjusted	Main	<i>p</i>	Adjusted	Main	<i>p</i>	Adjusted
General	-.07 [-.17, .04]	.236	-.05 [-.17, .06] Range = -.18 to .07	.08 [-.06, .22]	.267	.10 [-.05, .25] Range = -.08 to .27	.08 [-.06, .22]	.269	.11 [-.04, .26] Range = -.07 to .30
Discrimination	.004 [-.04, .04]	.849	-.00 [-.04, .04] Range = -.06 to .05	-.02 [-.07, .03]	.507	.00 [-.05, .05] Range = -.08 to .07	-.04 [-.09, .01]	.132	-.02 [-.08, .03] Range = -.11 to .05
Stigmatization	.03 [-.01, .08]	.186	.03 [-.02, .07] Range = -.04 to .09	.03 [-.03, .09]	.291	.05 [-.01, .10] Range = -.05 to .11]	-.01 [-.07, .05]	.779	.01 [-.05, .07] Range = -.09 to .09
Victimization	.001 [-.04, .04]	.965	-.01 [-.03, .02] Range = -.05 to .06	.05 [-.00, .11]	.059	.07 [.01, .12] Range = -.01 to .14	.01 [-.05, .06]	.853	.03 [-.04, .08] Range = -.07 to .12
Internalized Homophobia	-.03 [-.07, .02]	.243	-.01 [-.04, .01] Range = -.08 to .04	.02 [-.03, .07]	.475	.04 [-.01, .09] Range = -.06 to .12	.00 [-.06, .05]	.893	.01 [-.04, .06] Range = -.08 to .09
Identity Concealment	-.03 [-.08, .02]	.241	-.02 [-.07, .03] Range = -.08 to .04	-.01 [-.07, .05]	.759	-.00 [-.06, .06] Range = -.08 to .06	.03 [-.06, .00]	.385	.05 [-.01, .11] Range = -.04 to .12

Note. Brackets represent 95% confidence intervals.

why sexual minorities report lower life satisfaction (Meyer, 2007). More frequent exposure to minority stress should also explain individual differences in life satisfaction among sexual minorities. These minority stressors can broadly be conceptualized as either external (discrimination, stigmatization, and victimization) or internal (internalized homophobia and identity concealment). However, the effects of minority stress are not consistently found across studies, possibly because of methodological variations.

In this study, we used specification curve analysis which allowed us to determine the robustness of the effects of different minority stressors while controlling for all viable combinations of minority stressors and general stress. We found that minority stressors explained additional variance in life satisfaction when controlling for general stress. This finding highlights that minority stressors do work as additional sources of stress in tandem with other stressors in one's life. We also found that sexual minorities who indicated more frequent forms of these stressors reported lower levels of life satisfaction. However, only discrimination, stigmatization, and identity concealment were found to have robust effects when accounting for all the different combinations of stressors across models. These findings support previous work with stigmatization (Hatzenbuehler, 2016; Perales & Todd, 2018; Van Der Star et al., 2021) and contribute to the literature on the effects of discrimination (Barry et al., 2022; Cramer et al., 2017; Van Der Star et al., 2021) and identity concealment (Anderson & Randlett, 1993; Bejakovich & Flett, 2018; De Miguel et al., 2018; Wong & Tang, 2003). Regarding identity concealment, this effect should be considered in the context of more progressive societal views of sexual minorities in the United States. Previous work suggests that identity concealment may have positive benefits in countries with less acceptance to avoid legal punishment or violence (Pachankis & Bränström, 2018; Van Der Star et al., 2021).

