



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

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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). Relatedly, 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 excluded ($n = 13$); 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 ($\alpha = 0.92$). 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

Table 1 Results for sociodemographic variables by loneliness levels

	<i>n</i>	Percentage	Loneliness		
			<i>M</i> (<i>SD</i>)	<i>t</i> (<i>df</i>)	<i>p</i>
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)	
Divorced/widower	26	23.6%	37.39 (1.90)		0.853

* $p < .05$; ** For this variable a one-way ANOVA was used, the value in the table refers to the value F , not the value t

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 ($\alpha = 0.91$). 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 used to measure AtA. Cronbach's alpha in this study for

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 (combining 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, Pociño 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 $F_{change}(1,109)=4.812$, $p=0.030$ and step 2 $F_{change}(6,109)=9.151$, $p < 0.001$, 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

Table 2 Means, standard deviations and Pearson's correlation among the variables under study

	1	2	3	4	5	6	7	<i>M (SD)</i>	Min	Max	Sk	K
1. Age	-							63.52 (3.41)	60	79	1.781	2.200
2. Satisfaction with social support	-.174	-						3.14 (1.22)	1	5	.015	1.006
3. Family relationship satisfaction	-.047	.438**	-					3.61 (1.02)	1	5	.652	.261
4. Friend relationship satisfaction	-.086	.248**	.398**	-				4.05 (.77)	2	5	.446	.225
5. LGBT community connectedness	.164	.269**	.268**	.191*	-			18.91 (5.46)	8	32	.290	.189
6. Adjustment to aging	-.022	.382**	.584**	.379**	.299**	-		5.72 (.59)	4.18	7	.014	.252
7. Loneliness	-.025	-.359**	-.454**	-.427**	-.331**	-.384**	-	36.91 (9.72)	16	53	.578	.837

* $p < .05$; ** $p < .01$

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—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 ($M = 30.8$; Pociño 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

Table 3 Hierarchical linear regression for loneliness

	B (CI ^a)	Loneliness		
		SE	β	<i>t</i>
Step 1				
Education level	-4.002 (-7.618, -.386)	1.824	-.207	-2.194**
Step 2				
Satisfaction with social support	-.954 (-2.432, .524)	.745	-.119	-1.280
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

* $p < .10$; ** $p < .05$; *** $p < .01$ ^aNinety-five percent

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; Cattán 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

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 overtake 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; Hawkey & 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; Hawkey & Cacioppo, 2007; Hawkey 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" (Kuyper et al., 2015; Meyer & Wilson, 2009). Despite this limitation, increasingly older populations are using websites, apps and social networks for sexual and relational purposes (Træen 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. Our findings fit into a pattern, certainly found in Western countries, indicating the cumulative, negative consequences of a lifetime 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 worrying 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 also is 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.

