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Migration and changes in loneliness over a 4-year period: the case of older former Soviet Union immigrants in Israel

 Pnina Dolberg^{1,2}  · Sharon Shiovitz-Ezra³ · Liat Ayalon¹

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Abstract Both older adult and immigrant populations are at a high risk of loneliness. The current research compares older veteran Israelis to older immigrants who arrived in Israel from the former Soviet Union (FSU) after 1989. Early studies have found high levels of loneliness among older FSU immigrants; however, little is known regarding changes in loneliness among this group over time. The present study examines change in loneliness among older FSU immigrants and older veteran Jewish Israelis and its potential predictors. A prospective association between immigrant's status and loneliness over time was examined using the second (2009/2010) and third (2013) waves of SHARE-Israel. The sample consisted of 208 FSU immigrants and 1080 veteran Jewish Israelis. Bivariate analyses indicated that in 2009/2010, older FSU immigrants were significantly lonelier than older veteran Jews, and more disadvantaged on all social and health variables measured. Yet, no significant differences emerged between the two groups with regard to loneliness in 2013. In the adjusted

model, older immigrants presented positive change in loneliness (less loneliness over time) compared with veteran Jewish Israelis. Depressive symptoms explained a large part of the variance in change in loneliness. Potential explanations suggest that the long-term psychological adjustment process and the characteristics of the FSU immigrants in Israel as a large and relatively strong immigrant group have served as protective factors with regard to changes in loneliness over time.

Keywords Loneliness · Older adults · Immigrants · Longitudinal research · Israel

Introduction

Loneliness is dissimilar to the actual experience of being alone. It is the unpleasant feeling that accompanies discrepancies between one's desired and actual social relationships, either in terms of quantity or quality (Bekhet et al. 2008; Pinquart and Sorenson 2003; Perlman 2004). Loneliness is a socially prevalent phenomenon in old age. Studies from different countries have found high rates of loneliness experienced by older adults (Savikko et al. 2005; Theeke 2009; Victor et al. 2005). Moreover, the phenomenon is associated with poor health (Cornwell and Waite 2009; Cole et al. 2011), poor mental health (Cacioppo et al. 2010), reduction in physical activity (Hawkey et al. 2009) and increased mortality (Luo et al. 2012; Shiovitz-Ezra and Ayalon 2010).

Unrelated to age, immigrant status represents a heightened risk for loneliness. International transitions inevitably involve leaving former relationships behind. Immigrants are forced into a new reality in the host culture, in which their prior norms, values, language and customs become

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less relevant. Moreover, integration into the new society and acquaintance with the new culture takes time. As a result, the ability of immigrants to develop social networks that cross ethnic groups is likely to be disadvantaged (Ayalon and Shiovitz-Ezra 2010). In some cases, immigrants withdraw into their ethnic community and build their social network within it (Logan et al. 2002; Ryan et al. 2008; Tsai 2006).

The intensive nature of the first few years after immigration (Lerner et al. 2005; Pumariaga et al. 2005) might harden immigrants' attempts to construct new social networks. These years usually evolve around concerns for housing, employment, language acquisition, care for family members and other expressions of route searching in various areas of life. Immigrants also tend to face a range of stressors, such as poverty, discrimination and family conflicts, while adjusting to the new culture (Pumariaga et al. 2005). These post-migration challenges, along with pre-migration and migration stressors, place immigrants at a risk of mental health problems (Mirsky 2009; Kirmayer et al. 2011; Pumariaga et al. 2005), which are strongly associated with a lack of social support and with loneliness (Ahmad et al. 2005; De Maio and Kemp 2010; Ponizovsky and Ritsner 2004). The problem of loneliness and social isolation among immigrants has been identified in several countries (Bhattacharya 2008; Hurtado-de-Mendoza et al. 2015; Kim and Lee 2014; Ponizovsky and Ritsner 2004; Sanchón-Macias et al. 2016).

Older immigrants are at a double jeopardy for loneliness because of both their age and their immigration status. They have been found to report greater loneliness than native-born persons do (Bhattacharya 2008; Dong et al. 2012; Hurtado-de-Mendoza et al. 2015; Kim and Lee 2014; Sanchón-Macias et al. 2016). In fact, qualitative research has indicated that loneliness is a major element of the older immigrants' phenomenology (Dong et al. 2012; Gardner 2006; Lee 2007) and that it is associated with dissatisfying intergenerational relationships (Dong et al. 2012; Thyli et al. 2014; Treas and Mazumdar 2002). Social, psychological and physical health difficulties among older immigrants further contribute to the experience of loneliness (Dong et al. 2012).

Noteworthy is that researchers have suggested different loneliness rates among different groups of older immigrant. For instance, in Britain, loneliness rates of older immigrants from India were lower than that of older immigrants from other countries (Victor et al. 2012); in Canada, older immigrants from Britain or France reported lower rates of loneliness compared with immigrants from other countries (Wu and Penning 2015). This could be due to the degree of linguistic and cultural differences between the country of origin and the receiving country. In Canada, for instance, immigrants who shared the language and the culture of the

receiving country did not differ in their loneliness levels from native-born older adults (De Jong Gierveld et al. 2015). However, the vulnerability of older immigrants to loneliness increased when there were conflicting cultural values between the origin culture and the receiving cultures (Chou and Chi 2004; Dong et al. 2012; Fan Ng and Northcot 2015; Ip et al. 2007).