Surprisingly, we found that the main effects of victimization and internalized homophobia was no longer significant when adjusting for all other stressors. This is somewhat surprising given previous literature highlighting the negative effects of victimization (e.g., Nguyen et al., 2016; Pachankis & Bränström, 2018; Van Der Star et al., 2021) and internalized homophobia (e.g., Conlin et al., 2019; Gómez et al., 2022; Petrou & Lemke, 2018; Ummak et al., 2023). There are a few explanations for why these effects might not have emerged here. First, it is possible that when considering other minority stressors, victimization and internalized homophobia do not affect life satisfaction. This may be because these two stressors are the product of other minority stressors. For victimization, it is likely that greater stigmatization leads to a higher probability of a violent attack and could be dependent on whether someone has disclosed their sexual minority status (Flores et al., 2022; Van Der Star et al., 2021). For internalized homophobia, experiencing or witnessing discrimination or stigmatization plays a role in how people internalize negative feelings about their identity. Controlling for other minority stressors may therefore fully explain the influence of victimization and internalized homophobia on life satisfaction. Second, null findings may be reflective of floor effects. Our data was relatively skewed to the lower end of the scale for both victimization and internalized homophobia. This study could therefore be unable to detect true effects given the skew and little variance in the data. Lastly, Diamond and Alley (2022) highlighted that the effects of minority stressors may depend on whether people feel safe in their social environment. Current social climates in the United States may make sexual minorities feel safer in their environments. Any experience of victimization could be considered a one-off incident and not indicative of how people would generally respond to their sexual minority identity. Similarly, increased representation and acceptance of sexual minorities may help people realize that their identity is

not something to be ashamed of. However, little research has tested social safety theory with these stressors. Future research should link feelings of social safety to the experience of these minority stressors and continue to examine the effects of victimization and internalized homophobia on life satisfaction.

Support and Identity Centrality Do Not Moderate the Effects of Minority Stress

Minority stress theory suggests that the effects of minority stress should be mitigated by strong social support and feeling connected to the LGBTQ+ community (Meyer, 2003). Additionally, how important one's sexual identity is to their self-concept may also influence how minority stressors impact life satisfaction. We found, however, that perceived social support, LGBTQ+ community connectedness, and sexual identity centrality did not moderate the impacts of minority stress. Regarding perceived social support, this finding was surprising given previous findings with minority stress and sexual minorities (La Roi et al., 2022; Leahy & Chopik, 2020). However, some studies have shown that for sexual minorities, the type of support may be what matters. For instance, one study found that sexuality support as opposed to more general support was protective against the effects of minority stress on well-being (Doty et al., 2010). It may therefore be that for sexual minorities, specific identity-related support may be a more important factor in handling such identity-specific stressors. This is why we anticipated greater feelings of connection to the LGBTQ+ community to buffer against the effects of minority stress. Our findings may indicate that instead, what might matter more is being supported by other sexual minority peers and friends. In other words, it may be the support from other sexual minorities who can relate to and provide relevant coping strategies to minority stress that is important to well-being rather than feeling connected to the community at large. Our measure of LGBTQ+ community connectedness did not fully capture support from other sexual minorities. Future

research should aim to tease apart the type of support different people can provide in studying the impacts of minority stressors on life satisfaction.

Lastly, we found no evidence that sexual identity centrality moderated how minority stressors affected life satisfaction. Previous research has found that stronger sexual identity centrality was a protective factor (Bejakovich & Flett, 2018; Górska et al., 2023; Wong & Tang, 2003). It was unclear in these studies whether the mechanism driving these effects stemmed from cognitive dissonance or through affirming one's identity (Kranz & Pierrard, 2018). We also suggested that greater sexual identity centrality might exacerbate the effects of minority stress because such threats may be more potent to one's self-concept. The moderating role of sexual identity centrality may therefore be a more individualized process. For instance, some people high in sexual identity centrality may not be phased by minority stress while others high in this construct may be more sensitive to these identity-based stressors. As such, null findings could be the result of aggregating across these processes. It is also possible that sexual identity centrality plays no moderating role. It may be that instead what matters is whether someone is living authentically. That is, acting according to how one feels on the inside about their sexual minority status may mitigate the effects of minority stress (Hopwood et al., 2023). It is not so much whether their sexual identity is a core component of their identity, but rather staying true to how one feels (e.g., pride) about their identity across contexts and in the face of minority stress. As more stress and less support afford fewer opportunities to be authentic (Hopwood et al., 2023), sexual minorities who persevere and remain authentic may not experience the negative effects of minority stress on their well-being. As such, future research should examine the moderating role of authenticity in mitigating the effects of minority stress.

