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Loneliness Among Older Lesbian, Gay, and Bisexual Adults: The Role of Minority Stress

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Abstract Past research has consistently found that aging lesbians, gay men, and bisexuals (LGBs) are more apt to suffer from loneliness than their heterosexual counterparts. Data from the 2002 Gay Autumn survey ($N = 122$) were used to find out whether minority stress relates to higher levels of loneliness among older LGB adults in the Netherlands. We examined five minority stress factors: external objective stressful events, expectations of those events, internalized homonegativity, hiding and concealment of one's LGB identity, and ameliorating processes. The results showed that greater insight into loneliness among older LGB adults was obtained when minority stress factors were considered. Older LGB adults who had experienced negative reactions, as well as aging LGBs who expected those reactions, had the highest levels of loneliness. Having an LGB social network buffered against the impact of minority stress. These minority stress processes added to the variance already explained by general factors that influenced levels of loneliness (partner relationships, general social network, physical health, and self-esteem). Interventions aimed at decreasing feelings of loneliness among older LGBs should be focused on decreasing societal homonegativity (to decrease the amount of negative and prejudiced reactions) and on the enhancement of social activities for LGB elderly.

Keywords Elderly · Loneliness · Homosexual · Minority stress

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Introduction

Almost a quarter million older lesbian, gay, and bisexual (LGB) adults are living in the Netherlands (Fokkema & Kuyper, 2009). These numbers will certainly increase, as shifting demographics result in a larger aged population (Central Bureau of Statistics, 2008). Aging LGBs grew up in a time where homosexuality was still considered to be a sin or a sickness and there were only few possibilities to meet other LGBs (Keuzenkamp & Bos, 2007; Schuyf, 1996). This might make them relatively vulnerable for negative well-being outcomes. One important aspect of well-being that causes severe distress among the general elderly population is loneliness (Loving, Heffner, & Kiecolt-Glaser, 2006).

Qualitative studies as well as recent quantitative studies showed that older Dutch LGB adults were lonelier than their heterosexual counterparts (Fokkema & Kuyper, 2009; Schuyf, 1996; van de Meerendonk, Adriaensen, & Vanwesenbeeck, 2003). A study by Grossman, D'Augelli, and O'Connell (2001) among older LGBs in North America demonstrated that this is not solely a Dutch phenomenon. Furthermore, there is some empirical evidence that Dutch LGB elders are generally more prone to loneliness than older heterosexual adults in both emotional and social terms (van de Meerendonk et al., 2003). Emotional loneliness results from a lack of a close and intimate attachment to another person, whereas social loneliness arises from the lack of a social network (Weiss, 1973).

From a preventive viewpoint, it is important to know why older LGB adults feel emotionally and socially lonelier than their heterosexual peers. On one hand, it might be that LGB older adults have a more adverse position in general. For example, they might be less socially embedded (have less social contacts or have less often a steady partner), have more health problems, or differ in living conditions and socioeconomic status. On the other hand, it might be that LGB-specific factors are related to these higher levels of loneliness. In that case, minority stress (DiPlacido, 1998; Meyer, 1995, 2003) is at stake (Fokkema & Kuyper, 2009). Meyer (1995, 2003) stated that being an LGB person can be stressful and lead to adverse mental health outcomes. He identified five processes of minority stress: (1) external objective stressful events (like encountering discrimination or prejudice), (2) expectations of those events, (3) internalized homonegativity (internalizing the negative attitude that persists in society against LGBs), (4) hiding and concealment of one's LGB identity, and (5) ameliorating factors (e.g., ingroup cohesiveness to counteract the stressful events from dominant culture).

Fokkema and Kuyper (2009) examined the first explanation for the differences in levels of loneliness between Dutch aging LGBs and their heterosexual peers. They studied whether these differences in loneliness could be attributed to differences in social embeddedness (e.g., having a partner, having frequent contact with other people or church visits) or other non-social factors (health, living conditions, self-esteem, and socioeconomic status). Although both types of factors were strong predictors, a substantial percentage of the variance in loneliness remained unexplained. It therefore seemed plausible that LGB-specific factors (like minority stressors) might also contribute to higher levels of loneliness among older LGBs.