It is also important to consider changes in loneliness levels over time. Longitudinal studies among non-immigrant older adults have resulted in inconsistent findings; some have found that loneliness increases with age (Cohen-Mansfield et al. 2009; Dykstra et al. 2005; Huisman et al. 2011; Jylhä 2004), whereas others reported more stable loneliness rates (Victor and Bowling 2012) or even a decrease in loneliness over time (Holmén and Furukawa 2002). These studies have stressed that only a minority of older people continuously suffer from feeling alone. It has been suggested that the increase in loneliness with age is related to greater health problems and reduced social support (Dykstra et al. 2005; Huisman et al. 2011; Jylhä 2004). Little is known, however, about changes in loneliness among older immigrants. This is because the most up to date studies have been cross-sectional in nature (e.g., Dong et al. 2012; Fokkema and Naderi 2013; Hurtado-de-Mendoza et al. 2015; Kim and Lee 2014; Sanchón-Macias et al. 2016), thus providing only limited insights concerning change in the phenomenon over time.

The present study

The current research addresses changes in loneliness among older immigrants from the former Soviet Union (FSU) in Israel, compared with older adults who were born in Israel or immigrated at a younger age (veteran¹ Israelis). Israel is an immigrant society,² which consists of both recent and veteran immigrants.

In 1989, a massive wave of immigration from the FSU to Israel commenced, and was reduced only about a decade later. Currently, the immigrants from the FSU comprise about one-sixth of the total Israeli population (CBS 2010). Among them, about 150,000 are older immigrants (aged 65 years and over), who constitute about a fifth of Israel's elderly population (Brodsky et al. 2010).

Older FSU immigrants share several characteristics: a limited Hebrew proficiency (Remennick 2003, 2004); a modest living, relying on welfare allowances and low-

¹ The term "veteran Israelis" was chosen because Israel is an immigration society, composed of many waves of immigration (Amit et al. 2009). In the current study, for simplicity, Israeli-born and old-time immigrants are joined into one category.

² In 2007, nearly 30 % of the Jewish population in Israel was foreign born. Of the 70 % local born, 34 % were the children of first generation immigrants (Amit et al. 2009).

waged underemployed jobs (Remennick 2003; Litwin and Leshem 2008); a lower subjective sense of well-being (Amit and Litwin 2010) and relatively high rates of mental distress and psychiatric disorders (Mirsky et al. 2008). Their mental difficulties have been attributed to their state of health (Lerner et al. 2005; Ritsner and Ponizovsky 2003) and to the negative effects of immigration on their lives (Ron 2007; Ritsner and Ponizovsky 2003).

Early studies of FSU immigrants in Israel found high levels of isolation and loneliness among older immigrants, possibly due to poor Hebrew proficiency, tense family relations and a general sense of uncertainty (Ritsner and Ponizovsky 2003; Ron 2001). During the 1990s, loneliness was found to be a robust occurrence among older FSU immigrants (Ron 2001). Their sense of isolation was attributed to the faster integration of their younger family members into the host Israeli culture (Ritsner and Ponizovsky 2003).

At present, many of the FSU immigrants have resided in Israel for a quarter of a century and have integrated to varying degrees into Israeli society. They constructed an Israeli identity, acquired cultural norms and language proficiency (Amit 2012) and experienced economic mobility (Gorodzeisky and Semyonov 2011). Hence, relying on research studies from the 1990s concerning these immigrants might be misleading, as we know little about the loneliness experienced by this population two and three decades after immigration.

There is only limited evidence regarding changes in loneliness over time among older Israelis. One prospective study that was restricted to a sample of persons aged 75 and over found a significant increase in the level of loneliness over time among this group (Cohen-Mansfield et al. 2009). Examining the trends among immigrants might reveal different patterns, however. In light of the older FSU immigrants' vulnerability to loneliness (Ritsner and Ponizovsky 2003; Ron 2001), their increase in loneliness over time might be even sharper. Alternatively, because FSU immigrants have already integrated in Israel to some degree (Amit 2012; Gorodzeisky and Semyonov 2011), their loneliness could either decrease over time, or increase at a more moderate pattern in relation to veteran Israelis.

We capitalize on the availability of two waves of data from SHARE-Israel (the Israeli sample in the Survey of Health, Ageing and Retirement in Europe) in order to identify changes in self-report of loneliness over a 4-year period. We also assess potential associations with several factors, given their known relationships with loneliness among older adults. These include marital status (De Jong Gierveld et al. 2009, 2015; Fan Ng and Northcot 2015; Pinquart and Sorensen 2001, 2003), health status (De Jong Gierveld et al. 2009; Luanaigh and Lawlor 2008; Van Tilburg et al. 2004), age (Dykstra et al. 2005; Pinquart and

Sorensen 2003), gender (Aartsen and Jylhä 2011; Dykstra and De Jong Gierveld 2004; Pinquart and Sorensen 2003), education (Pinquart and Sorensen 2003) and depressive symptoms (Luanaigh and Lawlor 2008). We also evaluate the potential predictive roles of involvement in social activities, occupational status, number of children and frequency of contact with children, because a lack of social involvement has been associated with loneliness (Shiovitz-Ezra and Leitsch 2010).