References

- Accornero, G. (2014). O '25 de Abril': Uma revolução nas ciências sociais [April 25th: A revolution in the social sciences]. *Ler História*, 67, 171–177.
- Allen, K. R., & Roberto, K. A. (2015). Family relationships of older LGBT adults. In D. A. Harley & P. B. Teaster (Eds.), *Handbook of LGBT Elders* (pp. 43–64). New York: Springer.
- Anderson, G. O., & Thayer, C. E. (2018). *Loneliness and social connections: A national survey of adults 45 and older*. Washington, DC: AARP Research.
- Atchley, R. (1999). *Continuity and adaptation in aging: Creating positive experiences*. Baltimore, MD: Johns Hopkins University Press.
- Barrett, C., Whyte, C., Comfort, J., Lyons, A., & Cramer, P. (2015). Social connection, relationships and older lesbian and gay people. *Sexual and Relationship Therapy*, 30, 131–142. <https://doi.org/10.1080/14681994.2014.963983>.
- Bishop, A. J., & Martin, P. (2007). The indirect influence of educational attainment on loneliness among unmarried older adults. *Educational Gerontology*, 33, 897–917. <https://doi.org/10.1080/03601270701569275>.
- Blatcho, J. A. (2001). Twice hidden: Older gay and lesbian couples, friends, and intimacy. *Generations*, 25, 87–89.
- Brennan-Ing, M., Seidel, L., Larson, B., & Karpiak, S. E. (2014). Social care networks and older LGB adults: Challenges for the future. *Journal of Homosexuality*, 61, 21–52. <https://doi.org/10.1080/00918369.2013.835235>.
- Brown, E. G., Gallagher, S., & Creaven, A.-M. (2017). Loneliness and acute stress reactivity: A systematic review of psychophysiological studies. *Psychophysiology*, 55(5), 130–141. <https://doi.org/10.1111/psyp.13031>.
- Cacioppo, J. T., & Cacioppo, S. (2018a). Loneliness in the modern age: An evolutionary theory of loneliness (ETL). *Advances in Experimental Social Psychology*, 58, 127–197. <https://doi.org/10.1016/bs.aesp.2018.03.003>.
- Cacioppo, J. T., & Cacioppo, S. (2018b). The growing problem of loneliness. *The Lancet*, 391, 426. [https://doi.org/10.1016/s0140-6736\(18\)30142-9](https://doi.org/10.1016/s0140-6736(18)30142-9).
- Cacioppo, J. T., Hawkley, L. C., & Thisted, R. A. (2010). Perceived social isolation makes me sad: 5-year cross-lagged analyses of loneliness and depressive symptomatology in the Chicago Health, Aging, and Social Relations Study. *Psychology and Aging*, 25, 453–463. <https://doi.org/10.1037/a0017216>.
- Cahill, S. (2015). Community resources and government services for LGBT older adults and their families. In N. A. Orel and C. A. Fruhauf (Eds.), *The Lives of LGBT Older Adults: Understanding Challenges and Resilience* (pp. 141–169). American Psychological Association.
- Cahill, S., South, K., & Spade, J. (2000). *Outing age: Public policy issues affecting gay, lesbian, bisexual, and transgender elders*. Washington, DC: National Gay and Lesbian Task Force Policy Institute.
- Cantor, M. H., & Brennan, M. (2000). *Social care of the elderly: The effects of ethnicity, class, and culture*. New York: Springer.
- Cappeliez, P., Beaupré, M., & Robitaille, A. (2008). Characteristics and impact of life turning points for older adults. *Ageing International*, 32, 54. <https://doi.org/10.1007/s12126-008-9005-4>.
- Carstensen, L. L. (1992). Social and emotional patterns in adulthood: Support for socioemotional selectivity theory. *Psychology and Aging*, 7, 331–338. <https://doi.org/10.1037/0882-7974.7.3.331>.
- Cattan, M., White, M., Bond, J., & Learmouth, A. (2005). Preventing social isolation and loneliness among older people: A systematic review of health promotion interventions. *Ageing and Society*, 25, 41–67. <https://doi.org/10.1017/s0144686x04002594>.
- Chaudoir, S. R., Wang, K., & Pachankis, J. E. (2017). What reduces sexual minority stress? A review of the intervention “toolkit.” *Journal of Social Issues*, 73(3), 586–617. <https://doi.org/10.1111/josi.12233>.
- Christiansen, J., Larsen, F. B., & Lasgaard, M. (2016). Do stress, health behavior, and sleep mediate the association between loneliness and adverse health conditions among older people? *Social Science & Medicine*, 152, 80–86. <https://doi.org/10.1016/j.socscimed.2016.01.020>.
- Cochran, S., Sullivan, J., & Mays, V. (2003). Prevalence of mental disorders, psychological distress, and mental health services use among lesbian, gay, and bisexual adults in the United States. *Journal of Consulting and Clinical Psychology*, 7, 53–61. <https://doi.org/10.1037/0022-006X.71.1.53>.
- Costa, P. A., Pereira, H., & Leal, I. (2013). Internalized homonegativity, disclosure, and acceptance of sexual orientation in a sample of Portuguese gay and bisexual men, and lesbian and bisexual women. *Journal of Bisexuality*, 13, 229–244. <https://doi.org/10.1080/15299716.2013.782481>.
- Cox, S. (2006). Living on the edge: Gay men, risk-taking and depression. Report from The Medius Institute for Gay Men's Health, New York. Retrieved 8 June 2019 from <http://www.mtgayhealth.org/news/LivingOnTheEdge.pdf>
- Croghan, C. F., Moone, R. P., & Olson, A. M. (2013). Friends, family, and caregiving among midlife and older lesbian, gay,

