Loneliness, Social Support, and Adjustment to Aging in Older Portuguese Gay Men

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Abstract
Background Older LGBT adults are growing in visibility throughout the Western world. An emerging body of research reveals that this population is at greater risk for a variety of negative physical and mental health problems compared to the general population. One such problem is loneliness, which is emerging as a major public health issue around the world. Unfortunately, loneliness has not been studied in a diverse range of older LGBT people. The purpose of this study was to assess levels of loneliness, as well as possible demographic and psychosocial predictors, in a population of older Portuguese gay men.

Methods Using online surveys, 110 older Portuguese gay men (mean age = 63.5) completed the UCLA Loneliness Scale for Portuguese Older Adults, Connectedness to the LGBT Community Scale and Adjustment to Aging Scale, as well as measures of support from family and friends.

Results Overall, high levels of loneliness were found, particularly among those with lower education levels. Low levels of family support, friends support and connectedness to the LGBT community were all significant predictors of loneliness in the regression analyses, but adjustment to aging was not.

Conclusions These findings add to the international literature on the correlates of loneliness among older sexual minorities. Such findings may inform the development of psychosocial interventions and promote healthcare engagement among older sexual minorities, which are important steps toward reducing health disparities that affect this population.

Keywords Elderly · Isolation · Sexual identity · Sexual minority · Portugal

Introduction
Lesbian, gay, bisexual, and transgender (LGBT) individuals in Portugal currently enjoy an unprecedented degree of political support and formal inclusion (Pereira & Monteiro, 2017); the country ranks in the top seven European nations with respect to human rights with full equality for LGBT people (Rainbow Europe, 2019). However, social attitudes still lag behind this institutional equality and LGBT individuals in Portugal are still called upon to negotiate the impact of routine interpersonal discrimination on mental and physical well-being (Pereira & Costa, 2016). Consequently, LGBT persons continue to experience stigma associated with their sexual identity and gender orientation (Costa et al., 2013).

The aging LGBT community is growing in visibility throughout the Western world though actual numbers remain elusive in the absence of census or generalizable data. Nevertheless, recent estimates suggest that 4.5 to 5.6% of older adults identify as LGBT (Dalia, 2016; Newport, 2018). An emerging body of research reveals that LGBT older adults are over-represented by a host of physical and psychological health disparities. There are multiple reports of internalized homonegativity (Grossman et al., 2001), and, relatedly, concealment of one’s identity (Meyer, 2003). There is an estimated 29% likelihood of presenting clinically significant depressive symptomatology (Fredriksen-Goldsen et al., 2013a) among LGBT older adults.

Given the effects of discrimination and stigma on health, loneliness is a fundamental variable to study in
this population as it may be one of the most debilitating conditions, with specific negative health effects (Holt-Lunstad et al., 2015; Hughes, 2015), increasing psychological suffering, associated with weak social resources, and encouraging less satisfactory and constrained aging (Dykstra et al., 2005; Hughes, 2015). It is also known that loneliness can aggravate previous health conditions (e.g., HIV/AIDS, cancer), due to their immunosuppressive characteristics (Brown et al., 2017; Cacioppo & Cacioppo, 2018a, b; Jaremka et al., 2013). Thus, it is essential to evaluate the levels of loneliness and the variables of individual adjustment to aging, relational satisfaction and social and community support that influence the levels of loneliness.

Gay men tend to experience even higher rates of depression (Cochran et al., 2003) and often report poorer overall mental health and greater mental distress (Pereira et al., 2019a; Wallace et al., 2011) than other sexual minority persons. Older gay men also tend to be less connected to the community, more likely to be single and less likely to identify friends on whom they would call in an emergency (de Vries, 2013). Relatively, rates of loneliness among older gay men regularly exceed those of comparably aged heterosexuals (Cox, 2006; Kuyper & Fokkema, 2009) and sexual and gender minority persons (Jacobs & Kane, 2012). Particularly, it is known that minority stress can contribute significantly to the highest levels of loneliness through internalized homonegativity, fear of rejection, concealment of sexual identity, and negative attitudes about same-sex relationships (Frost & Meyer, 2009; Kuyper & Fokkema, 2009; Pope et al., 2007; Ribeiro-Gonçalves et al., 2019; Thies et al., 2016). In studies using convenience samples, rates of loneliness among older gay men exceed those among older heterosexual men (Cox, 2006; Kuyper & Fokkema, 2009). Sexual orientation differences in loneliness have been corroborated in studies using representative samples (e.g., Anderson & Thayer, 2018), although some of these studies find that the difference is much smaller than those reported in studies using non-probabilistic samples (Lisdonk & Kuyper, 2015). Nevertheless, rates of loneliness are high among sexual minority men, warranting an examination of the factors which may influence loneliness in this population.

