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The Role of Minority Stressors in Lesbian Relationship Commitment and Persistence Over Time

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The Investment Model of relationship commitment uses interpersonal investment, relationship satisfaction, quality of alternatives, and commitment to predict relationship longevity (Rusbult, 1980, 1983). Although ample support for the Investment Model has been found in heterosexual couples, it appears to be less powerful in predicting stability in same-sex relationships (Beals, Impett, & Peplau, 2002), potentially because the model does not account for factors unique to same-sex relationships, such as antigay discrimination. However, no research has tested the nature and power of sexual minority stress factors in predicting same-sex relationship stability over time. Using secondary, longitudinal data collected from a diverse sample of lesbian women in relationships ($N = 211$), we examined how internalized homonegativity, sexual identity disclosure, and workplace discrimination affected the Investment Model antecedents of relationship persistence: satisfaction, quality of alternatives, and investment. We tested the influence of sexual minority stressors on Investment Model processes using structural equations modeling and found that sexual identity disclosure was positively associated with satisfaction and investment; internalized homonegativity was only negatively associated with satisfaction and investment; while workplace discrimination was negatively associated with alternatives. Moreover, both relationship satisfaction and investment influenced commitment which predicted persistence in these relationships over about 7 years' time, demonstrating support for the Investment Model. Our findings support the addition of sexual minority stress variables to the Investment Model when examining same-sex relationships and implications are discussed.

Keywords: investment model, lesbian relationships, minority stressors, relationship stability, relationship satisfaction

The desire for close, stable personal relationships is a fundamental need motivating much of human behavior, cognition, and affect (Baumeister & Leary, 1995). In fact, being in a healthy romantic relationship is positively associated with psychological and physical health and adjustment (Braithwaite, Delevi, & Fincham, 2010; Le & Agnew, 2001; Patrick, Knee, Canevello, & Lonsbary, 2007; Powers, Pietromonaco, Gunlicks, & Sayer, 2006), as well as feeling closer to one's ideal self (Campbell, Sedikides, & Bosson, 1994). On the other hand, threats to social attachments and social rejection can instigate depression, aggression, and anxiety (e.g., Besser & Priel, 2009; Nolan, Flynn, & Garber, 2003; Twenge & Campbell, 2003).

Over the last 30 years an abundance of research has supported the Investment Model of commitment processes for predicting romantic relationship stability (Le & Agnew, 2003). The Investment Model (Rusbult, 1980, 1983) has been effective in predicting relationship commitment in diverse couples (e.g., unmarried and married, healthy and abusive), in multiple cultures, and using various methodologies (Rusbult, Agnew, & Arriaga, 2012; Rusbult, Martz, & Agnew, 1998). The Investment Model proposes that relationship commitment is the most powerful predictor of relationship stability (Rusbult, 1980, 1983). Further, it proposes that commitment is highest when individuals experience high satisfaction with their relationship, high investment in their relationship, and believe the quality of alternatives to their relationship is low. Each of these three antecedent variables has been found to contribute uniquely to relationship commitment (Le & Agnew, 2003).

Despite tremendous empirical support for the Investment Model in heterosexual intimate relationships, very little research has used this model to examine commitment and stability in same-sex romantic relationships. For example, 96% of participants included in Le, Dove, Agnew, Korn, and Mutso's (2010) meta-analysis of 137 studies looking at predictors of nonmarital romantic relationship dissolution were heterosexual. In addition, work on relationship well-being among heterosexual couples cannot always be

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generalized to same-sex couples because of the existence of unique minority stressors same-sex couples face that play significant roles in the processes that lead to relationship well-being (e.g., Frost & Meyer, 2009). Indeed, the scant amount of research that has been done on the stability of lesbian, gay, and bisexual (LGB) couple relationships suggests the classic Investment Model is less useful in predicting relationship outcomes for gay and lesbian couples than for heterosexual couples (Beals, Impett, & Peplau, 2002).

In a study by Beals and colleagues (2002), the Investment Model accounted for only 22% of the variance in commitment and 5% of the variance in relationship stability among lesbian couples. Research using heterosexual couples, on the other hand, has found the Investment Model to account for 61% of the variance in commitment and 22% of the variance in relationship stability (Le & Agnew, 2003). Duffy and Rusbult (1986) additionally found that some predictors of commitment in the Investment Model, such as reward value, were significant for heterosexual but not gay/bisexual men.

Although much research finds that the general principles and processes of intimate relationships are the same for LGB and heterosexual couples (Balsam, Beauchaine, Rothblum, & Solomon, 2008; Duffy & Rusbult, 1986; Kurdek, 2004; Peplau & Fingerhut, 2007), LGB individuals experience some unique social and structural challenges and opportunities that have the potential to affect their relational pursuits and persistence (Frost, 2011). Some of the factors that may predict relationship stability among lesbian couples beyond those in the Investment Model include minority stress variables such as internalized homonegativity, sexual identity disclosure, and discrimination. The current study is among the first to examine specific ways in which these minority stress variables influence relationship stability for lesbian women over time.

Minority Stress and Same-Sex Relationships

Many interpersonal processes predict relationship dissolution for both same-sex and heterosexual couples, including low levels of positive affect, high levels of conflict, and poor communication (Gottman et al., 2003; Kurdek, 1991, 1996). However, same-sex couples face additional, unique stressors as a result of their stigmatized status (Otis, Rostosky, Riggle, & Hamrin, 2006) that may negatively impact their relationship longevity. In fact, researchers have proposed that many sexual minority health disparities can be explained by the negative influence of stigma-related stress (Marshal et al., 2008; Meyer, 2003). Living in a homophobic and heterosexist culture, LGB individuals are regularly exposed to small and great injustices that impact immediate health and well-being as well as access to health care. Meyer (1995, 2003) has specifically proposed that members of the LGB community experience the three unique stresses: internalized homonegativity at the most proximal level, sexual identity concealment, and experiences of discrimination and violence at the most distal level.