- bisexual, and transgender adults. *Journal of Homosexuality*, 61, 79–102. <https://doi.org/10.1080/00918369.2013.835238>.
- Dalia. (2016). Counting LGBT population. Retrieved 8 June 2019 from <https://daliaresearch.com/counting-the-lgbt-population-6-of-europeans-identify-as-lgbt/>
- de Vries, B. (2013). LG(BT) Persons in the second half of life: The intersectional influences of stigma and cohort. *LGBT Health*, 1, 18–23. <https://doi.org/10.1089/lgbt.2013.0005>.
- de Vries, B., & Megathlin, D. (2009). The meaning of friends for gay men and lesbians in the second half of life. *Journal of GLBT Family Studies*, 5, 82–98. <https://doi.org/10.1080/15504280802595394>.
- Dykstra, P. A., van Tilburg, T. G., & Gierveld, J. J. (2005). Changes in older adult loneliness. *Research on Aging*, 27, 725–747. <https://doi.org/10.1177/0164027505279712>.
- Faustino, B., Lopes, P., Oliveira, J., Campaioli, G., Rondinone, M., Bomfim, H., & Germano, L. (2019). Psychometric and rash analysis of the UCLA Loneliness Scale-16 in a Portuguese sample of older adults. *Psychological Studies*, 64(2), 140–146. <https://doi.org/10.1007/s12646-019-00483-5>.
- Fredriksen-Goldsen, K. I., Kim, H., Emler, C. A., Muraco, A., Erosheva, E. A., Hoy-Ellis, C. P., et al. (2011). *The aging and health report: Disparities and resilience among lesbian, gay, bisexual, and transgender older adults*. Seattle: Institute for Multigenerational Health.
- Fredriksen-Goldsen, K. I., Kim, H. J., Goldsen, J., Hoy-Ellis, C. P., Emler, C. A., Erosheva, E. A., & Muraco, A. (2013). *LGBT older adults in San Francisco: Health, risks, and resilience - Findings from caring and aging with pride*. Seattle: Institute for Multigenerational Health.
- Fredriksen-Goldsen, K. I., Kim, H.-J., Hoy-Ellis, C. P., Goldsen, J., Jensen, D., Adelman, M., & de Vries, B. (2013). *Addressing the needs of LGB older adults in San Francisco: Recommendations for the future*. Seattle, WA: Institute for Multigenerational Health.
- Frost, D. M., & Meyer, I. H. (2009). Internalized homophobia and relationship quality among lesbians, gay men, and bisexuals. *Journal of Counseling Psychology*, 56, 97–109. <https://doi.org/10.1037/a0012844>.
- Frost, D. M., & Meyer, I. H. (2012). Measuring community connectedness among diverse sexual minority populations. *Journal of Sex Research*, 49, 36–49. <https://doi.org/10.1080/00224499.2011.565427>.
- Gogolishvili, D., & Giliauskas, D. (2020). *Interventions to reduce social isolation and loneliness among men who have sex with men*. Ontario: Ontario HIV Treatment Network.
- Gonçalves, J. A. R., Costa, P. A., & Leal, I. (2018). Silver Rainbow: Estigma em homens gays idosos, uma perspectiva de stress minoritário [Stigma in older gay men, a minority stress perspective]. *Psicologia, Saúde & Doenças*, 19, 80–86. <https://doi.org/10.15309/18psd190112>.
- Gonçalves, J. A. R., Costa, P. A., & Leal, I. (2019). Minority stress in older Portuguese gay and bisexual men and its impact on sexual and relationship satisfaction. *Sexuality Research and Social Policy*, 17, 209–218. <https://doi.org/10.1007/s13178-019-00385-1>.
- Grabovac, I., Smith, L., McDermott, D. T., Stefanac, S., Yang, L., Veronese, N., & Jackson, S. E. (2019). Well-Being among older gay and bisexual men and women in England: A cross-sectional population study. *Journal of the American Medical Directors Association*, 20, 1080–1085. <https://doi.org/10.1016/j.jamda.2019.01.119>.
- Grossman, A. H., D’Augelli, A. R., & Hershberger, S. L. (2000). Social support networks of lesbian, gay, and bisexual adults 60 years of age and older. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 55, 171–179. <https://doi.org/10.1093/geronb/55.3.p171>.