Limitations and Constraints on Generalizability

There were numerous strengths to our study. First, we examined the effect of five different minority stressors across a large sample of sexual minorities. This allowed us to have a well-powered, mega-analysis of these effects across multiple moderators. Additionally, our use of specification curve analysis allowed us to look across all possible combinations of stressors. We were able to examine the robustness of these effects and prevented cherry-picking of specific results. This study was not without its limitations, however.

First, our findings only generalize to the United States. Different countries across the globe vary in their perceptions, treatment, and representation of sexual minorities (Gerber, 2020; Pachankis & Bränström, 2018). Previous research has shown the effects of minority stressors may differ across different countries (Baiocco et al., 2023) and could explain why certain minority stressors like identity concealment result in life satisfaction increases (Pachankis & Bränstrom, 2018). Second, the cross-sectional nature of our study makes it unclear what the impacts of these stressors are on life satisfaction over time. While we found evidence that some minority stressors negatively impact life satisfaction, we are unable to determine whether these patterns persist across time. Relatedly, we did not test potential mechanisms and processes discussed in this manuscript that explain why minority stressors impact well-being. Recent advances in experience sampling methodologies and intensive longitudinal designs can help tackle questions underlying how and why minority stressors influence sexual minority well-being (Hatzenbuehler & Pachankis, 2021). Future research should continue to examine the effects of minority stressors on life satisfaction with such approaches to elucidate these processes. Lastly, we ran into issues with some of the measures in our study that limited the interpretation of some of our findings. There were three cases where our measures (discrimination, LGBTQ+ community connectedness, and general stress) did not fully meet our

criteria of good model fit. For general stress, we used the raw data in our estimates because we determined that a reflective model may not be appropriate for the varying item content in the measure. As such, this may have impacted some of our findings. Future research should aim to include different types of general stressors as opposed to one overall measure to examine how different types of more common stressors (e.g., financial, work) compare and relate to minority stress.

Conclusion

Sexual minorities are faced with unique, identity-based stressors that are thought to explain individual differences in life satisfaction. Minority stress theory suggests that multiple factors like support, sexual identity, and differential group experiences may further amplify or reduce the impacts of these minority stressors. In this study, we found that while minority stress does explain variance above and beyond that of more general stress, only some minority stressors impact life satisfaction. We additionally found no evidence that social support, LGBTQ+ community connectedness, or sexual identity centrality moderated these effects. Our findings highlight that while minority stressors do influence well-being, there are potential avenues for future research to explore how these effects may be impacted by various factors and processes.

References

- Anderson, L. R., & Randlet, L. (1993). Self-Monitoring and Life Satisfaction of Individuals With Traditional and Nontraditional Sexual Orientations. *Basic and Applied Social Psychology, 14*(3), 345–361. https://doi.org/10.1207/s15324834baspl1403_7
- Baiocco, R., Scandurra, C., Rosati, F., Pistella, J., Ioverno, S., Bochicchio, V., Wang, H.-C., & Chang, T.-S. (2023). Minority stress, resilience, and health in Italian and Taiwanese LGB+ people: A cross-cultural comparison. *Current Psychology, 42*(1), 104–115. <https://doi.org/10.1007/s12144-021-01387-2>
- Barry, C., Speed, D., & Best, L. (2022). Negative Social Experiences Mediate the Relationship between Sexual Orientation and Mental Health. *Journal of Homosexuality, 69*(2), 277–299. <https://doi.org/10.1080/00918369.2020.1819710>
- Bartram, D. (2023). Sexual orientation and life satisfaction. *Journal of Sociology, 59*(1), 20–35. <https://doi.org/10.1177/14407833211017672>
- Bejakovich, T., & Flett, R. (2018). “Are you sure?”: Relations between sexual identity, certainty, disclosure, and psychological well-being. *Journal of Gay & Lesbian Mental Health, 22*(2), 139–161. <https://doi.org/10.1080/19359705.2018.1427647>
- Cain, R. (1991). Stigma Management and Gay Identity Development. *Social Work, 36*(1), 67–73.
- Cohen, S., & Wills, T. A. (1985). Stress, Social Support, and the Buffering Hypothesis. *Psychological Bulletin, 98*(2), 310–357.
- Conlin, S. E., Douglass, R. P., & Ouch, S. (2019). Discrimination, Subjective Wellbeing, and the Role of Gender: A Mediation Model of LGB Minority Stress. *Journal of Homosexuality, 66*(2), 238–259. <https://doi.org/10.1080/00918369.2017.1398023>

