



Typologies of Minority Stressors and Depressive Symptoms among LGBTQ Employees in the Workplace: A Moderated Mediation Model of Workplace Climate and Resilience

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Abstract

Introduction The pathways between minority stressors and depressive symptoms require a nuanced understanding of how these stressors affect the mental health of sexual and gender minority people. It remains unclear whether minority stressors are associated with depressive symptoms through perception of workplace climate and if resilience moderates these effects.

Methods This study examined the direct and indirect effects of different minority stressors (experiences of discrimination, internalized homophobia, expectations of rejection, and concealment of identity) on depressive symptoms through the mediating factor of perception of workplace climate and the moderating factor of resilience. Chinese lesbian, gay, bisexual, trans, and queer (LGBTQ) employees ($N=706$) completed a cross-sectional online survey in 2021–2022. We examined the moderated mediating effects using PROCESS macro with a bootstrapping approach.

Results Mediation results showed that the four minority stressors were each negatively associated with perceptions of workplace climate, which were associated with higher levels of depressive symptoms among Chinese LGBTQ employees. Moderated mediation models demonstrated that the conditional indirect effects of different types of minority stressors on depressive symptoms through perception of workplace climate were only significant for those with lower levels of resilience.

Conclusions Extending the minority stress model to work settings, this study offers new knowledge about the mediating role of perception of workplace climate in the relationship between minority stressors and depressive symptoms. Knowledge about the moderating role of resilience also informs targeted interventions.

Policy Implications Interventions targeted at reducing minority stressors, enhancing perceived workplace climate, and promoting resilience are vital to enhance LGBTQ individuals' mental health.

Keywords Minority stress · Depression · Mental health · Stigma · LGBTQ · Workplace climate · Resilience

Introduction

Management and organizational studies have paid increasing attention to the workplace experiences of minority groups, including those of LGBTQ employees, and have explored approaches to creating a more supportive workplace climate (Byington et al., 2021; Ng & Rumens, 2017; Webster et al., 2018). Workplace climate is best understood as individuals' cognitive and affective perception of their work environment—whether they perceive more support or hostility at work (Brown & Leigh, 1996; Holman et al., 2019). The perception of workplace support is an integral component of working life, given its link with one's job satisfaction, life satisfaction, and overall psychological well-being (Fletcher & Everly, 2021; Huffman et al., 2008). However, scholars have yet to examine how LGBTQ employees' perceptions of

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workplace climate may be complicated by minority stress—additional stressors related to their stigmatized identities (Meyer, 2003). In work settings, it also remains unclear if, and if so how, resilience, as a potential personal resource (Hartmann et al., 2020), can function to ameliorate the negative effects of minority stress on mental health outcomes. Furthermore, while most previous studies have focused on Euro-American contexts, this study is the first to focus on Chinese LGBTQ people's perceptions of workplace climate in a context where legal and organizational support for this group remains limited (Lo et al., 2024; Tang et al., 2021). Our study addressed these gaps. We examined (1) whether associations between minority stress and depressive symptoms occurred through the mediating role of perception of workplace climate, and (2) whether these associations were dependent upon levels of resilience (moderated mediation).

Minority Stressors and Depressive Symptoms

Numerous population studies and meta-analyses have shown that LGBTQ people report greater mental health problems than the general population, including mild psychological distress, major depressive disorder, and suicidal ideation and behavior (McCabe et al., 2020; Perez-Brumer et al., 2017; Raifman et al., 2020). According to the minority stress model (Meyer, 2003), LGBTQ individuals tend to experience chronic, cumulative stressors associated with stigma, placing them at elevated risk of mental health problems. Meyer (2003) argued for the consideration of four stressors: experiences of discrimination, internalized homophobia, expectations of rejection, and concealment of identity. In general, empirical studies have found that experiences of discrimination, internalized homophobia, and expectations of rejection are associated with poor mental health. However, the impact of identity concealment on depressive symptoms and mental health problems remains highly debatable, with most studies showing a positive association (Lehavot & Simoni, 2011) and others showing a negative one (Huebner & Davis, 2005). Huebner and Davis (2005) found that gay and bisexual men with higher levels of disclosure at work reported higher levels of negative affect and cortisol (a stress hormone).

Considering cultural differences, a growing body of literature has tested whether the minority stress model can be applied to non-Western contexts (Sun et al., 2021). In China, where homosexuality remains stigmatized and there is no legal protection against discrimination on grounds of sexual orientation or gender identity, researchers have reported mixed findings about if, and if so how, stigma-induced stressors affect their well-being. A longitudinal study of Chinese gay men found that anticipated stigma (expectation of rejection) affected both depressive symptoms and anxiety, yet internalized stigma did not predict

either psychological distress outcome (Choi et al., 2016). Another study found that gay-related stressful events, particularly problems with a boss or workmate, were associated with depressive symptoms among sexual minority men (Liu et al., 2018). Meanwhile, a study of Chinese LGB young adults showed that minority stressors were not significant predictors of psychological maladjustment, whereas respect for parents and perceived parental support for sexual orientation were associated with positive psychological adjustment (Shao et al., 2018). These findings underscore the relevance of family support to the mental health of Chinese LGB young adults in their family-centered context (Shao et al., 2018). While these studies have yielded inconsistent findings, with some focusing on a single minority stressor and others selecting specific minority stressors, they have highlighted the need to situate experiences of minority stress within a specific socio-cultural context (Sun et al., 2021). Additional research is needed to understand the mechanism through which different minority stressors are associated with depressive symptoms in the Chinese context.

Theoretical Approach to Dissecting Pathways from Minority Stressors to Depressive Symptoms

Although many empirical studies, predominantly conducted in Western contexts, have demonstrated a link between minority stressors and depressive symptoms faced by LGBTQ people (Meyer, 2003), there has been limited attention directed toward the underlying mechanisms explaining this link (Baams et al., 2018; Diamond & Alley, 2022). One proposed mechanism—Hatzenbuehler's psychological mediation framework (2009)—suggests that stigma-induced stressors influence mental health through specific cognitive, affective, and behavioral processes, namely rumination, isolation, and emotion regulation. Our study echoes this view about the importance of specifying these processes and understanding how minority stressors affect mental health. Synthesizing insights from both the symbolic interactionist perspective (Goffman, 1963) and social safety theory (Diamond & Alley, 2022), as explained below, we examined whether perception of workplace climate served as a mediator in the underlying psychological mechanism accounting for the relationship between minority stressors and depressive symptoms.

