

# Stress and Mental Health Among Midlife and Older Gay-Identified Men

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Classic conceptualizations of social stress theory<sup>1-3</sup> posit that social stressors—socioenvironmental demands that tax or exceed individuals' adaptive capacities or block the attainment of sought-after ends—can be harmful to health, particularly to mental health. Through the stress process, stressors rooted in critical social roles or relationships are conceptualized as primary sources of subsequent difficulties that collectively diminish well-being.<sup>3,4</sup> Psychosocial resources that regulate the health impact of stress, such as social support and sense of mastery, are key elements of the stress process because they may disrupt the relationship between stress and distress.<sup>1,5</sup>

Minority stress theory<sup>6-8</sup> contends that minority populations also can be exposed to unique stressors that create strains on individuals as they attempt to adapt and function in their everyday environments, which in turn negatively affect well-being. Investigators have found compelling evidence of the negative impact of minority stress on mental health among sexual minority persons, who consistently demonstrate higher rates of mental disorder, substance misuse, suicidal ideation, and deliberate self-harm than heterosexual populations.<sup>8-14</sup>

However, few studies have examined social stress, minority stress, and health among midlife and older sexual minority persons. Such studies are of public health significance because the baby boomer cohort quickly is approaching old age, and embedded in this cohort are midlife and older sexual minority persons who endure common aging-related stressors in addition to the unique challenges that are associated with their sexual minority status.<sup>8,13,15,16</sup> These challenges include well-established domains of minority stress associated with stigma, discrimination or prejudice, internalized homophobia, and concealment.<sup>8,13</sup> Other stressors include exclusion from legal marriage, limited legal rights for same-sex partners, lack of access to informal care within traditional family networks, insensitivity to sexual minority health

**Objectives.** We investigated associations between stress and mental health (positive affect, depressive symptoms) among HIV-negative and HIV-positive midlife and older gay-identified men, along with the mediating and moderating effects of mastery and emotional support. We also studied the mental health effects of same-sex marriage.

**Methods.** We obtained data from self-administered questionnaires completed in 2009 or 2010 by a subsample (n=202; average age=56.91 years; age range=44-75 years) of participants in the University of California, Los Angeles component of the Multicenter AIDS Cohort Study, one of the largest and longest-running natural-history studies of HIV/AIDS in the United States.

**Results.** Both sexual minority stress (perceived gay-related stigma, excessive HIV bereavements) and aging-related stress (independence and fiscal concerns) appeared to have been detrimental to mental health. Sense of mastery partially mediated these associations. Being legally married was significantly protective net of all covariates, including having a domestic partner but not being married. Education, HIV status, and race/ethnicity had no significant effects.

**Conclusions.** Sexual minority and aging-related stress significantly affected the emotional lives of these men. Personal sense of mastery may help to sustain them as they age. We observed specific mental health benefits of same-sex legal marriage. (*Am J Public Health.* 2012;102:503-510. doi:10.2105/AJPH.2011.300384)

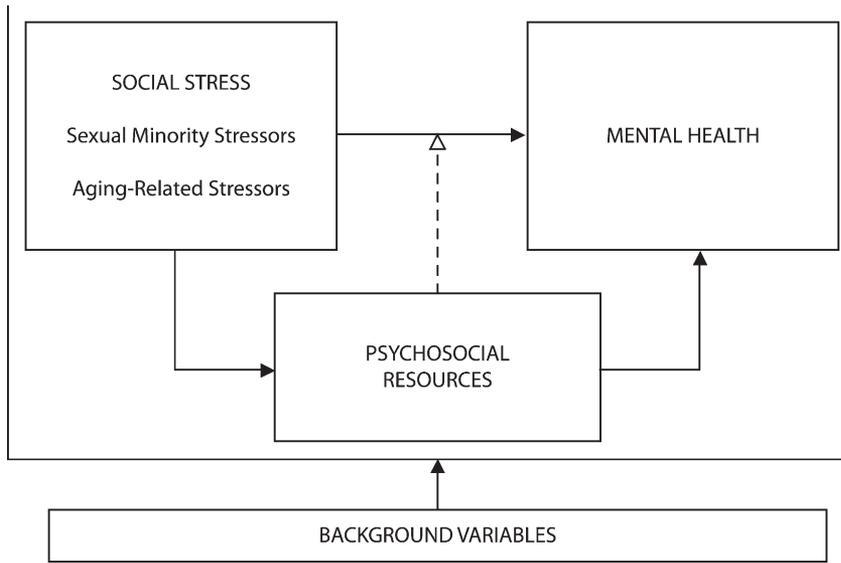
issues among care providers, and ostracization in health care and long-term care settings.<sup>17,18</sup>