- Grossman, A. H., D’Augelli, A. R., & O’Connell, T. S. (2001). Being lesbian, gay, bisexual, and 60 or older in North America. *Journal of Gay & Lesbian Social Services*, 13, 23–40. https://doi.org/10.1300/J041v13n04_05.
- Hawkey, L. C., & Cacioppo, J. T. (2007). Aging and loneliness. *Current Directions in Psychological Science*, 16, 187–191. <https://doi.org/10.1111/j.1467-8721.2007.00501.x>.
- Hawkey, L. C., Thisted, R. A., Masi, C. M., & Cacioppo, J. T. (2010). Loneliness predicts increased blood pressure: 5-year cross-lagged analyses in middle-aged and older adults. *Psychology and Aging*, 25, 132–141. <https://doi.org/10.1037/a0017805>.
- Harley, D. A. (2015). Hispanic/Latino LGBT elders. In D. A. Harley & P. B. Teaster (Eds.), *Handbook of LGBT elders* (pp. 199–222). New York: Springer.
- Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality. *Perspectives on Psychological Science*, 10(2), 227–237. <https://doi.org/10.1177/1745691614568352>.
- Houghton, A. (2018). *Maintaining dignity: Understanding and responding to the challenges facing older LGBT Americans*. Washington, DC: AARP Research.
- Hughes, M. (2015). Loneliness and social support among lesbian, gay, bisexual, transgender and intersex people aged 50 and over. *Ageing and Society*, 36, 1961–1981. <https://doi.org/10.1017/s0144686x1500080x>.
- Jacobs, R. J., & Kane, M. N. (2012). Correlates of loneliness in midlife and older gay and bisexual men. *Journal of Gay & Lesbian Social Services*, 24, 40–61. <https://doi.org/10.1080/10538720.2012.643217>.
- Jaremka, L. M., Fagundes, C. P., Peng, J., Bennett, J. M., Glaser, R., Malarkey, W. B., & Kiecolt-Glaser, J. K. (2013). Loneliness promotes inflammation during acute stress. *Psychological Science*, 24, 1089–1097. <https://doi.org/10.1177/0956797612464059>.
- King, S., & Dabelko-Schoeny, H. (2009). “Quite frankly, I have doubts about remaining”: Aging-in-place and health care access for rural midlife and older lesbian, gay, and bisexual individuals. *Journal of LGBT Health Research*, 5, 10–21. <https://doi.org/10.1080/15574090903392830>.
- King, S. D., & Richardson, V. E. (2015). Influence of income, being partnered/married, resilience, and discrimination on mental health distress for midlife and older gay men. *Journal of Gay & Lesbian Mental Health*, 20, 127–151. <https://doi.org/10.1080/19359705.2015.1127191>.
- Kuyper, L., Fernee, H., & Keuzenkamp, S. (2015). A comparative analysis of a community and general sample of lesbian, gay, and bisexual individuals. *Archives of Sexual Behavior*, 45, 683–693. <https://doi.org/10.1007/s10508-014-0457-1>.
- Kuyper, L., & Fokkema, T. (2009). Loneliness among older lesbian, gay, and bisexual adults: The role of minority stress. *Archives of Sexual Behavior*, 39, 1171–1180. <https://doi.org/10.1007/s10508-009-9513-7>.
- Lee, M. G., & Quam, J. K. (2012). Comparing supports for LGBT aging in rural versus urban areas. *Journal of Gerontological Social Work*, 56, 112–126. <https://doi.org/10.1080/01634372.2012.747580>.
- Lisdonk, J., & Kuyper, L. (2015). *The over-55s and sexual orientation*. Netherland: Sociaal en Cultureel Planbureau.
- Lyons, A., Pitts, M., & Grierson, J. (2013). Factors related to positive mental health in a stigmatized minority. *Journal of Aging and Health*, 25, 1159–1181. <https://doi.org/10.1177/0898264313495562>.
- Maroco, J. (2007). *Análise estatística com utilização do SPSS [Statistical analysis using SPSS]*. Lisbon: Edições Sílabo.
- Marques, F. D., & Sousa, L. (2016). Portuguese older gay men: Pathways to family integrity. *Paidéia*, 26, 149–159. <https://doi.org/10.1590/1982-43272664201602>.