Authors attribute these findings to a range of factors deriving from the cumulative consequences of stigma and discrimination (e.g., Grossman et al., 2001). These include challenges with intimacy and the process of forming intimate relationships (e.g., more likely to live alone, more likely to have experienced loss of meaningful relationships; Barrett et al., 2015) and the ageism older gay men experience within their own gay communities (e.g., rejection or dismissal by some younger gay men based on their physical appearance and age; Cahill et al., 2000). The experience of such negative attitudes and marginalization are related to feelings of social isolation and especially loneliness (Jacobs & Kane, 2012), and compromise adjustment to aging (von Humboldt & Leal, 2014; Humboldt et al., 2012).

However, some studies have highlighted that a strong connection to the LGBT community may be an important protective factor for older LGBT persons (e.g., Frost & Meyer, 2012); LGBT community connectedness has been seen to ameliorate depressive symptomatology and mitigating the feeling of isolation promoting a sense of belongingness and protection (Frost & Meyer, 2012; McLaren, 2016). Further, several studies have provided evidence of the importance of friends, neighbors, and relatives in the lives of older LGBT adults (de Vries & Megathlin, 2009), while also predicting positive adjustment to aging and prevention of loneliness (Pereira et al., 2019). These experiences stand out and demand further attention—particularly in the context increased need for support and adjustment to aging.

Adjustment to aging has been proposed as the flexible use of adaptive strategies to optimize personal functioning and well-being within the constraints of personal competence and resources (Von Humboldt & Leal, 2014). The ability of older persons to maintain a strong sense of purpose and self, in the face of the changes associated with aging is essential to adjustment to aging (Atchley, 1999). Emotional, biological, and physical benefits derived from adaptive self-regulation, demonstrating that goal adjustment is associated with a high level of well-being in late adulthood (Wrosch et al., 2006, 2003).

The application of an adjustment to aging perspective with older gay men may be a particularly fertile area (Brennan-Ing et al., 2014). It is known that older gay men are less likely to disclose their sexual orientation and to be partnered than are older lesbians, which could impact adjustment to aging and social support (Houghton, 2018). It would be valuable to focus on adaptive and active strategies, psychological well-being, and engagement with significant others (von Humboldt & Leal, 2014), especially among older gay men; such research would deepen our understanding of both predictors and attributes of loneliness in this population. This is particularly the case in Portugal, where very few papers were found in the field of aging among sexual and gender minorities (Gonçalves et al., 2018, 2019; Marques & Sousa, 2016; Pereira et al., 2017, 2019a, 2019b). Negative social environments in Portugal (notwithstanding a more progressive legislative approach to equality and inclusion) may well affect the psychosocial lives of older gay men living therein.

Therefore, and given the paucity of research in this context and especially in Portugal, we adopted an exploratory approach in the present study with the purpose of examining the levels of loneliness, and evaluating how adjustment to aging, LGBT community connectedness, satisfaction with social support and family and friend
relationships may predict loneliness among older Portuguese gay men. The findings deriving from this information are necessary to support the development of interventions to effectively promote health care engagement among gay older men, which is an important step toward developing strategies to reduce health disparities in this population.

Method

Participants and Procedures

A convenience sample of 110 older self-identified gay men was amassed. Inclusion criteria for this study were as follows: (1) identifying as a man, (2) having a minority sexual identity (e.g., gay, homosexual), and (3) being at least 60 years of age (adopting the criterion used by the United Nations as the milestone for older age; UN, 2015). For sample purity, those individuals who identified as bisexual were exclude (n = 13); no transgender men volunteered for the study. Thus, the sample was entirely composed of cisgender gay men who were on average 63.52 years old (SD = 3.41), ranging in ages from 60 to 79 years.

The majority of participants reported living in urban areas (65.4%) and approximately 44% reported living alone. Fewer than half of the participants had children (42.7%), nearly one third (28.1%) had grandchildren and had a income corresponded to national minimum wage (20.9%), 36.3% were single and 40.1% were married or in a civil partnership at the time of study. Just over half of the sampled men reported having at least an undergraduate degree (52.8%) and were employed (54.5%), and approximately one third (30%) were retired. Likewise, more than half (52.7%) reported being involved in sports/physical activities and other leisure activities (Table 1).