Midlife and older sexual minority persons also are of particular interest because of their life-course experiences of either being socially invisible during most of the 20th century or of coming of age on the heels of the gay rights movements in the 1960s. They are the first sexual minorities in history to age with an identity that is now socially and politically recognized as they become increasingly enfranchised. A review of the literature on sexual orientation and aging offers further insight into the life-course challenges faced by the estimated 1 to 3 million older sexual minority adults in the United States—a number that is increasing dramatically.<sup>19</sup> Within this broad cohort of midlife and older sexual minorities, gay-identified men (hereafter, gay men) are unique because of their additional historical experience of having been in the highest HIV/AIDS risk group when virtually nothing was known about HIV transmission routes, making

prevention impossible. The profound impact of the AIDS epidemic on the lives of these men cannot be overstated.<sup>19</sup> For example, they have outlived many of their peers lost during the early years of AIDS,<sup>20</sup> diminishing their social support networks.<sup>21</sup>

We examined sexual minority stressors<sup>8,13</sup> and generally applicable stressors associated with aging<sup>22,23</sup> as well as their hypothesized associations with mental health (Figure 1). On the basis of social stress theory<sup>1-3</sup> and its empirical operationalization with the elaboration model,<sup>24</sup> we also examined the role of psychosocial resources as “third variables” that are hypothesized to offset these associations. Psychosocial resources may mediate or moderate the association between stress and mental health.<sup>1-3</sup>

In this case, mediation occurs when stress influences a psychosocial resource, which, in turn, influences mental health, thereby transmitting the effect.<sup>24,25</sup> Moderation occurs when the effect of stress is contingent upon a psychosocial resource (the dashed line in the center of



**FIGURE 1—Hypothesized associations between social stress and mental health among midlife and older gay-identified men.**

Figure 1) meaning that its effect differs across various values of the psychosocial resource. We controlled for the effects of background factors that may influence observed findings, with a particular focus on relationship status. We chose this focus because research on same-sex marriage and mental health among gay men is virtually nonexistent despite evidence of the ameliorative effects of marriage on mental health among heterosexual persons.<sup>26</sup>

By investigating associations among these key constructs, we sought to broaden understanding of the stress and aging experiences of midlife and older gay men, many of whom enter later life at increased risk for HIV infection or chronic HIV-related comorbidities,<sup>27–29</sup> suicidal thoughts or behaviors,<sup>12,30</sup> and other health- and disability-related difficulties.<sup>31</sup>

## METHODS

We obtained data from self-administered questionnaires completed by a subsample of original participants in the University of California, Los Angeles component of the Multi-center AIDS Cohort Study (MACS), one of the largest and longest-running studies of the natural history of HIV/AIDS in the United States. The original sample comprised HIV-positive

and HIV-negative men who were aged 18 years and older when the study began in 1984 (additional cohorts recruited after 1984 are not included in this study). Methodological details of the original MACS have been published previously.<sup>32</sup> A variety of recruitment techniques were used to enroll homosexual men in 4 US metropolitan areas (baseline  $n=4954$  in 1984). Over a 6-month period, from August 2009 to February 2010, surviving participants at 1 of 3 Los Angeles study sites were invited to complete an anonymous paper-and-pencil life-course questionnaire. Most chose to complete the questionnaire at the study site (which required approximately 20 minutes), although a few chose to return it by mail. Participants were provided with incentive gift cards. In total, 219 questionnaires were returned. Of these, 202 responders self-identified as gay and provided sufficient data for analysis. This number represents 85% of 238 participants who were seen at this study site for their regular MACS study visit between August 2009 and February 2010.