- Cramer, R. J., Burks, A. C., Plöderl, M., & Durgampudi, P. (2017). Minority stress model components and affective well-being in a sample of sexual orientation minority adults living with HIV/AIDS. *AIDS Care*, 29(12), 1517–1523.
<https://doi.org/10.1080/09540121.2017.1327650>
- De Miguel, A., Marrero, R. J., Fumero, A., Carballeira, M., & Nuez, C. (2018). Well-Being Among Spanish Lesbian, Gay, Bisexual and Heterosexual Adults: Disclosure of Sexual Orientation to Family and Friends. *International Journal of Sexual Health*, 30(1), 124–131. <https://doi.org/10.1080/19317611.2018.1451423>
- De Vries, J. M. A., Downes, C., Sharek, D., Doyle, L., Murphy, R., Begley, T., McCann, E., Sheerin, F., Smyth, S., & Higgins, A. (2020). An exploration of happiness within the Irish LGBTI community. *Journal of Gay & Lesbian Mental Health*, 24(1), 40–76.
<https://doi.org/10.1080/19359705.2019.1646689>
- Diamond, L. M., & Alley, J. (2022). Rethinking minority stress: A social safety perspective on the health effects of stigma in sexually-diverse and gender-diverse populations. *Neuroscience & Biobehavioral Reviews*, 138, 104720.
<https://doi.org/10.1016/j.neubiorev.2022.104720>
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49(1), 71–75.
https://doi.org/10.1207/s15327752jpa4901_13
- Doty, N. D., Willoughby, B. L. B., Lindahl, K. M., & Malik, N. M. (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>

- Flores, A. R., Stotzer, R. L., Meyer, I. H., & Langton, L. L. (2022). Hate crimes against LGBT people: National Crime Victimization Survey, 2017-2019. *PLOS ONE*, 17(12), e0279363. <https://doi.org/10.1371/journal.pone.0279363>
- Frost, D. M., & Meyer, I. H. (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>
- Frost, D. M., Meyer, I. H., Lin, A., Wilson, B. D. M., Lightfoot, M., Russell, S. T., & Hammack, P. L. (2022). Social Change and the Health of Sexual Minority Individuals: Do the Effects of Minority Stress and Community Connectedness Vary by Age Cohort? *Archives of Sexual Behavior*, 51(4), 2299–2316. <https://doi.org/10.1007/s10508-022-02288-6>
- Frost, D. M., Meyer, I. H., & 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>
- Gerber, P. (2020). *Countries that still criminalise homosexuality*. Countries That Still Criminalise Homosexuality. <https://antigaylaws.org/>
- Ghavami, N., Fingerhut, A., Peplau, L. A., Grant, S. K., & Wittig, M. A. (2011). Testing a model of minority identity achievement, identity affirmation, and psychological well-being among ethnic minority and sexual minority individuals. *Cultural Diversity and Ethnic Minority Psychology*, 17(1), 79–88. <https://doi.org/10.1037/a0022532>
- Gómez, F., Cumsille, P., & Barrientos, J. (2022). Mental Health and Life Satisfaction on Chilean Gay Men and Lesbian Women: The Role of Perceived Sexual Stigma, Internalized Homophobia, and Community Connectedness. *Journal of Homosexuality*, 69(10), 1777–1799. <https://doi.org/10.1080/00918369.2021.1923278>

