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Original Research Article

Loneliness and Anxiety About Aging in Adult Day Care Centers and Continuing Care Retirement Communities

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Abstract

Background and Objectives: The present study compares how 2 settings: adult day care centers (ADCCs) and continuing care retirement communities (CCRCs) fare with regard to loneliness and anxiety about aging. Loneliness is a highly prevalent and distressing subjective experience of inadequate social relations, which has negative effects on health and well-being. Anxiety about aging is defined as worries brought up by imagining the negative consequences and losses associated with old age. The study also examines whether anxiety about aging accounts for differences in loneliness between the 2 settings. This study took place in Israel, where ADCCs are funded by the National Insurance Institute of Israel and CCRCs tend to be funded by private income and wealth. Despite notable differences between the settings, a common goal of both is to reduce loneliness among older adults.

Research Design and Methods: A cross-sectional design of 4 ADCCs and 4 CCRCs ($N = 456$).

Results: Compared with CCRC residents, older adults in ADCCs reported higher levels of loneliness (Mean [*SD*] = 1.46 [0.60], Mean [*SD*] = 1.78 [0.80], respectively, t [df]= −5.10 [448], $p < .001$) and higher levels of anxiety about aging (Mean [*SD*] = 2.96 [0.88], Mean [*SD*] = 3.27 [0.99], respectively, t [df] = −3.42 [440], $p < .001$). Anxiety about aging partially accounted for the differences between the 2 settings in levels of loneliness ($B = 0.03$, 95% confidence interval [CI]: 0.0037–0.0651).

Discussion and Implications: Although it is not possible to determine causality from this cross-sectional design, it is possible that CCRCs provide a better social outlet for older adults than ADCCs.

Translational Significance: Anxiety about aging partially explains differences in loneliness in two different settings, designed to reduce loneliness. Interventions to reduce anxiety about aging might result in reduced levels of loneliness among older adults.

Keywords: Ageism, Frailty, Isolation, Long-term care, Social support

Loneliness is defined as a distressing emotional reaction in response to perceived inadequate social relations (Peplau & Perlman, 1982). Loneliness represents a cognitive discrepancy between desired and available social relations. It should be distinguished from aloneness, which reflects an objective situation characterized by limited social contacts and social isolation (de Jong Gierveld, van Tilburg, & Dykstra, 2006; Russell, Cutrona, McRae, & Gomez, 2012).

A meta-analysis conducted to determine the prevalence of loneliness has concluded that loneliness is particularly

high at young and old age (Pinquart & Sorensen, 2001). In a large survey conducted in 25 European countries, the prevalence of loneliness ranged between 34% among people over the age of 60 in Ukraine and 3% among those over 60 living in Denmark (Yang & Victor, 2011). In the United Kingdom, the prevalence of severe loneliness among older adults stood at 7% (Victor, Scambler, Bowling, & Bond, 2005), whereas in the United States, a little over one-third of the sample of people over the age of 45 were categorized as lonely (Wilson & Moulton, 2010). These prevalence rates clearly indicate that loneliness is a very prevalent condition in old age in a variety of countries. They also stress national variability in loneliness levels.

Older adults are at great risk for both objective aloneness and subjective loneliness for several reasons (Hagan, Manktelow, Taylor, & Mallett, 2014). First, research has shown that as people age and become increasingly disabled; their social environment becomes confined to their home environment and its nearby surroundings (Qiu et al., 2010). Increased morbidity and disability inhibit people from interacting with their social environment (Korporaal, Broese van Groenou, & Van Tilburg, 2008). Indeed, increased disability and physical impairment have been shown to affect one's sense of loneliness as well as one's partner's sense of loneliness (Korporaal et al., 2008; Shankar, McMunn, Demakakos, Hamer, & Steptoe, 2017). Similarly, impaired sensory functioning and in particular, hearing and vision loss may put older adults at a risk for social isolation and likely result in reduced social contacts (Palmer, Newsom, & Rook, 2016).