Research has already found that minority stressors negatively impact some aspects of LGB relationships. For example, internalized homonegativity, sexual identity concealment, and discrimination have all been found to be positively related to intimate partner violence in same-sex couples (Balsam & Szymanski, 2005; Edwards & Sylaska, 2013; Lewis, Milletich, Derlega, & Padilla, 2014). Internalized homonegativity has also been associated with sexual dysfunction among women in same-sex relationships (Cohen & Byers, 2015). In order to determine how internalized homonegativity, sexual identity concealment, and discrimination might relate to relationship persistence over time using an Investment Model framework, we turn to research on how each of these stressors impacts the antecedents of relationship persistence in the Investment Model: relationship satisfaction, investment, quality of alternatives, and commitment.

Internalized Homonegativity

Internalized homonegativity (also known as internalized homophobia or internalized stigma) is the internalization of negative social and cultural beliefs and stereotypes about gay men and lesbians (Greene & Britton, 2015; Lewis, Milletich, Kelley, & Woody, 2012). Of the three minority stressors, internalized homonegativity has the most abundant research evidence specific to LGB relationships. The research is also quite clear as to how internalized homonegativity should relate to the Investment Model constructs. Internalized homonegativity has been found to be negatively related to relationship satisfaction and perceptions of relationship quality in gay and lesbian couples (Balsam & Szymanski, 2005; Lewis et al., 2014; Mohr & Daly, 2008; Otis et al., 2006; Ross & Rosser, 1996; Szymanski, Kashubeck-West, & Meyer, 2008). For example, in research on LGB college students, internalized homonegativity was found to negatively predict partners' levels of relationship attraction and satisfaction (Mohr & Daly, 2008). Internalized homonegativity has also been found to be negatively related to relationship investment (Greene & Britton, 2015) and a potential direct contributor to lower relationship commitment, when taking other variables into account (Greene & Britton, 2015; Mohr & Fassinger, 2006). Based on this work, we predict:

> *Hypothesis 1:* (H1) Internalized homonegativity in our sample of lesbian women will be negatively associated with relationship satisfaction (H1a), investment (H1b), and commitment (H1c).

Sexual Identity Concealment and Disclosure

Sexual identity concealment is a minority stress experienced when a sexual minority person hides his or her sexual identity from certain individuals or groups, or within certain situations (Schrimshaw, Siegel, Downing, & Parsons, 2013). Related to this construct is sexual identity disclosure, or a sexual minority person's level of openness about his or her sexual identity (Schrimshaw et al., 2013). Previous research indicates that being open about one's sexual identity with family members can have a positive effect on lesbian relationships, even if the family does not react positively (Murphy, 1989). Social support from relatives is also associated with greater satisfaction in same-sex couples (Kurdek, 1988a). Taken together, this work suggests that being "out" to one's family may have beneficial effects on relationship longevity for sexual minority individuals.

On the contrary, not being out to friends and family may negatively affect commitment and relationship stability. If a lesbian woman is not out to her social network members, she certainly cannot be open with them about her intimate relationship,

causing her to miss out on social support for her relationship challenges and successes. Indeed, hiding one's sexual identity is negatively associated with relationship satisfaction (Edwards & Sylaska, 2013; Lewis et al., 2014), and is associated with lower levels of relationship commitment as well as a lower sense of interconnectedness (Lehmiller, 2009). Based on this work, we predict:

Hypothesis 2: (H2) Sexual identity disclosure in our sample of lesbian women will be positively associated with relationship satisfaction (H2a) and commitment (H2b).

Workplace Discrimination

Though some promising legal and social gains have materialized for the LGBT community in the last 30 years in the United States (e.g., Avery et al., 2007; Freedom to Marry, 2015), sexual orientation prejudice and discrimination persists in many ways. Approximately half of LGBT adults report experiencing verbal harassment due to their sexual orientation, 20% report having experienced crime against their person or property based on their sexual orientation (Herek, 2009), and between 25 and 66% have experienced discrimination at work (Ruggs et al., 2013). It is well-established that the experience of antigay discrimination has deleterious effects on the health and well-being of sexual minorities (for reviews, see Meyer & Northridge, 2007; Shankle, 2006).

The effects of discrimination on LGB romantic relationships, especially on relationship longevity (Peplau & Fingerhut, 2007), are not as well-established as the effects on individual well-being. There is some evidence, however, that experiences of discrimination may be negatively associated with relationship satisfaction. Several researchers, for example, found that reports of discrimination are linked to lower perceptions of relationship quality in same-sex couples (e.g., Otis et al., 2006), though not all researchers have found this relationship (Balsam & Szymanski, 2005). Research with same-sex couples in civil unions also found a negative and significant relationship between discrimination (at work and in general) and relationship satisfaction for lesbians couples, though these effects were not present for gay male couples (Todosijevic, Rothblum, & Solomon, 2005). Based on this work, we predict:

Hypothesis 3: (H3) Workplace discrimination in our sample of lesbian women will be negatively associated with relationship satisfaction (H3a).

In addition to the three a priori hypotheses articulated here, we will also test additional paths by which internalized homonegativity, sexual identity disclosure, and discrimination may affect predictors of relationship stability among lesbian women. We test these hypotheses in an exploratory fashion, as there is little research or theory supporting or refuting clear relationships between sexual orientation discrimination and relationship investment, for example, or sexual identity disclosure and quality of alternatives. We also explore potential moderating effects on these relationship processes due to additional demographic and relationship variables to capitalize on the diversity of the current sample in the spirit of disseminating research that considers the role of intersecting identities and contextual factors (Cole, 2009).

Method

Sample

To test our hypotheses, we conducted secondary data analysis using existing data from the Chicago Health and Life Experiences of Women (CHLEW) Study, a 15-year, three-wave longitudinal study of adult sexual minority women (SMW). Baseline data were collected in the greater Chicago metropolitan area in 2000–2001, resulting in a diverse sample of 447 English-speaking, adult women who self-identified as lesbian or bisexual. The researchers made concerted efforts to maximize the representativeness of the sample by including SMW from demographic backgrounds underrepresented in most studies of lesbian health, including those from racial/ethnic minority groups, with a high school education or less, and those under the age of 25 and over the age of 50.