Data were collected between October 2017 and August 2018 by way of an online survey available on the Qualtrics platform. The study was advertised through LGBT national organizations (e.g., ILGA-Portugal, Opus Diversidades-Portugal), electronic means linked to older adults and LGBT people (e.g., Web sites, blogs, social networks) and dating apps for men who have sex with men. This study was part of a larger project called Silver Rainbow, presented as a study aimed at assessing health and well-being among older gay and bisexual men in Portugal. The first page of the online survey included an informed consent, which all participants were asked to accept and complete before taking part in the survey. Confidentiality or anonymity were assured. No compensation was offered to participants. All procedures were in accordance with the ethical standards of the 1964 Helsinki Declaration for research with human subjects and its later amendments or comparable ethical standards.

Measures

The survey consisted of a series of sociodemographic measures; single-item measures of satisfaction with social support, satisfaction with family and friend relationships; scales assessing LGBT community connectedness, adjustment to aging, and loneliness. All survey items were administered in Portuguese.

Sociodemographic Measures. The following variables were assessed as part of the sociodemographic background of participants: age, gender, sexual orientation, living situation, place of residence, marital status, education level, employment status, income, regular sports/physical activities, regular leisure activities, having children, and having grandchildren. Age was measured as a continuous variable. Having children, having grandchildren, sports/physical activities and leisure activities were measured in a “yes” or “no” format. Place of residence, marital status, education level, income, employment status, and living situation were measured as ordinal variables, and response categories are identified on Table 1. Sexual identity and gender were presented as open-ended questions and categorized later, as we have done in previous research (Gonçalves et al., 2019; Ribeiro-Gonçalves et al., 2019), allowing people to freely describe their identity.

Loneliness. Loneliness was measured using an adapted version of the UCLA-20 Loneliness Scale (Russell et al., 1978). This adapted scale measures subjective feelings of loneliness, and it is composed by 16 items (e.g., “Do you feel completely alone?”), measured on a four-point scale (from 1 “never” to 4 “often”). The original 20-item scale was translated and validated using a Portuguese sample of older adults, in which four items were removed due factor analysis and all remaining items were grouped in a single dimension (Pocinho et al., 2010). A further study using item response theory confirmed the validity and reliability of the 16-item scale for use with older Portuguese adults (Faustino et al., 2019). In the current study, Cronbach’s alpha was high (α = 0.92). Higher scores reflected higher levels of loneliness.

Satisfaction with Social Support. To measure satisfaction with social support a single item (“In general, do you feel that you and your family have the assistance and support that you need? (emotional, social, etc.)”) was used. This single item was measured on a five-point Likert scale (from 1 “never” to 5 “always”), so that higher scores reflected greater levels of satisfaction with general social support.

Satisfaction with Family and Friend Relationships. To measure family relationship satisfaction, a single item was used (“How satisfied are you with your relationships with your family?”); a comparable item was used to measure satisfaction with friend relationships (“How satisfied are you with your relationships with your friends?”). Both items...
were measured on a five-point Likert scale (from 1 “no at all satisfied” to 5 “completely satisfied”), so that higher scores reflected greater levels of satisfaction with family or friend relationships.

**LGBT Community Connectedness.** LGBT community connectedness was measured using the Portuguese version of the Connectedness to the LGBT Community Scale (LGBTCC; Frost & Meyer, 2012; Ribeiro-Gonçalves et al., 2019). This unidimensional scale measures the level of affiliation/connectedness with the LGBT community. It is composed by 8 items (e.g., “You feel a bond with the LGBT community”) and measured on a four-point scale (from 1 “completely disagree” to 4 “completely agree”). The original 8-item scale was previously translated and adapted using a Portuguese sample of older adults, which corroborate the original structure (Ribeiro-Gonçalves et al., 2019). In the current study, Cronbach’s alpha was high (α = 0.91). Higher scores reflected higher levels of LGBTCC.

**Adjustment to Aging.** Adjustment to aging was measured using the Adjustment to Aging Scale (AtAS; von Humboldt et al., 2013). The AtAS measures the capacity to have flexible and adaptive personal functioning and well-being during aging; it is composed of 22 items (e.g., Item 10—“Being healthy, without pain or disease”) distributed in five factors (Sense of purpose and ambitions, zest and spirituality, body and health, aging in place and stability, and social support). Participants respond to items along a seven-point continuum (from 1 “not important at all” to 7 “absolutely important”). In this study the global scale score was use to measure AtA. Cronbach’s alpha in this study for