Perception of Workplace Climate as a Mediator

Inspired by the symbolic interactionist perspective (Goffman, 1963), we conceptualized perception of workplace climate as a cognitive and affective outcome of social interactions and prior experiences, rather than an objective characteristic of the workplace. This perspective suggests

that people bring their prior knowledge, expectations, and experiences to social interactions and that they exercise agency in their interpretations of these interactions (Goffman, 1963). In work settings, LGBTQ employees define their workplaces as supportive or hostile as they interact with co-workers and interpret these interactions (Ueno et al., 2020). While the symbolic interactionist perspective has not been directly applied to previous quantitative studies of LGBTQ people in workplaces, it has been widely used in qualitative studies to examine different marginalized groups, including immigrants and sexual minority young adults (Ueno et al., 2020). This perspective alerts us that we need to avoid over-simplifying workplace climate as only an organizational-level phenomenon experienced similarly by members of a marginalized group. It helps us to understand that LGBTQ employees may draw upon prior experiences of discrimination, internalized homophobia, expectations of rejection, and identity concealment in order to interpret workplace climate as supportive or hostile. In other words, when minority groups experience minority stress, they are more likely to perceive the surrounding climate negatively. This perspective is also supported by recent research focused on social safety—defined as individuals’ experiences of social connection, inclusion, and belonging—in discussing the effects of stigma-induced stress on health among LGBTQ people (Diamond & Alley, 2022; Slavich, 2020). From a social safety perspective, Diamond and Alley (2022) pinpoint the limitations of the minority stress model, which has granted too much explanatory power to “stress” as the primary mechanism underlying LGBTQ health disparities. They argue for the need to address social safety, or a lack thereof, as primary effects of stigma-induced stress. They emphasize that individuals develop “social safety schemas” based on their previous histories of stigma-related stressors, which, in turn, guide their cognitive and affective evaluations of different settings (e.g., am I included or supported in the workplace?) (Diamond & Alley, 2022, p. 8). Nevertheless, empirical research is needed to test how different types of stressors trigger different responses to social cues of support or hostility in different domains of life. Our study serves as the first to test the empirical significance of this theory in work settings.

The above-mentioned theoretical perspectives guide us to hypothesize “perception of workplace climate” as a mediator in the relationship between minority stressors and depressive symptoms. This hypothesis also resonates with existing empirical evidence in climate studies. For instance, previous research focusing on campus climates has suggested that perceptions of the university environment mediated the relationship between minority status stress and college persistence attitudes among ethnic minority students (Wei et al., 2011). In work settings,

Henderson et al. (2018) found that greater integration of sexuality–professional identity (seeing the two social identities as compatible) was associated with a more positive perception of workplace climate, which in turn predicted greater use of personal power and transformational leadership tactics. Focusing on over 300 Italian employees in academia, Giorgi (2012) found that bullying influences health both directly and indirectly through the partial mediation of workplace climate. Although these studies did not test different minority stressors, they offer empirical support to the view that different types of stressful experiences can provoke different evaluations of academic and workplace environments, which, in turn, influence one’s performance and/or well-being.

Resilience as a Moderator

Resilience forms a critical part of the minority stress model because it serves as a crucial personal resource enabling people to survive and thrive in the face of stress (Meyer, 2015). It functions as an adaptive process through which an individual makes decisions about how to respond to social stimuli and others’ feedback in order to meet personal needs and social demands within stressful environments (Warren et al., 2012). In line with the symbolic interactionist perspective on individual agency and social interactions (Goffman, 1963), being resilient means that individuals exercise agency and act in ways that maximize their healthy functioning by reframing negative social cues of hostility and adapting their reactions to these cues (Warren et al., 2012).

Resilience has been examined as a moderator that ameliorates the negative effects of minority stressors on the mental health of LGBTQ people, although studies have yielded mixed results. Dunn et al. (2014) found that resilience moderated the relationship between sexual identity concealment and depressive symptoms among Brazilian sexual minority men. Miceli et al.’s (2019) study on bisexual people in the USA showed that resilience moderated the association between minority stress and suicidal behaviors among respondents with (but not those without) a reported mental health diagnosis. Another study on Italian bisexual individuals found a negative relationship between resilience and psychological distress, but no moderating effect of resilience on the relationships between minority stressors and psychological distress (Scandurra et al., 2020). Li et al. (2021) found that resilience moderated the association between enacted stigma and depressive symptoms and the association between enacted stigma and internalized stigma among Chinese gay men, but it did not moderate the relation between internalized stigma and depressive symptoms. These inconsistent findings suggest

that resilience may play a vital role in buffering the negative effects of stigma, but further research on how and in what environment resilience may translate into better mental health outcomes is warranted.

The Current Study

Building a bridge between minority stress studies and climate studies, this study marks the first key step in examining moderated mediation pathways linking minority stressors and depressive symptoms, thereby identifying potential interventions that suit the local context. Our focus on Chinese LGBTQ employees responds to the call for greater cross-cultural understanding of workplace challenges in diversity management research (Özbilgin & Chanlat, 2017). Research suggests that western assumptions about the best approaches to managing diversity may not be fully applicable to Asian contexts, which place greater emphasis on collectivist social values (Tang et al., 2021). LGBTQ-friendly policies and practices are far from common in non-Western contexts, including Hong Kong (Lo et al., 2016, 2024). It is against this backdrop that we argue for the importance of investigating individual employees' perceptions of workplace climate, rather than examining objective measures, such as organizational policies and practices. We also recognize the need to test the relationships between different minority stressors and depressive symptoms in the Chinese context, considering the mixed results in the literature. It is important to understand that different types of stressors can trigger different responses to social cues of support or hostility in various settings and that they are differentially amenable to resilience and coping strategies (Diamond & Alley, 2022; Lazarus & Folkman, 1984). We thus hypothesized that (a) workplace climate would mediate the association between each type of minority stressor (experiences of discrimination, internalized homophobia, expectations of rejection, and concealment of identity) and depressive symptoms [$H_1 - H_4$] and (b) resilience would moderate the direct and indirect effects of each type of minority stressor on depressive symptoms [$H_5 - H_8$] (Fig. 1).

