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Cultural Context Matters: Testing the Minority Stress Model among Chinese Sexual Minority Men

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Abstract

Minority stress theory (e.g., Meyer, 2003a), a model for understanding mental health disparities affecting sexual minorities, has primarily been tested in Western samples yet has not been carefully applied to the experiences of sexual minorities in a global context, including in East Asian countries. Combining minority stress theory with considerations of Chinese culture, the current study tested the associations among norm conformity, distal minority stressor (enacted stigma), proximal minority stressors (sexual identity concerns and concealment), LGB family support, and psychological distress among Chinese sexual minority men ($n = 748$). Structural equation modeling showed that sexual identity concerns mediated the associations of norm conformity, enacted stigma and lower family support with concealment. Psychological distress

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was associated with enacted stigma and lower family support, but not with proximal stressors (sexual identity concerns and concealment). Alternative model testing found sexual identity acceptance concerns predicted psychological distress and mediated the associations of norm conformity and LGB family support with distress. Findings provide partial support for the minority stress model in a Chinese context and suggest the importance of incorporating cultural considerations into minority stress conceptualizations.

Keywords

sexual minority men; minority stress; stigma; culture; mental health; China

Psychological distress is a critical issue among gay, bisexual, and other sexual minority men worldwide. Across regions, sexual minority men are more likely to experience mood and anxiety disorders than their heterosexual peers (Bostwick, Boyd, Hughes, & McCabe, 2010; X. Liu et al., 2018; Stoloff et al., 2013). Psychological distress among sexual minority men in China, the world's most populous country, is particularly concerning. Recent evidence indicates that compared to the general population, Chinese sexual minority men are at higher risk for a range of psychological distress such as mood, anxiety, obsessive-compulsive disorder symptoms, and suicidality (J. Liu, Yi, Zhao, Qu, & Zhu, 2018; Sun, Pachankis, Li, & Operario, 2020).

Minority Stress Theory

Minority stress refers to individual's experiences of adverse social conditions related to their minority status, such as experiences of stigma and discrimination due to being a racial or sexual minority (Meyer, 2003a). Minority stress theory posits that mental health disparities experienced by sexual minorities can be explained by stressors induced by a heterosexist environment (Meyer, 2003a). Specifically, the minority stress model (Meyer, 2003a) outlines a continuum of distal to proximal stressors: distal stressors refer to external, prejudice events such as discrimination (e.g., in housing and employment) and stigmatization (e.g., bullying), while proximal stressors represent stress processes through subjective appraisal of environmental contexts, such as internalization of negative societal attitudes (e.g., internalized homophobia). Concealment of sexual orientation, according to Meyer's model (2003a), is both a coping strategy and a form of proximal stress, as it subscribes to complex cognitive and emotional processes that can result in adverse psychological outcomes. Meanwhile, the minority stress model also identifies protective effects against mental health issues, such as the presence of social support (Meyer, 2003a).

Empirical support has substantiated that key components of minority stress theory, including distal stressors such as discrimination (Huebner, Rebchook, & Kegeles, 2004), stigma experience (Hatzenbuehler, 2009; Pachankis, Sullivan, Feinstein, & Newcomb, 2018) and victimization (Bostwick et al., 2014; Swann, Forscher, Bettin, Newcomb, & Mustanski, 2018), as well as proximal stressors including internalized homophobia (Newcomb & Mustanski, 2010) and concealment (Sheridan, 2017), are associated with psychological distress, and that social support serves as a protective factor (McConnell, Birkett, & Mustanski, 2016). Further, recent evidence provides a more nuanced perspective on the

minority stress process: experiences of distal stressors such as enacted stigma negatively impact mental health through proximal stressors including internalized homophobia (Feinstein, Goldfried, & Davila, 2012; Walch, Ngamake, Bovornusvakool, & Walker, 2016) and concealment (Pachankis & Bränström, 2018). Thus, stressful encounters in a non-affirmative environment confer vulnerability to proximal stress, which subsequently leads to psychological distress. However, extant evidence comes primarily from Western samples. The lack of cross-cultural validation of the model hampers its potential utility in understanding the mental health burden among sexual minority men globally.

Contextualizing Minority Stress among Chinese Sexual Minority Men

Extending the minority stress theory among Chinese sexual minority men, it is critical to situate their experiences of minority stress in sociocultural context, as ultimately, minority stress theory articulates a context-driven perspective on how social stressors due to minority status affect one's well-being (Meyer, 2003a). Aiming to contextualize minority stress among sexual minority men in China, a recent qualitative study describes a culturally-responsive model of minority stress in this population (Sun, Budge, et al., 2020). In particular, the study characterizes the "heteronormative, family-oriented culture with collectivistic values" as both the context and a source of minority stress, which affects men's proximal stress (e.g., internalized homophobia, anticipation of rejection) and coping. As a collectivistic culture, Chinese society places high value in conforming to existing social norms, which could exacerbate negative sexual identity process as well as reinforce conformity-focused coping such as concealment (Sun, Budge, et al., 2020). Indeed, Chinese sexual minorities remain hidden and largely conceal their identity. In response to the strong familial and cultural pressure to marry and procreate, which has been heightened in the past two decades by the one-child policy, it is estimated that the majority of Chinese sexual minority men eventually marry a woman (M. Liu, 2013). Qualitative research with Chinese sexual minority men suggests that concealment may stem from internalized stigma, yet it is also a relevant coping strategy in a culture where norm conformity and filial duty are emphasized (Sun, Budge, et al., 2020). For instance, some men believed that coming out was "selfish and inconsiderate to one's family," noting concealment with purposes of protecting self and family from potential distress and relational discord (Sun, Budge, et al., 2020). Thus, concealment is likely an effective coping strategy for at least some Chinese sexual minority men, while for others it could be a shame-based impression management tactic that may induce distress. A recent systematic review corroborates these findings, synthesizing three culturally-unique features shaping the minority stress experience among Chinese sexual minority men, including (a) family-oriented culture; (b) collectivistic culture that emphasizes norm conformity, and (c) concealment as a prevalent coping strategy (Sun, Pachankis, et al., 2020).

Insofar as limited research has quantitatively examined components of minority stress in China, studies have focused on testing known factors identified by literature in the West, and findings have been mixed. A longitudinal study found that internalized stigma and enacted stigma (overt experience of discrimination) did not predict psychological distress yet anticipated stigma (i.e., anticipated rejection and discrimination from others) affected both depression and anxiety (Choi, Steward, Miege, & Gregorich, 2017; Choi, Steward, Miège,

Hudes, & Gregorich, 2016). Another study showed gay-related stressful events, particularly workplace discrimination, associated with depression among sexual minority men (Y. Liu et al., 2018). A study of LGB young adults found that proximal stressors (internalized homonegativity and concealment) did not predict psychological distress, yet lower parental support did, particularly for men (Shao, Chang, & Chen, 2018), highlighting the relevance of family support in the mental health of Chinese sexual minority men. Other studies have reported internalized homophobia (Su et al., 2017; Xu, Zheng, Xu, & Zheng, 2017) and concealment (J. Liu et al., 2018; X. Liu et al., 2018) among Chinese sexual minority men to associate with poor mental health (e.g., psychological distress, depression), yet all of these four studies dichotomized a predictor or outcome variable, which could lead to biased results. Moreover, these studies often focused on one type of minority stress and did not examine aspects of Chinese culture that may affect experiences of sexual minority men. More comprehensive and culturally relevant examination of minority stress among Chinese sexual minority men is needed (Sun, Pachankis, et al., 2020).