Changes in older adults' social environment as a result of gentrification processes, for instance, result in reduced opportunities for maintaining old ties (Burns, Lavoie, & Rose, 2012). Increased mortality in one's social network is yet, another reason for reduced social interactions in old age (López & Díaz, 2018). With age, older adults (and particularly women) are more likely to lose their spouse, and this might contribute to emotional loneliness and to the perceived absence of intimate contacts. Retirement too might result in social loneliness (e.g., the loss of social support). This is because retirement disengages older adults from their peers and colleagues, resulting in an unfulfilled need for social encounters (Segel-Karpas, Ayalon, & Lachman, 2018).

The negative implications of loneliness are well-documented and substantial (Cacioppo & Patrick, 2008; Hawkley & Cacioppo, 2010). In fact, the United Kingdom has recently established a new minister to combat loneliness. This demonstrates the public significance that loneliness has gained. Past research has shown how loneliness "invades the nights" and impairs peoples' sleep quality (Cacioppo et al., 2002). Loneliness also affects one's health, physical functioning and mental health (Ong, Uchino, & Wethington, 2016; Shankar et al., 2017; Tomaka, Thompson, & Palacios, 2006). There is a substantial body of research to demonstrate the risk posed by loneliness to a variety of cardiovascular functions (Hawkley, Burleson, Berntson, & Cacioppo, 2003; Hegeman et al., 2018; Thurston & Kubzansky, 2009). Loneliness also poses a substantial risk for depression (Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006; Sorkin, Rook, & Lu, 2002). Although still controversial (Ayalon, Shiovitz-Ezra, & Roziner, 2016), there is research to show that loneliness poses a risk for poorer overall cognitive performance, faster cognitive decline, and poorer executive functioning (Cacioppo & Hawkley, 2009; Zhong, Chen, Tu, & Conwell, 2017). Moreover, a 4-year longitudinal study, which followed 823 people free of dementia at baseline, has shown that lonely people were more likely to develop Alzheimer's disease, even after controlling for objective indicators of social isolation (Wilson et al., 2007). Finally, loneliness is a significant risk for mortality, with past research showing that even those individuals who reported loneliness only occasionally were at risk for death at the 4-year follow-up (Shiovitz-Ezra & Ayalon, 2010). This strong and conclusive body of research has led researchers to argue that loneliness has an adaptive function as it motivates people to form and maintain social interactions in order to ease the uncomfortable sense of distress brought by it (Cacioppo, Hawkley, et al., 2006).

Formal Settings to Potentially Alleviate Loneliness and Increase Social Participation Among Older Adults

Both adult day care centers (ADCCs) and continuing care retirement communities (CCRCs) represent an attempt to allow older adults to age in place (Campbell, 2015; Cutchin, 2003). For ADCC participants, aging in place represents living in the community, and the ADCC aims to alleviate caregiver burden and decrease social isolation among participants (Cutchin, 2003). For CCRC residents, despite an initial relocation required in order to join the CCRC (i.e., a residential facility), the expectation is that the CCRC would be the "last stop" and that older adults will age in place thanks to the stepped levels of care the CCRC system provides (Hays, Galanos, Palmer, McQuoid, & Flint, 2001; Shippee, 2009).

ADCCs are open 5 or 6 days per week and provide services for 6–7 hr per day. ADCCs provide recreational and social activities, transportation and nutritional meals. ADCCs also provide physiotherapy, occupational therapy, nursing care and dietary supervision. Additional services such as showering, shaving, or pedicure can be purchased at extra fees (Iecovich & Biderman, 2012b).

Similar to ADCCs, CCRCs provide social services such as an opportunity to participate in various classes of arts and crafts, sports, and recreation (Campbell, 2015). Additional services such as meals, laundry, and health also are available upon request and at additional cost. Many older adults first move to a CCRC following the death of a spouse and the wish to find a social company and support (Bekhet, Zauszniewski,

& Nakhla, 2009). Although the transition to the CCRC might be fueled by a social need, past research has shown that older adults' stronger connections are with people in the outside community and with those they have known for a long period of time even prior to entering the CCRC (Ayalon & Green, 2013a,b). Others have shown that even though family members were the main source of intimate relationship, CCRC residents relied on other residents for regular social activities (Stacey-Konnert & Pynoos, 1992).