There are several reasons why older LGB adults experience minority stress. First, it is likely that older LGBs had experienced *external objective stressful events* like discrimination, negative attitudes, and victimization. When they were younger, they were discriminated against by institutions and laws. LGB rights were not legally protected (Keuzenkamp & Bos, 2007) and homosexuality was still considered to be a mental illness by the American Psychiatric Association and the American Psychological Association (Conger, 1975). Moreover, the attitude of the general population toward homosexuality was rather negative. This also applied to the Netherlands, despite its long-standing image of being a tolerant, gay-friendly country. In 1970, for example, a population survey showed that a quarter of the Dutch agreed that strong action should be taken against gays and 10% were convinced that they should be removed from society (Keuzenkamp & Bos, 2007). Currently, attitudes have become more positive in the Netherlands, but this holds especially true among the younger age cohorts (Adolfsen & Keuzenkamp, 2006; van de Meerendonk & Scheepers, 2004). As a result, older LGB adults are still likely to be surrounded by peers from older cohorts who hold negative views about homosexuality.

Besides actual experiences with discrimination and victimization due to prejudice, older LGB adults could also *expect negative events*. Meyer (2003) argued that LGB people learn to expect and anticipate negative reactions from heterosexuals. Therefore, LGBs have to be "on guard" and maintain vigilance. Since older Dutch LGB adults grew up in a hostile and homonegative environment, it seems likely that they expect negative events. Dutch and Canadian studies on the use of health services indeed found that older LGBs often mistrusted the health and social service network and expected negative reactions from caregivers (Brotman, Ryan, & Cormier, 2003; van de Meerendonk et al., 2003).

Internalized homophobia is another minority stress process. Internalized homophobia is a set of negative attitudes and affects of LGBs toward homosexuality in other persons and toward homosexual features in themselves (Shidlo, 1994). Several American studies found a negative correlation between age and internalized homonegativity, i.e., those who were older held a more negative view toward their own sexual orientation (Grossman et al., 2001; Otis & Skinner, 1996). Van de Meerendonk et al. (2003) showed in an older Dutch LGB sample that mainly men, those older than 75 years, and those who did not live in Amsterdam experienced their own homosexuality as problematic.

When one is experiencing negative or harmful events or expecting rejection and discrimination, one may want to conceal one's true identity to avoid these reactions. Meyer (2003) defined this *hiding or concealment* as another minority stress factor. Schuyf (1996) interviewed 60 older Dutch LGBs (aged 55 years and older). Many of the participants reported that most of the people in their social network "knew" they were gay, but it was not possible for them to speak about it in an overt way. Some of the participants never told anyone about their sexual orientation. These findings were supported by several international studies (Bennett & Thompson, 1980; Brotman et al., 2003; Cruz, 2003; D'Augelli & Grossman, 2001) showing that large percentages of older LGBs had hidden their sexual orientation from parents, co-workers, family members or friends.

The last factor mentioned by Meyer (2003) is an ameliorating factor. Resources like *ingroup cohesiveness* could counteract the impact of minority stress. Having LGB friends can create a social context where one is not stigmatized or different from the dominant culture. One does not have to, or at least is less likely to have to, maintain vigilance or expect negative reactions about one's sexual identity when being among members of the same minority group. Older Dutch LGBs seemed to be using this coping strategy: more than half of the men (60%) and 40% of the women of Schuyfs' (1996) interview study were currently active in the gay scene. Van de Meerendonk et al. (2003) also reported active participation in the gay scene among their older LGB participants, as did several international studies (Bennett & Thompson, 1980; Cruz, 2003; Quam & Whitford, 1992).