The Present Study

The goal of the present study is twofold: (a) to test the core elements of the minority stress model, namely the relationship between minority stress and mental health, among Chinese sexual minority men, and (b) to examine minority stress in light of considerations of the sociocultural context surrounding Chinese sexual minority men. Specifically, we include norm conformity, concealment, and family support, as three factors relevant to Chinese sexual minority men identified by prior qualitative research (Steward, Miège, & Choi, 2013; Sun, Budge et al., 2020). We anticipate that norm conformity, the cultural value to believe and behave according to established societal norms rather than individual desires as well as a key variable differentiating collectivistic and individualistic societies (Bond & Smith, 1996), to predict proximal minority stress and psychological distress. Consistent with prior qualitative research (Sun, Budge, et al., 2020), we conceptualize concealment as a proximal stressor as well as a culturally-relevant coping strategy, in response to the larger conformity-emphasizing culture, one's experiences of distal stressors, and sexual identity concerns. We use the term "sexual identity concerns" to refer to the internally difficult and stressful experiences related to one's sexual orientation, such as internalized homophobia, difficult process of identity development, and concerns about others' acceptance due to sexual orientation. The choice of a relatively "global" approach to sexual identity concerns, rather than focusing on one specific aspect, such as internalized homophobia, is driven by qualitative research findings (Sun, Budge, et al., 2020) highlighting the multifaceted nature of minority stress internalization among Chinese sexual minority men, including beliefs of same-sex attraction being abnormal, difficult emotions when recognizing one's same-sex attraction, and fear and worries about rejection and judgement by others. Family support has been found to be a protective factor in the health of sexual minorities in the West (McConnell et al., 2016), and this may also be the case, perhaps even more so, for Chinese sexual minority men given the family-oriented cultural context (Shao et al., 2018).

Figure 1 depicts our research hypotheses in the form of a path model, informed by Meyer's minority stress model (2003a) and prior research described above. In areas where previous research suggests mixed results, we defer to Meyer's model to guide hypothesis

formation. Figure 1 illustrates a serial mediation model, with three predictors (Norm Conformity, Enacted Stigma, and LGB family support), two mediator variables (Sexual Identity Concerns, proximal mediator; Concealment, distal mediator), and Psychological Distress as the outcome variable. Paths that were hypothesized a priori but were not found to be statistically significant are retained in this diagram with path lines unbolded; bolded path lines indicate a significant association (support for the a priori hypothesis). We hypothesized:

- a. Each of the three predictors affects the proximal mediator Sexual Identity Concerns; we hypothesized positive associations for the first two predictors (Enacted Stigma & Norm Conformity) and a negative association for LGB Family Support.
- b. Sexual Identity Concerns is positively associated with the distal mediator Concealment; each of the predictor variables also has a direct effect on Concealment controlling for Sexual Identity Concerns (positive for the first two, negative for LGB family support).
- c. Concealment is positively associated with Psychological Distress, and Sexual Identity Concerns has a direct positive effect on Psychological Distress over and above the mediated (indirect) effect of Concealment. In addition, each of the three predictor variables has a direct effect on Psychological Distress (positive for the first two; negative for LGB Family Support), controlling for the mediated effects via Sexual Identity Concerns and Concealment.

Method

Procedure

The study was approved by the Educational and Social/Behavioral Science Institutional Review Board (IRB) at the University of Wisconsin-Madison. An anonymous online survey was created using the Qualtrics Survey Tool. Recruitment took place via WeChat-linked websites (a networking app in China) and Chinese LGBT organization websites/apps (Beijing LGBT Center, Blued, PFLAG China, and Guangzhou Zhitong LGBT Center). Eligibility criteria included (1) aged 18 or older; (2) self-identified as a Chinese man, (3) experienced sexual and/or romantic attraction to men, and (4) were fluent in the Chinese language. Individuals could learn more about the study via an anonymous link or by scanning a QR code. Once potential participants accessed the welcome page of the survey, they were asked to read through the eligibility criteria and consent form and indicate agreement in order to enroll in the study. No incentive was provided to participants. Recruitment took place between February 2017 and December 2018.

Participants

Among 992 sexual minority men enrolled in the survey, 753 completed the necessary demographic information. The average amount of missing data per participant was 15.3% [0, 64.9%]. Missingness was not related to other variables in the data (demographics such as age, education, sexual orientation, and psychosocial variables such as stigma and distress), suggesting the probability of missing completely at random (MCAR). The final analytic

sample ($n = 748$) removed five outliers identified through a Mahalanbois distance test (described in Results). Of the 748 participants, 76.6% ($n = 573$) identified as gay, 11.8% as bisexual ($n = 88$), 4.9% as non-labeled ($n = 37$), 2.8% as heterosexual ($n = 21$), 1.9% as pansexual ($n = 14$), 1.2% as other ($n = 9$), and 0.8% as queer ($n = 6$). Sample age ranged from 18 to 57 ($M = 25.2$, $SD = 6.5$). Education level was high: 63.4% participants had a college degree ($n = 474$), 21.7% had a Master's or PhD degree ($n = 162$), 9.4% had a high school degree ($n = 70$), and 5.6% did not have a high school or equivalent education ($n = 42$). The majority of participants were single, never married ($n = 540$, 72.2%), followed by in a stable relationship ($n = 81$, 10.8%), cohabitating ($n = 75$, 10.0%), in a marriage with a woman ($n = 34$, 4.5%), single, divorced ($n = 13$, 1.7%), and in a marriage with a man¹ ($n = 2$, 0.3%). Participants resided in various regions: 42.2% lived in North China ($n = 316$), 21.3% in East China ($n = 159$), 16.8% in South Central China ($n = 126$), 7.9% in Southwest China ($n = 41$), 6.2% in Hongkong, Macho or other regions ($n = 32$), 7.1% in Northeast China ($n = 53$), and 2.7% in Northwest China ($n = 20$). Most lived in a city: 53.2% reported living in a first-tier city, 40.4% in a second- or third-tier city, and 6.4% in a rural area.

Instruments

The survey included items assessing demographic information, participants' endorsement of conformity to social norms as a cultural value, experiences of varied types of minority stress, LGB family support, and psychological distress. Among the scales, two have not been translated in Chinese (i.e., Conformity to Social Norms and Concealment Behavior Scale). The study team obtained permission from scale developers to translate and use these scales. Translation of scales from English to Chinese followed existing guideline (Beaton, Bombardier, Guillemin, & Ferraz, 2000), including translation, synthesis, back-translation, expert committee review, and pretesting. The first four steps involved the first author and two graduate students. The final pretesting step was conducted with five Chinese sexual minority men to ensure the relevance, validity, and cultural sensitivity of measurement. The survey was also shared with stakeholders, including counselors who work with Chinese LGBTQ clients, to gain experts' perspectives. Modifications to the survey were made in accordance to experts' feedback on using inclusive language (e.g., we revised "being LGB" to "being a sexual minority man").

Conformity to social norms was assessed using the Conformity to Social Norms subscale (seven items) of the Asian American Values Scale-Multidimensional (AAVS-M) (B. S. K. Kim, Li, & Ng, 2005), which has been shown good validity and internal consistency among Asian American sexual minorities (Szymanski & Sung, 2013). Sample items include "One should not do something that is outside of the norm," and "Conforming to norms provides order in the community." Participants responded on a 7-point Likert scale to each statement, from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate higher endorsement of conformity to social norms as a cultural value. Cronbach's α in our sample was 0.71.

Enacted stigma was measured by the Enacted Stigma subscale of the China MSM (men who have sex with men) Stigma Scale (Neilands, Steward, & Choi, 2008). Enacted stigma

¹Same-sex marriage is unlawful in mainland China. Although not recognized by the Chinese government and not a wide-spread phenomenon, same-sex couples in China sometimes travel abroad to register for marriage.

subscale consists of six items that assessed participants' experiences of overt discrimination, such as experiences of physical violence, dismissal from school, loss of housing, and loss of employment due to one's sexual orientation. Participants rated on a 4-point Likert scale as to the frequency of such experiences in their life (1 = *never*, 2 = *once or twice*, 3 = *a few times*, 4 = *many times*). This scale has been previously used among Chinese sexual minority men (Neilands et al., 2008). Cronbach's α for enacted stigma was 0.77 in our sample.