A range of recruitment tools and strategies were used, including advertisements in local newspapers, Internet listservs, and flyers posted in venues such as bookstores and churches. Participants were also recruited through social networks, such as formal community-based organizations and individual social networks, including those of women who participated in the study. Only women who self-identified as lesbian during a short telephone screening interview were invited to participate. The baseline (Wave 1) sample included women ranging in age from 18 to 82 years old, with less than half of the sample identifying as White (see Hughes et al., 2006, for more detailed information about CHLEW study procedures). Data for Wave 2 of the study were collected in 2003–2004, with a response rate of 86%. In Wave 3 (2010–2012), interviews were conducted with 79% of the baseline sample.

Of the 447 SMW included in Wave 1 of the CHLEW study, 384 completed Wave 2. The majority of Wave 2 participants ($n = 245$) reported being in a relationship with a female partner; of these 245 women, 211 women were also interviewed in Wave 3 and are the analytic sample for the current study. Hereafter we refer to Wave 2 and 3 as Time 1 and Time 2, respectively. Wave 1 was not included because measures for several key variables in the current model were not measured in the first wave. The average time between Time 1 and Time 2 was approximately 7 years ($M = 6.86$ years, $SD = .26$). The average age of participants in the current sample was 42.16 ($SD_{age} = 11.63$). The average relationship length at Time 1 was 75.29 months ($SD_{length} = 76.47$). Fifty-six percent of the sample self-identified as White, 20% as Black or African American, 12% as Hispanic or Latina, 3% as Asian or Pacific Islander, 0.5% as American Indian, and 9% as "Other racial/ethnic group." At Time 1, 65% of the sample reported working full-time, 12% reported working part-time, 10% reported working both full- and part-time or multiple part-time jobs, and 13% reported being unemployed and looking for a job, or not looking for a job. All participants were with women and 98% self-identified as lesbian or mostly lesbian at Time 1. Exclusion of the 2% of women who identified as something other than lesbian or mostly lesbian did not alter our findings. Of the constructs in the current model, those measured at Time 1 were satisfaction, alternatives, investment, commitment, internalized homonegativity, sexual identity disclosure, and workplace discrimination. The outcome variable, persistence, was measured at Time 2.

Materials

Due to the nature of the secondary data, we chose items from the survey that best matched the constructs described in Rusbult's original model. We did this by reviewing the theorized constructs carefully and looking both at the items in Rusbult's validated scale (Rusbult et al., 1998) and previous published texts of the Investment Model that did not use her scale (Bui, Peplau, & Hill, 1996; Kurdek, 1992; Rusbult & Martz, 1995). Understanding that the validity of the measures may be compromised without further inspection, a confirmatory factor analysis was conducted with all multiitem measures in the models. This factor analysis demonstrated an acceptable fit, giving us evidence that the items selected for each construct cohered well with each other and not with items on other constructs (Barrett, 2007; Hu & Bentler, 1999; MacCallum, Browne, & Sugawara, 1996; see Table 1).

Satisfaction. Satisfaction refers to the level of positive affect felt by an individual toward their partner, which is often associated with the degree to which the partner satisfies the individual's needs. In measuring relationship satisfaction in her validated scale, Rusbult et al. (1998) included the following: "I feel satisfied with our relationship," "My relationship is much better than others' relationships," "My partner fulfills my sexual needs," and "Our relationship makes me very happy." In the current study, relationship satisfaction was measured using the following items: "Please choose the number which best describes how happy you are with your relationship with your partner," "How would you usually feel about sexual activity with this partner?," "How often do you regret that you became involved with your current partner?," and "Thinking about the kind of person she is, would you like her to be different in many ways, some ways, a few ways, or not in any way?" The latter two items were reverse-scored and all four items were averaged for each participant to create a composite satisfaction measure ($\alpha = .71$). Since most items in the original survey have different ranges, we standardized all items in each measure described prior to creating the composites. Higher scores on this measure indicate higher levels of relationship satisfaction.

Alternatives. Quality of alternatives is defined as the extent to which an individual's needs can be satisfied through means other than the current partner. In measuring quality of alternatives, Rusbult et al. (1998) included the following in her validated scale: "My needs for intimacy could be fulfilled in alternative relationships," "My alternatives to our relationship are close to ideal," and "My alternatives are attractive to me." In the current study, quality of alternatives to the relationship were measured using the following items: "How many friends, excluding your partner, do you have that you feel close to?," "How satisfied are you with the kinds of relationships you have with your friends?," "How many relatives, excluding your partner, do you feel close to?," "How satisfied are you with the kinds of relationships you have with your relatives/family?," and "Thinking back over the last 12 months, about how often did you get together socially with: other lesbians/mostly straight people/mostly gay men?"

In addition to these seven items, we also included items that represented interactions between friendship quantity and quality (i.e., the number of friends you feel close to multiplied by the satisfaction with these relationships) and between family relationship quantity and quality (i.e., the number of family members you feel close to multiplied by the satisfaction with these relationships). While the number and quality of friendships and the number and quality of family relationships were included individually, we felt that additionally including interactions between these items would better capture the true meaning of "quality of alternatives" in the Investment Model. Friendships that are close and satisfying are those relationships that one could consider as attractive alternatives to the intimacy experienced in a relationship. Therefore, we had a total of nine items representing quality of alternatives that were averaged for each participant to create a composite quality of alternatives measure ($\alpha = .72$). Higher scores on this measure indicate higher quality of alternatives to the relationship.

Investment. Investment refers to the level of invested resources that would be lost or decline if the relationship ended. In measuring investment size, Rusbult et al. (1998) included the following in her validated measure: "My partner and I have an intellectual life together that would be difficult to replace," "My partner and I share many memories," "My sense of personal identity is linked to my partner and our relationship," and "Many aspects of my life have become linked to my partner, and I would lose all of this if we were to break up." In the current study, investment in the relationship was measured using the following items: "How often would you say the following events occur between you and your partner?" with specific events including "engage in outside interests together," "have a stimulating exchange of ideas," and "work together on a project?," and whether the participant was currently, "living with a partner in a committed relationship," or, "in a committed relationship but not living with a partner." The four items were averaged for each participant to create a composite investment measure ($\alpha = .66$). Higher scores on this measure indicate higher levels of investment in the relationship.