## Measures

We focused on 2 mental health outcomes—positive affect and depressive symptoms—because any single outcome may underestimate the mental health impact of stress.<sup>33</sup> These 2 dimensions of mood are distinctive<sup>34</sup> and are not

mere opposites of one another. That is, low levels of depressive symptomatology do not inherently signify high positive affect, and vice versa. Positive affect, indicative of pleasurable mood,<sup>34</sup> was assessed with the 10-item general positive affect subscale of the RAND Mental Health Inventory.<sup>35</sup> For example, participants were asked how often (1 [never] to 4 [very often]) they felt that the future looked hopeful and promising, felt relaxed and free of tension, and felt calm and peaceful ( $\alpha=0.92$ ). Depressive symptoms, indicative of aversive mood,<sup>34</sup> were assessed with 8 of the original 20 items from the Center for Epidemiologic Studies Depression Scale (CES-D<sup>36</sup>), including items such as “I felt depressed,” “I felt lonely,” and “I could not ‘get going.’” These items represent a short form of the CES-D used by the Health and Retirement Study, a large ongoing national study of aging adults.<sup>37</sup> Participants were asked how often (0 [rarely or none of the time] to 3 [all of the time]) in the past week they had experienced the symptom ( $\alpha=0.89$ ).

We assessed 2 sexual minority stressors.<sup>8,13</sup> First, perceived gay-related stigma, a powerful discrediting social label stemming from homophobia, was assessed with a 7-item scale adapted from a measure of HIV stigma.<sup>38</sup> Participants were asked to think about their sexual orientation and rate “how much” (1 [not at all] to 4 [very much]) they perceived, for example, that they needed to hide their sexual orientation, people avoided them, and other people were uncomfortable around them ( $\alpha=0.83$ ). Second, excessive experience with HIV-related bereavements (excessive because many midlife and older gay men have lost a disproportionate number of friends to HIV/AIDS) was assessed by asking participants how many of their close friends or relatives had died from AIDS. Studies have indicated that the association between AIDS bereavements and mental health is not necessarily linear.<sup>39,40</sup> Therefore, we used the 80th percentile as a cut-off (the participant had lost 15 or more close friends or relatives) to create a dichotomous measure that sets apart the extreme end of the loss spectrum.

We assessed 2 generally applicable stressors associated with aging. First, aging-related concerns about independence (adapted from the Out and Aging Study<sup>22,23</sup>) were assessed by asking participants to think about their lives as they get older and to rate their concern (1 [not at

all) to 4 [very]) with 5 items ( $\alpha=0.85$ ) about being alone and becoming dependent on others. Second, aging-related fiscal concerns, a 3-item measure also adapted from the Out and Aging Study, were assessed by asking participants to think about their lives as they get older and to rate their concern (1 [not at all] to 4 [very]) about outliving their income, having a place to live, and having good health care ( $\alpha=0.80$ ).

We assessed the stress mediating and moderating effects of 2 psychosocial resources. First, mastery ( $\alpha=0.85$ ) was assessed with the 7-item Pearlin Mastery Scale.<sup>4</sup> Participants were asked about their agreement (1 [strongly disagree] to 4 [strongly agree]) with questions about how they see themselves as a person, including items about problem solving and control over events. Second, emotional support was assessed with a 7-item scale<sup>41</sup> ( $\alpha=0.91$ ) that ascertained agreement (1 [strongly disagree] to 4 [strongly agree]) with statements such as “the people close to you let you know that they care about you” and “you have someone that you feel you can trust completely.”

We controlled 6 background variables that may influence observed findings in the analysis. Self-rated health was assessed by asking, “How would you rate your current overall health?” (1 [poor] to 5 [excellent]). Relationship status was assessed with a categorical measure distinguishing among those reporting (1) same-sex domestic partnership (with no distinction as to legal status), (2) same-sex legal marriage (legal in California between June and November of 2008), or (3) neither domestic partnership nor same-sex marriage. We controlled area of residence because of its known association with mental health.<sup>42</sup> We collapsed participant zip codes into the 8 existing Los Angeles County Service Provider Areas (SPAs), which are geographically delineated locales that provide targeted public health services. Forty-six percent of participants lived within SPA4, which covers the densest metropolitan part of Los Angeles County. We coded participants as living in SPA4 versus not. Other control variables were HIV-positive versus not, age (years), non-Hispanic White versus not, 4 or more years of college versus not, and employed full time versus not.