Sexual identity concerns were assessed by three subscales from the Lesbian, Gay, and Bisexual Identity Scale (LGBIS) (Mohr & Fassinger, 2000; Mohr & Kendra, 2011): (1) Internalized Homonegativity, (2) Difficult Process, and (3) Acceptance Concerns. The LGBIS has been validated among Chinese sexual minorities in Taiwan (Y. Liu, 2015). To better capture Chinese sexual minorities' experiences, Liu (2015) added two subscales including identity disclosure and perceived LGB-specific family support to the original scale, and the latter was used in this study (described below). Three items on LGBIS measure internalized homonegativity, including "If it were possible, I would choose to be straight," "I wish I were heterosexual," and "I believe it is unfair that I am attracted to the people of the same sex." Difficult process is assessed by three items: "Admitting to myself that I am a sexual minority person has been a very painful process," "Admitting to myself that I am a sexual minority person has been a very slow process," and "I have felt comfortable with my sexual identity just about from the start." Three items measure acceptance concerns: "I think a lot about how my sexual orientation affects the way people see me," "I often wonder whether others judge me for my sexual orientation," and "I can't feel comfortable knowing that others judge me negatively for my sexual orientation." Participants indicated their degree of agreement or disagreement with the statements on a 6-point Likert scale, from 1 (*disagree strongly*) to 6 (*agree strongly*). Higher total scores indicating higher internalized homonegativity, more difficult process, and concerns with acceptance. Cronbach's α in our sample were 0.85, 0.65, and 0.83, respectively.

Concealment was measured by the Motivation to Conceal subscale in LGBIS (Mohr & Fassinger, 2000; Mohr & Kendra, 2011) and the Concealment Behavior Scale (Emory University, 2014) on American Men's Internet Survey. The Motivation to Conceal consists of three items: "I keep careful control over who knows about my same-sex romantic relationships," "I prefer to keep my same-sex romantic relationships rather private," and "My sexual orientation is a very personal and private matter." Participants rated on a 6-point Likert scale, from 1 (*disagree strongly*) to 6 (*agree strongly*). Higher scores indicate higher concealment motivation. Cronbach's α was 0.86 in our sample. The Concealment Behavior scale asked participants whether or not they have disclosed their sexual orientation to six types of people: LGB friends, heterosexual friends, family members, healthcare providers, employer, and fellow employees (0 = *disclosed*, 1 = *concealed*). This scale has been used widely in research with sexual minority men (Emory University, 2014; Sanchez et al., 2018). Cronbach's α was 0.64 in our sample.

Perceived LGB-specific family support was measured using the LGB-specific Family Support subscale on Liu's adapted Lesbian, Gay, and Bisexual Identity Scale (LGBIS) (Y. Liu, 2015; Mohr & Fassinger, 2000), which has been validated among sexual minorities in Taiwan. It includes three items: "I am confident that if I come out, I will have good

relationships with my family,” “I believe that my parents will love me the same even if I come out to them,” and “I am confident to face my family’s reactions no matter their attitudes toward my sexual orientation.” Participants indicated their degree of agreement or disagreement with the statements on a 6-point Likert scale from 1 (*disagree strongly*) to 6 (*agree strongly*), with higher scores representing more perceived LGB-specific family support. Cronbach’s α was 0.78 in our sample.

Psychological distress was assessed by four subscales on the Symptoms Checklist-90-Revised, Chinese version (SCL-90-R), including Depression, Anxiety, Obsessive-Compulsive Symptoms, and Interpersonal Sensitivity. These four subscales were selected because they have been found to be the four most prevalent types of psychological distress among sexual minority men in China (J. Liu et al., 2018; X. Liu et al., 2018). The depression subscale (13 items) measures dysphoric mood and affect, lack of motivation and loss of energy, suicidal thoughts, and other cognitive and somatic concerns related to depression. The anxiety subscale (10 items) measures anxiety symptoms such as nervousness, somatic symptoms such as trembling, and feelings of dread, terror, and panic. The obsessive-compulsive symptoms subscale (10 items) measures thoughts, impulses, and actions that are experienced as irresistible and unwanted as well as a perfectionistic tendency. Sample items include “unwanted thoughts, words, or ideas that won’t leave your mind,” and “difficulty making decisions.” The interpersonal sensitivity subscale (9 items) measures feelings of inadequacy and inferiority. Sample items include “your feelings being easily hurt,” and “feeling that people are unfriendly or dislike you.” Participants rated items on a 5-point Likert scale, from 0 (*not at all*) to 4 (*extremely*). Higher scores indicate greater symptom severity. Cronbach’s α for depression, anxiety, obsessive-compulsive, and interpersonal sensitivity subscales were 0.92, 0.91, 0.90, & 0.88, respectively.

Data Analytic Approach

To examine our hypothesized associations, we performed structural equation modeling (SEM) using the *Lavann* package in R (Rosseel, 2012). SEM analysis and reporting were performed following established principles (Kline, 2016; Weston & Gore, 2006). Full information maximum likelihood (FIML) estimation was employed to account for missing data. We followed Anderson and Gerbing’s (1998) two-step SEM analytic approach. First, we evaluated the fit of the indicators to their hypothesized latent factors in the measurement model using confirmatory factor analysis. Second, we examined the fit of the full structural model with the measurement model. Chi-square, Comparative Fit Index (CFI), root mean square error of approximation (RMSEA), the standardized root mean residual (SRMR) were assessed as fit indices. Criteria for acceptable model fit range from more liberal cutoffs of CFI \geq 0.90, RMSEA \leq .10, and SRMR \leq .10 to more conservative standards of CFI \geq 0.95, RMSEA \leq .06, and SRMR \leq .08 (Hu & Bentler, 1998, 1999).

Results

Preliminary Analyses

Outlier and normality detection.—Prior to conducting the analyses, we assessed data for univariate and multivariate outliers and normality. There were between three

and six extreme values detected on the total scores of depression and interpersonal sensitivity subscales; they were subsequently winsorized. No variables exhibited non-normal distribution (skewness values $> |3|$ or kurtosis values $> |10|$; Weston & Gore, 2006). Multivariate outliers and normality were examined by calculating Mahalanobis' distance and Mardia's multivariate kurtosis (De Maesschalck, Jouan-Rimbaud, & Massart, 2000; Mardia, 1970). Multivariate analysis revealed five cases as outliers (Mahalanobis' D^2 greater than the chi-square quantile value on Q-Q plot), which were subsequently removed, providing a final analytical sample of 748 cases. The removal of outlier cases reduced the Mardia's kurtosis from 84.9 to 70.1. Mardia's kurtosis and skewness significance test suggested that the data were normally distributed. Table 1 represents the zero-order correlations, means, and standard deviations for the variables of the current study.

Endogenous and exogenous variables.—Three to four indicators are considered as an ideal number to model each latent variable (Bollen & Bauldry, 2011). Sexual identity concerns were indicated by participants' scores on the three subscales on LGBIS, including internalized homonegativity, difficult process, and acceptance concerns. Psychological distress was indicated by participants' scores on the four subscales of SCL-90-R, including depression, anxiety, obsessive-compulsive symptoms, and interpersonal sensitivity.

For latent variables with limited measures (e.g., fewer than three scales), parcels were used as they serve as stable indicators of a latent construct (Little, Rhemtulla, Gibson, & Schoemann, 2014). Using a balancing approach (see "single factor analysis" parceling, Landis, Beal, & Tesluk, 2000), parceling involved (a) examining all items through EFA using a single factor solution, (b) pairing the items such that the item with the highest item-scale correlation is paired with the item that has the lowest item-scale correlation, the next highest and next lowest items are paired to the second parcel, and the third highest and third lowest are paired to the third parcel. This approach was applied to norm conformity (seven items on the Conformity to Social Norms subscale on AAVS-M) and enacted stigma (six items on the Enacted Stigma subscale of the China MSM Stigma Scale). As concealment was assessed using two subscales: concealment motivation (three items from the Concealment Motivation subscale of LGBIS) and concealment behavior (six items on the Concealment Behavior Scale; Emory University, 2014), three parcels were created, with one parcel consisted of all three items of concealment motivation and the other two parcels consisted of the six items of the Concealment Behavior Scale (consistently, a balancing approach was used for creating these two parcels).