Commitment. Commitment is defined as a long-term orientation toward the relationship. In other words, commitment is an intention to persist in a relationship. In measuring commitment level in her validated scale, Rusbult et al. (1998) included the following: "I want our relationship to last for a very long time," and "I would not feel very upset if our relationship were to end in the near future." In the current study, relationship commitment was measured by the following item: "How often do you discuss or have you considered separation or terminating your relationship?" This item was reverse-scored such that higher scores indicate higher levels of relationship commitment.

Persistence. Persistence solely refers to whether an individual and their partner stay together. Relationship persistence was measured as a dichotomous variable determined by whether the participant reports that she had (coded as 0) or had not (coded as 1) separated from her partner during Time 2 of the study.

Table 1
Fit Indices for All Models

Model	χ^2	*df*	χ^2/df	*p*	RMSEA	CFI	TLI
CFA	1095.395	775	1.41	$<.001$	.04	.91	.91
Model A	5.48	3	1.83	.14	.06	.98	.93
Model B	5.16	3	1.72	.16	.06	.99	.91
Model C	12.35	9	1.37	.10	.04	.99	.96

Note. The use of the WLSMV estimator does not result in an estimate for the SRMR of the model; therefore, it is not reported.

Internalized homonegativity. Internalized homonegativity is defined as negative attitudes that lesbian women (and gay men) have toward their own sexual orientation. Internalized homonegativity was measured using the following items on an agree-disagree scale: "I have tried to stop being attracted to women in general," "If someone offered me the chance to be completely heterosexual, I would accept the chance," "I wish I weren't a lesbian," "I feel that being a lesbian is a personal shortcoming for me," "I would like to get professional help in order to change my sexual orientation from lesbian to straight," "I have no regrets about being lesbian," "I am proud that I am a lesbian," "Being lesbian is satisfactory and acceptable way of life for me," "As a lesbian, I am loveable and deserving of respect," and "I am not worried about anyone finding out that I am a lesbian." The latter five items were reverse-scored and the 10 items were averaged for each participant to create a composite internalized homonegativity measure ($\alpha = .73$). Higher scores on this measure indicate higher levels of internalized homonegativity.

Sexual identity disclosure. Sexual identity disclosure simply refers to the extent that the individual has disclosed their sexual identity to others in their life. Sexual identity disclosure was measured using the following items: the participant's outness to various groups including "your current heterosexual friends," "your casual acquaintances who are heterosexual," "the people you work at your job with," "your supervisor at work," and "your healthcare providers"; "Does your mother know that you are lesbian?," "Does your father know that you are lesbian?," and two items defining the proportion of brothers and sisters whom the participant is out to, respectively. The latter two items were created by the ratio of "How many brothers/sisters do you have" and "How many of your brothers/sisters know you are a lesbian?" The nine items were averaged for each participant to create a composite sexual identity disclosure measure ($\alpha = .82$). Higher scores on this measure indicate higher levels of sexual identity disclosure.

Workplace discrimination. Perceived workplace discrimination refers to the degree to which an individual has felt that they have experienced either overt or covert forms of discrimination based on their sexual orientation. Perceived workplace discrimination was measured using the following items: "In the last 12 months, how often have you been in a situation where someone in your work setting: told anti-gay or homophobic stories or jokes/made crude or offensive remarks about lesbian or gay people, either publicly or to you privately/treated you differently because of your sexual orientation; for example, mistreated, slighted, or ignored you/put you down or was condescending to you because of your sexual orientation/made unwanted attempts to draw you into a discussion of personal or sexual matters/treated you unfairly compared to others in your same position because of your sexual orientation; for example, in terms of assignment, salary, promotion, resources, or reprimands?" The six items were averaged for each participant to create a composite workplace discrimination measure ($\alpha = .81$). Higher scores on this measure indicate higher levels of perceived workplace discrimination.

Results

All analyses were run on MPlus 6.12 using path analysis to estimate all parameters of interest and assess the fit of our hypothesized models. As is standard in MPlus analyses and recommended for structural equations modeling, full information maximum likelihood was used to address any missing data (Enders & Bandalos, 2001). Because of the dichotomous nature of the outcome variable, we used the mean- and variance-adjusted weighted least squares estimation (WLSMV) available in MPlus. Table 2 shows the bivariate correlations among all the variables of interest. Since the focus of the current study was not indirect effects, the significance of numerous indirect effects observed will be concluded using the joint test of significance, a simpler method that has served equally as well as bootstrapping. Essentially, this method looks at the paths from the predictor to the mediator and the mediator to the outcome; if both paths are significant, the indirect effect is likely nonzero as well (Fritz & MacKinnon, 2007; Hayes & Scharkow, 2013).

Assessment of the Investment Model of Commitment

To test the adequacy of Rusbult's original investment model in the current sample, we specified a model (Model A) in which relationship satisfaction, alternatives, and investment were intercorrelated and used to predict relationship commitment. Further, commitment was used to predict persistence (see Figure 1). Consistent with previous research on the Investment Model (Le &

Table 2
Correlations Between All Model Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Internalized homonegativity	(.73)										
2. Sexual identity disclosure	.08**	(.82)									
3. Workplace discrimination	−.46***	−.13**	(.81)								
4. Satisfaction	−.05	−.05**	.20***	(.71)							
5. Alternatives	−.14*	−.05	.24**	.11***	(.72)						
6. Investment	.00	−.04	.07	.16***	.06	(.66)					
7. Commitment	−.16**	−.06*	.30**	.38***	.17**	.25***	—				
8. Persistence	−.08	−.05	.06	.08	.13	.09	.27**	—			
9. Race	.02	−.14*	.17**	−.17**	−.07	−.17**	−.42***	−.42***	—		
10. Age	−.09*	−.09*	−.08	−.04	−.01	−.01	.09	.40***	−.29**	—	
11. Relationship length	−.08	−.02	−.11*	.03	.02	.08	.08	.52***	−.37***	.48***	—

Note. Values in parentheses represent internal reliability coefficients for the corresponding scale. Age and relationship length were measured at Time I.
* $p < .05$. ** $p < .01$. *** $p < .001$.