The funding source of ADCCs and CCRCs is different, and this potentially results in individuals of somewhat different socioeconomic backgrounds in each of the settings. In Israel, ADCCs are covered through funds provided by the Long Term Care Insurance Law (LTCIL) to individuals who suffer from functional impairment and wish to stay at their homes (Borowski & Schmid, 2000). Although the law relies on means testing, it is quite lenient in an attempt to support a large portion of the population of older adults (Schmid, 2005).

Older Israelis who suffer from functional impairment can use the support of the LTCIL to purchase home care services, ADCC services, or hygiene services. Past research has shown that those who suffer from the greatest levels of impairment opt for round the clock home care (Ayalon & Green, 2013a,b). Hence, those older adults, who require moderate assistance, and are still capable of living at home without the assistance of a carer, end up attending an ADCC. CCRCs, on the other hand, represent a private alternative available only to affluent older adults, who purchase the services privately, with no governmental assistance provided (Ayalon & Green, 2012).

Common to both ADCCs and CCRCs is the reliance on formal (paid) services to alleviate aloneness and sense of loneliness among older adults, by providing older adults with a variety of opportunities for social interactions (Buys, 2001; Iecovich & Biderman, 2012a). Both are geographically confined and segregated by age, so that only people over a certain age are eligible to participate (Campbell, 2015; Cutchin, 2003). Functional ability is a common criterion in both settings. However, whereas ADCCs are specifically designed to support individuals who have functional impairments (Baumgarten, Lebel, Laprise, Leclerc, & Quinn, 2002), CCRCs admit only functionally independent older adults (Ayalon, 2015).

Research conducted in the United States has shown that ADCCs improve the quality of life of older people (Schmitt, Sands, Weiss, Dowling, & Covinsky, 2010). Yet, a different study conducted in Israel has found no differences in the levels of loneliness between ADCCs' users and non-users (Iecovich & Biderman, 2012a). A potential explanation for the limited effectiveness of ADCCs in addressing loneliness among participants can be found in a qualitative and observational study, which has stressed the presence of cliques and territorial battles among ADCCs users (Salari, Brown, & Eaton, 2006).

Finally, it is important to note that the two settings cater to a very small minority of the population of older adults in the country. Currently, the LTCI supports almost 17% of the population of older adults in the country. Of these, 7.4% participate in ADCCs through the support of the LTCI as the majority prefer to receive home care services (National Insurance Institute of Israel, 2015). Similarly, although the number of CCRCs has been increasing, only 3% of older Israelis rely on institutional care (Brodsky, Shnoor, & Be'er, 2010). Specifically, there are 21,315 CCRC residential units in Israel. Of these, about 11,950 are privately owned units. This is compared with other long-term care facilities, which amount to a total of 30,200 beds (Brodsky et al., 2010).

Given the fact that these two settings offer older adults an opportunity to age in place (Cutchin, 2003) and the active attempts of both settings to provide older adults with social stimulation and to alleviate levels of loneliness (Ayalon & Green, 2013a,b; Iecovich & Biderman, 2012a), it is informative to compare how the two settings function in that regard. Nonetheless, while comparing these two types of settings, it is important to keep in mind the multiple differences between the settings and the people who use them.

Loneliness and Anxiety About Aging

Ageism is defined by the World Health Organization, as prejudice, stereotypes, and discrimination towards age and aging (the World Health Organization, 2015). It can be positive or negative (Palmore, 1999) and it can be directed towards individuals of any age group (Ayalon, 2017). Ageism can be directed towards oneself or towards others (Ayalon & Tesch-Römer, 2017). In this study, the focus is on one aspect of ageism, called anxiety about aging. It is manifested in negative emotions towards one's own aging process (Lynch, 2000).

Nelson (2005) has attributed ageism to "fear of our own future selves" (Nelson, 2005). This fear is captured in the construct "anxiety about aging" (Lasher & Faulkender, 1993). Anxiety about aging is not prevalent only among young people in response to older adults, but also among old people in response to other old people or in response to their own aging process. A possible link between anxiety about aging and loneliness can be found in the stereotype embodiment theory (Levy, 2009). According to this theory (Levy, 2009), older people are constantly bombarded with messages that the world belongs to the "young" and that they should look and behave "young" (Ayalon, 2015; Ayalon & Gewirtz-Meydan, 2017; Gewirtz-Meydan & Ayalon, 2017). These messages are internalized at a very young age (Ansello, 1977; Babcock, MaloneBeach, Hannighofer, & Woodworth-Hou, 2016). Older adults attempt to disassociate themselves from frailty and decline brought by old age by engaging in active aging or successful aging practices and by making a distinction between healthy and functioning older adults and more fragile older adults (Kydd, Fleming, Gardner, & Hafford-Letchfield, 2018; Lev, Wurm, & Ayalon, 2018).