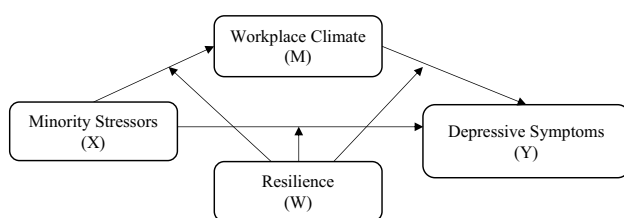


Fig. 1 Hypothesized conceptual model

Methods

Study Participants and Procedures

This study was conducted using an online survey between November 2021 and February 2022. Hong Kong was chosen as the site of study due to its unique position as the Special Administrative Region of China. Often positioned as a metropolitan city where East meets West, Hong Kong has witnessed increasing government- and community-led initiatives aimed at enhancing diversity and inclusion at work (Tang et al., 2021), despite the continued dominance of heteronormative, family-centered culture (Lo et al., 2023; Tang et al., 2021). These mixed conditions in Hong Kong present both opportunities and challenges for LGBTQ employees, offering an ideal case to examine the potential risk and protective factors affecting Chinese LGBTQ people.

We recruited participants by asking seven local LGBTQ organizations to distribute the online survey to their members through mailing lists and social networks. Advertisements about the survey were also posted on social media platforms. The study utilized snowball sampling to reach personal networks of people who were informed about the study to facilitate a broader sample of LGBTQ participants. It is noteworthy that, until now, there has been neither census data identifying the Chinese LGBTQ population nor research based on a random sample of LGBTQ individuals in Hong Kong. That said, we deliberately diversified the sample by using multiple recruitment channels. We also consulted community partners about the survey design and pilot-tested the questionnaire before it was distributed to potential participants.

The first page of the online survey offered a clear description of the study and allowed potential participants to complete an informed consent form and confirm that they met the inclusion criteria of the study. Individuals were eligible if they (a) were aged 18 or over, (b) identified as LGBTQ, and (c) were living in Hong Kong and able to read Chinese. The survey took about 15–20 min to complete. The study was approved by the research ethics committee at the University.

The sample consisted of 706 Chinese LGBTQ respondents, ranging in age from 18 to 57 years, with a mean of 29.79 years ($SD = 7.52$). Among the 706 respondents, 62.46% were females, 36.26% were males, and 1.27% identified with other genders. As for sexual orientation, 39.94% identified as lesbian, 30.74% as gay, 25.64% as bisexual, and 3.68% as other sexual identities. Given the study's focus on LGBTQ people's workplace experiences, only respondents who had engaged in formal employment within the previous year ($N = 706$) were included in the

analysis. Most respondents had completed university education (75.64%), while some had a high school or diploma education (24.36%).

Measures

Experiences of Discrimination

The 8-item Sexual Minority Stressor Scale was used to measure respondents' experiences of discrimination (Heron et al., 2018). The items (e.g., "I was explicitly threatened with harm as a result of my sexual minority identity" and "I heard anti-LGBT talk from family members") were rated on a 7-point Likert-type scale ranging from 0 (*not at all*) to 6 (*a lot*). A higher sum score indicates more frequent exposure to discrimination. This scale has demonstrated good validity in previous research on sexual minority people in Chinese society (Huang, 2023). The Cronbach's alpha of the scale in the study was 0.82.

Internalized Homophobia

The 11-item Chinese Internalized Homophobia Scale (Ren & Hood, 2018) was used to assess respondents' levels of internalized homophobia. It measures the extent to which a respondent internalizes and endorses negative beliefs and attitudes regarding their sexual identity. Sample items include "If I were a heterosexual, I would be happier" and "I cannot do intimate things like heterosexual couples do in public." The items were rated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A higher sum score indicates a higher degree of internalized homophobia. The scale was developed and validated using a sample of Chinese gay men, demonstrating good internal consistency and construct validity (Ren & Hood, 2018). The Cronbach's alpha of the scale used in the study was 0.70.

Expectations of Rejection

Respondents' expectations of rejection were measured using the 3-item Acceptance Concerns subscale of the Lesbian, Gay, and Bisexual Identity Scale (Mohr & Kendra, 2011). This subscale measures how sensitive one is toward the potential for being stigmatized as a sexual minority person. The items (e.g., "I can't feel comfortable knowing that others judge me negatively for my sexual orientation") were rated on a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). A higher sum score indicates a greater level of expectations of rejection. The items were translated into Chinese and then back-translated into English by two independent bilingual researchers. The research team reviewed both versions to ensure accuracy and pilot-tested the translated items with LGBTQ individuals to ensure

comprehensibility and appropriateness. The items showed good internal consistency ($\alpha = 0.84$) in the current study.

Concealment of Identity

Five items were used to measure respondents' levels of concealment of identity. Respondents were asked to indicate the extent to which they remained in the closet in front of their family, LGBTQ friends, heterosexual friends, co-workers, and healthcare providers on a 4-point Likert scale from 1 (*out to all*) to 4 (*out to none*). A sample item included "I have come out to my family." Higher scores indicate higher levels of concealment of one's identity. These items are easy to administer and represent a generic measure of respondents' degree of staying in the closet in different social environments (Meyer et al., 2002). The Cronbach's alpha was 0.78 in the study.

Workplace Climate

The Lesbian, Gay, Bisexual, and Transgender Climate Inventory (Liddle et al., 2004) was used to measure respondents' perceptions of their workplace climate. This 20-item measure is designed to assess the perception of workplace climate from the perspective of LGBTQ individuals. It captures the full range of workplace climates, from hostility to support. The items (e.g., "LGBT people consider it a comfortable place to work" and "LGBT people are less likely to be mentored" (reverse coded)) were rated on a 4-point Likert scale (1 = *doesn't describe at all*, 2 = *describes somewhat or a little*, 3 = *describes pretty well*, and 4 = *describes extremely well*). Higher total scores reflect greater levels of perceived workplace support. The Chinese scale was developed via the translation and back-translation method. The items were pilot-tested with LGBTQ individuals to ensure comprehensibility and appropriateness. In the current study, this scale showed good internal consistency ($\alpha = 0.96$).

Resilience

The 10-item Connor-Davidson Resilience Scale (CD-RISC-10) (Campbell-Sills & Stein, 2007) was used to measure respondents' levels of resilience. This measures how well one can bounce back from adversity. One sample item was "I believe I can achieve my goals, even if there are obstacles." Items were rated on a 5-point scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). A higher composite score indicates a higher level of resilience. The scale has been proven to be applicable for Chinese populations and has shown good reliability and validity in previous studies (Wang et al., 2010). For this study, we created a dichotomous variable using the mean of the resilience composite score as the threshold. Respondents with scores below the

mean were classified into the lower resilience group, while those with scores above the mean were classified into the higher resilience group. The Cronbach's alpha was 0.90 in the study.