Given the limited number of items on the scale ($n = 3$), LGB-specific family support was represented in the models as an observed rather than latent variable.

Sample size consideration.—Weston and Gore (2006) recommended a minimum of 200 participants and a suggested number of at least 10 participants per parameter estimate. Our most complex model contained five latent constructs, one observed construct, and 58 parameter estimates. A sample size of 748 was above the recommended 10 participants per estimate as well as 200 participants minimum. Thus, the sample size was deemed as appropriate.

Model Estimation

Measurement model.—The above procedures resulted in five latent variables and 16 indicators. The final measurement model had an excellent fit to the data, $\chi^2(94) = 285.12$, $p < .001$, CFI = .953, RMSEA = .052, 90% CI = [.045, .059], SRMR = .045, AIC = 19740.4, BIC = 19824.0. All standardized factor loadings were significant ($p < .001$) and ranged from .54 (parcel 2 for concealment) to .94 (depression). Factor loadings are reported in Table 2.

Structural model.—Figure 1 depicts the estimated full SEM model. Results indicated that the model had good fit to the data, $\chi^2(107) = 284.58$, $p < .001$, CFI = .952, RMSEA = .054, 90% CI = [.047, .062], SRMR = .045, AIC = 18579.8, BIC = 18843.8. As hypothesized, sexual identity concerns was associated with norm conformity ($\beta = .479$, 95% CI = [.368, .590], $p < .001$), enacted stigma ($\beta = .251$ [.135, .367], $p < .001$), and LGB family support ($\beta = -.284$ [–.372, –.196], $p < .001$).

Contrary to hypothesis, concealment was associated with enacted stigma ($\beta = -.136$ [–.245, –.027], $p = .015$) in the opposite direction. As hypothesized, concealment was associated with sexual identity concerns ($\beta = .833$ [.709, .956], $p < .001$) and LGB family support ($\beta = -.093$ [–.184, –.003], $p = .043$). Psychological distress was associated with enacted stigma ($\beta = .189$ [.060, .318], $p = .004$) and LGB family support ($\beta = -.131$ [–.228, –.034], $p = .008$). The model showed no direct effect of concealment or identity concerns on distress. It also implied no effect of norm conformity on psychological distress. R^2 values for latent endogenous variables were all significant. The model explained 35.3% variance in sexual identity concerns, 72.6% variance in concealment, and 9.4% of the variance in distress.

Mediation analyses.—We examined indirect effects (Shrout & Bolger, 2002) using 1,000 bootstrapped samples. In Table 3, we report the standardized indirect effect, the bootstrap estimate, and 95% CI (by the adjusted bootstrap percentile method to correct for bootstrap bias). The indirect effect is statistically significant at the .05 level if the 95% CI for these estimates does not include zero (Shrout & Bolger, 2002). Three significant mediation effects were found: norm conformity, enacted stigma, and family support were associated with concealment through their associations with sexual minority men's sexual identity concerns. Contrary to hypotheses, norm conformity, enacted stigma and LGB family support were not associated with distress through associations with sexual identity concerns or concealment.

Alternative model testing.—Among the three subscales used to indicate sexual identity concerns, acceptance concerns had strongest associations with psychological distress (Table 1). As this suggests a relationship-oriented conceptualization of minority stress among Chinese sexual minority men may be appropriate, we tested an alternative model in which sexual identity concerns as a latent variable was replaced by acceptance concerns as an observed variable. This alternative model demonstrated similarly good fit, $\chi^2(79) = 178.49$, $p < .001$, CFI = .970, RMSEA = .047, 90% CI = [.038, .057], SRMR = .041, AIC = 11557.2, BIC = 11790.9. Acceptance concerns was associated with distress, $\beta = .193$, 95% CI = [.060, .325], $p = .004$. Using the same mediation procedure, we further examined indirect effects in the model (Table 3). Similar to sexual identity concerns, acceptance concerns mediated the associations of norm conformity and LGB family support with

concealment. Further, acceptance concerns mediated the associations of these two distal stress variables (norm conformity and LGB family support) with psychological distress.

Discussion

This study tested the minority stress model with consideration of the sociocultural context among Chinese sexual minority men, a population disproportionately affected by mental health issues. Results provide support for important elements of minority stress theory (Meyer, 2003a), namely the detrimental role of enacted stigma (Hatzenbuehler, 2009; Pachankis et al., 2018) and protective role of family support (McConnell et al., 2016) on mental health. Contrary to hypotheses, two proximal forms of minority stress, namely sexual identity concerns and concealment, did not predict psychological distress. Results support a culturally-relevant conceptualization of minority stress (Sun, Budge, et al., 2020). Specifically, norm conformity predicted proximal minority stress, and psychological distress was explained by cultural and relational pathways (via identity acceptance concerns), in addition to enacted stigma and LGB family support. Overall, findings suggest the value of incorporating a culturally nuanced approach when applying this theory in China, in which the minority stress process is affected by the context of collective and relational values and family-oriented culture.

Similar to extant research in the West, we found proximal forms of minority stress predicted by distal stressors and LGB family support (Feinstein et al., 2012; Pachankis & Bränström, 2018; Walch et al., 2016). Specifically, enacted stigma and LGB family support predicted sexual identity concerns. Further, LGB family support negatively associated with concealment through its negative relationship with sexual identity concerns, suggesting the important role of family in forming sexual identity and disclosure among Chinese sexual minority men. Meanwhile, there are several study findings that are novel or different from extant research, including (1) the effect of norm conformity on proximal stressors as well as on psychological distress (through acceptance concerns), (2) the lack of relationship between sexual identity concerns and psychological distress, as well as the relationships between sociocultural and relational forms of minority stress (norm conformity and lack of LGB family support) and psychological distress mediated by relational aspect of sexual identity (i.e., acceptance concerns), and (3) concealment's association with enacted stigma as well as its lack of association with psychological distress.

In East Asian cultures, the value of conformity is emphasized in prevalent philosophies and civic statements as a means to achieve group harmony (和) and public tranquility (Bond & Smith, 1996; H. S. Kim & Markus, 1999). However, norm conformity might have a detrimental effect for sexual minorities in a heteronormative environment. Chinese sexual minority men who strongly endorse this cultural value may experience conflict between their personal awareness of their sexuality and cultural values of social harmony and conformity, as suggested by its association with sexual identity concerns. Subsequently, this may lead to identity concealment, as evidenced by that concealment indirectly associated with norm conformity and family support through identity concerns (also see Table 3). Men who highly value norm conformity may also experience more worries about social rejection due to not fitting in the heterosexual norm. Subsequently, this process could lead to psychological

distress, as evidenced by the finding that norm conformity predicted distress through its association with acceptance concerns.

Although research has consistently documented the detrimental role of sexual identity concerns (e.g., internalized homophobia) (Newcomb & Mustanski, 2010) and concealment (Sheridan, 2017) on mental health among sexual minorities in the West, our study failed to support this relationship. It is worth noting that research in this area has been limited with mixed findings, thus future research with Chinese sexual minority men is needed to replicate our findings. Nonetheless, contextual factors may offer some insight into the lack of association in our study. Specific to sexual identity concerns, culture may play a key role in individuals' sexual identity formation as well as the relationship between self and mental health. Historically, same-sex attractions in China were described and understood as behaviors and relationships rather than an essential nature of the person (Wu, 2003). Further, individuals' mental health in collectivistic cultures is more influenced by relationship-oriented processes whereas self-focused processes are stronger predictors in individualistic cultures (Kitayama, Markus, & Kurokawa, 2000). In alternative model testing, acceptance concerns, the most relational and other-oriented aspect of sexual identity concerns (e.g., wonders about how others view oneself due to sexual orientation), predicted distress and mediated the relationships between distress and sociocultural and relational forms of stress (norm conformity and lack of LGB family support). This supports a relational conceptualization of sexual identity and minority stress processes among Chinese sexual minority men. On the other hand, consistent with a relational and collective cultural context, minority stress processes that are more self- rather than relationship-oriented may have relatively limited effects on well-being.