In support of this argument, past research has shown that older adults have reported a great deal of concern about associating with other older adults, who display visible signs of aging. For instance, CCRC residents have explicitly expressed a great resentment and concern about the need to interact with "old people," who visibly present as old and frail (Ayalon, 2015). Moreover, as their physical and functional abilities decline and residents transition to the assisted living facility, their contacts with people in the independent wing of the CCRC tend to decrease. This disconnect between older people of different levels of functional ability can be partially attributed to the great fears associated with the aging process, as it is the independent older adults who choose to disconnect the relationships with those older adults who become functionally dependent in order not to be reminded of their future prospects (Shippee, 2009).

The Present Study

Although ADCCs and CCRCs represent different living arrangements and thus, attract different users, as outlined before, they do share similar aims with regard to the facilitation of social contact and aging in place. Therefore, the present study examines differences in the levels of loneliness and anxiety about aging in the two settings. Compared with older adults in ADCCs, those in CCRCs may report lower levels of loneliness. This is because CCRC residents enjoy more favorable conditions, including a higher socioeconomic status and limited functional impairment (at least upon enrollment), all of which are protective factors against loneliness (Adams, Sanders, & Auth, 2004). Moreover, the fact that CCRCs provide a comprehensive living environment could also serve as a beneficial factor compared with ADCCs that offer services for more limited periods of the day (Williams & Roberts, 1995). Nevertheless, it also is possible that ADCCs offer a preferred alternative to alleviate loneliness because they allow older adults to remain in their original community with no need to relocate.

Another research question concerns anxiety about aging in the two settings. Anxiety about aging may be higher among ADCC participants compared with CCRC residents because ADCC participants already show many visible signs of aging, whereas CCRC residents are still "celebrating" the successful aging model commonly held by third agers (Gamliel & Hazan, 2006). Alternatively, it is possible that the mere fact that CCRCs hide visible signs of aging actually increases older residents' anxiety about it. Finally, I examine whether anxiety about aging mediates the relationship between the type of formal setting (ADCC vs. CCRC) and levels of loneliness. Possibly, differences in anxiety about aging in the two settings account for differences in loneliness between the settings.

Method

The present study was funded by the Israel Science Foundation (537/16) to examine social networks in ADCCs and CCRCs. As such, four ADCCs and four CCRCs were selected to represent settings of different sizes and geographic locations. This selection was partially based on prior qualitative research (Ayalon & Green, 2012; Ayalon & Green, 2013a,b). Because the overall goal of the original study was to assess social networks, all participants and residents in the respective settings were invited to participate in the study. Non-response rate in the settings ranged between 27% and 41%.

There were significant differences between ADCC participants and CCRC residents with regard to gender, marital status, and education. Compared with ADCC participants, CCRC residents were more likely to be women, less likely to be married and had more years of education. There were no differences in terms of activities of daily living, satisfaction with services or age between the two settings. In addition, compared with ADCC participants, CCRC residents were less anxious about their aging experience and reported lower levels of loneliness. See Table 1 for details.

Measures

Data were collected through face-to-face interviews conducted by trained research assistants. Interviews were conducted in English or in Hebrew. Each interview lasted about one and a half hours. All interviews were uploaded directly to the computer-assisted system.

Dependent Variable

Loneliness

A shortened version of one of the most widely used scales of loneliness, the Revised-UCLA Loneliness Scale (Hughes, Waite, Hawkley, & Cacioppo, 2004), was administered. The measure includes three questions. Respondents were asked to rate, on a three-point scale, how often they felt as if they: (a) lacked companionship, (b) were left out, or (c) were isolated from others. A mean score was calculated, with a higher overall score representing higher loneliness (range 1–3; α: 0.83 across the eight sites).