### Analysis

We used Stata software version 10.0 (StataCorp LP, College Station, TX) to run ordered

least squares regression models that assessed sequential associations between stressors and mental health, with psychosocial resources as third variables, based on the elaboration model described previously.<sup>24,43</sup> As a preliminary step, we assessed adjusted associations between stressors and psychosocial mediators individually to determine their empirical viability ( $P\leq.05$ ) as stress mediators.<sup>25</sup> We then estimated the focal relationships<sup>24</sup> between the 4 stressors and the 2 mental health outcomes. Next, we controlled background variables. Then we added the psychosocial variables individually to test for stress mediation, and then we used the Sobel test to assess the statistical significance ( $P\leq.05$ ) of the mediating effects.<sup>25</sup> We then added interactions between the psychosocial variables and stressors (both mean-centered) to test for stress moderation or “buffering.”<sup>41</sup> Finally, we added both mastery and emotional support simultaneously to assess their relative effects. We used the Wald test to sequentially assess model fit by testing whether the effects of added variables significantly differed from zero. We imputed minimal missing data ( $\leq 4\%$ ) with the mode. Results were nearly identical when we restricted analyses to those with complete data.

## RESULTS

Sample characteristics are shown in Table 1. The average participant rated his health as “very good.” More than one third of participants were HIV-positive. Thirty percent were in same-sex domestic partnerships, and about 12% were in legal marriages to another man. Geographically, the sample was dispersed, but close to half resided in Los Angeles County’s SPA4, as described previously. The average participant was in his late 50s (range=44–75 years). The majority were non-Hispanic White and college graduates, and half were employed full time. For the most part, these men did not differ from the entire sample of 238 MACS participants seen at this study site between August 2009 and February 2010, although they did report higher levels of education (72.28% vs 60.20% college graduates).

On average, participants scored low on perceived gay-related stigma. More than 20% had lost 15 or more close friends or relatives to HIV/AIDS. The average score for aging-related independence concerns was moderately high,

as was the average score for aging-related fiscal concerns. The average participant agreed with statements indicating high levels of mastery and emotional support.

The mean score for depressive symptoms indicated that participants experienced such symptoms “some or a little of the time,” on average, whereas the mean score for positive affect suggested that these optimistic feelings were felt fairly often, on average. These 2 scores were highly correlated ( $R=-0.64$ ) but not redundant, accounting for approximately one third of the variation in each other.

Preliminary examinations of adjusted associations between stressors and mediators (data not shown) revealed that mastery was empirically viable as a stress mediator for all associations except those regarding excessive HIV bereavements. Emotional support was viable as a stress mediator only for the association between stigma and positive affect.

### Positive Affect

As shown in Table 2, model 1, stigma, independence concerns, and fiscal concerns were negatively and significantly associated with positive affect, accounting for 29% of the variance. Model 2 shows that the addition of control variables reduced the coefficient sizes for stigma and fiscal concerns, although they remained statistically significant, and attenuated the effect of independence concerns. High self-rated health and having a same-sex legal spouse (compared with not having a domestic partner or legal spouse) were positively associated with positive affect. There was no significant effect of having an unmarried same-sex domestic partner, compared with having no partner or spouse. Living in the densest part of Los Angeles County was negatively associated with positive affect. Model 2 significantly improved the fit of the model to the data compared with model 1.

Model 3 added mastery, which was positively and significantly associated with positive affect, and diminished the coefficients for both stigma and fiscal concerns by nearly half compared with model 2 (Sobel tests statistically significant), a clear example of effect mediation. The coefficient for self-rated health also was decreased by nearly half, the effect of same-sex marriage remained significant, residential location became nonsignificant, and being

**TABLE 1—Characteristics of Sample of Gay Men Aged 44 to 75 Years in 2009 or 2010 (N = 202): University of California, Los Angeles Site of Multicenter AIDS Cohort Study**