In this study, we examined to what extent differences in loneliness among older LGB adults were attributable to minority stress processes. The research questions we posed were: (1) Can minority stress processes add to explaining different levels of loneliness among older LGB adults beyond

social embeddedness variables and non-social variables? and (2) Which specific minority stress processes are related to differences in levels of loneliness? We hypothesized that a non-negligible share of older LGB adults were experiencing monitory stress, and these minority stressors in turn had a net negative impact on their levels of loneliness. Ameliorating factors like ingroup cohesiveness were hypothesized to counteract the negative impact of these minority stress factors. Given the distinct underlying causes of emotional and social loneliness, the two dimensions were also considered separately.

Method

Participants

Participants were 161 self-identified LGBs between the ages of 55 and 85. The mean age of the participants was 64.6 years (SD = 7.25). Somewhat over 40% of the participants were women. The majority identified themselves as homosexual (78.1%). Because of the small sample size, bisexual participants were grouped together with the gay and lesbian participants. Due to missing data, 122 participants of the original sample of 161 older LGBs were included in the final analyses.[1]

Procedure

Data were taken from the 2002 Gay Autumn survey (van de Meerendonk et al., 2003). The aim of this project was to explore the caring needs of and caring facilities for LGB elders. For this purpose, participants completed a written questionnaire in the autumn of 2002. The convenience sample was drawn from different sources. Participants were recruited through announcements in a newsletter and on a website of organizations for seniors (ANBO, Seniorweb), at gatherings for aging gays and lesbians, and through the networks of the researchers themselves. People could sign up for participation if they were interested. The questionnaire was completed by 77% of those who signed up. Participation was voluntary and there were no incentives. Anonymity was guaranteed.

Measures

Loneliness

Loneliness was measured using the Loneliness Scale developed by de Jong Gierveld and Kamphuis (1985). This scale consisted of 11 items in which the word "loneliness" did not feature. The five positively formulated items expressed feelings of social embeddedness, a sense of belonging. For example: "There are plenty of people I can turn to in times of need." The six negatively formulated items expressed feelings of desolation and of missing an attachment relationship. An example of such an item was: "I miss having a really close friend." Disagreeing (the answers "no" and "more or less") with the five positively formulated items and agreeing (the answers "yes" and "more or less") with the six negatively formulated items were indicative of feelings of loneliness and assigned the code 1. As a result, the score on the scale ranged from 0 to 11 with a reliability of 0.94 (Cronbach's alpha). This scale was referred to as *general loneliness*. A score of three or higher was indicative of moderate loneliness; scores above nine indicate strong feelings of loneliness (van Tilburg & de Jong Gierveld, 1999). In the same way, two separate scales were constructed for *emotional loneliness* (the six negatively formulated items, Cronbach's alpha = 0.94) and *social loneliness* (the five positively formulated items, Cronbach's alpha = 0.89).[2]

Social Embeddedness

Two measures of social embeddedness were included: partner status and general social network.

Partner Status The survey contained questions about the current partner relationship status and living situation. Answers from these questions were combined and coded as a set of dummy variables. This set distinguished between LGBs without a steady partner (the reference group), those who cohabited, and participants who had a Living-Apart-Together relationship (relationships between non-cohabiting partners).

General Social Network Participants were asked whether they had regular contact (at least once a month) with four types of persons: children, other family members, friends, and neighbors and, if so, with how many. Contact was interpreted broadly and included home visits, telephone conversations, and visits outside their own homes. The number of social relationships was added across the categories. The number of contacts exceeding 20 were fixed at 20.

[1] The relatively high number of missing cases was due to the large amount of missing values on the variable "LGB social network" (see Table 1). It is unclear whether those who did not answer this network question had either no LGB relations or skipped this question. Hence, giving those cases an average score was not an option.

[2] When constructing their loneliness scale, de Jong Gierveld and Kamphuis did not make a distinction between social and emotional loneliness since it was their intention to develop a unidimensional measure of the severity of feelings of loneliness. Recent work, however, demonstrated that a distinction of two subscales is legitimized despite the fact that the emotional loneliness subscale coincides with the negatively formulated and the social subscale with the positively formulated items (Dykstra & Fokkema, 2007; Fokkema & Knipscheer, 2007; van Baarsen, Snijders, Smit, & van Duijn, 2001; van Tilburg, Havens, & de Jong Gierveld, 2004). That is why we did not only present the total score on the loneliness scale, but also made a distinction between emotional loneliness (maximum score 6) and social loneliness (maximum score 5).