When we decompose the relation between enacted stigma and concealment, we find a positive indirect effect (through sexual identity concerns) but contrary to hypothesis, a negative direct effect. Notably, enacted stigma is not associated with concealment on the bivariate level, and post-hoc analysis suggests that once sexual identity concerns as a mediator is controlled, a negative direct effect is present. Given the cross-sectional nature of this research, this finding indicates that experience of enacted stigma may be potentiated by outness (lack of concealment). Thus, Chinese sexual minority men may experience a dilemma regarding disclosure: disclosure could potentially lead to more stigma experiences, which in turn contributes to more identity negativity and subsequently higher concealment. Future longitudinal research is needed to ascertain the direction of these relationships. Concealment was not associated with distress, and there may be several plausible explanations. First, although concealment has been considered as a form of minority stress contributing to poor mental health due to the complex and burdensome cognitive, emotional, and behavioral processes (Meyer, 2003a; Pachankis, 2007), this conceptualization may be dependent on one's cultural context. Concealment may function as a stressor in cultures that value individuality, congruency, and self-expression. As noted by Rogers (1959), failure to accept one's "real self" is inherently distressing. In contrast, concealment could be an appropriate coping strategy in high stigma contexts and in cultures that favor or expect distinctions between people's public, performative self and private self (H. S. Kim & Sherman, 1997; Wang, 2004). In this sense, concealment may not necessarily be perceived as a betrayal to one's "real self" but rather a successful adaptation to one's

context (H. S. Kim & Sherman, 1997). Second, similar to findings of other studies with sexual minority men in China (Shao et al., 2018; Steward et al., 2013), participants in our sample largely concealed their sexual orientation, which reflects the current norm and the “hiddenness” of this group. In this context, coming out may not necessarily help sexual minority men to gain more access and support from their community to mitigate potentially increased experience of stigmatization. Third, distress may be more impacted by active concealment effort than a lack of disclosure (Jackson & Mohr, 2016), so it is also possible that our particular concealment measure does not capture a concealment construct strongly associated with distress.

Limitations

The study has several limitations. First, due to the study’s cross-sectional design, reverse causations are possible. For example, the negative relationship between enacted stigma and concealment may be best explained by stigma experience following identity disclosure (rather than more stigma leading to less concealment). Second, our sample was recruited online and may represent a subpopulation of Chinese sexual minority men: 76.6% of our sample identified as gay, 85.1% had college education, and the average sample age was 25. Thus, results may not be generalizable to Chinese sexual minority men who are older or have lower education. Third, psychological distress was measured through self-report, which may not be as accurate an assessment as would be assessed by a trained interviewer. Fourth, there may be measurement invariance and unknown confounds between minority stress and mental health, such as individual’s appraisal processes and coping strategies that may affect both subjective report of minority stress and health (Meyer, 2003b). Fifth, Cronbach’s α for two scales (difficult process, and concealment behavior) in the study were not satisfactory. Finally, although our study did not find concealment or sexual identity concerns to be associated with psychological distress, both proximal stressors have been linked to less regular HIV testing (Sun, Whiteley, & Brown, 2020) and therefore are important determinants of behavioral health. Thus, it may be too early to conclude that these factors are irrelevant to well-being of Chinese sexual minority men.

Implications for Minority Stress Theory and Future Research

First, the study suggests the need for a culturally-relevant conceptualization of minority stress. For instance, certain collectivistic values (e.g., norm conformity) may exacerbate minority stress for sexual minorities in a heteronormative environment. Future research may examine how culture determines the salience of minority stressors across global societies. For instance, how do certain aspects of individualism (e.g., values of agency and authenticity) contribute to identity formation and well-being among sexual minorities in the West? As the current study focused on within-group process, it is possible that norm conformity may be a relevant construct to sexual minorities in individualistic cultures as well. Future research is necessary to test this possibility.

Second, the strongest associations were found between the relationship-oriented processes of minority stress (acceptance concerns, lack of LGB family support) and psychological distress, suggesting particular areas of focus for future research for Chinese sexual minorities. Findings on acceptance concerns as a predictor and mediator support

investigation of proximal stress processes that may be culturally relevant, such as shame and fear of negative evaluation by others. As we did not assess social support beyond the family (e.g., from friends and LGBTQ community), the impact of these factors warrants future investigation.

Additionally, future research should consider longitudinal designs and utilize multiple methods of assessing minority stress and mental health to confirm the directionality of effects identified here. Nuanced examination of minority stress pathways in subgroups of Chinese sexual minorities is also needed. As non-gay identifying sexual minorities (e.g., bisexual, pansexual, etc.) often experience poorer mental health than their gay counterparts and may undergo unique minority stress (e.g., biphobia) (Friedman et al., 2014), future research may unpack specific mechanisms linked to health disparities concerning subpopulations.

Implications for Psychological Interventions

As unscientific, harmful conversion therapies are prevalent in China (Beijing LGBT Center, 2014; Sun, Pachankis, et al., 2020), affirmative care is highly needed as an alternative to promote the well-being of Chinese sexual minorities. Minority stress has been a promising intervention target underlying sexual minorities' well-being (Pachankis, 2015; Pachankis & Safren, 2019). Findings of this study have implications in developing and adapting existing interventions. First, interventions may benefit from a culturally relevant conceptualization of minority stress and mental health. In particular, interventions ought to consider the functional, culture-bound nature of minority stress experiences, such as values in norm conformity and relational harmony. For instance, therapists might work with clients to resolve the conflict between desires for authentic expressions of sexual identity with the desire for social and familial acceptance. Second, given the importance of the relational aspects of minority stress in this population, a supportive and affirmative psychotherapy relationship may be critical for Chinese sexual minority men to experience acceptance and empowerment and subsequently improve functioning. Third, family intervention may prove to be beneficial to sexual minority men by enhancing parents' support. Attachment-focused family therapy has been shown to be effective in other cultural contexts (e.g., Israeli) (Diamond et al., 2013), and adaptations of such interventions may be promising. Fourth, given the detrimental, direct effect of enacted stigma, interventions that are designed to reduce social prejudice against sexual minorities are in need.

Research is needed to evaluate culturally-informed intervention approaches to reduce minority stress and promote well-being among Chinese sexual minority men. Developing and including culturally-relevant measures may be important to capture experiences of sexual minorities in their cultural context. Investigating treatment process (e.g., therapeutic alliance; Del Re, Flückiger, Horvath, Symonds, & Wampold, 2012) may also be helpful to inform culturally relevant interventions. Ultimately, clinical research can help researchers and practitioners understand how and for whom such interventions work and disseminate them for sexual minorities in China and other global regions affected by stigma and mental health issues.