- Masi, C. M., Chen, H.-Y., Hawkley, L. C., & Cacioppo, J. T. (2010). A meta-analysis of interventions to reduce loneliness. *Personality and Social Psychology Review*, *15*(3), 219–266. <https://doi.org/10.1177/1088868310377394>.
- Masini, B. E., & Barrett, H. A. (2008). Social support as a predictor of psychological and physical well-being and lifestyle in lesbian, gay, and bisexual adults aged 50 and over. *Journal of Gay & Lesbian Social Services*, *20*, 91–110. <https://doi.org/10.1080/10538720802179013>.
- McLaren, S. (2016). The relationship between living alone and depressive symptoms among older gay men: the moderating role of sense of belonging with gay friends. *International Psychogeriatrics*, *28*, 1895–1901. <https://doi.org/10.1017/s1041610216001241>.
- McLaren, S. (2020). The relationship between living alone and depressive symptoms among older gay men: The moderating role of age. *Journal of Homosexuality*, in press. <https://doi.org/10.1080/00918369.2020.1813511>.
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, *129*, 674–697. <https://doi.org/10.1037/0033-2909.129.5.674>.
- Meyer, I. H., & Wilson, P. A. (2009). Sampling lesbian, gay, and bisexual populations. *Journal of Counseling Psychology*, *56*, 23–31. <https://doi.org/10.1037/a0014587>.
- Morrow, D. F. (2001). Older gays and lesbians: Surviving a generation of hate and violence. *Journal of Gay & Lesbian Social Services*, *13*, 151–169. https://doi.org/10.1300/j041v13n01_11.
- Muraco, A., & Fredriksen-Goldsen, K. I. (2016). Turning points in the lives of lesbian and gay adults age 50 and over. *Advances in Life Course Research*, *30*, 124–132. <https://doi.org/10.1016/j.alcr.2016.06.002>.
- Newport, F. (2018). In U.S., Estimate of LGBT Population Rises to 4.5%. *Gallup News*. Retrieved 4 August 2019 from <https://news.gallup.com/poll/234863/estimate-lgbt-population-rises.aspx>
- Penningroth, S. L., & Scott, W. D. (2012). Age-related differences in goals: Testing predictions from selection, optimization, and compensation theory and socioemotional selectivity theory. *The International Journal of Aging and Human Development*, *74*, 87–111. <https://doi.org/10.2190/ag.74.2.a>.
- Pereira, H., & Costa, P. A. (2016). Modeling the impact of social discrimination on the physical and mental health of Portuguese gay, lesbian and bisexual people. *Innovation: The European Journal of Social Science Research*, *29*, 205–217. <https://doi.org/10.1080/13511610.2016>.
- Pereira, H., de Vries, B., Esgalhado, G. & Serrano, J. P. (2019). *Loneliness perceptions in older gay and bisexual men*. Manuscript submitted for publication.
- Pereira, H., de Vries, B., Serrano, J. P., Afonso, R. M., Esgalhado, G., & Monteiro, S. (2019). Depression and quality of life in older gay and bisexual men in Spain and Portugal. *International Journal of Aging and Human Development*, advance online. <https://doi.org/10.1177/0091415017720889>.
- Pereira, H., de Vries, B., Serzedelo, A., Serrano, J. P., Afonso, R. M., Esgalhado, G. & Monteiro, S. (2019b). Growing older out of the closet: A descriptive study of older LGB persons living in Lisbon, Portugal. *International Journal of Aging and Human Development*, advance online. <https://doi.org/10.1177/0091415019836107>
- Pereira, H., & Monteiro, S. (2017). The role of political and legislative changes in the everyday lives of LGB individuals: The case of Portugal. *Sexuality Research and Social Policy*, *14*, 300–309. <https://doi.org/10.1007/s13178-016-0261-x>.
- Pereira, H., Serrano, J. P., de Vries, B., Esgalhado, G., Afonso, R. M., & Monteiro, S. (2017). Aging perceptions in older gay and bisexual men in Portugal: A qualitative study. *International Journal of Aging and Human Development*, *87*, 5–32. <https://doi.org/10.1177/0091415017720889>.