Non-Social Variables

Three non-social variables were included: physical health, self-esteem, and education.

Physical Health The scale measuring health related to functional capacity, i.e., the extent to which the participant was able to carry out six activities of daily living including climbing and descending stairs and getting dressed. Answers were given on a five-point scale (1 = not possible at all; 5 = without any difficulty). Code 1 was assigned if participants had at least some difficulty with the activity. As a result, the scale score ranged from 0 to 6 (0 = no limitations; 6 = limitations with all activities). Cronbach's alpha was 0.87.

Self-Esteem Self-esteem was measured using the short version of a scale developed by Brinkman (1977).[3] The following four statements were presented to the participants: (1) I feel quite secure about myself; (2) I have a positive view of myself; (3) Sometimes I feel useless; and (4) Generally, I am pleased with myself. Answers were given on a five-point scale (1 = totally disagree; 5 = totally agree). Item 3 was coded in reverse and participants' mean scores were calculated. A higher score on the scale was indicative of higher self-esteem (Cronbach's alpha = 0.79).

Education Participants' levels of education were determined by asking them to state the highest level of education they had completed with a qualification or diploma. Answers were recoded into the number of years someone had been to school, following the shortest route, ranging from 0 to 18 years of education.

Minority Stress

The five aspects of minority stress described by Meyer (2003) were measured. External, objective stressful events were measured by the number of negative experiences; expectations of negative reactions were measured by the expectations of prejudiced reactions by caregivers; internalized homonegativity was measured by a scale that gauged internalized homonegativity; hiding and concealment of one's LGB identity was measured by one's openness about one's feelings in general and concealment of one's LGB identity toward the caregivers; and finally, the ameliorating factor ingroup cohesiveness was operationalized as the number of LGB relationships (LGB social network).

Negative Experiences Participants were asked whether they had negative experiences in seven different areas due to their sexual orientation: in their living situation, during activities they undertook that were not for LGBs, with regard to their housing, and with caregivers (divided in four categories: GP, home care, nursing services, and psychologists/social workers). The question about the caregivers were answered using a 6-point scale (1 = only positive experiences; 5 = only negative experiences; 6 = not applicable). Participants who answered "4" or "5" were coded as having had a problem in this area. The other four questions were dichotomous items, and participants who answered "yes" (= 1) were coded as having a problem in this area. Answers were summed up across these seven categories. The scale ranged from 0 to 7. The higher the score, the more areas in which the participant had had negative experiences.

Expectations of Prejudiced Reactions Six questions were posed on potential negative consequences of revealing an LGB identity to caregivers (e.g., "Caregivers will react with prejudice on my sexual orientation"). Answers were given on a five-point scale (1 = totally agree; 5 = totally disagree) and mean scores were calculated. A higher score was indicative of more negative expectancies (Cronbach's alpha = 0.84).

Internalized Homonegativity The scale for internalized homonegativity measured whether participants hold negative attitudes toward their own sexual orientation. It consisted of four items (e.g., "I wish I weren't gay"). Answers were given on a five-point scale (1 = totally agree; 5 = totally disagree). A higher score indicated more internalized homonegativity (Cronbach's alpha = 0.71).

Openness About LGB Identity Participants reacted to five statements about personal openness of LGB identities on a five-point scale (1 = totally agree, 5 = totally disagree). An example of a statement was: "People with whom I interact on a daily basis know that I am attracted to same-sex partners." A higher mean score indicated more openness (Cronbach's alpha = 0.72).