Depressive Symptoms

Depressive symptoms were measured using the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983), on which 7 out of 14 items assess the presence and severity of depressive symptoms. The 7 items assessing depressive symptoms (e.g., "I still enjoy the things I used to enjoy" (reverse coded) and "I feel as if I am slowed down") were rated on a 4-point Likert scale, ranging from 0 (*never or rarely in the preceding week*) to 3 (*most of the time or all of the time in the preceding week*). Item scores were summed, with higher scores indicating higher levels of depressive symptoms. The HADS has been validated and is widely used across culturally diverse groups, including Chinese populations (e.g., Chan et al., 2010; Lo et al., 2016). Internal reliability of the depressive symptom items was supported with a Cronbach's alpha of 0.82 in the current study.

Data Analysis

Our analytical strategies comprised a combination of descriptive, bivariate, and multivariate tools. Chi-square tests and independent samples *t*-tests were used to compare the study variables. List-wise deletion was defaulted in PROCESS Macro to address any missing data, in which all of the study variables had less than 7% missing cases, ranging from 0% for age to 6.9% for resilience. Thus, cases with missing data on key study variables were excluded from the analyses (Kang, 2013). A power analysis conducted using G*Power 3.1.9.7 determined that a minimum of 89 participants was necessary to detect a significant mediating effect, given an effect size of 0.15, a significance level of 0.05, and a power of 0.95. This indicates that our sample size ($N = 706$) was sufficiently large to justify the use of list-wise deletion.

For the primary analysis, Hayes' (2018) PROCESS macro (Model 4) was utilized with the bootstrapping approach to evaluate the mediating effects of perception of workplace climate on the relationships between the four types of minority stressors and depressive symptoms [$H_1 - H_4$]. In particular, the bootstrapping approach generated 95% bias-corrected confidence intervals for the indirect effect from 5000 data resamples. The bootstrapping approach can analyze skewed data and test linear hypotheses in the absence of normality (Chernick, 2011). The mediation effect was determined to be of statistical significance if zero was excluded from the confidence intervals. The study also evaluated whether resilience served to moderate these four mediation processes [$H_5 - H_8$]. Hayes's

PROCESS Macro (Model 59; Hayes, 2018) was employed to analyze the moderated mediation model. Age, gender, and income were statistically controlled when testing all the hypotheses as previous research has shown that these factors significantly influence the nature and severity of stress experiences and mental health outcomes (Hatzenbuehler, 2009; Meyer, 2003). All data analyses were performed using SPSS 27.

Results

Descriptive and Bivariate Results

In our study sample, the average age of participants was 29.79 years (see Table 1). A significantly higher number of females (62.46%) than males (36.26%) or respondents with other gender identities (1.27%) completed the survey. In terms of sexual orientation, 39.94% identified as lesbian, 30.74% as gay, 25.64% as bisexual, and 3.68% as others. Regarding income, 43.34% reported an income of HK\$19,001–49,999, 24.93% reported HK\$10,001–19,000, 18.84% reported below HK\$10,000, 10.48% reported HK\$50,000–99,999, and 2.41% reported HK\$100,000 or above.

The independent samples *t*-tests showed significant mean differences in internalized homophobia ($t = 13.37$, $p < 0.05$), expectations of rejection ($t = 13.37$, $p < 0.05$), concealment of identity ($t = 13.37$, $p < 0.05$), and perception of workplace climate ($t = 13.37$, $p < 0.05$) according to resilience levels (Table 1). The lower resilience group showed higher levels of internalized homophobia, expectations of rejection, concealment of identity, and depressive symptoms than the higher resilience group. However, the lower resilience group showed lower levels of perceived LGBTQ-supportive workplace climate than the higher resilience group.

Results of Mediation Models [$H_1 - H_4$]

[H_1] Experiences of Discrimination (X) → Workplace Climate (M) → Depressive Symptoms (Y)

As shown in Fig. 2, the direct effect of experiences of discrimination on depressive symptoms was significant. Additionally, the bootstrapped 95% CI did not include zero for the indirect effect, which means that the indirect effect of experiences of discrimination on depressive symptoms through perceived workplace climate was significant (Table 2). The direct and indirect effects made up 85.71% and 14.29%, respectively, of the total effect.

Table 1 Descriptive information by resilience ($N = 706$)

Variable	Total	Resilience % (n) or M (SD)		^a χ^2 or t
		Low 53.27 (350)	High 46.73 (307)	
Age (range 18–57)	29.79 (7.52)	28.57 (6.98)	31.08 (7.69)	−2.52***
Gender				
Male	36.26 (256)	37.71 (132)	35.18 (108)	1.22
Female	62.46 (441)	60.57 (196)	63.84 (212)	
Other gender identities	1.27 (9)	1.71 (6)	0.98 (3)	
Sexual orientation				
Gay	30.74 (217)	29.71 (104)	31.92 (98)	9.94*
Lesbian	39.94 (282)	36.00 (126)	44.63 (138)	
Bisexual	25.64 (181)	30.00 (105)	20.00 (62)	
Other sexual identities	3.68 (26)	4.29 (15)	3.26 (10)	
Income				
Below HK\$10,000	18.84 (133)	232.43 (82)	14.33 (44)	33.32***
HK\$10,001–HK\$19,000	24.93 (176)	30.29 (106)	18.57 (57)	
HK\$19,001–HK\$49,999	43.34 (306)	35.71 (125)	50.81 (156)	
HK\$50,000–HK\$99,999	10.48 (74)	9.71 (34)	12.05 (37)	
HK\$100,000 or above	2.41 (17)	0.86 (3)	4.23 (13)	
Experiences of discrimination (range 0–48)	18.30 (9.33)	18.77 (9.54)	17.92 (9.17)	1.16
Internalized homophobia (range 11–55)	27.27 (8.32)	29.13 (8.38)	25.11 (7.71)	6.37***
Expectations of rejection (range 3–18)	10.51 (4.21)	11.51 (4.03)	9.37 (4.13)	6.70***
Concealment of identity (range 5–20)	13.11 (3.38)	13.81 (3.20)	12.22 (3.37)	6.06***
Workplace climate (range 23–78)	51.86 (12.63)	49.48 (12.36)	54.66 (12.62)	−5.19***
Depressive symptoms (range 0–19)	5.82 (3.90)	7.65 (3.67)	3.75 (3.02)	14.94***