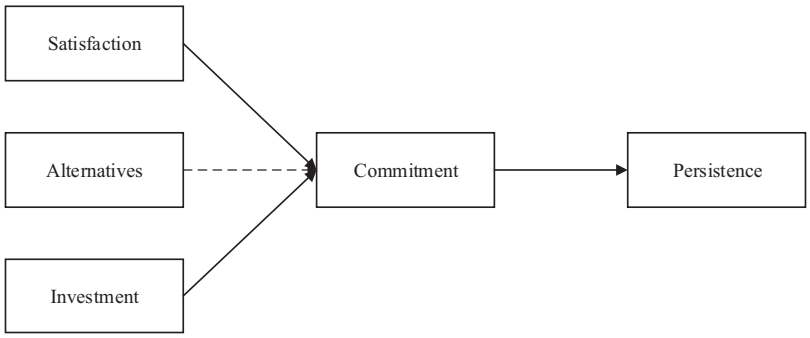

Figure 1. Model A: the Investment Model with no minority stress variables. Nonsignificant paths represented using dotted lines.

Agnew, 2003), we did not model direct effects of satisfaction, alternatives, and investment on persistence. Fit indices indicated that Model A fit the data well (Barrett, 2007; Hu & Bentler, 1999; MacCallum et al., 1996; see Table 1 for fit indices for all models evaluated).

Relationship satisfaction ($B = 0.74$, $SE = 0.07$, $p < .001$) and investment ($B = .30$, $SE = .10$, $p = .002$) were positively associated with commitment, though alternatives was not ($B = .11$, $SE = .09$, $p = .20$). Commitment, in turn, was positively associated with relationship persistence ($B = .31$, $SE = .09$, $p = .001$). Overall, we found support for the classic Investment Model of commitment with our sample of lesbian couples (see Table 3 for standardized regression weights and R^2 coefficients for all models assessed).

Addition of Minority Stressors

To test whether our minority stress variables (internalized homonegativity, sexual identity disclosure, and discrimination at work) predicted any facets of the Investment Model, we specified a second model (Model B) in which internalized homonegativity, sexual identity disclosure, and workplace discrimination were used to predict all facets of Model A. First Model A was specified, and then direct effects from the minority stress variables to each facet of Model A were added (see Figure 2). Because internalized homonegativity, sexual identity disclosure, and discrimination are all likely to be related constructs (e.g., Feinstein, Goldfried, & Davila, 2012) we specified intercorrelations among these three minority stress variables.

Fit indices indicated that Model B fit well. As predicted by H1, internalized homonegativity was negatively associated with satisfaction ($B = -0.41$, $SE = 0.09$, $p < .001$) and investment ($B = -0.22$, $SE = 0.06$, $p < .001$). Internalized homonegativity was also negatively associated with alternatives ($B = -0.13$, $SE = .06$, $p = .03$). Although there were indirect effects of internalized homonegativity on commitment through satisfaction, alternatives, and investment, there was not a direct effect ($B = 0.01$, $SE = .10$, $p = .90$).

Sexual identity disclosure was positively associated with satisfaction ($B = 0.16$, $SE = 0.06$, $p = .03$), but not directly associated with commitment, partially supporting H2. Additionally, it was found that sexual identity disclosure was positively associated with investment ($B = 0.13$, $SE = 0.06$, $p = .03$).

Workplace discrimination was not associated with satisfaction ($B = 0.04$, $SE = 0.07$, $p = .77$), failing to support H3. However, workplace discrimination was negatively associated with perceived alternatives ($B = -0.10$, $SE = 0.05$, $p = .05$; see Table 3). All other exploratory direct effects from the minority stress variables to the facets of the Investment Model were nonsignificant ($ps > .21$).

Finally, only one of the six direct effects from the stress variables to persistence and commitment was significant. Because these are the more distal outcomes of minority stressors in the current model and it is likely that their effects are not direct, we specified a third model (Model C) in which no direct effects from the minority stress variables to persistence and commitment were included; thus, Model C is a fully mediated path model (see Figure 3). Fit indices indicated that Model C also fit well. To see which of these two models was appropriate, we conducted a chi-square difference test, which was not significant, $\Delta\chi^2(6) = 7.18$, $p = .30$ (see Table 1), indicating that we choose the fully mediated model.

The relationships estimated in this final model were nearly identical to those estimated in Model A, including the relationships between the three most proximal antecedents of commitment (satisfaction, investment, and alternatives), and the relationship between commitment and persistence. Satisfaction ($B = 0.78$, $SE = 0.08$, $p < .001$) and investment ($B = 0.30$, $SE = 0.10$, $p = .002$) were positively associated with commitment, and alternatives was not ($B = 0.15$, $SE = 0.09$, $p = .11$). Commitment was positively associated with persistence ($B = 0.32$, $SE = 0.09$, $p < .001$). Internalized homonegativity ($B = -0.41$, $SE = 0.10$, $p < .001$) and sexual identity closure ($B = 0.15$, $SE = 0.07$, $p = .03$) were negatively and positively associated with satisfaction, respectively. Workplace discrimination ($B = -0.11$, $SE = 0.06$, $p = .05$) and internalized homonegativity ($B = -0.13$, $SE = 0.06$, $p = .03$) were negatively associated with alternatives. Internalized homonegativity ($B = -0.22$, $SE = 0.06$, $p < .001$) and sexual identity disclosure ($B = 0.12$, $SE = 0.06$, $p = .04$) were negatively and positively associated with investments, respectively. All other direct effects were insignificant ($ps > .21$).