Concealment of LGB Identity The scale measuring concealment gauged whether participants actively tried to hide their sexual orientation from their caregiver. The scale consisted of seven items (e.g., "When a caregiver assumes I'm gay, I'd oppose it immediately"). Answers were given on a five-point scale (1 = totally agree; 5 = totally disagree). A

[3] This scale is comparable to Rosenberg's (1965) Self-esteem scale and has been used in various studies in the Netherlands (e.g., Dykstra, 1995; Martina & Stevens, 2006; van Baarsen et al., 2001).

higher score indicated more active concealment of an LGB identity with regard to caregivers (Cronbach's alpha = 0.84).

LGB Social Network Participants were asked whether they had regular contact (at least once a month) with gay men or lesbian women and if so, with how many. Contact was interpreted broadly and included home visits, telephone conversations, and visits outside their own homes. The maximum number of contacts was fixed at 20.

Results

To provide some background information on non-social conditions, the degree of social embeddedness, minority stress, and loneliness, all mean scores and SDs were calculated separately for men and women. Table 1 presents the results. The only gender differences were that women were younger, $t(159) = 3.15, p < .01$ (two-tailed), and had less internalized homonegativity, $t(150.20) = 3.94, p < .001$ (two-tailed).

Correlations among the different minority stress processes were calculated to examine whether the measures included in the analyses were indeed separate minority stress factors (see Table 2). Due to missing data, 128 participants of the original sample of 161 older LGBs were included in the correlational analyses.[4] Most of the minority stress processes were (highly) correlated. For example, an expected high correlation was found between concealment of LGB identity toward caregivers and general openness about LGB identity: those who were generally open about their sexual orientation concealed this orientation less with caregivers ($r = -.51$). Since none of the intercorrelations among the different minority stress processes were above .51, we assumed that the minority stress measures were indeed separate constructs.

A stepwise multiple regression was conducted to examine the relative influence of social embeddedness, non-social variables, and minority stress processes on the levels of loneliness (general, emotional, and social loneliness). Due to missing data, 122 participants of the original sample of 161 older LGBs were included in the current analyses.[5] Table 3 shows the results of these analyses. The control variables (age and gender), the social embeddedness variables (type of partner relation and general social network), and the non-social variables (physical health, self-esteem, and education) entered the models in the first step (Models 1, 3, and 5, respectively). The minority stress variables (experiences of prejudice events, expectations of prejudiced reactions, internalized homonegativity, general openness about LGB-identity, concealment of LGB-identity, and LGB social network) were introduced in the second step of the analyses (Models 2, 4, and 6, respectively).

Table 1 Descriptive statistics

	Men		Women		*p*	*N*
	M	*SD*	*M*	*SD*		
Control variable						
Age (in years)[a]	66.0	7.51	62.5	6.40	.00	162
Social embeddedness						
Type of partner relation						
Cohabiting	0.36	0.48	0.44	0.50	ns	162
Living-apart-together	0.25	0.43	0.18	0.38	ns	162
General social network[b]	11.6	6.67	13.10	6.17	ns	162
Non-social variables						
Physical health[c]	1.01	1.62	0.78	1.48	ns	151
Self-esteem[d]	3.79	0.77	3.91	0.73	ns	157
Education (in years)[e]	12.73	3.28	13.68	3.53	ns	162
Minority stress						
Negative experiences[f]	0.59	0.86	0.46	0.82	ns	159
Expectations of prejudiced reactions[d]	1.76	0.88	1.90	0.85	ns	158
Internalized homonegativity[d]	1.76	0.88	1.33	0.51	.00	159
Openness about LGB identity[d]	3.82	0.82	3.94	0.80	ns	159
Concealment of LGB identity[d]	1.43	0.55	1.37	0.64	ns	160
LGB social network[b]	10.91	7.49	12.19	7.55	ns	132
Loneliness						
Loneliness[g]	4.07	3.87	3.14	3.53	ns	153
Emotional loneliness[c]	2.20	2.38	1.56	2.16	ns	153
Social loneliness[h]	1.91	1.83	1.58	1.76	ns	153

Ranges: [a] 55–85; [b] 0–20; [c] 0–6; [d] 1–5; [e] 0–18; [f] 0–7; [g] 0–11; [h] 0–5

Model 1 showed that age, gender, and education were not related to the different levels of general loneliness among older LGB adults. Social embeddedness and the other non-social variables influenced these levels. Older LGB adults who had a steady partner—whether living together or not—felt significantly less lonely than single older LGB adults. Moreover, those who had an extensive general social network were less lonely. With regard to the non-social variables, those who had good physical health and those with high levels of self-esteem experienced fewer feelings of loneliness.