| Table 1 Results for sociodemographic variables by loneliness levels | 
|------------------|------------------|------------------|
|                  | n               | Percentage      | Loneliness (M (SD) | t(df) | p   |
| Living situation |                 |                 |                   |       |     |
| Alone            | 48              | 43.6%           | 38.71 (9.43)      | 1.742 (108) | .088 |
| Partner/spouse/others | 62         | 56.3%           | 35.52 (9.79)      |       |     |
| Children         |                 |                 |                   |       |     |
| Yes              | 47              | 42.7%           | 36.91 (9.38)      | .083 (107) | .934 |
| No               | 63              | 57.3%           | 36.76 (10.05)     |       |     |
| Grandchildren    |                 |                 |                   |       |     |
| Yes              | 78              | 71.9%           | 36.72 (9.71)      | −.183 (107) | .855 |
| No               | 31              | 28.1%           | 37.10 (9.92)      |       |     |
| Sports/physical activities regularly |         |                 |                   |       |     |
| Yes              | 58              | 52.7%           | 37.02 (9.75)      | −.125 (108) | .901 |
| No               | 52              | 47.3%           | 36.78 (9.77)      |       |     |
| Leisure activities regularly |         |                 |                   |       |     |
| Yes              | 60              | 54.5%           | 36.78 (9.45)      | .148 (108) | .883 |
| No               | 50              | 45.5%           | 37.06 (10.13)     |       |     |
| Place of residence |               |                 |                   |       |     |
| Urban            | 72              | 65.4%           | 35.90 (10.51)     | 1.503 (108) | .136 |
| Semi-urban/rural | 38              | 34.6%           | 38.82 (7.77)      |       |     |
| Professional situation |         |                 |                   |       |     |
| Employed         | 60              | 54.5%           | 37.07 (10.27)     | −.185 (108) | .853 |
| Unemployed/retired | 50           | 45.5%           | 36.72 (9.11)      |       |     |
| Income (household’s gross annual income) |         |                 |                   |       |     |
| Income corresponded to national minimum wage | 23       | 20.9%           | 38.18 (9.64)      | .725 (107) | .470 |
| Income greater than national minimum wage | 87    | 79.1%           | 36.49 (9.77)      |       |     |
| Education level  |                 |                 |                   |       |     |
| Until high school diploma | 52       | 47.2%           | 39.02 (9.42)      | 2.194 (108) | .030 |
| At least undergraduate degree | 58      | 52.8%           | 35.02 (9.67)      | * |     |
| Marital status** |                 |                 |                   |       |     |
| Single           | 40              | 36.3%           | 38.45 (1.53)      |       |     |
| Married/civil partnership | 44     | 40.1%           | 35.23 (1.46)      | .034 (108) | .853 |
| Divorced/widower | 26              | 23.6%           | 37.39 (1.90)      |       |     |

* p < .05; ** For this variable a one-way ANOVA was used, the value in the table refers to the value F, not the value t
the total scale was high ($\alpha = 0.82$). Higher scores reflected higher levels of Adjustment to Aging.

Data Analysis

As part of the initial preliminary exploration of the effects of sociodemographic characteristics of older gay men (living situation, having children, having grandchildren, doing sports/physical activities, being involved in leisure activities, place of residence, employment status, income, educational level, and marital status) on their self-perceived loneliness, we first conducted a series of independent samples t-tests; for the marital status measure, we conducted a one-way ANOVA. Secondly, we ran a series of bivariate correlations to examine the relationships between loneliness and age, satisfaction with social support, family and friend relationship satisfaction, LGBT community connectedness, and adjustment to aging. The linearity of the variables was verified using scatterplots, no problems were identified. Lastly, we conducted a multiple linear regression to examine the possible predictors of loneliness considering both the literature review and the significant associations found in the previous analysis, namely satisfaction with social support, family and friend relationship satisfaction, LGBT community connectedness, and adjustment to aging.

Results

Effects of Sociodemographic Characteristics on Loneliness

In order to explore whether sociodemographic characteristics of Portuguese gay men would significantly impact their self-perceived level of loneliness, we conducted a series of independent samples $t$-tests comparing (1) living situation (living alone versus living with others); (2) having children; (3) having grandchildren; (4) having a regular sport or physical activity; (5) maintaining regular leisure activities; (6) place of residence (urban versus non-urban); (7) employment status (employed versus not employed (combing retired, unemployed, and other)); (8) education level (high school diploma or less versus university degree, including both graduate and undergraduate); (9) income (corresponded to national minimum wage vs greater than national minimum wage). The effects of marital situation were explored through a one-way ANOVA with three levels: single, married/civil partnership, and divorced/widowed. Age and loneliness were examined in a correlational analysis.

We found average high levels of loneliness ($M = 36.91, SD = 9.72$), ranging from 16 to 64. In a study with a community sample of Portuguese older people, Pocinho et al. (2010) proposed that values above 32 in the UCLA Loneliness Scale for Portuguese Older Adults should be considered as a high level of loneliness, suggesting that the levels of loneliness among our study sample was generally high.