Effect Size Comparisons

The purpose of including additional minority stress variables to the original Investment Model was to increase the explanatory power of the model for lesbian couples. Model A, which was the

Table 3
Models Paths and Overall Predictive Value for All Models

Predictor	Model A		Model B				Model C				
	Commitment	Persistence	Satisfaction	Alternatives	Investment	Commitment	Persistence	Satisfaction	Alternatives	Investment	Commitment	Persistence
Internalized homonegativity	—	—	−.30***	−.13*	−.18***	.01	−.06	−.30***	−.12*	−.18***	—	—
Sexual identity disclosure	—	—	.14*	.10	.12*	−.02	.04	.13*	.10	.12*	—	—
Workplace discrimination	—	—	.03	−.13	.04	−.15*	−.03	−.02	−.14*	.02	—	—
Satisfaction	.55***	—	—	—	—	.55***	—	—	—	—	.58***	—
Alternatives	.06	—	—	—	—	.03	—	—	—	—	.08	—
Investment	.20**	—	—	—	—	.19**	—	—	—	—	.20**	—
Commitment	—	.30***	—	—	—	—	.27**	—	—	—	—	.32***
R^2	.45	.09	.11	.07	.05	.47	.09	.13	.07	.05	.50	.10

Note. These reported values are standardized regression weights.
* $p < .05$. ** $p < .01$. *** $p < .001$.

original Investment Model, resulted in an R^2 of .45 and .09 for commitment and persistence, respectively. Model C, which includes the minority stress variables, resulted in an R^2 of .50 ($\Delta R^2 = .05$) and .10 ($\Delta R^2 = .01$; see Table 3) for commitment and persistence, respectively. This increase in explanatory power can be attributed to the minority stressors being able to explain an additional 13% in satisfaction, an additional 7% in alternatives, and an additional 5% in investment.

We could not assess the statistical significance of these reported changes in the R^2 for a couple of reasons detailed below. However, we found no better way to provide an overall effect size to indicate the contribution of the minority stressor variables in Model C. We decided to include this statistic despite the fact that there is no level of significance associated with it. First, the F test that is typically done to assess the significance of any R^2 of direct predictors requires a difference in the number of predictors of any given outcome, but since we are comparing a model that had one direct predictor (commitment) versus another model that also had one direct predictor (commitment), there is no legitimate way to assess the significance. If we consider the potential route of assuming that three more predictors were added in Model C compared to Model A, this considerably underestimates the significance of these effects because the F test again assesses direct effects, not indirect effects. Indirect effects are inherently lower than direct effects and non-normal. Second, we could have conducted a likelihood-ratio (LR) test to determine whether Model C fits the data better than Model A. However, the LR test is specifically designed to assess non-nested models. Not only are the two models not nested within each other, they also have a different number of endogenous variables (Model C has satisfaction, alternatives, and investment as new endogenous variables which were solely exogenous in Model A), which makes the two models incomparable. More endogenous variables naturally increase the log likelihood of the model. Model C would thus have to be an extremely better model of the data to reach a similar, let alone lower log likelihood, compared to Model A; it would be an overly conservative test which would again underestimate the significance of the contribution of Model C.

Exploration of Interactive Effects

Le and Agnew (2003) found no significant moderating effects of race or relationship length in tests of the Investment Model. In addition, Rusbult, Johnson, and Morrow (1986) concluded that the Investment Model was generalizable across age groups. These studies, however, failed to explore intersections of identities and contextual factors (e.g., racial/ethnic minority lesbian women compared to White lesbian women). This oversight results in a lack of knowledge about the unique constellations of outcomes associated with the intersections of individuals' identities (Cole, 2009). In fact, racial/ethnic minority LGB individuals face unique challenges and have unique strengths in intimate relationships (e.g., Eaton & Rios, in press; Meyer, 2003; Rios & Eaton, 2016) which would suggest potential differences between the White and racial/ethnic minority individuals' relationships in the current sample. For example, because of their dual minority status, racial/ethnic minority individuals may experience additional stressors, such as racism, that may significantly impact their intimate relationships (Balsam, Molina, Beadnell, Simoni, & Walters, 2011). Furthermore, few studies have addressed the effects of age on lesbian

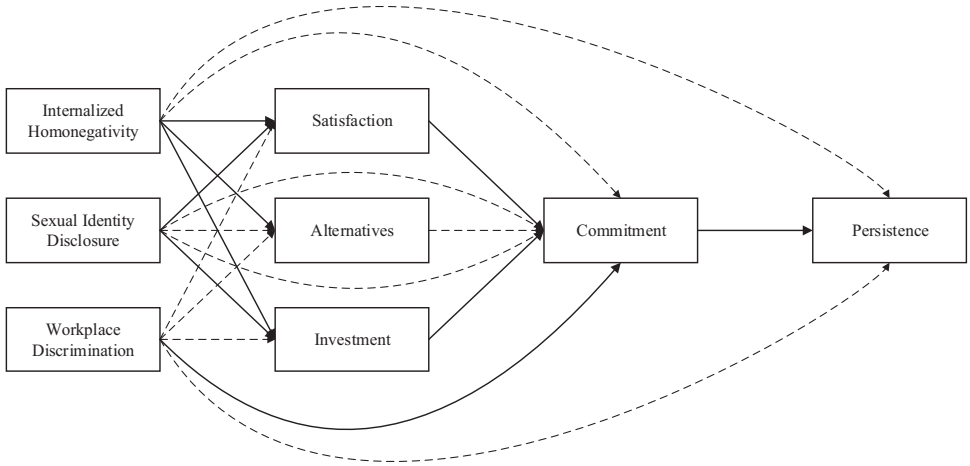

Figure 2. Model B: the Investment Model with the minority stress variables and direct and indirect paths. Nonsignificant paths represented using dotted lines.

relationships. The examinations that do exist suggest that older lesbian women may have different relationship goals than younger lesbian women, with greater emphases on relationship maturity, comfort, and stability (Averett, Yoon, & Jenkins, 2012; Zdaniuk & Smith, 2016). Given the diversity in the current sample and the lack of research on LGB individuals of color (e.g., Boehmer, 2002), we examined the potential moderating effects of race/ethnicity, age, and relationship length.