	% or Mean (SD)
Health and sociodemographic characteristics	
Self-rated health (1-5)	3.88 (0.89)
HIV-positive	37.62
Has same-sex domestic partner	30.20
Has same-sex legal spouse	11.88
Resides in urbanized central Los Angeles County <sup>a</sup>	45.54
Age, y	56.91 (6.85)
Non-Hispanic White	87.13
≥4 y of college	72.28
Employed full time	50.50
Stress domains	
Perceived gay-related stigma (1-4)	1.33 (0.41)
Experienced excessive HIV bereavements	21.78
Aging-related independence concerns (1-4)	2.73 (0.73)
Aging-related fiscal concerns (1-4)	2.53 (0.84)
Stress mediators	
Mastery (1-4)	3.16 (0.54)
Emotional support (1-4)	3.46 (0.54)
Mental health	
Positive affect (1-4)	2.91 (0.58)
Depressive symptoms (0-3)	0.84 (0.60)

<sup>a</sup>Resides in Los Angeles County Service Provider Area 4, designated by Los Angeles County Department of Public Health.

employed full time was negatively associated with positive affect. Model 3 represented a significant improvement over model 2, and the  $R^2$  was nearly doubled compared with model 1. Mastery did not significantly moderate the effects on positive affect of any of the stress variables (data not shown).

Model 4 added emotional support, which, like mastery, was positively and significantly associated with positive affect. Emotional support also partially mediated the effect of stigma (Sobel test statistically significant) but less so than mastery. High self-rated health remained positive and significant, living in the densest part of Los Angeles County was again significant, and the effects of same-sex marriage and employment became nonsignificant. Model 4 significantly improved the fit of the model to the data, compared with model 2. Emotional support did not significantly moderate the effects on positive affect of any of the stress variables (data not shown).

Model 5 included both mastery and emotional support to test their relative impacts on positive affect. The effect of mastery was highly significant, whereas the effect of emotional support was less so. The coefficients for both stigma and fiscal concerns were substantially reduced in magnitude compared with previous models, although they were still significant. We found significant effects for self-rated health, having a same-sex legal spouse, residential location, and being employed full time. The amount of variation in positive affect accounted for by model 5 was similar to that for model 3, the model that only tested mediating effects of mastery.

### Depressive Symptoms

As shown in Table 3, model 1, stigma, excessive HIV bereavements, and independence concerns were positively and significantly associated with depressive symptoms, accounting for 25% of the variance. The

inclusion of control variables in model 2 reduced these effects somewhat (excessive HIV bereavements was no longer significant), and high self-rated health, same-sex domestic partnership, same-sex marriage, and older age were protective against depressive symptoms. The  $R^2$  was increased, and model 2 significantly improved the fit of the model to the data compared with model 1.

We added mastery in model 3, and it was highly significant and protective against depressive symptoms. Mastery partially mediated the effect of stigma (Sobel test statistically significant). The coefficient for excessive HIV bereavements became larger and significant compared with model 2, indicating that its true effect had been concealed or “suppressed” by not controlling for mastery.<sup>43</sup> Independence concerns were not significant in this model. The effects of the control variables were largely unchanged, and model 3 represented a significant improvement over model 2. Mastery did not significantly moderate the effects of any stress variables on depressive symptoms (data not shown).

We added emotional support in model 4, and its coefficient was not statistically significant; nor were there significant interactions between emotional support and the 4 stressor variables (data not shown). Thus, model 5, in which both mastery and emotional support were included as covariates, was highly similar to model 3, which only included mastery. Notably, having a same-sex legal spouse (compared with having no spouse or domestic partner) remained statistically significant and protective against depressive symptoms, but the effect of having a nonmarital partner was not significant. Model 5 significantly improved the fit of the model to the data compared with model 2.

### Supplemental Analysis

When we reran the regression models using same-sex marriage as the omitted reference group, the effects of same-sex marriage were not significantly different ( $P > .05$ ) from the effects of same-sex partnership. However, postestimation Wald tests did indicate that the effect of same-sex marriage, compared with not being married or partnered, was significantly different from zero for both mental health outcomes (positive affect:  $F_{1,186} = 3.82$ ;  $P < .05$ ;

**TABLE 2—Regressions for Positive Affect Among Gay-Identified Men Aged 44 to 75 Years in 2009 or 2010: University of California, Los Angeles Site of Multicenter AIDS Cohort Study**