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References

- Anderson JC, & Gerbing DW (1998). Structural equation modeling in practice: A review and recommended two step approach. *Psychological Bulletin*, 103(3), 411–423.
- Beaton DE, Bombardier C, Guillemin F, & Ferraz MB (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine*, 25(24), 3186–3191. doi: 10.1097/00007632-200012150-00014 [PubMed: 11124735]
- Beijing LGBT Center. (2014). *Chinese LGBT Mental Health Survey Report* (Author, Ed.). Beijing, China.
- Bollen KA, & Bauldry S (2011). Three Cs in measurement models: Causal indicators, composite indicators, and covariates. *Psychological Methods*, 16(3), 265–284. doi: 10.1037/a0024448 [PubMed: 21767021]
- Bond R, & Smith PB (1996). Culture and conformity: A meta-analysis of studies using Asch's (1952b, 1956) line judgment task. *Psychological Bulletin*, 119(1), 111–137.
- Bostwick WB, Boyd CJ, Hughes TL, & McCabe SE (2010). Dimensions of sexual orientation and the prevalence of mood and anxiety disorders in the United States. *American Journal of Public Health*, 100(3), 468–475. doi: 10.2105/AJPH.2008.152942 [PubMed: 19696380]
- Bostwick WB, Meyer I, Aranda F, Russell S, Hughes T, Birkett M, & Mustanski B (2014). Mental health and suicidality among racially/ethnically diverse sexual minority youths. *American Journal of Public Health*, 104(6), 1129–1136. doi: 10.2105/AJPH.2013.301749 [PubMed: 24825217]
- Choi K-H, Steward WT, Miede P, & Gregorich SE (2017). Unpacking the influence of sexual stigma on HIV risk: Results from a prospective study of men who have sex with men in Beijing, China. *Journal of Acquired Immune Deficiency Syndromes*, 74(2), e38–e44. doi: 10.1097/QAI.0000000000001217 [PubMed: 27787344]
- Choi K-H, Steward WT, Miège P, Hudes E, & Gregorich SE (2016). Sexual stigma, coping styles, and psychological distress: A longitudinal study of men who have sex with men in Beijing, China. *Archives of Sexual Behavior*, 45(6), 1483–1491. doi: 10.1007/s10508-015-0640-z [PubMed: 26679303]
- De Maesschalck R, Jouan-Rimbaud D, & Massart DL (2000). The mahalanobis distance. *Chemometrics and Intelligent Laboratory Systems*, 50(1), 1–18.
- Del Re AC, Flückiger C, Horvath AO, Symonds D, & Wampold BE (2012). Therapist effects in the therapeutic alliance-outcome relationship: A restricted-maximum likelihood meta-analysis. *Clinical Psychology Review*, 32(7), 642–649. doi: 10.1016/j.cpr.2012.07.002 [PubMed: 22922705]
- Diamond GM, Diamond GS, Levy S, Closs C, Ladipo T, & Siqueland L (2013). Attachment-based family therapy for suicidal lesbian, gay, and bisexual adolescents: A treatment development study and open trial with preliminary findings. *Psychotherapy*, 49(1), 62–71. doi: 10.1037/a0026247
- Emory University. (2014). *American Men's Internet Survey (AMIS): Online HIV behavioral survey of men who have sex with men*. In PRISM Health. Atlanta, GA.
- Feinstein BA, Goldfried MR, & Davila J (2012). The relationship between experiences of discrimination and mental health among lesbians and gay men: An examination of internalized homonegativity and rejection sensitivity as potential mechanisms. *Journal of Consulting and Clinical Psychology*, 80(5), 917–927. doi: 10.1037/a0029425 [PubMed: 22823860]
- Friedman MR, Dodge B, Schick V, Herbenick D, Hubach RD, Bowling J, ... Reece M (2014). From bias to bisexual health disparities: Attitudes toward bisexual men and women in the united states. *LGBT Health*, 1(4), 309–318. doi: 10.1089/lgbt.2014.0005 [PubMed: 25568885]

- Hatzenbuehler ML (2009). How does sexual minority stigma “get under the skin”? A psychological mediation framework. *Psychological Bulletin*, 135(5), 707–730. [PubMed: 19702379]
- Hu L, & Bentler PM (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3(4), 424–453. doi: 10.1037/1082-989X.3.4.424
- Hu L, & Bentler PM (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. doi: 10.1080/10705519909540118
- Huebner DM, Rebhook GM, & Kegeles SM (2004). Experiences of harassment, discrimination, and physical violence among young gay and bisexual men. *American Journal of Public Health*, 94(7), 1200–1203. [PubMed: 15226143]
- Jackson SD, & Mohr JJ (2016). Conceptualizing the closet: Differentiating stigma concealment and nondisclosure processes. *Psychology of Sexual Orientation and Gender Diversity*, 3(1), 80–92. doi: 10.1037/sgd0000147
- Kim BSK, Li LC, & Ng GF (2005). The Asian American Values Scale - Multidimensional: Development, reliability, and validity. *Cultural Diversity and Ethnic Minority Psychology*, 11(3), 187–201. doi: 10.1037/1099-9809.11.3.187 [PubMed: 16117587]
- Kim HS, & Markus HR (1999). Deviance or uniqueness, harmony or conformity? A cultural analysis. *Journal of Personality and Social Psychology*, 77(4), 785–800. doi: 10.1037/0022-3514.77.4.785
- Kim HS, & Sherman DK (1997). “Express Yourself”: Culture and the Effect of Self-Expression on Choice. *Journal of Personality and Social Psychology*, 92(1), 1–11. doi: 10.1037/0022-3514.92.1.1
- Kitayama S, Markus HR, & Kurokawa M (2000). Culture, emotion, and well-being: Good feelings in Japan and the United States. *Cognition and Emotion*, 14(1), 93–124.
- Kline RB (2016). *Principles and Practice of Structural Equation Modeling*. In Guilford Publication (4th ed.). New York, NY: Guilford Press.
- Landis RS, Beal DJ, & Tesluk PE (2000). A comparison of approaches to forming composite measures in structural equation models. *Organizational Research Methods*, 3, 186–207.
- Little TD, Rhemtulla M, Gibson K, & Schoemann AM (2014). Why the items versus parcels controversy needn’t be one. *Psychological Methods*, 18(3), 285–300. doi: 10.1037/a0033266
- Liu J, Yi Z, Zhao Y, Qu B, & Zhu Y (2018). The psychological health and associated factors of men who have sex with men in China: A cross-sectional survey. *PLoS ONE*, 13(5), 1–14. doi: 10.1371/journal.pone.0197481
- Liu M (2013). Two gay men seeking two lesbians: An analysis of formality marriage ads on China’s Tianya.cn. *Sexuality and Culture*, 17(3), 494–511. doi: 10.1007/s12119-012-9164-z
- Liu X, Jiang D, Chen X, Tan A, Hou Y, He M, ... Mao Z (2018). Mental health status and associated contributing factors among gay men in China. *International Journal of Environmental Research and Public Health*, 15(6). doi: 10.3390/ijerph15061065
- Liu Y (2015). *The survey study of lesbian, gay, bisexual, and transgender identity in Taiwan* (master dissertation). Taiwan: National Chi Nan University Institutional Repository.
- Liu Y, Jiang C, Li S, Gu Y, Zhou Y, An X, ... Pan G (2018). Association of recent gay-related stressful events with depressive symptoms in Chinese men who have sex with men. *BMC Psychiatry*, 18(1), 217. doi: 10.1186/s12888-018-1787-7 [PubMed: 29973174]
- Mardia KV (1970). Measures of multivariate skewness and kurtosis with applications. *Biometrika*, 57, 519–530.
- McConnell EA, Birkett M, & Mustanski B (2016). Families matter: Social support and mental health trajectories among lesbian, gay, bisexual, and transgender Youth. *Journal of Adolescent Health*, 59(6), 674–680. doi: 10.1016/j.jadohealth.2016.07.026
- Meyer IH (2003a). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, 129(5), 674–697. doi: 10.1097/MCA.0000000000000178 [PubMed: 12956539]
- Meyer IH (2003b). Prejudice as stress: Conceptual and measurement problems. *American Journal of Public Health*, 93(2), 262–265. [PubMed: 12554580]
- Mohr J, & Fassinger R (2000). Measuring dimensions of lesbian and gay male experience. *Measurement and Evaluation in Counseling and Development*, 33, 66–90.