We conducted a multiple group analysis to examine the influence of race/ethnicity. In Model C (see Figure 3), we allowed the regression paths among all predictor–outcome pairs to vary freely across White (coded as 0) and racial/ethnic minority (coded as 1) participants. Although this categorization dichotomizes race, the current sample size does not allow for a full, adequately powered stratification of racial/ethnic identities. A separate model fixed these regression paths to be equal across both groups. Results of a chi-square difference test showed no significant difference between the models ($\Delta\chi^2(13) = 18.49$, $p = .14$). This indicates that the paths in Model C did not vary significantly across White and racial/ethnic minority participants. However, given that this was a test to see if any difference existed among all 13 paths in Model C, it was a conservative assessment of a moderating effect because many of the paths might not vary significantly. Therefore, it was pertinent to assess race differences among any one regression path, a more liberal assessment for these potentially small effects. Results of multiple group analysis for each regression path independently showed only one significant difference between White and racial/ethnic minority participants: homonegativity predicting satisfaction. In particular, inclusion of an interaction term composed of race and internalized homonegativity to predict relationship satisfaction indicated that internalized homonegativity had significantly greater negative effects on relationship satisfaction among racial/ethnic minority women than among their White counterparts ($B = -0.64$, $SE = 0.16$, $p < .001$).

To examine the effects of participants' age and relationship length, interaction terms were created with each predictor variable in Model C. These terms, along with age and relationship length, were included as predictors of all facets of the model. Although there was no significant effect of relationship length ($ps > .19$), we found a significant interaction effect of age and relationship satisfaction in predicting relationship commitment ($B = 0.32$, $SE = 0.14$, $p = .02$). We also found a significant interaction between age and internalized homonegativity in predicting relationship investment ($B = -0.27$, $SE = 0.13$, $p = .05$). These findings suggest that relationship satisfaction has a significantly stronger (more positive) impact on relationship commitment among older lesbian women than among younger lesbian women, and that internalized homonegativity has a significantly stronger (more negative) im-

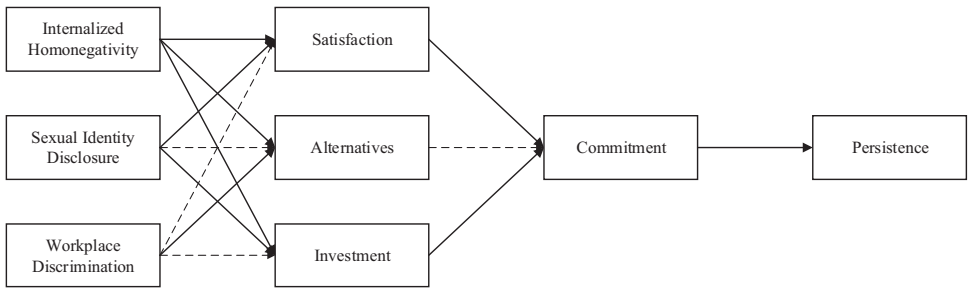

Figure 3. Model C: the Investment Model with the minority stress variables and indirect paths only. Nonsignificant paths represented using dotted lines.

pact on relationship satisfaction among older versus younger lesbian women.

Discussion

In this paper, we sought to test the additional contributions of sexual minority stress variables to Rubsult's Investment Model of relationship commitment in a longitudinal sample of lesbian women. Using a dataset of 211 diverse lesbian women in intimate relationships at Time 1, we examined how internalized homonegativity, sexual identity disclosure, and workplace discrimination affected relationship satisfaction, quality of alternatives, investment, and commitment, and ultimately relationship persistence at Time 2, about 7 years later. As expected, these minority stress variables uniquely and indirectly contributed to the predictive power of the Investment Model for lesbian women, offering one potential explanation for the limited predictive power of the traditional investment model for LGB samples.

The first minority stress variable, internalized homonegativity, was negatively associated with relationship satisfaction and investment. Thus, the more internalized homonegativity reported by our lesbian participants the lower their intimate relationship satisfaction and investment. Stigma has been shown to have a significant and negative effect on lesbian relationships. Negative attitudes about lesbians have been implicated in relationship strain by increasing the level of stress the couple feels (Randall & Bodenmann, 2009) and by reducing the couple's social network (Le et al., 2010). In turn, stigma increases the risk of relationship dissolution (Karney & Bradbury, 1995; Peplau, Veniegas, & Campbell, 1996). According to a recent Gallup poll, support of gay and lesbian relationships has improved by 23 percentage points in the past 14 years (from 40% in 2001 to 63% in 2015), which indicates that societal attitudes toward same-sex couples are improving. Unfortunately, despite increasing societal acceptance, our findings indicate that when stigma becomes internalized, it has deleterious effects on same-sex couples. Sexual minorities who have high levels of internalized homonegativity feel less comfortable with their sexual identity, which has negative implications for intimate relationships (Berg, Munthe-Kaas, & Ross, 2016; Mohr & Daly, 2008) and, as our findings suggest, this lowers their level of satisfaction and investment in relationships.

The second minority stress variable, sexual identity disclosure, was positively associated with relationship satisfaction and investment. Thus, the more individuals and networks to which a person was "out," including family, friends, acquaintances, coworkers, and others, the higher their relationship satisfaction and investment. According to social exchange theory, couples are most satisfied when the relationship has high levels of rewards and low risks (Peplau & Fingerhut, 2007). Chronic concealment of sexual identity carries with it high risks to both individuals and couples, which can cause significant relationship strain (Mohr & Daly, 2008). Couples who are not out have lower support, and higher levels of stress due to the secrecy of their relationship and their identities (Green, 2004). This may cause one or both members of the couple to feel as though the relationship has lower value, which then lowers their satisfaction and investment (Lau, 2012). Conversely, consistent with our findings, disclosure of sexual identity to those who are supportive is associated with improved relationships and support, and improved psychological health (Lewis, Kholodkov, & Derlega, 2012).