Independent Variables	Model 1, b (SE)	Model 2, b (SE)	Model 3, b (SE)	Model 4, b (SE)	Model 5, b (SE)
<b>Stress domains</b>					
Perceived gay-related stigma (1-4)	-0.48*** (0.09)	-0.40*** (0.08)	-0.24** (0.08)	-0.30** (0.09)	-0.19* (0.08)
Experienced excessive HIV bereavements	0.07 (0.09)	0.11 (0.08)	0.04 (0.07)	0.07 (0.08)	0.02 (0.07)
Aging-related independence concerns (1-4)	-0.13* (0.06)	-0.06 (0.06)	0.01 (0.05)	-0.06 (0.06)	0.01 (0.05)
Aging-related fiscal concerns (1-4)	-0.16** (0.05)	-0.19*** (0.05)	-0.12** (0.05)	-0.18*** (0.05)	-0.12** (0.05)
<b>Control variables</b>					
Self-rated health (1-5)		0.19*** (0.04)	0.11** (0.04)	0.17*** (0.04)	0.11** (0.04)
Has same-sex domestic partner <sup>a</sup>		0.12 (0.07)	0.10 (0.06)	0.06 (0.07)	0.06 (0.07)
Has same-sex legal spouse <sup>a</sup>		0.24* (0.10)	0.21* (0.09)	0.18 (0.10)	0.18* (0.09)
Resides in urbanized central Los Angeles County <sup>b</sup>		-0.14* (0.07)	-0.11 (0.06)	-0.16* (0.06)	-0.12* (0.06)
HIV-positive		-0.01 (0.07)	0.04 (0.06)	0.01 (0.07)	0.05 (0.06)
Age, y		-0.01 (0.01)	-0.01 (0.00)	-0.00 (0.01)	-0.00 (0.00)
Non-Hispanic White		-0.13 (0.10)	-0.08 (0.09)	-0.10 (0.10)	-0.07 (0.09)
≥ 4 y of college		-0.01 (0.07)	-0.01 (0.06)	-0.01 (0.07)	-0.01 (0.06)
Employed full time		-0.13 (0.07)	-0.14* (0.06)	-0.12 (0.07)	-0.13* (0.06)
<b>Mediators</b>					
Mastery (1-4)			0.51*** (0.07)		0.47*** (0.07)
Emotional support (1-4)				0.25*** (0.07)	0.15* (0.06)
<b>Model statistics</b>					
R <sup>2</sup>	0.29	0.43	0.57	0.47	0.58
F (df)	20.15*** (4,197)	10.87*** (13,188)	17.65*** (14,187)	11.80*** (14,187)	17.32*** (15,186)
Wald test (df) <sup>c</sup>		5.07*** (9,188)			
Wald test (df) <sup>d</sup>			60.85*** (1,187)	14.12*** (1,187)	34.25*** (2,186)

<sup>a</sup>Reference group = does not have same-sex domestic partner or legal spouse.

<sup>b</sup>Resides in Los Angeles County Service Provider Area 4, designated by Los Angeles County Department of Public Health.

<sup>c</sup>Compared with model 1.

<sup>d</sup>Compared with model 2.

\* $P \leq .05$ ; \*\* $P < .01$ ; \*\*\* $P < .001$ .

depressive symptoms:  $F_{1,186} = 6.99$ ;  $P \leq .05$ ), whereas the effect of same-sex domestic partnership was not significantly different from zero (positive affect:  $F_{1,186} = 0.90$ ;  $P > .05$ ; depressive symptoms:  $F_{1,186} = 3.02$ ;  $P > .05$ ). Thus, direct mental health differentials between same-sex marriage and same-sex domestic partnership were not detected, but it appears that there may be a unique protective mental health effect specifically conferred by legal marriage, especially compared with not being in any type of same-sex relationship at all.

## DISCUSSION

These data suggest 5 key findings regarding stress and mental health among midlife and older gay men. First, minority stressors were

significantly associated with mental health: Perceived gay-related stigma appears to have diminished positive affect and to have heightened depressive symptoms, and excessive experience of HIV bereavements may have intensified the experience of depressive symptoms. Second, general aging-related stressors also were associated with mental health: Fiscal concerns appear to have deflated positive affect, and high independence concerns were fairly consistently associated with frequent depressive symptoms. Third, the effects of minority stressors and aging-related stressors on mental health were partially mediated by sense of personal mastery, but mastery did not moderate these effects. Fourth, emotional support seems to have played a minor role in mediating the effect of stressors on

positive affect and did not mediate the effect of stressors on depressive symptoms. Fifth, having a same-sex domestic partner or same-sex legal spouse may have boosted positive affect and may have protected against depressive symptoms. Having a same-sex legal spouse appears to have been the most beneficial relationship arrangement among these men.