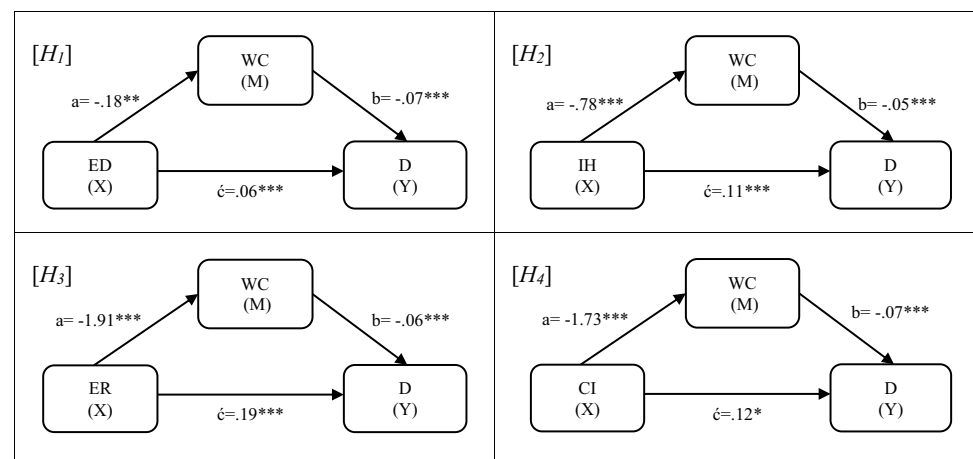
* $p < .05$, ** $p < .01$ Note. Actual n varies based on missing values;^aChi-square tests for percentage difference, t -tests for mean differences**Fig. 2** Mediation models for depressive symptoms* $p < .05$, ** $p < .01$, *** $p < .001$.Note. Control variables for H_{1-4} were age, gender, income; CI = concealment of identity, ED = experiences of discrimination, ER = expectations of rejection, IH = internalized homophobia, WC = workplace climate, DS = depressive symptoms

Table 2 Direct and indirect effects of minority stressors on depressive symptoms

Relationship	Effect	Estimate	SE	95% CI		Ratio of effect to total effect
[H ₁] ED → WC → D	Direct	.06	.02	.03	.09	85.71%
	Indirect	.01	.01	.00	.02	14.29%
	Total	.07	.02	.04	.11	
[H ₂] IH → WC → D	Direct	.11	.02	.07	.15	73.33%
	Indirect	.04	.01	.01	.06	26.67%
	Total	.15	.02	.11	.18	
[H ₃] ER → WC → D	Direct	.19	.04	.11	.27	73.08%
	Indirect	.07	.02	.03	.10	26.92%
	Total	.26	.04	.18	.33	
[H ₄] CI → WC → D	Direct	.12	.05	.01	.21	50%
	Indirect	.12	.03	.07	.17	50%
	Total	.24	.05	.14	.33	

Note. *CI*, concealment of identity; *D*, depressive symptoms; *ED*, experiences of discrimination; *ER*, expectations of rejection; *IH*, internalized homophobia; *WC*, workplace climate

[H₂] Internalized Homophobia (X) → Workplace Climate (M) → Depressive Symptoms (Y)

The direct effect of internalized homophobia on depressive symptoms was significant. The indirect effect of internalized homophobia on depressive symptoms through perceived workplace climate was also significant (Fig. 2, Table 2). The direct and indirect effects made up 73.33% and 26.27%, respectively, of the total effect (Table 2).

[H₃] Expectations of Rejection (X) → Workplace Climate (M) → Depressive Symptoms (Y)

The mediation analysis revealed that both the direct and indirect effects of expectations of rejection on depressive symptoms were significant (Fig. 2, Table 2). The direct and indirect effects made up 73.08% and 26.92%, respectively, of the total effect (Table 2).

[H₄] Concealment of Identity (X) → Workplace Climate (M) → Depressive Symptoms (Y)

We also found that concealment of identity had significant direct and indirect effects on depressive symptoms (Fig. 2, Table 2). The direct and indirect effects made up 50% and 50%, respectively, of the total effect (Table 2).

Results of Moderated Mediation Models [H₅–H₈]

[H₅] Experiences of Discrimination (X) → Workplace Climate (M) → Depressive Symptoms (Y) by Resilience (W)

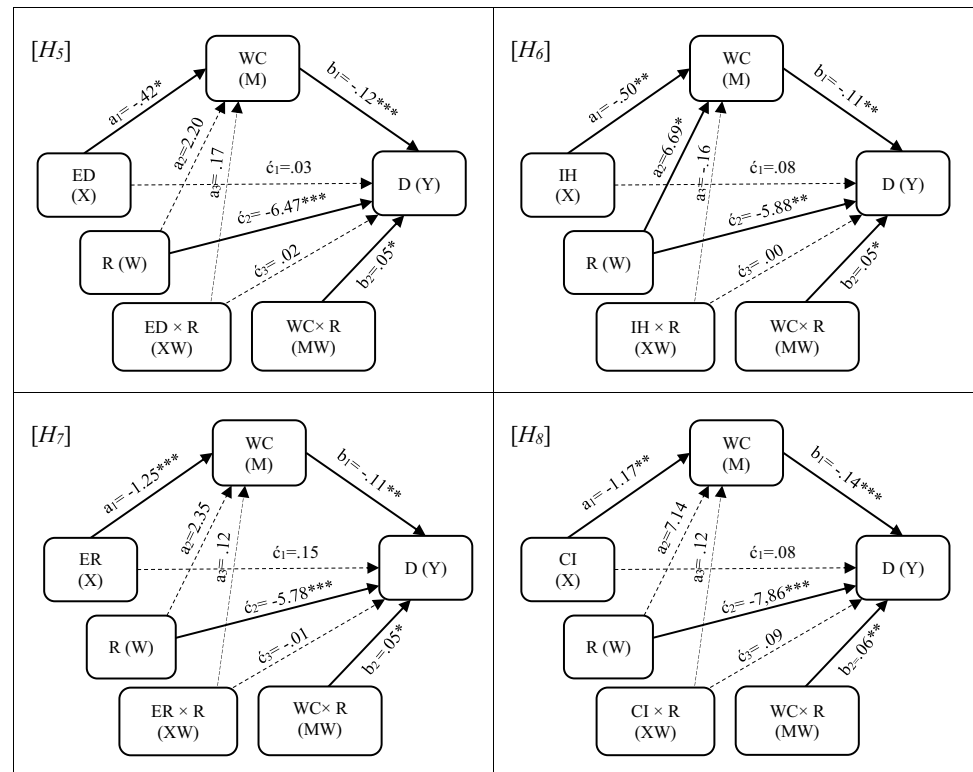
As presented in Fig. 3 and Table 3, the results of our moderated mediation analysis revealed that resilience had a significant moderating effect on the relationship between