The third minority stress variable, workplace discrimination, was negatively associated with alternatives. Thus, the more workplace discrimination reported by our lesbian participants, such as homophobic jokes, unfair comparisons, and condescension on the basis of sexual orientation, the lower the number and quality of their nonromantic relationships. The effects of workplace discrimination may disproportionately affect lesbian women given that they may experience discrimination both as a woman and as a sexual minority, the combination of which is associated with higher levels of psychological distress (Lewis, Kholodkov, et al, 2012). For lesbian women of color, the effects of discrimination may be even more deleterious. Heterosexism in the workplace has been significantly associated with psychological distress, which then leads to both negative work and health outcomes (Waldo, 1999), which likely causes stress on relationships, and may even have implications for promotions, income, and job retention (Croteau, 1996).

Limitations and Future Directions

The first limitation is that the dataset we employed was not designed to test the Investment Model of relationship commitment. Given that it was secondary data from a study mainly focused on a range of risk factors associated with alcohol use and abuse, we did not have ideal measures of the Investment Model variables, such as those in the Investment Model Scale (Rusbult et al., 1998). Instead, we used the best proxies for these variables that were available in the existing dataset. One of the problems with this approach is that we did not have multiple items to measure all variables. Commitment, specifically, was assessed using a single item. Other items, such as relationship persistence, were only available in dichotomous forms (i.e., was/was not the couple together after approximately 7 years), rather than continuous forms (e.g., the couple was together for X number of years and months) that would strengthen our ability to detect effects of the antecedent variables in the Investment Model. Finally, the multiple items used to tap some model constructs were not perfectly cohesive. Specifically, the alpha for investment was .66, which is lower than is typically considered acceptable. Future research should use the current findings to develop an original study in which the Investment Model and minority stress variables are assessed among sexual minority individuals using validated scales. Despite this, the current study is among the first to examine minority stress within the Investment Model, and thus, substantially adds to our knowledge of intimate relationship persistence.

A second limitation of this study is that we were not able to examine the interactive effects of minority stress variables on relationship outcomes for both members of the lesbian couples. Data were collected from individuals, not from each partner. Variables such as sexual identity disclosure, for example, seem particularly likely to have interactive effects on commitment. Although we did not find a main effect of sexual identity disclosure on commitment, it may be that the effect of disclosure on commitment is moderated by one's partner's disclosure. Specifically, partners with different levels of disclosure (e.g., one being very open about their sexual orientation and the other taking pains to conceal it across domains) may have less commitment than

partners who are similar in their levels of disclosure. Indeed, research supports the idea that the effects of disclosure on relationship outcomes among same-sex couples are complex (Todosijevic et al., 2005). Additional research on lesbian and gay couples should include measures from both members of the couple, given that relationship dynamics are as important to relationship persistence as are individual perceptions and behaviors (e.g., Rhoades, Stanley, & Markman, 2012).

Third, although our research supports the addition of minority stress variables to the Investment Model when examining lesbian relationships, we recognize that minority stressors are not the only factors uniquely impacting same-sex relationships. Researchers have also proposed that same-sex couples face fewer barriers to relationship dissolution than heterosexual couples. For example, same-sex couples are less likely to have children and shared property (Balsam et al., 2008; Van Eeden-Moorefield, Martell, Williams, & Preston, 2011). Same-sex couples also have fewer economic barriers as they are more likely to be dual-earner partnerships and are less likely to have pooled their finances (Lau, 2012). Finally, same-sex couples have historically had fewer legal barriers to dissolution as, until recently, civil unions and marriage were not legal for same-sex couples in the United States, and thus divorce or other legal processes were not necessary to dissolve the relationship (Lau, 2012; Peplau & Fingerhut, 2007; Van Eeden-Moorefield et al., 2011). In the current study, legal marriage was not widely available to couples at the times that data was collected. Whether the legal recognition of same-sex marriage in the United States may affect investment and longevity of lesbian romantic relationships is not yet known.

Many of these barriers to dissolution can be understood as investment variables. It is possible, therefore, that in addition to the influence of minority stressors, same-sex couples may also have mean-level differences in their relationship investments compared to heterosexual couples, or mean-level differences in other antecedents of commitment. Future research should examine the dual and potentially interactive effects of minority stressors and mean-level differences in Investment Model relationship constructors on relationship outcomes by comparing same-sex relationships to heterosexual relationships over time.

A final fruitful direction for future research would be to examine how minority stressors affect the relationship outcomes for individuals across the entire sexual minority spectrum. For example, future research should explore minority stressor associations among couples who comprise at least one bisexual partner. Our current sample had 1% of participants who self-identified as bisexual, but a study that has a sizable proportion of bisexual participants could allow for group comparisons of these associations, furthering our knowledge of the effects of minority stressors that bisexual individuals face (e.g., internalized biphobia; Ochs, 1996). Another group to examine is sexual minority men. Research by Simon and Barrett (2010) found that relationship involvements and breakups were more closely associated with women's than men's mental health, perhaps due to gender socialization differences in the links between identity and intimate relationships. Work by Kurdek (1988a, 1988b, 2004) also shows that, compared to gay men, lesbian women's perceptions of their intimate relationship quality are more affected by interpersonal and social variables. Similarly, Todosijevic and colleagues (2005) found that relationship satisfaction for lesbians in civil unions was negatively impacted by experiences of discrimination, but this did not hold for gay men in civil unions. Taken together, these lines of research suggest the relationships between minority stress variables and relationship outcomes may be different for gay men than for lesbian women. Finally, future research should explore the intersections of sexual identities with other identities (e.g., racial/ethnic identity). Although the scope of the current study was not to address these intersections, future research should continue to quantitatively and qualitatively examine relationship antecedents, outcomes, and processes for different subgroups of sexual minority individuals that are defined by the intersections with other identities.

Conclusion

Despite a sizable literature on romantic relationship stability, few studies have investigated factors that may influence stability in lesbian relationships. Moreover, despite the utility of the Investment Model in predicting stability in heterosexual couple relationships, previous studies have not found similar utility in lesbian relationships. Our findings, however, suggest that the Investment Model is relevant for lesbian women's relationships when potential external influences on same-sex female relationships are taken into account. The environment in which these relationships exist plays an important role in a partner's reported satisfaction, quality of alternatives, and investment level. The unique minority stressors included in our model distally influence commitment and persistence in lesbian relationships and should be taken into account to better understand the dynamics of lesbian, and potentially other sexual minority relationships.

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