- Gómez-López, M., Viejo, C., & Ortega-Ruiz, R. (2019). Well-Being and Romantic Relationships: A Systematic Review in Adolescence and Emerging Adulthood. *International Journal of Environmental Research and Public Health*, 16(13), 2415. <https://doi.org/10.3390/ijerph16132415>
- Górska, P., Stefaniak, A., Matera, J., & Marchlewska, M. (2023). The different effects of collective narcissism and secure ingroup identity on collective action and life satisfaction among LGBTQ+ individuals. *Group Processes & Intergroup Relations*, 136843022211471. <https://doi.org/10.1177/13684302221147125>
- Grant, N., Wardle, J., & Steptoe, A. (2009). The Relationship Between Life Satisfaction and Health Behavior: A Cross-cultural Analysis of Young Adults. *International Journal of Behavioral Medicine*, 16(3), 259–268. <https://doi.org/10.1007/s12529-009-9032-x>
- Hatzenbuehler, M. L. (2016). Structural stigma: Research evidence and implications for psychological science. *American Psychologist*, 71(8), 742–751. <https://doi.org/10.1037/amp0000068>
- Hatzenbuehler, M. L., & Pachankis, J. E. (2021). Sexual and gender minority health disparities: Concepts, methods, and future directions. In I. Dankwa-Mullan, E. J. Perez-Stable, K. Gardner, X. Zhang, & A. M. Rosario (Eds.), *The science of health disparities research* (1st ed.). Wiley-Blackwell.
- Herek, G. M. (2009). Hate Crimes and Stigma-Related Experiences Among Sexual Minority Adults in the United States: Prevalence Estimates From a National Probability Sample. *Journal of Interpersonal Violence*, 24(1), 54–74. <https://doi.org/10.1177/0886260508316477>

- Herek, G. M., Gillis, J. R., & Cogan, J. C. (2009). Internalized Stigma Among Sexual Minority Adults: Insights From a Social Psychological Perspective. *Journal of Counseling Psychology, 56*(1), 32–43.
- Hopwood, C. J., Nissen, A. T., & Bleidorn, W. (2023). Longitudinal course and correlates of realness. *Current Psychology*. <https://doi.org/10.1007/s12144-023-05245-1>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Huang, Y.-T., & Chan, R. C. H. (2022). Effects of sexual orientation concealment on well-being among sexual minorities: How and when does concealment hurt? *Journal of Counseling Psychology, 69*(5), 630–641. <https://doi.org/10.1037/cou0000623>
- Jorgensen, T. D., Pornprasertmanit, S., Schoemann, A. M., & Rosseel, Y. (2022). *semTools: Useful tools for structural equation modeling*. (Version 0.5-6) [Computer software]. <https://CRAN.R-project.org/package=semTools>
- Kranz, D., & Pierrard, M. (2018). Beyond coming out: Relations between lesbian and gay identity formation and psychosocial well-being in young and middle adulthood. *Psychology of Sexual Orientation and Gender Diversity, 5*(3), 283–293. <https://doi.org/10.1037/sgd0000270>
- Krueger, E. A., Lin, A., Kittle, K. R., & Meyer, I. H. (2020). *Methodology and Technical Notes Gallup Quantitative Survey*. <http://www.generations-study.com/methods>
- La Roi, C., Frost, D. M., Mallory, A., Lin, A., & Meyer, I. H. (2022). Sexual Identity and Birth Cohort Differences in Social Support and Its Link with Well-Being among Sexual