- Pocinho, M., Farate, C., & Dias, C. (2010). Validação psicométrica da escala UCLA-loneliness para idosos portugueses [Psychometric validation of the UCLA-loneliness scale for Portuguese older adults]. *Interações: Sociedade e Novas Modernidades*, *18*, 65–77.
- Pope, M., Wierzalis, E. A., Barret, B., & Rankins, M. (2007). Sexual and intimacy issues for aging gay men. *Adultspan Journal*, *6*(2), 68–82. <https://doi.org/10.1002/j.2161-0029.2007.tb00033.x>.
- Qualter, P., Vanhalst, J., Harris, R., Van Roekel, E., Lodder, G., Bangee, M., & Verhagen, M. (2015). Loneliness across the life span. *Perspectives on Psychological Science*, *10*(2), 250–264. <https://doi.org/10.1177/17456916155689>.
- Rainbow Europe. (2019). *Annual Review 2019*. Retrieved 5 July 2019 from <https://www.ilga-europe.org/rainboweurope/2019>
- Rane-Szostak, D., & Herth, K. A. (1995). A new perspective on loneliness in later life. *Issues in Mental Health Nursing*, *16*, 583–592. <https://doi.org/10.3109/01612849509009401>.
- Rickard, A., & Yancey, C. T. (2018). Rural/non-rural differences in psychosocial risk factors among sexual minorities. *Journal of Gay & Lesbian Social Services*, *30*, 154–171. <https://doi.org/10.1080/10538720.2018.1444525>.
- Ribeiro-Gonçalves, J. A., Costa, P. A., & Leal, I. (2019). Psychological distress in older Portuguese gay and bisexual men: The mediating role of LGBT community connectedness. *International journal of Sexual Health*, *31*, 407–413. <https://doi.org/10.1080/19317611.2019.1670315>.
- Russell, D., Replau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment*, *42*, 290–294.
- Sanders, T. C. (2008). M4M chat rooms: Individual socialization and sexual autonomy. *Culture, Health & Sexuality*, *10*, 263–276. <https://doi.org/10.1080/13691050701836936>.
- Schrempft, S., Jackowska, M., Hamer, M., Steptoe, A. (2019). Associations between social isolation, loneliness, and objective physical activity in older men and women BMC Public Health *19* <https://doi.org/10.1186/s12889-019-6424-y>
- Shankar, A., Hamer, M., McMunn, A., & Steptoe, A. (2013). Social isolation and loneliness. *Psychosomatic Medicine*, *75*, 161–170. <https://doi.org/10.1097/psy.0b013e31827f09cd>.
- Shippy, R., Cantor, M., & Brennan, M. (2004). Social networks of aging gay men. *The Journal of Men's Studies*, *13*, 107–120. <https://doi.org/10.3149/jms.1301.107>.
- Shvedko, AV., Thompson, JL., Greig, CA., Whittaker, AC. (2018). Physical Activity Intervention for Loneliness (PAIL) in community-dwelling older adults: protocol for a feasibility study Pilot and Feasibility Studies *4* <https://doi.org/10.1186/s40814-018-0379-0>
- Spira, M., Orwat, J., & Knepler-Foss, S. (2018). Aging within the LGBT community: An exploration of life's challenges. In M. P. Dentato (Ed.), *Social work practice with the LGBTQ community: The intersection of history, health, mental health, and policy factors* (pp. 211–231). Oxford University Press.
- Thies, K. E., Starks, T. J., Denmark, F. L., & Rosenthal, L. (2016). Internalized homonegativity and relationship quality in same-sex romantic couples: A test of mental health mechanisms and gender as a moderator. *Psychology of Sexual Orientation and Gender Diversity*, *3*(3), 325–335. <https://doi.org/10.1037/sgd0000183>.
- Træen, B., Carvalheira, A., Kvale, I. L., & Hald, G. M. (2018). European older adults' use of the Internet and social networks for love and sex. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *12*. <https://doi.org/10.5817/cp2018-3-1>
- United Nations (UN). (2015). *World population prospects: The 2015 revision, key findings and advance tables*. New York, USA: Author.
- von Humboldt, S., & Leal, I. (2014). Adjustment to aging in late adulthood: A systematic review. *International Journal of Gerontology*, *8*, 108–113. <https://doi.org/10.1016/j.ijge.2014.03.003>.
- von Humboldt, S., & Leal, I. (2015). The old and the oldest-old: Do they have different perspectives on adjustment to aging?