We have shown that midlife and older gay men may have been uniquely jeopardized by stress because their mental health was imperiled by sexual minority stress and by aging-related stress, the latter of which is more commonly experienced across midlife and older populations. Thus, these men may be at heightened risk for poor mental health, and mental health campaigns specifically targeting their distinctive situation in life may be

**TABLE 3—Regressions for Depressive Symptoms Among Gay-Identified Men Aged 44 to 75 Years in 2009 or 2010: University of California, Los Angeles Site of Multicenter AIDS Cohort Study**

Independent Variables	Model 1, b (SE)	Model 2, b (SE)	Model 3, b (SE)	Model 4, b (SE)	Model 5, b (SE)
<b>Stress domains</b>					
Perceived gay-related stigma (1–4)	0.50*** (0.09)	0.45*** (0.09)	0.34*** (0.09)	0.39*** (0.10)	0.31** (0.09)
Experienced excessive HIV bereavements	0.20* (0.09)	0.17 (0.09)	0.21* (0.09)	0.19* (0.09)	0.22* (0.09)
Aging-related independence concerns (1–4)	0.17** (0.06)	0.15* (0.06)	0.10 (0.06)	0.15* (0.06)	0.10 (0.06)
Aging-related fiscal concerns (1–4)	0.07 (0.06)	0.04 (0.06)	-0.00 (0.05)	0.04 (0.06)	-0.00 (0.05)
<b>Control variables</b>					
Self-rated health (1–5)		-0.17*** (0.04)	-0.12** (0.04)	-0.16*** (0.04)	-0.12** (0.04)
Has same-sex domestic partner <sup>a</sup>		-0.17* (0.08)	-0.15* (0.08)	-0.13 (0.08)	-0.14 (0.08)
Has same-sex legal spouse <sup>a</sup>		-0.32** (0.11)	-0.31** (0.11)	-0.29* (0.11)	-0.29** (0.10)
Resides in urbanized central Los Angeles County <sup>b</sup>		0.08 (0.07)	0.06 (0.07)	0.09 (0.07)	0.07 (0.07)
HIV-positive		-0.07 (0.08)	-0.10 (0.08)	-0.09 (0.08)	-0.11 (0.08)
Age, y		-0.01* (0.01)	-0.01* (0.01)	-0.01* (0.01)	-0.01* (0.01)
Non-Hispanic White		0.08 (0.11)	0.05 (0.10)	0.06 (0.11)	0.04 (0.10)
≥ 4 y of college		-0.04 (0.08)	-0.04 (0.08)	-0.04 (0.08)	-0.04 (0.08)
Employed full time		-0.14 (0.08)	-0.14 (0.07)	-0.15 (0.08)	-0.14 (0.07)
<b>Mediators</b>					
Mastery (1–4)			-0.34*** (0.08)		-0.32*** (0.08)
Emotional support (1–4)				-0.14 (0.07)	-0.07 (0.07)
<b>Model statistics</b>					
R <sup>2</sup>	0.25	0.38	0.43	0.39	0.44
F (df)	16.11*** (4,197)	8.76*** (13,188)	10.27*** (14,187)	8.50*** (14,187)	9.65*** (15,186)
Wald test (df) <sup>c</sup>		4.38*** (9,188)			
Wald test (df) <sup>d</sup>			19.02*** (1,187)	3.60 (1,187)	9.99*** (2,186)

<sup>a</sup>Reference group = does not have same-sex domestic partner or legal spouse.

<sup>b</sup>Resides in Los Angeles County Service Provider Area 4, designated by Los Angeles County Department of Public Health.

<sup>c</sup>Compared with model 1.

<sup>d</sup>Compared with model 2.