perceived workplace climate and depressive symptoms. This demonstrates that the effect of perceived workplace climate on depressive symptoms varied depending on levels of resilience (low vs. high; Fig. 3). As illustrated in Fig. 4, perceived workplace climate and depressive symptoms were negatively associated for respondents with low resilience, but this association was not significant for those with high resilience. For respondents with high resilience, levels of depressive symptoms were consistently low, regardless of their perceptions of workplace climate, whereas people with low resilience reported increased rates of depressive symptoms when they perceived their workplace climate to be negative.

The index of moderated mediation in Table 3 indicates that the indirect relationship between experiences of discrimination and depressive symptoms through perceived workplace climate was significantly moderated by resilience. Specifically, the conditional indirect effect of experiences of discrimination on depressive symptoms through perceived workplace climate was significant only for respondents with low resilience.

[H₆] Internalized Homophobia (X) → Workplace Climate (M) → Depressive Symptoms (Y) by Resilience (W)

Similarly, the moderated mediation results showed that resilience significantly moderated the association between perceived workplace climate and depressive symptoms, demonstrating that the effect of perceived workplace climate on depressive symptoms varied depending on the level of resilience (low vs. high; Fig. 3, Table 3). As illustrated in Fig. 4, respondents with high resilience reported consistently low rates of depressive symptoms regardless of their perceptions of workplace climate, whereas respondents with

Fig. 3 Moderated mediation models for depressive symptoms

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

Note. Control variables for H_{5-8} were age, gender, income; CI = concealment of identity, ED = experiences of discrimination, ER = expectations of rejection, IH = internalized homophobia, WC = workplace climate, R = resilience, D = depressive symptoms

Table 3 Conditional indirect effects of minority stressors on depressive symptoms

	Effect	Boot SE	BootLLCI	BootULCI
Conditional indirect effect of X on Y				
[H ₅] ED → WC → D				
R – Low	.02	.01	.01 .03	
R – High	.00	.00	– .00 .01	
[H ₆] IH → WC → D				
R – Low	.04	.02	.01 .06	
R – High	.00	.01	– .02 .03	
[H ₇] ER → WC → D				
R – Low	.07	.02	.03 .12	
R – High	.01	.01	– .02 .05	
[H ₈] CI → WC → D				
R – Low	.11	.03	.06 .17	
R – High	.02	.03	– .03 .08	
Index of moderated mediation				
[H ₅] ED → WC → D by R	– .02	.01	– .03 – .00	
[H ₆] IH → WC → D by R	– .03	.01	– .07 – .01	
[H ₇] ER → WC → D by R	– .06	.03	– .11 – .00	
[H ₈] CI → WC → D by R	– .09	.04	– .17 – .01	

Note. CI, concealment of identity; ED, experiences of discrimination; ER, expectations of rejection; IH, internalized homophobia; WC, workplace climate; R, resilience; D, depressive symptoms

low resilience reported higher levels of depressive symptoms when they perceived their workplace climate as negative.

The index of moderated mediation indicates that the indirect association between internalized homophobia and depressive symptoms through workplace climate was significantly moderated by resilience (Table 3). The conditional indirect effect of internalized homophobia on depressive symptoms through workplace climate was significant only among respondents with low resilience.

[H₇] Expectations of Rejection (X) → Workplace Climate (M) → Depressive Symptoms (Y) by Resilience (W)

We also found that resilience had a significant moderating effect on the relationship between perceived workplace climate and depressive symptoms in the moderated mediation model, demonstrating that the effect of workplace climate on depressive symptoms varied according to levels of resilience (low vs. high; Fig. 3). As illustrated in Fig. 4, respondents with high resilience reported consistently low levels of depressive symptoms regardless of their perceptions of workplace climate, whereas those with low resilience experienced increased depressive symptoms when they perceived their workplace climate to be negative.

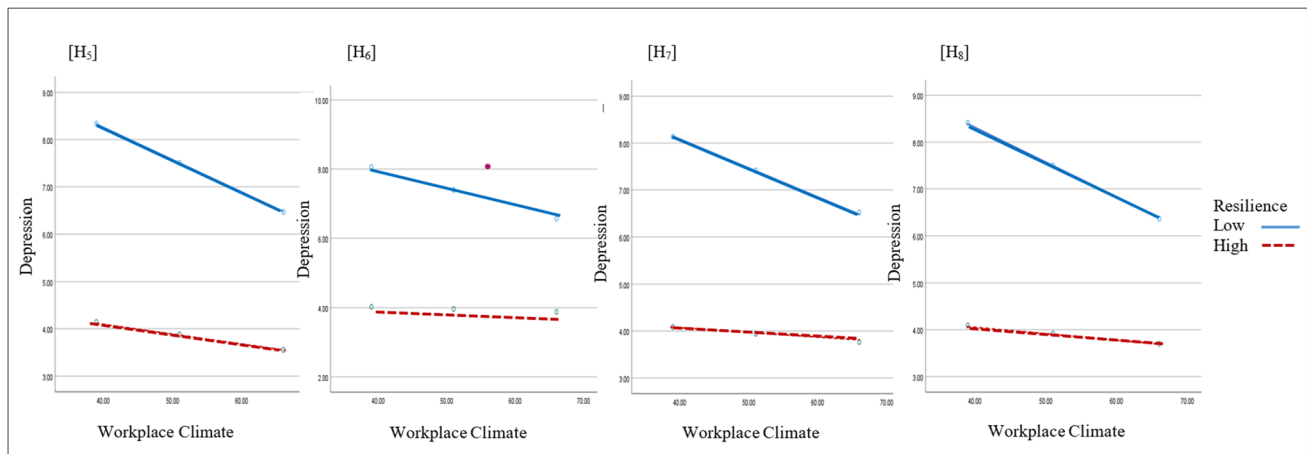


Fig. 4 Interaction effects of workplace climate and resilience on depressive symptoms

The index of moderated mediation in Table 3 revealed that the indirect relationship between expectations of rejection and depressive symptoms through workplace climate was significantly moderated by resilience. The conditional indirect effect of expectations of rejection on depressive symptoms through workplace climate was significant only among respondents with low resilience (Table 3).