The minority stress processes were introduced in Model 2. These factors added strongly to the explained variance of general loneliness (increasing from 41 to 52%). The social embeddedness and non-social factors that made a significant contribution to Model 1 also remained significant in Model 2. However, the influence of a general social network decreased substantially (the standardized beta dropped from −.30 to −.18). In addition to these factors, three minority stress factors contributed significantly to the model. Those older LGB adults who had experienced negative reactions or discrimination, on the basis of their sexual orientation reported more feelings of loneliness. In addition, those who expected negative reactions from caregivers felt lonelier. One's LGB social network seemed to buffer against the negative impact of minority stress factors: those with more gay friends or acquaintances experienced lower levels of loneliness. Comparing the standardized coefficients, it appeared that loneliness was better buffered by a LGB social network than by the general social network.[6]

When examining emotional and social loneliness separately, the first step of the analyses yielded approximately the same results. Compared to the first model of the analysis of general loneliness (Model 1), the models of emotional (Model 3) and social loneliness (Model 5) consisted of the same significant social embeddedness and non-social predictors (type of relationship, general social network, physical health, and self-esteem).

A different picture arose when looking at the next step of the models in which the minority stress processes were introduced (Models 4 and 6). The minority stress processes added strongly to the explained variance of emotional loneliness (increasing from 33 to 45%). Model 4 showed that emotional loneliness was predicted by type of partner relation, physical health, self-esteem, and two minority stress factors. Contrary to the model of general loneliness (Model 2),

[4] See Footnote 1.

[5] Ibid.

Table 2 Correlations among different minority stress factors ($n = 128$)

	1	2	3	4	5
1. Experiences of prejudice events					
2. Expectations of prejudiced reaction	.36***				
3. Internalized homonegativity	.10	.21*			
4. General openness regarding LGB identity	−.05	−.30***	−.50***		
5. Concealment of LGB identity	−.18*	.40***	.36***	−.51***	
6. LGB social network	.06	−.02	−.22*	.36***	−.28**

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

Table 3 Determinants of the degree of loneliness among LGB elderly (standardized regression coefficients) ($n = 122$)

	Loneliness		Emotional loneliness		Social loneliness	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Control variables						
Age	−.17	.00	−.04	.00	.03	.02
Man	.08	.07	.11	.07	.05	.06
Social embeddedness						
Type of partner relation (*ref.* no partner)						
Cohabiting	−.34***	−.31***	−.33***	−.30***	−.29**	−.24**
Living-apart-together	−.29**	−.20**	−.26**	−.17*	−.27**	−.21*
General social network	−.30***	−.18*	−.25**	−.14	−.29**	−.21*
Non-social embeddedness factors						
Physical health	.22**	.21**	.21*	.18*	.18*	.19*
Self-esteem	−.30***	−.31***	−.29***	−.31***	−.25**	−.26**
Education	−.03	.01	.00	.03	−.03	.00
Minority stress factors						
Experiences of prejudice events		.22**		.30***		.07
Expectations of rejection		.17*		.13		.18
Internalized homonegativity		−.02		.01		−.07
General openness LGB-identity		−.11		−.05		−.18
Concealment LGB-identity		−.13		−.12		−.12
LGB social network		−.23**		−.23**		−.19*
R^2 (adjusted)	.41	.52	.33	.45	.33	.39

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

[6] Note that the contribution of the LGB social network added to the explained level of variance beyond the variance already explained by the general social network. The correlation between these two variables was 0.28.