- Minority Individuals. *Archives of Sexual Behavior*. <https://doi.org/10.1007/s10508-022-02366-9>
- Leahy, K. E., & Chopik, W. J. (2020). The Effect of Social Network Size and Composition on the Link Between Discrimination and Health Among Sexual Minorities. *Journal of Aging and Health*, 32(9), 1214–1221. <https://doi.org/10.1177/0898264320908982>
- Masur, P. K., & Scharkow, M. (2020). *specr: Conducting and Visualizing Specification Curve Analyses* (Version 1.0.0) [Computer software]. <https://CRAN.R-project.org/package=specr>
- Meyer, I. H. (1995). Minority Stress and Mental Health in Gay Men. *Journal of Health and Social Behavior*, 36(1), 38. <https://doi.org/10.2307/2137286>
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, 129(5), 674–697. <https://doi.org/10.1037/0033-2909.129.5.674>
- Meyer, I. H. (2007). Prejudice and Discrimination as Social Stressors. In I. H. Meyer & M. E. Northridge (Eds.), *The Health of Sexual Minorities* (pp. 242–267). Springer US. https://doi.org/10.1007/978-0-387-31334-4_10
- Meyer, I. H., Marken, S., Russell, S. T., Frost, D. M., & Wilson, B. D. M. (2020). An Innovative Approach to the Design of a National Probability Sample of Sexual Minority Adults. *LGBT Health*, 7(2), 101–108. <https://doi.org/10.1089/lgbt.2019.0145>
- Meyer, I. H., Rossano, L., Ellis, J. M., & Bradford, J. (2002). A brief telephone interview to identify lesbian and bisexual women in random digit dialing sampling. *The Journal of Sex Research*, 39(2), 139–144. <https://doi.org/10.1080/00224490209552133>

- Mohr, J. J., & Kendra, M. S. (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>
- Mustanski, B., & Macapagal, K. (2023). Clinical psychological science must move beyond documenting disparities in LGBTQ health toward eliminating them. *Journal of Consulting and Clinical Psychology, 91*(2), 57–59. <https://doi.org/10.1037/ccp0000800>
- Nguyen, T. Q., Bandeen-Roche, K., German, D., Nguyen, N. T. T., Bass, J. K., & Knowlton, A. R. (2016). Negative Treatment by Family as a Predictor of Depressive Symptoms, Life Satisfaction, Suicidality, and Tobacco/Alcohol Use in Vietnamese Sexual Minority Women. *LGBT Health, 3*(5), 357–365. <https://doi.org/10.1089/lgbt.2015.0017>
- Pachankis, J. E., & Bränström, R. (2018). Hidden from happiness: Structural stigma, sexual orientation concealment, and life satisfaction across 28 countries. *Journal of Consulting and Clinical Psychology, 86*(5), 403–415. <https://doi.org/10.1037/ccp0000299>
- Perales, F., & Todd, A. (2018). Structural stigma and the health and wellbeing of Australian LGB populations: Exploiting geographic variation in the results of the 2017 same-sex marriage plebiscite. *Social Science & Medicine, 208*, 190–199. <https://doi.org/10.1016/j.socscimed.2018.05.015>
- Petrou, P., & Lemke, R. (2018). Victimization and life satisfaction of gay and bisexual individuals in 44 European countries: The moderating role of country-level and person-level attitudes towards homosexuality. *Culture, Health & Sexuality, 20*(6), 640–657. <https://doi.org/10.1080/13691058.2017.1368710>

- Powdthavee, N., & Wooden, M. (2015). Life satisfaction and sexual minorities: Evidence from Australia and the United Kingdom. *Journal of Economic Behavior & Organization*, 116, 107–126. <https://doi.org/10.1016/j.jebo.2015.04.012>
- R Core Team. (2024). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing (Version 4.3.3) [Computer software]. <https://www.R-project.org/>
- Revelle, W. (2024). *psych: Procedures for Psychological, Psychometric, and Personality Research* (Version 2.4.6.26) [Computer software]. <https://CRAN.R-project.org/package=psych>
- Rosseel, Y. (2012). lavaan: An R package for structural equation modeling and more Version 0.5-12 (BETA). *Journal of Statistical Software*, 48(2), 1–36.
- Ryan, W. S., Legate, N., & Weinstein, N. (2015). Coming Out as Lesbian, Gay, or Bisexual: The Lasting Impact of Initial Disclosure Experiences. *Self and Identity*, 14(5), 549–569. <https://doi.org/10.1080/15298868.2015.1029516>
- Sattler, F. A., Wagner, U., & Christiansen, H. (2016). Effects of Minority Stress, Group-Level Coping, and Social Support on Mental Health of German Gay Men. *PLOS ONE*, 11(3), e0150562. <https://doi.org/10.1371/journal.pone.0150562>
- Semlyen, J., King, M., Varney, J., & Hagger-Johnson, G. (2016). Sexual orientation and symptoms of common mental disorder or low wellbeing: Combined meta-analysis of 12 UK population health surveys. *BMC Psychiatry*, 16(1), 67. <https://doi.org/10.1186/s12888-016-0767-z>
- Simonsohn, U., Simmons, J. P., & Nelson, L. D. (2020). Specification curve analysis. *Nature Human Behaviour*, 4(11), 1208–1214. <https://doi.org/10.1038/s41562-020-0912-z>