\* $P \leq .05$ ; \*\* $P < .01$ ; \*\*\* $P < .001$ .

valuable in offsetting this risk. Those who have lost large portions of their social networks to HIV appear to be especially vulnerable. Additional studies of how extreme bereavement has shaped their life trajectories are needed.

Early work by Kimmel<sup>44</sup> suggests that gay persons develop a sense of sexual orientation-related crisis competence that cushions them against personal crises that arise from living in a heterosexual society. Crisis competence skills may explain why emotional support from others had limited impact in the present study. Perhaps these men have learned to rely on themselves in facing life's challenges, especially when their support networks have been depleted. Personal sense of mastery is conceptually similar to crisis competence, self-efficacy, and self-esteem, and interventions that promote the strengthening of

these traits and characteristics may be of particular utility in helping these men as they age.

The legality of same-sex marriage in California currently is tenuous, and it is not legal in the vast majority of states. Thus, the finding that same-sex legal marriage may be protective to mental health is especially relevant because same-sex marriage is not available to most sexual minority persons. This topic deserves much more empirical attention to examine whether legal marriage's mental health benefits for gay and lesbian couples are similar to those found among heterosexual populations.<sup>26</sup>

### Limitations

This study has important limitations. First, the sample of gay men was self-selected and volunteered to complete an anonymous

questionnaire, although the response rate (85%) was high. The characteristics of these men are similar to those of individuals most affected by HIV/AIDS at the onset of the epidemic in the early 1980s—that is, gay, non-Hispanic White men living in urban areas. Still, study results should not be overgeneralized to other samples of gay men or other sexual minority populations. The MACS, being a survivor cohort, may underestimate the true prevalence of problems faced by midlife and older gay men.

Second, there is the possibility that unobserved confounding variables are responsible for significant effects. For example, same-sex marriage may be related to unmeasured personality traits or environmental factors, which could account for the same-sex marriage

findings. Third, the cross-sectional nature of the study prevents us from establishing causal directions of the observed associations. Longitudinal studies would clarify the directionality of findings. Fourth, a larger sample would have allowed for a more extensive examination, particularly of racial/ethnic subgroup differences, for whom stress experiences may be compounded by other forms of minority stress.<sup>45</sup>

## Conclusions

Future research should consider a broader range of minority stressors and aging-related stressors and their interrelationships with one another (i.e., stress proliferation<sup>4</sup>). It may be that minority stress acts as a lever that exacerbates the negative health consequences of more general aging-related stressors. Such investigations may be particularly useful for enhancing ongoing stress research focusing on health disparities.<sup>46</sup> Future research should also consider the roles of other psychosocial resources (e.g., coping strategies) and formal health care resources in offsetting the stress process, in addition to examining other outcomes, such as anxiety, substance abuse, physical health, and health behaviors.

Sexual minority stress and aging-related stress appear to be important factors that affect the emotional lives of midlife and older gay men. Personal sense of mastery helps offset poor mental health and may represent a targetable psychosocial domain for interventions designed to sustain these men as they grow older. Finally, being legally married to another man appears to have been uniquely beneficial to mental health in this sample when we controlled for other competing social forces. ■

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This article was accepted July 18, 2011.

## Contributors

R.G. Wight designed the study and the analytic strategy, conducted the data analysis, and wrote the article. A.J. LeBlanc and B. de Vries assisted with the study design and article preparation. R. Detels, one of the original principal investigators of the parent Multicenter AIDS Cohort Study, assisted with this study's design and article preparation.

## Acknowledgments

This research was supported by a grant from the Williams Institute, UCLA School of Law (R.G. Wight, principal investigator). The Multicenter AIDS Cohort Study is funded by the National Institute of Allergy and Infectious Diseases, with supplemental funding from the National Cancer Institute (grants UO1-AI-35042, UL1-RR025005 [GCRC], UO1-AI-35043, UO1-AI-35039, UO1-AI-35040, and UO1-AI-35041, R. Detels, UCLA principal investigator).

We thank Eliva Clinton, Dennis S. Miles, May Htike, Daniel Cheng, John Oishi, and Kevin Barrett for assistance with study implementation, and we are grateful to participants in the Los Angeles Multicenter AIDS Cohort Study for sharing their experiences.

## Human Participant Protection

This research was approved by the UCLA Office for the Protection of Research Subjects.

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