the expectation of prejudiced reactions and the general social network made no unique contribution to emotional loneliness. The only social embeddedness factor that influenced the levels of emotional loneliness was whether one had a steady partner or not: single older LGB adults were feeling more like there was something missing in their relationships or experienced a sense of emptiness in their lives than those who had a steady partner. These loneliness feelings were also related to non-social factors. Participants with poorer physical health and lower self-esteem experienced higher levels of emotional loneliness. The two minority stress processes that were related to these types of loneliness feelings were the experience of prejudice events and LGB social network. Those who experienced negative reactions or consequences of their homosexuality felt more emotionally lonely, while those with more LGB friends or acquaintances felt less like something important is missing in their relationships. When looking at the standardized beta coefficients, it can be concluded that levels of emotional loneliness were primarily influenced by whether one lived together with a partner, self-esteem, and the experience of prejudice events.

The minority stress processes also contributed, although to a lesser extent, to the explained variance of social loneliness (increasing from 33 to 39%). This type of loneliness was explained by social embeddedness variables (type of relationship and general social network), non-social variables (physical health and self-esteem), and one minority stress process: LGB social network. Hence, the difference in the model of general loneliness (Model 2) was that neither the experience of prejudice events nor expectations of these events significantly contributed to the model. Once again, single, older LGB adults, those with fewer social contacts, those with poorer physical health, and those with lower levels of self-esteem experienced more feelings of social loneliness. The ameliorating factor LGB social network buffered against these feelings. Those with more LGB friends or acquaintances were experiencing lower levels of social loneliness. Standardized beta coefficients indicated that the most important predictors of social loneliness were self-esteem, type of relationship, and social network.

Discussion

The current study was conducted to answer two questions: (1) Can minority stress processes add to explaining different levels of loneliness among older LGB adults beyond social embeddedness variables and non-social variables? and (2) Which specific minority stress processes are related to differences in levels of loneliness? The first question was confirmed by our data: minority stress processes added strongly to the explained variance of models that predicted loneliness and in which social embeddedness and non-social variables were already incorporated. Which minority stress processes made a significant, unique contribution to the model depended on the type of loneliness. For general loneliness (the overall measure of loneliness), three minority stressors contributed to the model: experiences with prejudice events, expectations of prejudice reactions, and LGB network. The minority stress factors that played a role in predicting emotional loneliness were the experience of prejudice events and LGB network. One minority stress factor was related to social loneliness: those older LGB adults who had a larger LGB network were feeling less lonely socially. The minority stress processes hiding or concealment and internalized homonegativity were not related to feelings of loneliness.

The positive relationship between loneliness and minority stress is in line with outcomes of other studies on social and health-related issues (e.g., mental health, relationship quality, sexual problems, domestic violence, HIV risk behavior, substance use, job stress, body image concerns), showing that minority stress is a useful framework for explaining different kinds of problems among LGBs (Balsam & Szymanski, 2005; Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008; Kimmel & Mahalik, 2005; Meyer, 1995, 2003; Otis, Rostosky, Riggle, & Hamrin, 2006; Waldo, 1999; Zamboni & Crawford, 2007). Furthermore, those specific minority stress factors that were strong predictors of loneliness (negative experiences and LGB social network) were also important determinants in case of other health-related problems. For example, Herek, Gillis, and Cogan (1999) found that lesbian and gay hate-crime survivors reported more symptoms of mental health problems and a study of Mays and Cochran (2001) demonstrated that high levels of discrimination among LGBs had a negative effect on the quality of life and was related to psychiatric morbidity. Silverschanz, Cortina, Konik, and Magley (2008) showed that even more subtle forms of heterosexism had a negative effect on psychological and academic well-being among American university students. Not only at universities, but also heterosexism experienced at the workplace was associated with adverse psychological, health, and job-related outcomes (Waldo, 1999). Furthermore, Ueno (2005) demonstrated the protective influence of LGB networks at school: friendships among sexual minority adolescents reduced psychological distress. These studies show that anti-gay experiences and LGB social networks are not only important when explaining levels of loneliness among aging LGB, but these factors are important for other areas and stages in the lives of LGBs as well.