- Solomon, D., McAbee, J., Åsberg, K., & McGee, A. (2015). Coming Out and the Potential for Growth in Sexual Minorities: The Role of Social Reactions and Internalized Homonegativity. *Journal of Homosexuality*, 62(11), 1512–1538.
<https://doi.org/10.1080/00918369.2015.1073032>
- Tolmacz, R., Bachner-Melman, R., Lev-Ari, L., Kaydar, N., & Shenkman, G. (2023). Disparities in Mental Health and Life Satisfaction Between Sexual Minority and Heterosexual Individuals: The Mediating Role of Relational Attitudes. *Sexuality Research and Social Policy*, 20(3), 1168–1179. <https://doi.org/10.1007/s13178-023-00789-0>
- Ummak, E., Toplu-Demirtaş, E., Pope, A. L., & Moe, J. (2023). The influence of internalized heterosexism on life satisfaction: Comparing sexual minority women in Belgium and Turkey. *Current Psychology*, 42(9), 7421–7432. <https://doi.org/10.1007/s12144-021-02068-w>
- Urwin, S., Mason, T., & Whittaker, W. (2021). Do different means of recording sexual orientation affect its relationship with health and wellbeing? *Health Economics*, 30(12), 3106–3122. <https://doi.org/10.1002/hec.4422>
- Van Der Star, A., Pachankis, J. E., & Bränström, R. (2021). Country-Level Structural Stigma, School-Based and Adulthood Victimization, and Life Satisfaction Among Sexual Minority Adults: A Life Course Approach. *Journal of Youth and Adolescence*, 50(1), 189–201. <https://doi.org/10.1007/s10964-020-01340-9>
- Wheaton, B. (1999). The nature of stressors. In A. F. Horwitz & T. L. Scheid (Eds.), *A handbook for the study of mental health: Social contexts, theories, and systems* (pp. 176–197). Cambridge University Press.

- Wickham, H., François, R., Henry, L., Müller, K., & Vaughan, D. (2023). *dplyr: A Grammar of Data Manipulation* (Version 1.1.2) [Computer software]. <https://CRAN.R-project.org/package=dplyr>
- Williams, D. R., Yan Yu, Jackson, J. S., & Anderson, N. B. (1997). Racial Differences in Physical and Mental Health: Socio-economic Status, Stress and Discrimination. *Journal of Health Psychology*, 2(3), 335–351. <https://doi.org/10.1177/135910539700200305>
- Wong, C.-Y., & Tang, C. S.-K. (2003). Personality, Psychosocial Variables, and Life Satisfaction of Chinese Gay Men in Hong Kong. *Journal of Happiness Studies*, 4, 285–293.
- Yan, W., Huang, C., & Li, C. (2023). Family and Relationship Quality among Young Adults with Different Sexual Orientations in Urban China: The Mediating Effects of Life Satisfaction and Self-Esteem. *The Journal of Sex Research*, 60(5), 689–703. <https://doi.org/10.1080/00224499.2022.2117772>
- Zhang, Z., & Mai, Y. (2023). *WebPower: Basic and Advanced Statistical Power Analysis* (Version 0.9.4) [Computer software]. <https://CRAN.R-project.org/package=WebPower>
- 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. https://doi.org/10.1207/s15327752jpa5201_2