- Mohr J, & Kendra MS (2011). Revision and extension of a multidimensional measure of sexual minority identity: The lesbian, gay, and bisexual identity scale. *Journal of Counseling Psychology*, 58(2), 234–245. doi: 10.1037/a0022858 [PubMed: 21319899]
- Neilands TB, Steward WT, & Choi K-H (2008). Assessment of stigma towards homosexuality in China: A study of men who have sex with men. *Archives of Sexual Behavior*, 37(5), 838–844. doi: 10.1007/s10508-007-9305-x [PubMed: 18274889]
- Newcomb ME, & Mustanski B (2010). Internalized homophobia and internalizing mental health problems: A meta-analytic review. *Clinical Psychology Review*, 30(8), 1019–1029. doi: 10.1016/j.cpr.2010.07.003 [PubMed: 20708315]
- Pachankis JE (2007). The psychological implications of concealing a stigma: A cognitive-affective-behavioral model. *Psychological Bulletin*, 133(2), 328–345. [PubMed: 17338603]
- Pachankis JE (2015). A transdiagnostic minority stress treatment approach for gay and bisexual men's syndemic health conditions. *Archives of Sexual Behavior*, 44(7), 1843–1860. doi: 10.1007/s10508-015-0480-x [PubMed: 26123065]
- Pachankis JE, & Bränström R (2018). Hidden from happiness: Structural stigma, sexual orientation concealment, and life satisfaction among sexual minorities across 28 European countries. *Journal of Consulting and Clinical Psychology*, 86(5), 403–415. doi: 10.1037/ccp0000299 [PubMed: 29683698]
- Pachankis JE, & Safren SA (2019). *Handbook of Evidence-Based Mental Health Practice with Sexual and Gender Minorities*. New York, NY: Oxford University Press.
- Pachankis JE, Sullivan TJ, Feinstein BA, & Newcomb ME (2018). Young adult gay and bisexual men's stigma experiences and mental health: An 8-year longitudinal study. *Developmental Psychology*, 54(7), 1381–1393. doi: 10.1037/dev0000518 [PubMed: 29620387]
- Rogers CR (1959). A theory of therapy, personality and interpersonal relationships, as developed in the client-centered framework. In *Psychology: A Study of Science*. doi: 10.1017/CBO9781107415324.004
- Rosseel Y (2012). Lavaan: an R package for structural equation modeling and more Version 0.5–12. *Journal of Statistical Software*. doi: 10.1186/1472-6785-12-11
- Sanchez TH, Zlotorzynska M, Sineath RC, Kahle E, Tregear S, & Sullivan PS (2018). National trends in sexual behavior, substance use and HIV testing among United States men who have sex with men recruited online, 2013 Through 2017. *AIDS and Behavior*, 22(8), 2413–2425. doi: 10.1007/s10461-018-2168-4 [PubMed: 29948340]
- Shao J, Chang ES, & Chen C (2018). The relative importance of parent–child dynamics and minority stress on the psychological adjustment of LGBs in China. *Journal of Counseling Psychology*, 65(5), 598–604. doi: 10.1037/cou0000281 [PubMed: 29999331]
- Sheridan DJ (2017). *Sexual orientation disclosure and concealment: A model-driven meta-analysis*. University of Miami. Available from ProQuest Dissertations & Theses Global.
- Shrout PE, & Bolger N (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7(4), 422–445. doi: 10.1037/1082-989X.7.4.422 [PubMed: 12530702]
- Steward WT, Miège P, & Choi K-H (2013). Charting a moral life: The influence of stigma and filial duties on marital decisions among Chinese men who have sex with men. *PLoS ONE*, 8(8). doi: 10.1371/journal.pone.0071778
- Stoloff K, Joska JA, Feast D, de Swardt G, Hugo J, Struthers H, ... Rebe K (2013). A description of common mental disorders in men who have sex with men (MSM) referred for assessment and intervention at an MSM clinic in Cape Town, South Africa. *AIDS and Behavior*, 17(S1), 77–81. doi: 10.1007/s10461-013-0430-3
- Su X, Zhou AN, Li J, Shi L, en, Huan X, Yan H, & Wei C (2017). Depression, loneliness, and sexual risk-taking among HIV-negative/unknown men who have sex with men in China. *Archives of Sexual Behavior*, 47(7), 1–10. doi: 10.1007/s10508-017-1061-y [PubMed: 28608293]
- Sun S, Budge SL, Shen W, Xu G, Liu M, & Feng S (2020). Minority stress and health: A grounded theory exploration on the experiences of men who have sex with men in China and implications for health research and interventions. *Social Science & Medicine, Online Fir*. doi: 10.1016/j.socscimed.2020.112917

- Sun S, Pachankis JE, Li X, & Operario D (2020). Addressing minority stress and mental health among men who have sex with men (MSM) in China. *Current HIV/AIDS Reports*. doi: 10.1007/s11904-019-00479-w
- Sun S, Whiteley L, & Brown LK (2020). HIV testing among Chinese men who have sex with men: The roles of HIV knowledge, online social life, and sexual identity concerns. *AIDS and Behavior*, 24(2), 437–449. doi: 10.1007/s10461-019-02471-2 [PubMed: 30924064]
- Swann G, Forscher E, Bettin E, Newcomb ME, & Mustanski B (2018). Effects of victimization on mental health and substance use trajectories in young sexual minority men. *Development and Psychopathology*, 1–15. doi: 10.1017/s0954579418001013
- Szymanski DM, & Sung MR (2013). Asian cultural values, internalized heterosexism, and sexual orientation disclosure among Asian American sexual minority persons. *Journal of LGBT Issues in Counseling*, 7(3), 257–273. doi: 10.1080/15538605.2013.812930
- Walch SE, Ngamake ST, Bovornusvakool W, & Walker SV (2016). Discrimination, internalized homophobia, and concealment in sexual minority physical and mental health. *Psychology of Sexual Orientation and Gender Diversity*, 3(1), 37–48. doi: 10.1037/sgd0000146
- Wang Q (2004). The emergence of cultural self-constructs: Autobiographical memory and self-description in European American and Chinese children. *Developmental Psychology*, 40(1), 3–15. doi: 10.1037/0012-1649.40.1.3 [PubMed: 14700460]
- Weston R, & Gore PA (2006). A brief guide to structural equation modeling. *The Counseling Psychologist*, 34(5), 719–751. doi: 10.1177/0011000006286345
- Wu J (2003). From “Long Yang” and “Dui Shi” to Tongzhi: Homosexuality in China. *Journal of Gay and Lesbian Psychotherapy*, 7(1–2), 117–143. doi: 10.1300/J236v07n01
- Xu W, Zheng L, Xu Y, & Zheng Y (2017). Internalized homophobia, mental health, sexual behaviors, and outness of gay/bisexual men from Southwest China. *International Journal for Equity in Health*, 16(1), 1–10. doi: 10.1186/s12939-017-0530-1 [PubMed: 28057005]

Public Significance Statement:

This study provides partial support for the application of minority stress theory among sexual minority men in China and suggests the relevance of a contextualized conceptualization of minority stress. When applied in China, the minority stress model ought to consider the collectivistic, relationship-oriented context shaping minority stress processes and psychological health of sexual minorities.