[H₈] Concealment of Identity (X) → Workplace Climate (M) → Depressive Symptoms (Y) by Resilience (W)

We found that resilience had a significant moderating effect on the relationship between perceived workplace climate and depressive symptoms in the moderated mediation model (Fig. 3). As illustrated in Fig. 4, respondents with high resilience reported consistently low levels of depressive symptoms regardless of their perceptions of workplace climate, whereas those with low resilience reported high levels of depressive symptoms when they perceived their workplace climate to be negative.

The index of moderated mediation in Table 3 revealed that the indirect relationship between concealment of identity and depressive symptoms through perceived workplace climate was significantly moderated by resilience. The conditional indirect effect of concealment of identity on depressive symptoms through perceived workplace climate was significant only among respondents with low resilience (Table 3).

Discussion

This study found that perception of workplace climate mediated the relationship between minority stressors and depressive symptoms. As shown by the moderated mediation

models, the conditional indirect effects of the four types of minority stressors on depressive symptoms through perception of workplace climate were significant only for respondents reporting lower levels of resilience. This section discusses these findings and their implications.

Mediating Effects of Perception of Workplace Climate

In support of our hypotheses [$H_1 - H_4$], mediation analysis suggested that perception of workplace climate mediated the relationship between minority stressors and depressive symptoms. Extending the minority stress model in workplace contexts and supporting the symbolic interactionist perspective (Goffman, 1963), our findings suggest that stigma-induced stressors as experienced by LGBTQ individuals might be associated with the way in which they interact with their surroundings and perceive greater levels of support or hostility at work. These findings echo Diamond and Alley's (2022) theoretical perspective that, rather than focusing on cumulative stress as the primary mechanism underlying LGBTQ health disparities, individuals' subjective perceptions of social connection, inclusion, and belonging in certain settings should not be overlooked and should instead be studied as one of the potential effects of stigma-induced stress. As shown in the mediation models, the statistically significant mediating role of perception of workplace climate suggests that individuals subjected to more minority stressors were likely to see the workplace in a more negative light and that such a perception played a role in the pathways between minority stressors and depressive symptoms. In particular, the indirect effect of concealment of identity on depressive symptoms through perception of workplace climate was found to be the strongest (the ratio of indirect to total effect was 50%), compared to that of the other minority stressors. This might be because

concealment of identity requires constant threat-vigilance and cognitive efforts directed toward self and other monitoring, which might make LGBTQ employees particularly reactive to social cues of hostility or judgement in workplaces (Diamond & Alley, 2022). This state of hypervigilance also needs to be understood within the Chinese context, which places great emphasis on interpersonal relations as the foundation of social status, and where coming out as an LGBTQ employee is still generally considered a huge threat to careers and social connections (Kong, 2023). While this potential explanation warrants further investigation into the nature of different minority stressors in the Chinese context, along with longitudinal studies, our study highlights the importance of incorporating perception of workplace climate into the investigation of minority stress and mental health disparities affecting LGBTQ people.

Moderating Effects of Resilience

Another important finding was that resilience moderated the relationship between perception of workplace climate and depressive symptoms and that the mediated relationship between minority stressors and depressive symptoms through perception of workplace climate was significantly moderated by resilience. The conditional process worked differently in subgroups of LGBTQ people: those with higher levels of resilience were able to buffer the adverse effects of their negative perceptions of workplace climate and were less likely to report depressive symptoms. The reason for these results may be that LGBTQ people with higher levels of resilience have a greater ability to function well and adapt to stressful environments despite adversity (Smith et al., 2008) or, more specifically, despite their negative perceptions of workplace climate. Greater resilience also predicts more positive emotionality (Tugade & Fredrickson, 2004), which might help individuals to bounce back from negative evaluations of workplace climate. Supporting our hypotheses [$H_5 - H_8$], these results largely confirmed previous studies demonstrating the protective role of resilience in LGBTQ people's mental health (Bry et al., 2018) while highlighting a more specific pathway for targeted depression interventions in workplace settings.

Meanwhile, the finding that resilience only moderated the relationship between perception of workplace climate and depressive symptoms, but not that between minority stressors and perception of workplace climate or between minority stressors and depressive symptoms, is worth discussing. There are two possible explanations for this unexpected finding. Firstly, although previous studies generally suggest an overall attenuating effect of resilience on negative mental health outcomes (Fedina et al., 2021; Meyer, 2015), the unique nature of minority stress should not be overlooked. While different types of minority stressors can create different adaptive challenges (Diamond & Alley,

2022), they largely share one thing in common—they involve challenges that may be considered unchangeable or uncontrollable (Baams et al., 2018), as they are tied to everyday social interactions and are often perpetrated by others in a predominantly heteronormative environment, such as that in Hong Kong. Previous research has suggested that coping in the face of uncontrollable (versus controllable) stressors may not be effective in alleviating their negative impacts (Baams et al., 2018; Penley et al., 2002). This nature of minority stress might have exceeded the buffering ability of resilience. Secondly, it is important to understand resilience as a dynamic and modifiable process that hinges on other cognitive, contextual, and cultural factors (Fedina et al., 2021), such as self-efficacy, sense of mastery, coping skills, and community resources (Reviere et al., 2007; Rodriguez et al., 2008). In other words, the attenuating effect of resilience on negative mental health outcomes might be stronger if it was measured in conjunction with the other pillars of psychological capital (Baams et al., 2018). Further research is needed to dig more deeply into other factors that enhance or hinder resilience, in order to better inform culturally sensitive interventions.

Implications for Social Policy, Practice, and Future Research

Social Policy and Practice

Examining perceptions of workplace climate constitutes an important part of the agenda for workplace diversity and inclusion (D&I), especially in an era when evidence-based practices and policymaking are recommended (Byington et al., 2021; Lloren & Parini, 2017). Based on our findings, interventions at the interpersonal, organizational, and societal levels must be considered. We found that LGBTQ employees might be vulnerable to poor mental health if they perceived their workplace to be unsupportive. In Chinese society, reciprocity in social relationships, including work relationships, and the protection of face (prestige) play a prominent role in people's well-being (Lo, 2022, 2023; Yang & Kleinman, 2008). It is thus important to implement D&I initiatives, such as internal training seminars and mentorship programs, to enhance employees' understanding of minority stressors and support for LGBTQ employees.