As shown in Table 1, only education level had significant effects on loneliness in that older gay men who had at least a university degree reported significantly lower levels of loneliness than those who had a high school diploma or less ($p = 0.030$). Living situation was marginally non-significant ($p = 0.088$), suggesting that those who lived with a partner or with another person had lower levels of loneliness than those who lived alone. The correlation between age and loneliness was not significant.

Psychosocial Predictors of Levels of Loneliness

In order to evaluate the relationships between loneliness and the psychosocial variables under study, bivariate Pearson correlations were performed for the variables age, satisfaction with social support, family and friend relationship satisfaction, LGBTCC, AtA, and loneliness. All variables used were continuous. Mostly moderate negative correlations were found between loneliness and the remaining variables (Table 2).

Additionally, considering that education level was a sociodemographic variable significantly associated with levels of loneliness, a hierarchical linear regression was developed considering loneliness as outcome variable; education level was added in step 1, all the psychosocial variables assessed in the previous model were added in step 2. The regression model for loneliness was statistically significant in both steps, step 1 $F_{\text{change}} (1,109) = 4.812, p = 0.030$ and step 2 $F_{\text{change}} (6,109) = 9.151, p < 0.001$, showing 3.4% and 29.9% of variance explained, respectively.

Controlling for the effect of education level, lower family relationship satisfaction and lower friend relationship satisfaction were associated with higher levels of loneliness, weaker links to the LGBT community also was associated with higher levels of loneliness but marginally ($p < 0.01$; Table 3). Thus, the association of friend relationship satisfaction did not change with the introduction of education into the equation; however, satisfaction with relationships with family and community connectedness with the LGBT community were more weakly (marginally non-significant) associated with levels of loneliness among older Portuguese gay men. For this analysis, no evidence of multicollinearity was found (tolerance values > 0.1 and FIV < 5, to all independent variables; Maroco, 2007).

Discussion

The purpose of the present study was to contribute to a small but growing body of research about the well-being of aging sexual minorities, particularly that of older gay men and
including the Portuguese context. One important aspect of well-being is loneliness—an increasing focus of attention around the world and the main focus of this study. We found that the overall levels of loneliness reported by this sample were considered high. We have also examined contextual and demographic characteristics of the study sample that could explain these levels of loneliness, and found higher levels of loneliness among those with lower levels of education. Lastly, we also found that among the measured psychosocial variables, putting education into the equation, satisfaction with relationship with friends was a strong predictor of lower levels of loneliness; family relationship satisfaction and connectedness within the LGBT community were marginally predictive of lower loneliness among older gay men in Portugal.

Loneliness can be influenced by sociodemographic variables. Variables such as living situation (e.g., living alone) seem to be positively associated with loneliness among older and gay people (Fredriksen-Goldsen et al., 2011; Hughes, 2015; Rickard & Yancey, 2018). For older gay men, living alone is associated with depressive symptoms, less attachment to friends and greater isolation (McLaren, 2016, 2020). However, in our study we did not corroborate these findings; It is likely that measuring the construct with a different measurement scale—not dichotomous—the expected result would be that confirmed. Similarly, personal or family lower income and/or living in rural areas seem to be associated with lack of informal support, lack of healthcare options, greater isolation, and lesser social contact, all of which may be associated with loneliness among older sexual minorities (King & Dabelko-Schoeny, 2009; King & Richardson, 2015; Lee & Quam, 2012), although these relationships have not been found in our study. Also, not being partnered and/or not having children/grandchildren may be associated with mental distress (e.g., depressive symptoms), lesser assistance in daily care and lesser operational and emotional support in older LGBT people (Croghan et al., 2013; Fredriksen-Goldsen et al., 2013a, b; Lyons et al., 2013), although our study has also not confirmed this association.

Lastly, healthy lifestyle habits (physical activity/sport and leisure) are associated with decreased loneliness among older people (Schrempft et al., 2019; Shvedko et al., 2018), although in the review made for this study no evidence of studies of this nature was found in an older gay population, there was also no association between regularity of physical activity/sport and leisure and loneliness in our results.

Our data demonstrate high levels of loneliness among Portuguese older gay men ($M = 36.9$) compared to older Portuguese heterosexual community dwelling people ($M = 30.8$; Pocinho et al., 2010) which was measured with the UCLA Loneliness Scale for Portuguese Older Adults. Still, in face of the impossibility of making a direct
comparison with international studies, we find that our results are more in line with those reported by Fredriksen-Goldsen et al. (2013a, b) in a large study of sexual minority community-dwelling older adults in the US; they report that more than half of their large sample of LGBT older persons in the US report feeling isolated and rejected (Fredriksen-Goldsen et al., 2013a, b).