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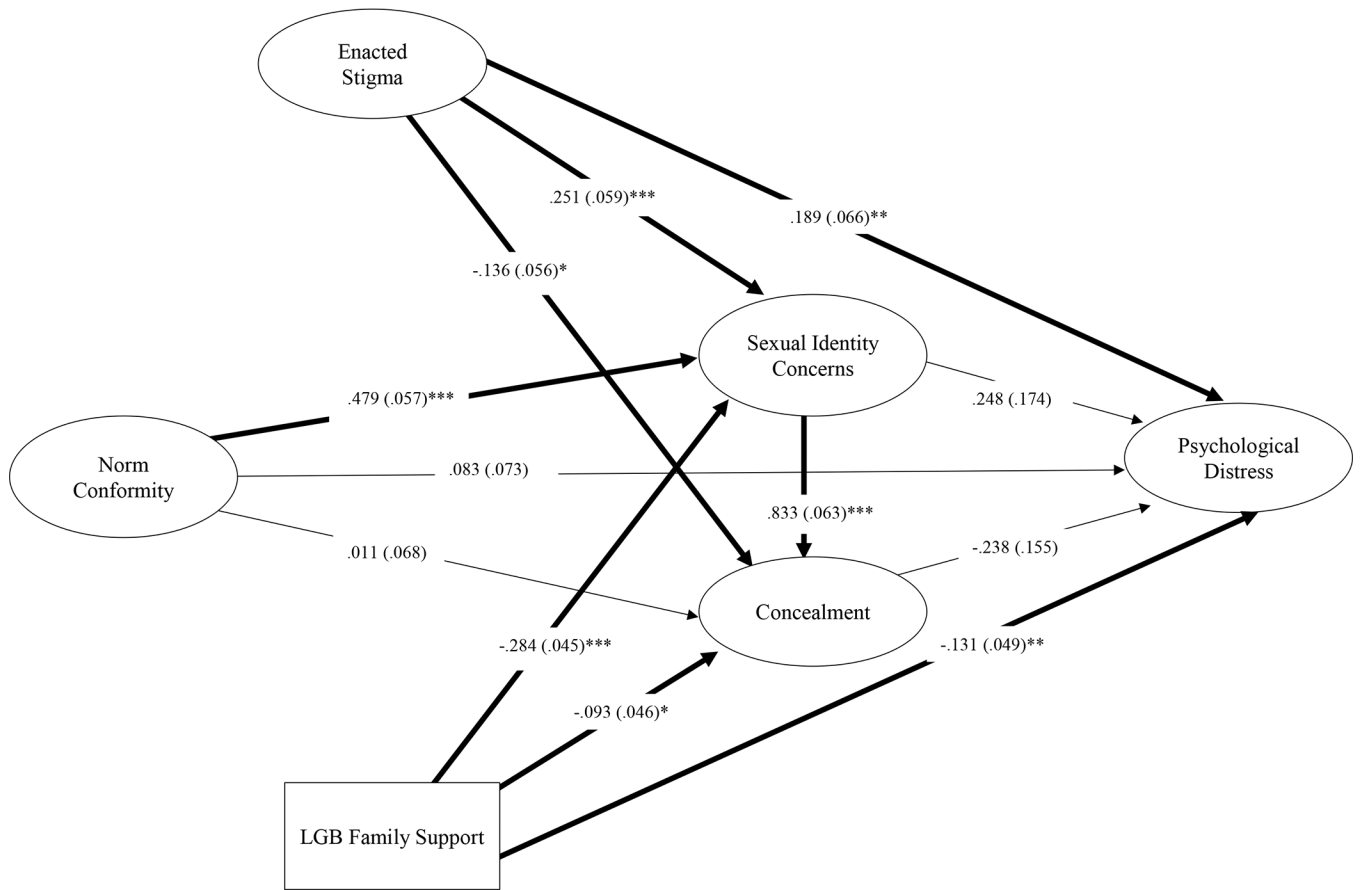


Figure 1. Standardized path coefficients (SE) for structural paths in the model

Table 1.
Means, Standard Deviations, and Intercorrelations among Study Variables (n = 748)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Norm conformity	-											
2. Enacted stigma	-.09	-										
3. Internalized homonegativity	.30***	.14**	-									
4. Difficult process	.22***	.13**	.51***	-								
5. Acceptance concerns	.23***	.15***	.41***	.39***	-							
6. Concealment motivation	.30***	.08	.45***	.34***	.61***	-						
7. Concealment behavior	.19***	-.02	.25***	.14***	.33***	.47***	-					
8. LGB-specific family support	-.04	-.14***	-.20***	-.14***	-.25***	-.28***	-.25***	-				
9. Depression	.08	.20***	.08	.09*	.16***	.07	-.01	-.15***	-			
10. Anxiety	.04	.19***	.03	.08	.13**	.04	-.01	-.13**	.86***	-		
11. Obsessive-Compulsive	.09	.16***	.00	.07	.16***	.03	-.02	-.12**	.85***	.82***	-	
12. Interpersonal sensitivity	.09	.19***	.06	.11*	.21***	.07	.03	-.16***	.84***	.81***	.82***	-
<i>M</i>	27.94	7.78	9.20	10.18	12.10	12.55	3.87	10.18	11.91	5.32	9.55	7.56
<i>SD</i>	6.79	2.19	4.16	3.29	3.78	3.85	1.46	3.55	11.01	6.14	8.24	7.11

Note.

*** $p < .001$,

** $p < .01$,

* $p < .05$.

Table 2.

Measurement Model

Latent variable	Indicator	Unstandardized		Standardized	
		<i>B</i>	<i>B</i>	95% <i>CI</i>	<i>SE</i>
Norm Conformity	Conformity parcel 1	1.000	.612	[.534, .690]	.040
	Conformity parcel 2	1.291	.698	[.624, .772]	.038
	Conformity parcel 3	1.393	.755	[.683, .827]	.037
Enacted Stigma	Enacted stigma parcel 1	1.000	.562	[.491, .633]	.036
	Enacted stigma parcel 2	1.007	.759	[.689, .828]	.035
	Enacted stigma parcel 3	1.502	.635	[.567, .703]	.035
Sexual Identity Concerns	Internalized homophobia subscale of LGBIS	1.000	.645	[.577, .713]	.035
	Difficult process subscale of LGBIS	0.698	.571	[.496, .645]	.038
	Acceptance concerns subscale of LGBIS	1.067	.753	[.697, .809]	.029
Concealment	Concealment-parcel 1	1.000	.856	[.806, .906]	.026
	Concealment- parcel 2	0.142	.537	[.470, .603]	.034
	Concealment- parcel 3	0.141	.615	[.553, .677]	.032
Psychological Distress	Depression subscale of SCL-90-R	1.000	.940	[.926, .953]	.007
	Anxiety subscale of SCL-90-R	0.719	.917	[.901, .933]	.008
	Obsessive-compulsive subscale of SCL-90-R	0.944	.905	[.888, .923]	.009
	Interpersonal sensitivity subscale of SCL-90-R	0.892	.899	[.880, .918]	.010

Note. LGBIS= Adapted Lesbian, Gay, Bisexual Identity Scale. SCL-90-R = Symptoms Checklist-90-Revised

Table 3.

Indirect Path Analysis

Paths	Standardized indirect effect		Bootstrap estimate		95% CI bootstrap bias corrected		
	β	SE	β	SE	p	Lower bound	Upper bound
Minority stress model							
Norm conformity → Sexual identity concerns → Concealment	.399	.062	.351	.096	< .001	.163	.539
Enacted stigma → Sexual identity concerns → Concealment	.209	.055	.157	.074	.035 *	.011	.303
LGB family support → Sexual identity concerns → Concealment	-.237	.043	-.242	.064	< .001	-.368	-.116
Norm conformity → Sexual identity concerns → Distress	.119	.084	.129	.183	.481	-.230	.487
Enacted stigma → sexual identity concerns → distress	.062	.045	.058	.087	.509	-.113	.229
LGB family support → Sexual identity concerns → Distress	-.070	.051	-.089	.128	.487	-.339	.162
Norm conformity → Concealment → Distress	-.003	.016	-.012	.024	.610	-.060	.035
Enacted stigma → Concealment → Distress	.032	.025	.021	.040	.605	-.058	.100
LGB family support → Concealment → Distress	.022	.018	.019	.028	.507	-.036	.074
Sexual identity concerns → Concealment → Distress	-.198	.133	-.131	.218	.547	-.559	.297
Alternative model							
Norm conformity → Acceptance concerns → Concealment	.173	.029	.155	.035	< .001	.085	.224
Enacted stigma → Acceptance concerns → Concealment	.095	.030	.064	.038	.092	-.010	.138
LGB family support → Acceptance concerns → Concealment	-.127	.024	-.136	.030	< .001	-.194	-.077
Norm conformity → Acceptance concerns → Distress	.058	.022	.068	.028	.017 *	.012	.123
Enacted stigma → Acceptance concerns → Distress	.032	.014	.028	.019	.142	-.009	.065
LGB family support → Acceptance concerns → Distress	-.043	.017	-.060	.023	.011 *	-.105	-.014
Norm conformity → Concealment → Distress	-.042	.023	-.033	.026	.200	-.083	.017
Enacted stigma → Concealment → Distress	.004	.009	.004	.009	.674	-.014	.022
LGB family support → Concealment → Distress	.037	.019	.027	.020	.190	-.013	.067
Acceptance concerns → Concealment → Distress	-.103	.049	-.063	.047	.185	-.155	.030

Note. In the alternative model, acceptance concerns as a latent variable was used to replace identity concerns. Significant paths are bolded.

p < .001,

**
p < .01,

$50' > d$
*

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