Additionally, the protective role of resilience that was found in this study highlights that interventions to improve mental health should integrate components to enhance resilience among LGBTQ people. Not only should mental health professionals be aware of minority stressors associated with an LGBTQ identity, but they should also be equipped with skills and knowledge to implement resilience programs through a strength-based preventative approach. For instance, a study in China examined the effectiveness

of cognitive behavioral therapy for gay men and suggested that the intervention is useful for reducing depressive symptoms and improving resilience and perceived social support (Yang et al., 2018). At an organizational level, implementing anti-discrimination policies and D&I initiatives is important; but it is equally important for organizations to measure how inclusive or welcoming their LGBTQ employees actually perceive their workplace to be in order to evaluate the effectiveness of these policies and initiatives and track progress (Pichler et al., 2017). At a societal level, raising public awareness of LGBTQ rights and minority stressors will enable people to adapt to the growing and changing diversity in working populations and to consider how one can encourage a sense of support and respect for all individuals. These changes will contribute to a more inclusive environment that is particularly important for marginalized individuals who are less resilient and in need of support.

Future Research

Linking studies of minority stress with workplace climate studies and drawing on the symbolic interactionist perspective (Goffman, 1963) and social safety theory (Diamond & Alley, 2022), the present study is theoretically innovative because it calls for more attention to the cyclical nature of social interactions at work. Through the moderated mediation models, we have demonstrated a clear pattern within the specific pathways linking different stigma-induced minority stressors and depressive symptoms, through the mediating role of perception of workplace climate and the moderating role of resilience. By specifying these cognitive, affective, and behavioral processes, this study responds to scholars' call to progress beyond straightforward, linear models positing that more cumulative stress exposure leads to more health problems (Hatzenbuehler, 2009), and calls for further research to better understand how stigma can limit people's subjective perceptions of social connection (Diamond & Alley, 2022). Although the study's correlational design prevents conclusions about causality, the results highlight the importance of addressing individual employees' perceptions of workplace climate, rather than seeing workplace climate as an objective, unchangeable characteristic of the workplace.

By extending the minority stress model to work settings, this study marks the first key step toward mapping out intervenable pathways between minority stress and mental health among Chinese LGBTQ employees. Notably, we acknowledge that a focus on the individual's resilience might be confused with placing the responsibility to cope with minority stress on the individual (Meyer, 2003). It is important to avoid "blaming the victim" and to identify the adaptive demands posed by minority stressors, while recognizing the importance of political and structural change (Meyer, 2020, p. 2289). We argue that perception of workplace climate

should be regarded as one of these adaptive demands, which have long been overlooked in previous studies. While the current study design was based on the premise that different types of minority stressors could create different adaptive challenges (Diamond & Alley, 2022), and separately tested the four minority stressors in the moderated mediation models, a fruitful path for future research is to consider intersectionality in shaping LGBTQ mental health disparities (Fig. 5). That is, further studies are needed to understand how different configurations of minority stressors, identities, and privileges intersect and how different forms of coping are used (Baams et al., 2018), considering the effects of all minority stressors and coping skills (e.g., problem-solving versus emotion-focused coping) simultaneously. It would also be beneficial to incorporate other interpersonal, strength-focused factors, such as psychosocial support from work-related networks (Trau, 2015) and allyship (Fletcher & Marvell, 2022; Ho et al., 2023), into the tested model in order to replicate and enrich the findings. Future research should also study the role of community resilience to provide a more comprehensive picture of minority stress processes at work (Meyer, 2015), especially in contexts where community support and resources are more commonplace.

Limitations

The findings should be considered in light of several limitations. Given the online survey design, the sample cannot be considered representative of all LGBTQ employees in Hong Kong. The cross-sectional design limited the ability to draw causal inferences in this study. The data was not collected longitudinally. Although these issues limit the generalizability of our findings, they enabled anonymous data collection and ensured the confidentiality of respondents, who might not have joined the study otherwise. In addition, given that all the measures were self-reported, self-report bias (including recall bias and social desirability bias) may exist. In terms of perceptions of workplace climate, while we followed the recommendations of Liddle et al. (2004) and other studies to capture the full range of workplace

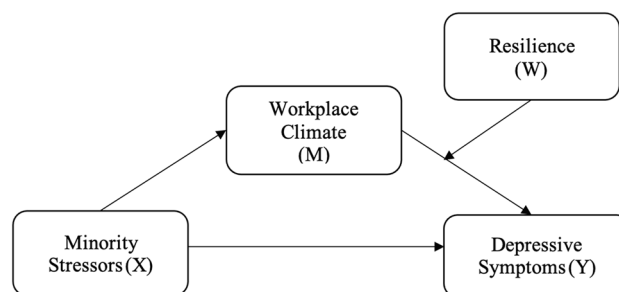


Fig. 5 Final moderated mediation model

climate from hostility to support, future studies would benefit from including independent scales for workplace support and workplace hostility, in line with the recommendations of Holman et al. (2019), in order to more accurately assess differences in specific supportive or hostile workplaces and how these differences may be associated with mental health.

Conclusion

To our knowledge, this is the first study to examine the moderated mediation pathways through which different minority stressors are associated with depressive symptoms. Perception of workplace climate was found to mediate the relationship between different minority stressors and depressive symptoms. The moderated mediation models demonstrated that the conditional indirect effects of different types of minority stressors on depressive symptoms through workplace climate were significant only for those with lower levels of resilience. Reducing minority stressors, enhancing perceived workplace climate, and promoting resilience are all crucial to future interventions aiming to enhance LGBTQ people's mental health.

Author Contribution All authors contributed to the study conception and design. Data collection and analysis were performed by all authors. The first and second authors contributed to the first draft of the manuscript. All authors commented on previous versions of the manuscript. They read and approved the final manuscript.

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Declarations

Ethics Approval Ethical approval was provided by the Hong Kong Polytechnic University.

Consent to Participate Informed consent was obtained from all individual participants included in the study.

Consent for Publication Consent to publish was obtained from all individual participants included in the study.

Competing Interests The authors declare no competing interests.

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