High levels of loneliness in older Portuguese gay men may be associated with the particularly repressive development to which they were subjected, including social isolation and negative affect (Pereira et al., 2019a, b, c). Many of the older Portuguese gay men have suffered decades of intense stigmatization and discrimination, since the decades of repression of the Salazarist dictatorship (from 1932 to 1974; Accornero, 2014) until the 1980s and 1990s decades, with the widespread effect of AIDS stigma associated with sexual minorities (de Vries, 2013; Pereira et al., 2017). Thus, high levels of loneliness in this population may be associated with internalized homonegativity and low efficacy in the use of coping strategies in stigmatizing situations (Jacobs & Kane, 2012).

Further, our results also suggest that those older Portuguese gay men who are more educated report lower levels of loneliness. These data are in agreement with international literature (Dykstra et al., 2005; Shankar et al., 2013). Higher education levels seem to be associated with better cognitive skills and problem-solving strategies, i.e., those resources assisting in coping with stigmatization and discrimination and, relatedly, loneliness and social isolation (Rane-Szostak & Herth, 1995; Shankar et al., 2013). Additionally, perhaps more highly educated older people establish larger and more robust social networks, have greater access to information and social resources and the use of informatic resources that can significantly counter loneliness, such as using the Internet for intellectual, affective, and sexual encounters (Bishop & Martin, 2007; Cattan et al., 2005; Træen et al., 2018).

Satisfaction with relationship with friends was found to be a major predictor of decreased loneliness. As other studies confirm, friends are often the “refuge” of older gay people, particularly when there is rejection from the family (Blando, 2001; Masini & Barrett, 2008). Perhaps satisfaction with friendship serves as a protective factor against loneliness in older gay men (Grossman et al., 2000). Friends allow for greater involvement in social activities, emotional protection, stigma/discrimination management support, and feelings of empowerment while sharing common vulnerabilities (Blando, 2001; Hughes, 2015; Masini & Barrett, 2008; Pereira et al., 2017). Thus, the phenomena of “families of choice”—families made up of friends—are being increasingly studied (Allen & Roberto, 2015; Ribeiro-Gonçalves et al., 2019), although there is very little research in this area among Portuguese older persons.

More traditional family relationship satisfaction was also an important variable in predicting less loneliness, which is an indicator of the importance that the family has for the Portuguese older people, though importantly moderated by education in our analyses. Traditional family support may be associated with greater identity stability, life satisfaction and greater security and trust in managing complex social and health situations (Shippy et al., 2004). Particularly in Western societies (and especially Portuguese in the context of this paper), due to sociocultural values centered on family valorization, the family nucleus seems to have an important impact on the health and well-being of older people (Cappeliez et al., 2008). However, in primarily North American studies, the family has also been seen as an important source of rejection, risk, and abandonment for older gay men, being sources of social isolation, abuse, and loneliness (Allen & Roberto, 2015; Morrow, 2001). Such international comparisons are worthy of further research.

Education may play an important role for the occurrence of loneliness. From the perspective of gay men, for example, education (e.g., its process and outcome) may

### Table 3 Hierarchical linear regression for loneliness

| Step 1                      | Loneliness |   |   |
|-----------------------------|------------|---|---|
| Education level             | B (CI*)    | SE | β  | t   |
| Step 2                      |            |   |   |   |
| Satisfaction with social support | −4.002 (−7.618, −.386) | 1.824 | −.207 | −2.194** |
| Family relationship satisfaction | −1.895 (−3.935, .146) | 1.029 | −.198 | −1.842* |
| Friend relationship satisfaction | −3.256 (−5.499, −1.013) | 1.131 | −.258 | −2.879*** |
| LGBT community connectedness | −2.358 (−4.790, .074) | 1.226 | −.165 | −1.923* |
| Adjustment to aging          | −1.068 (−4.438, 2.302) | 1.699 | −.065 | −.629 |

*p < .10; **p < .05; ***p < .01

*a Ninety-five percent
lead to questioning the pulls and pushes—the traditions and practices—of biological family, leading to question or see beyond the traditional family values and expectations; the chosen nature of friendship rests on evaluations of shared values and behaviors that influence the proximity/distance of relationships (e.g., de Vries & Megathlin, 2009). From the perspective of biological families, it may be that the higher levels of education render these gay men as different somehow, i.e., changed by their academic experiences and dissimilar to their more traditional families. These changes may lead to a sense of real or perceived distance between oneself and one’s old friends and family, which can impact feelings of social connection and, in turn, loneliness.