Mediator

Anxiety about aging

This is a six-item questionnaire based on the Kafer Aging Anxiety Scale (Kafer, Rakowskl, Lachman, & Hickey, 1980). Items are scored on a five-point scale, ranging from strongly disagree to strongly agree. The six items were selected from the original scale because they were determined as representing a single factor in past research (Lynch, 2000). Example questions include: "I always worried about the day I would look in the mirror and see gray hairs," "The older I become, the more anxious I am about the future." A mean score was calculated with a higher score representing greater anxiety (range 1–5; α: 0.72).

Controls

Demographic information

Age, gender, education, and marital status were gathered based on self-report.

Table 1. Sample Characteristics

	Total (N = 456)	Continuing care retirement community residents (N = 229)	Adult day care center participants (N = 227)	T (df)/ χ^2 (df)
Age (years)	82.64 (15.21)	82.43 (19.14)	82.86 (9.80)	–0.30 (447), p = .77
Gender (women)	339 (74.3%)	182 (79.5%)	157 (69.2%)	6.36 (1), p = .01
Education (years)	10.60 (5.07)	12.86 (4.40)	8.40 (4.70)	10.31 (441), p < .001
Marital status (married)	96 (21.1%)	25 (10.5%)	72 (31.7%)	30.94 (1), p < .001
Satisfaction with services (1–5)[a]	4.40 (0.62)	4.38 (0.68)	4.34 (0.56)	0.78 (436), p = .44
Activities of daily living (0–6)[b]	0.87 (1.60)	0.84 (1.80)	0.90 (1.33)	–0.40 (450), p = .69
Aging anxiety (1–5)[c]	3.12 (0.95)	2.96 (0.88)	3.27 (0.99)	–3.42 (440), p < .001
Loneliness (1–3)[d]	1.62 (0.67)	1.46 (0.60)	1.78 (0.80)	–5.10 (448), p < .001

[a]A higher score indicates greater satisfaction.
[b]A higher score indicates greater impairment.
[c]A higher score indicates greater anxiety.
[d]A higher score indicates greater loneliness.

Satisfaction with services

This measure was adapted based on a review of the literature on satisfaction measures that identified several core domains of satisfaction (Mor, 2005). The revised measure was used in prior research (Green et al., in press). Participants rated their agreement (1–5) with nine questions (recreational activities, appearance, food, privacy, services, social support, staff). Higher scores represent higher satisfaction. Cronbach alpha for this study is α = 0.78, across the eight sites.

Activities of daily living

Six items were selected to represent activities of daily living (e.g., ability to eat independently, dress independently etc.) (Katz, Downs, Cash, & Grotz, 1970). A higher score indicates greater impairment, range is between 0 and 6. Cronbach alpha for this study is α = 0.82.

Analysis

Descriptive statistics were calculated to characterize the sample. Differences between ADCCs and CCRCs were explored using *t*-test analyses for continuous variables and chi-square analyses for categorical variables. Bi-variate relations were examined among study variables. Next, a mediation analysis was conducted. I started by regressing the mediator, anxiety about aging, on the independent variable: type of formal setting, controlling for age, gender, education, marital status, satisfaction with services and activities of daily living. Finally, I regressed loneliness on the independent variable: type of formal setting, with anxiety about aging as a mediator, controlling for age, gender, education, marital status, satisfaction with services and activities of daily living.

Mediation was examined using bootstrapping, with N = 5,000 bootstrap resamples, in order to test whether anxiety about aging mediated the relationship between type of formal setting and loneliness, controlling for age, gender, education, marital status, satisfaction with services, and activities of daily living. Bootstrapping draws 5,000 random samples to estimate indirect effects in each sample. This provides an approximation of the sampling distribution of the indirect effect, which is used to obtain a 95% confidence interval (CI) around the indirect effect. When the 95% CI does not contain zero, the effect is considered significant (Hayes, 2017). All analyses were conducted in SPSS (IBM Corp., Released 2013.).