- International Journal of Gerontology*, 9, 156–160. <https://doi.org/10.1016/j.ijge.2015.04.002>.
- von Humboldt, S., Leal, I., Pimenta, F., & Maroco, J. (2013). Assessing adjustment to aging: A validation study for the Adjustment to Aging Scale (AtAS). *Social Indicators Research*, 119, 455–472. <https://doi.org/10.1007/s11205-013-0482-9>.
- von Humboldt, S., Leal, I., Pimenta, F., & Niculescu, G. (2012). Beyond age and adjustment: A cross-national qualitative study of older adults' perceptions. *Canadian Social Science*, 8, 139–147. <https://doi.org/10.3968/j.css.1923669720120805.5541>.
- Wallace, S. P., Cochran, S. D., Durazo, E. M., & Ford, C. L. (2011). *The health of aging lesbian, gay and bisexual adults in California*. Los Angeles, CA: UCLA Center for Health Policy Research.
- Wrosch, C., Dunne, E., & Scheier, M. (2006). Self-regulation of common age-related challenges: Benefits for older adults' psychological and physical health. *Journal of Behavioral Medicine*, 29, 299–306. <https://doi.org/10.1007/s10865-006-9051-x>.
- Wrosch, C., Scheier, M. F., Miller, G. E., Schulz, R., & Carver, C. S. (2003). Adaptive self-regulation of unattainable goals: Goal disengagement, goal reengagement, and subjective well-being. *Personality and Social Psychology Bulletin*, 29, 1494–1508. <https://doi.org/10.1177/0146167203256921>.
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