LGBT community connectedness was also a negative predictor of loneliness in older Portuguese gay men, though similarly influenced by education. Indeed, some studies indicate that LGBT community connectedness seems to contribute significantly to decreasing depressive symptoms and reduced feelings of sadness and isolation, increasing overall well-being and the sense of belonging and protection (Frost & Meyer, 2012; McLaren, 2016). Particularly in Portugal, mainly due to the difficulty of access to community and health resources in the older gay men, LGBT community connectedness has been found to be an important resource for the coming out of older gay men and for the reduction of distress levels, although there is still a need for more social/community investment to support Portuguese older gay men (Ribeiro-Gonçalves et al., 2019). This is probably one of the main reasons why LGBTCC levels among the older gay men in this Portuguese study ($M = 18.91$ and $SD = 5.46$) were considerably lower than that among older gay men in other countries (e.g., white men in USA, $M = 26.31$ and $SD = 3.48$; Frost & Meyer, 2012). However, some evidence indicates that the demand for community support may decrease in old age, losing some importance; as people age, they invest more of their energy and time on the closest, most supportive relationships in their life. Thus, older gay men may disengage somewhat from their broader LGBT social network and acquaintances, especially those with whom they do not have very close relation (Carstensen, 1992; Penningroth & Scott, 2012). This sets the stage for further research with an older population (than the sample described herein)—and longitudinally.

It may also be that education serves as a buffer of community support, with identities, information and connections accessed elsewhere among those with higher education. People with more education might access other resources beyond the LGBT social network. In any case, it should also be noted that community connectedness may also have disadvantages to some older gay men. Stigma, heterosexist discrimination, and ageism by younger gay men can increase distance from the LGBT community, and thus potentially increasing loneliness (Cahill, 2015; Spira et al., 2018). In addition, the association between loneliness, relationship satisfaction, and LGBT community connectedness may be due to conceptual overlap between these constructs (i.e., loneliness is, by definition, the perceived absence of satisfying connections with others).

Also, adjustment to aging was associated with loneliness in the correlation analysis, but in the regression analysis when measured against relationship satisfaction (friends, family) and LGBT community connectedness, it was no longer significantly associated. As demonstrated above and in other studies, social support and satisfying social relationships are among the main variables associated with increases in well-being and adjustment in aging and decreases in loneliness (Grossman et al., 2000; Hughes, 2015; von Humboldt & Leal, 2014, 2015; von Humboldt et al., 2012). In addition, although there were higher levels of adjustment to aging in our sample ($M = 5.72$ and $SD = 0.59$) than in heterosexual older people ($M = 4.38$ and $SD = 0.92$; von Humboldt et al., 2013), both from Portugal, the powerful effects of relationship satisfaction and social engagement seem to overcome other predictors of decreased loneliness.

Another interpretation, however, is that feelings of loneliness existed prior to the older age of our respondents, being these levels of loneliness are characteristic of this generation of gay people due to the contingencies of their development (Muraco & Fredriksen-Goldsen, 2016; Pereira et al., 2019a, b, c). Thus, these older people may have internalized stigma and a life with greater social isolation throughout development (e.g., staying in heterosexual relationships, avoiding coming out), as well as being subjected to greater social isolation and rejection by a heteronormative society (e.g., repression, discrimination, violence); all of these may have contributed to higher levels of lifelong loneliness (Morrow, 2001; Pereira et al., 2019a, b, c). In the last instance, there is also the possibility that their own feelings of loneliness have been internalized and eventually normalized for the older Portuguese gay men—hence, perhaps resistant to aging adjustment influences. Again, this serves as a call for longitudinal and life-story research.

Lastly, because of the cross-sectional nature of our study, the relationships between loneliness and the psychosocial measures we assessed may be bidirectional. Indeed, research suggests that loneliness, especially when chronic, can increase implicit hypervigilance for social threats and, in turn, negative perceptions of other people (e.g., suspiciousness, mistrust; Cacioppo & Cacioppo, 2018a; Hawkley & Cacioppo, 2007; Qualter et al., 2015). It can also lead to self-protective isolation and aversive interpersonal behaviour like aloofness, self-centeredness, rejection of companionship, and irritability, all of which can negatively affect relationship quality and, thus, loneliness (Cacioppo & Cacioppo, 2018a; Cacioppo et al., 2010; Christiansen
et al., 2016; Hawkley & Cacioppo, 2007; Hawkley et al., 2010). Put another way, while perceived absence of quality relationships can contribute to loneliness in the first place, loneliness itself can actually make matters worse and turn into a self-perpetuating cycle.