Results

Table 2 outlines the correlations between variables. Older age was correlated with lower levels of education and lower anxiety about aging. Men were more likely to be married, and women reported higher levels of anxiety about aging. Higher levels of education were negatively correlated with anxiety about aging and loneliness. Greater satisfaction with the services provided was associated with lower levels of loneliness. Greater impairment in activities of daily living was associated with higher anxiety about aging and higher levels of loneliness. Anxiety about aging and loneliness were positively correlated.

Table 3 provides information regarding the mediation analysis. Being in a CCRC, older age, being a man, and having fewer impairments in activities of daily living were all associated with lower levels of anxiety about aging. As for loneliness, being in a CCRC, being married, enjoying a stronger satisfaction with the services, having fewer impairments in activities of daily living and a lower sense of anxiety about aging, were associated with lower levels of loneliness. The mediating analysis revealed that the direct effect of type of formal setting on loneliness remained significant (B [SE] = 0.27 [0.07]), even when anxiety about aging was entered into the model. However, anxiety about aging had a significant indirect effect suggesting partial mediation of the relationship between type of setting and loneliness (B = 0.03, 95% CI: 0.0037–0.0651).

Table 2. Correlational Matrix of Study Variables ($N = 456$)

	1	2	3	4	5	6	7
1. Age (years)							
2. Men-reference group	.02						
3. Education (years)	−.10*	−.06					
4. Unmarried-reference group	−.01	−.33**	−.04				
5. Satisfaction with services (1–5)[a]	.05	.09	.04	−.01			
6. Activities of daily living (0–6)[b]	.02	−.04	.00	.05	.01		
7. Aging anxiety (1–5)[c]	−.10*	.16**	−.15**	.02	−.00	.14**	
8. Loneliness (1–3)[d]	−.04	−.06	−.16**	−.01	−.27***	.12**	.22***

Note: *$p < .05$. **$p < .01$. ***$p < .001$.
[a]A higher score indicates greater satisfaction.
[b]A higher score indicates greater impairment.
[c]A higher score indicates greater anxiety.
[d]A higher score indicates greater loneliness.

Table 3. Regression Analysis to Examine the Mediating Role of Anxiety About Aging ($N = 456$)

	Anxiety about aging		Loneliness	
	B (*SE*)	*p*	*B* (*SE*)	*p*
Constant	2.94 (0.46)	<.001	2.66 (0.32)	<.001
CCRC (reference group)	0.26 (0.10)	.01	0.27 (0.07)	<.001
Anxiety about aging (1–5)	-	-	0.12 (0.03)	<.001
Age (years)	−0.01 (0.03)	.01	−0.00(0.00)	.52
Women (men reference group)	0.43 (0.11)	.00	−0.12 (0.07)	.10
Education (years)	−0.02 (0.01)	.09	−0.01 (0.01)	.37
Married (unmarried reference group)	0.07 (12)	.55	−0.16 (0.08)	.04
Satisfaction with the services (1–5)	0.00 (0.08)	.99	−0.27 (0.05)	<.001
Activities of daily living (0–6)	0.08 (0.03)	.01	0.04 (0.02)	.04
F (df)	6.44 (412,7)		10.63 (411,8)	
R^2	.10		.17	

Note: CCRC = continuing care retirement community.

Discussion

Research has shown that the prevalence of loneliness is particularly high among older adults and that it has substantial negative consequences (Gerst-Emerson & Jayawardhana, 2015). Loneliness is known to affect the health, well-being, and cognitive functioning of older adults (Ong et al., 2016; Shankar et al., 2017). Moreover, it has even been shown to reduce the number of years older adults can expect to live (Shiovitz-Ezra & Ayalon, 2010). Hence, it is important to assess loneliness in various long-term care settings that are specifically designed to address the issue among older adults. Two such settings are the ADCC, which provides social services to older adults who reside in the community and the CCRC, which provides services to older adults who opt for a residential alternative in order to age in place. Although the two settings provide different types of services to consumers, who differ in terms of their functional status (at least upon first enrollment) and financial ability, the fact that both settings aim to address loneliness in an age-segregated community, among other things, provides a rationale for further comparison of the two settings with regard to their ability to alleviate loneliness in older adults.