From this perspective, it seems promising that the current Dutch minister responsible for LGB issues has taken social acceptance of LGBs as the main focus of his policy (Ministry of Education, Culture and Science, 2007). If homosexuality will be more accepted by society and public statements against homosexuality will be less tolerated, the prevalence of antigay harassment and its negative health consequences

(e.g., loneliness among aging LGB adults) might decrease. However, interventions aimed at decreasing levels of loneliness among older LGBs should also take other minority stress processes into account. For example, since a LGB social network buffered against the negative impact of minority stress, promoting contacts with other LGBs could reduce feelings of loneliness. This can be done by organizing activities aimed at the enhancement of these contacts, like support groups, buddy projects or evenings in cafés or societies. In addition, since not only the experience but also the expectation of prejudice events was related to high levels of loneliness, it is advisable that professionals in the health and social sector receive training about sensitive issues like aging and sexual diversity to take a more neutral or positive attitude to LGB elders. This change in attitude might also lower negative expectations older LGB adults often have about the reactions from caregivers on their sexual orientation.

The current study had some major limitations. First, a convenience sample was used. Participants were recruited through different social, recreational, and support groups. Therefore, the participants of the study were probably more socially and homo-socially integrated and hence, their average number of general and LGB network members might have been higher compared to the general older LGB population. Furthermore, it is likely that the participants were biased toward good health status; those experiencing physical and mental health problems are less able to participate in social, recreational and support groups and to have completed the questionnaire. The sample was probably also biased in favor of native Dutch LGB adults of higher educational level. Negative experiences or prejudices could be a substantial problem for LGBs with a different ethnic background, like racism in a native LGB community and homonegativity in their ethnic community (Meyer, 2003). Unfortunately, there are no reliable Dutch figures about the negative attitudes toward ethnic minorities held by native LGBs. Dutch studies did found that Moroccan and Turkish individuals in the Netherlands hold a relatively negative attitude toward homosexuality (Keuzenkamp & Bos, 2007; Vanwesenbeeck & Bakker, 2006).

Second, we only examined the frequency of LGB social contacts, so the quality of the networks was not taken into account. In addition, concealment and expectancies of prejudice events were measured with regard to caregivers. It would have been better if these measures were aimed at one's concealment of his or her sexual orientation and expectancies of negative events in general. While specific concealment toward caregivers was not related to feelings of loneliness, concealing one's sexual orientation toward important people in one's life (e.g., family or friends) might contribute to these feelings.

Finally, the sample was too small to examine differences in the impact of minority stress on loneliness between men and women and between homo- and bisexuals. A Dutch population study on sexual health showed that minority stress differed among these groups in magnitude and nature (Bakker & Vanwesenbeeck, 2006; Kuyper, 2006). For example, bisexual individuals had higher levels of internalized homonegativity and concealment of one's sexual identity than homosexual participants did, while homosexual persons had more often encountered negative reactions on their same-sex attractions. Men reported higher levels of internalized homonegativity than women, which is in line with our current results among aging LGB adults.

Despite these drawbacks, our study contributed to present knowledge of the problems, and their underlying mechanisms, faced by older LGBs. We hope that our work will inspire colleague researchers to investigate the role of minority stress in other areas, between subpopulations (e.g., native vs. non-native LGBs, bisexuals vs. homosexuals) and in other stages of life. With regard to the latter, the impact of minority stress on loneliness among LGB youth is an interesting example: despite the fact the attitudes toward homosexuality are becoming more positive (Adolfsen & Keuzenkamp, 2006; Dejowski, 1992; Hicks & Lee, 2006; van de Meerendonk & Scheepers, 2004; Yang, 1997), there are indications that young LGB adults experience higher levels of loneliness than their heterosexual peers (Hegna & Rossow, 2007; Radkowsky & Siegel, 1997; Rivers & Noret, 2008). Whether these feelings can be attributed to a more adversarial position in general (e.g., small general social network, low self-esteem), minority stress (e.g., experiences with discrimination or small LGB social network) or both, should be investigated.

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