**Limitations**

This study was not without limitations. The scope of this study was exploratory and not necessarily generalizable to the older Portuguese gay male population; we also consider as a limitation the use of a small and non-randomized sampling and future studies should endeavor to replicate the study’s findings with a larger sample. In this study, although other variables could be added to the regression models, this was not possible due to the sample size and in order to preserve test power. The current sample was non-randomly recruited and may not be representative of the population of older gay men. The sample was self-selected and respondents were recruited through dating sites and LGBT social networking sites. There is some evidence that people who have been contacted through dating apps are more likely to be single and to be geographically isolated (Sanders, 2008), they also seem to have more self-stigma and more likely to be more “in the closet” (Kuypers et al., 2015; Meyer & Wilson, 2009). Despite this limitation, increasingly older populations are using websites, apps and social networks for sexual and relational purposes (Tressen et al., 2018) which can be an indicator of the increasing heterogeneity of the populations that use dating apps. Likewise, the research protocol was applied in an online format, associated with high levels of education and motivated to collaborate in the research. Further, it may also have limited the participation of those with lower technology skills or less access to internet resources. Moreover, satisfaction with family and friend relationships were measured through single items, which may not capture subtle or detailed characteristics of participants’ experiences.

**Implications and Future Directions**

Considering the repressive context in which the older Portuguese gay men have developed, particularly in the fascist dictatorship period of Salazar, this study highlights the perseverance and resilience of these older men. That is, in the face of stigma, risk of imprisoned or violence, exclusion and mistreatment, previously and currently, institutionally and interpersonally, these older gay men evidence high levels of adjustment to aging. Portuguese older gay men have a unique history of stigma and discrimination. Particularly, experiences such as depression symptoms, loneliness, low life satisfaction, and psychological distress are often found. Beyond Portugal and Spain (Pereira et al., 2017, 2019a), similar results have been reported with English (Grabovac et al., 2019), North American (Fredriksen-Goldsen et al., 2013a, b; Fredriksen-Goldsen et al., 2013a), and Latin/Hispanic LGBT seniors (Harley, 2015) emphasizing the need to further investigate this “cumulative effect of stigma” internationally.

This study contributed to a growing field of research examining aging among sexual minorities, particularly addressing loneliness, an important focus of psychosocial and health interventions in recent years. Future efforts could focus on the strategies and behaviors that help mitigate this lifetime of stress and stigma. In particular, community and psychological support initiatives that may contribute to improve the quality of life and well-being of the LGBT population at this vulnerable stage of their life course ought to be stimulated. We suggest that LGBT associations pay closer attention to the needs of the older population with the main aim of developing intervention projects that may reinforce social networks, both formal and informal, and thus reduce isolation and possibly loneliness. Particularly, we suggest intervention projects such as the Friendly Caller Program or Telefriending that aim to reduce social isolation and loneliness through remote interventions (via mobile phone) with the collaboration of volunteer callers (Gogolishvili & Giliauskas, 2020). Further, social intervention projects that use as many primary strategies as possible to reduce loneliness as indicated by the meta-analysis by Masi et al. (2010), namely improving social skills, increasing social support, increasing social contact opportunities, and reducing cognitive distortions. Lastly, other intervention projects focused on better management of minority stress, such as the LGBT Aging Training, Rainbow Educator or Mindfulness-Based Sexual Identity Therapy (Chaudoir et al., 2017). However, considering the few community resources directed at older gay men in Portugal, we suggest that these interventions may be developed in groups, creating a bond of belonging among group members and promoting mutual help relationships. These are practically nonexistent in the Portuguese context. In addition, it is suggested to implement an anonymous helpline at national level, which focuses on issues of sexual identity/orientation throughout the life cycle, and offer psychological support. In this way, the most stigmatized populations and those in more remote locations (e.g., senior population) could more easily access the available resources. Our study suggests cultural and national differences in these relationships that reveal nuances rarely captured in the extant research, notwithstanding recognition that individuals are frequently called upon to provide the care needed among older and vulnerable adults (Cantor & Brennan, 2000).
Particularly in the Portuguese context, there is a worringly paucity of studies in this area, and further research would be an important resource in the construction of psychosocial interventions aimed at improving the lives and well-being of this population—and others—and fostering a more positive experience of aging. Cross-cultural studies, especially comparative studies between European countries, are suggested and could contribute to broader, inclusive policies. Additionally, studies assessing loneliness across generations of gay men would be useful and facilitate a finer accounting of those groups or cohorts most susceptible to the experience and effects of loneliness. Furthermore, it is also advisable to include samples of heterosexual older adults in order to evaluate the health disparities among these groups and older sexual minority adults.

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Compliance with Ethical Standard

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the 1964 Helsinki declaration and its amendments or comparable ethical standards.

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

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