The present study shows that older adults report higher levels of loneliness in ADCCs compared with CCRCs. This trend continues even after controlling for a variety of sociodemographic variables that potentially distinguish between people who use these two different settings. Hence, even though CCRC residents were less likely to be married and were significantly older (both characteristics are generally associated with higher levels of loneliness), they still reported lower levels of loneliness. Although it is not possible to determine causality from this cross-sectional design, it is possible that CCRCs provide a better social outlet for older adults than ADCCs.

Anxiety about one's own aging was higher in ADCCs than in CCRCs. Anxiety about aging also was a significant predictor of loneliness and partially accounted for the relationship between type of formal setting and loneliness. In age-segregated institutions, such as ADCCs and CCRCs, age is a salient feature (Ayalon, 2015). Many times, older

adults are hesitant about joining such institutions because they are stigmatized. In order to overcome the stigma attached to old age, older adults differentiate between those older adults who function independently (third agers) and older adults who require assistance in daily functioning (fourth agers) (Ayalon, 2015). The third age, which represents the active and successful aging model, celebrates old age as a continuation of middle age. This celebration of old age is particularly pronounced in CCRCs, which market services to the population of independent older adults and attempt to hide visible signs of decline and disability from the public sight (Gamliel & Hazan, 2006). ADCCs on the other hand, represent a completely different model, as they specifically target older adults who suffer from disability (Baumgarten et al., 2002). Possibly, these two different models of care result in a different approach to aging, so that ADCCs participants are more anxious about aging compared with CCRC residents. It is possible that those older adults who are more anxious about their own aging process, also tend to distance themselves from other older adults in their environment and this, in return, results in greater levels of loneliness.

In interpreting these findings, it is important to note the study's limitations. This is a non-representative sample and the allocation into ADCCs versus CCRCs was non-random. The two types of settings are inherently different in many ways. Therefore, differences between the settings could be attributed to several different mechanisms, which were not necessarily accounted for in this study. Hence, we cannot assume inferences about cause and effect. The cross-sectional nature of the design further alludes to this limitation. In addition, the study did not account for variability within the different settings as the relatively small number of overall settings did not allow for multi-level analysis. Finally, the anxiety about aging scale contains items that capture death anxiety more so than anxiety about aging. Nevertheless, this study provides important insights for several reasons. This study alludes to the potential role that anxiety about aging plays in older adults' distressing experience of loneliness. Research has shown that intergenerational contact and knowledge about aging could potentially result in reduced levels of anxiety about aging (Allan & Johnson, 2008). These could eventually serve as effective mechanisms not only to ease people's anxiety about aging, but also to alleviate older adults' sense of loneliness.

Implications for Policy

The present findings are important for policy planning. Although both types of formal settings are currently used by a very small portion of older adults, the Israeli government as well as other governments around the world (Baumgarten et al., 2002; Fields, Anderson, & Dabelko-Schoeny, 2014), actively support the participation of older adults in ADCCs and view these services as a means to keep older adults in the community for as long as possible. This is because ADCCs offer an economic alternative (Fields et al., 2014).

Nevertheless, this study, similar to past research (Iecovich & Biderman, 2012a), shows that ADCCs may not be as effective in alleviating loneliness among older adults. Hence, as suggested by a recent review of the effectiveness of ADCCs (Fields et al., 2014), there is a need to further develop and test interventions that target the specific needs of ADCC participants. It is important to note, however, that only a randomized controlled trial with several data points and a follow-up period can provide information about the actual efficacy of ADCCs to alleviate loneliness. As both the present study and Iecovich & Biderman (2012a) relied on a cross-sectional observational design, current knowledge should be reviewed with caution.

The findings present a substantial dilemma for policy makers because CCRCs represent a luxurious alternative, which encourages a "successful aging" model, unattainable by most older adults (Gamliel & Hazan, 2006; Hank, 2010). ADCCs, in contrast, represent a more economic alternative, affordable to older adults and supported by the government. Nevertheless, its effectiveness with regard to loneliness, as documented in this study, as well as with regard to other well-being indicator remains questionable (Fields et al., 2014). Current efforts by the Israeli government to move towards non-age segregated services in ADCCs might alleviate some of the anxiety towards aging (Drury, Hutchison, & Abrams, 2016). Such an approach could potentially facilitate more social interactions and reduce loneliness among participants.

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Conflict of Interest

None declared.

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