Due to the limited and inconsistent literature on changes in loneliness over time in the general populations as well as among older immigrants, two main research questions were developed for the current investigation: (a) Do FSU immigrants present higher loneliness rates compared to Israeli veterans over two points in time? (b) What predicts changes in loneliness over time? We also examine whether changes in loneliness over time are associated with different predictors among veteran Israelis versus FSU immigrants. Several potential moderators are tested based on the existing literature. These include gender, given its association with loneliness among older adults (Aartsen and Jylhä 2011) and social activities, given high levels of isolation among FSU immigrants (Ritsner and Ponizovsky 2003). Self-reported health status is also examined, due to older FSU immigrants having poorer health (Lerner et al. 2005). Depressive symptoms are considered in light of high rates of mental distress and psychiatric disorders among FSU older immigrants (Mirsky et al. 2008). Employment status is also addressed because older immigrants tend to remain in low-wage menial jobs (Litwin and Leshem 2008). Last, education is examined, because FSU immigrants are more educated than veteran Jewish Israelis (Remennick 2012).

Methods

The current study used panel data from two waves of SHARE-Israel. The Survey of Health, Ageing and Retirement in Europe is an interdisciplinary undertaking, currently being conducted in 20 European countries including Israel among approximately 110,000 people aged 50 and over (<http://www.share-project.org>).

By now, three waves of data collection were completed in Israel (in 2005/2006; 2009/2010 and 2013). In the first SHARE-Israel wave (2005/2006), FSU immigrants after 1989 were under-represented ($n = 201$). In the second wave (2009/2010), 404 FSU immigrants joined the sample [in total 500 FSU immigrants participated in wave 2 (96 longitudinal and 404 refreshers)]. This raised the proportion of this population group in the SHARE-Israel sample to its corresponding proportion in the Israeli 50+ population (approximately 20 %). The final sample of 2009/2010

consisted of 2464 older adults from 1569 households (excluding the interviews that were conducted with confidants of deceased respondents). At the time of data analysis, wave 3 (2013) had a sample size of 2332 respondents (excluding 172 persons who had died).

The SHARE-Israel sample, as the other country samples of the SHARE enterprise, consists of community-dwelling older adults. However, panel subjects who moved to long-term care facilities between the waves were interviewed in their new living environment (1.4 % in wave 2 and .8 % in wave 3). The overall response rate of SHARE-Israel wave 2 is 80.7 % (for the panel subsample: 81.4 %, for the refresher subsample: 77.0 %), with a household retention rate between 2009/2010 and 2013 of 78 %. The general retention rate of waves 1 (2005/2006) to 3 (2013) was 80 % (including interviews with proxy respondents for those who had died).

The current analysis used the data from wave 2 (2009/2010) and 3 (2013); the analytical sample consisted of only the respondents who participated in both waves. Data were collected by B.I. and Lucille Cohen Institute for Public Opinion Research at Tel-Aviv University. In both waves, data were collected by face-to-face, computer-aided personal interview (CAPI) and by a short leave-behind questionnaire. The present study relied only on variables that were collected in person. To represent the three major subgroups in Israel (Arab Israelis, Veteran Jews and FSU immigrants), the questionnaire was translated into three languages: Arabic, Hebrew and Russian. To reduce the heterogeneity of the sample and to look at the influence of immigration on changes in later life loneliness, only two population groups comprised the current study sample: veteran Jews who were born in Israel or immigrated (prior to 1989) and FSU immigrants who arrived after 1989 (excluding the Arabs and Jews who migrated to Israel after 1989 from countries other than the FSU). The final analytic sample consisted of veteran Israelis ($n = 988$) and FSU immigrants ($n = 195$).

Panel attrition

Table 1 summarizes the characteristics of dropouts, who participated in wave 2 (2009/2010) but not in wave 3 (2013) ($n = 89$; 7 % of the analytic sample).

There were significant differences between those who participated in both waves ($n = 1183$) and those who participated only in wave 2 (2009/10) ($n = 89$). Respondents who participated only in the 2009/2010 wave were older, less educated, less likely to be employed, less likely to be married, more depressed, had worse subjective health and were lonelier. There were no significant difference in panel attrition between FSU immigrants and veteran Israelis.

Study variables

Outcome

Change in loneliness: Loneliness measured in wave 3 (2013) served as the outcome of the present inquiry. Loneliness was tapped using a single item adopted from the 3-item version of the Revised UCLA Loneliness Scale (R-UCLA; Russell 1996; Russell et al. 1980; Hughes et al. 2004). Respondents were asked to report on a 3-point scale how frequently they felt left out, with answers ranging from “often” to “hardly ever” or “never.” This item was selected to measure loneliness for two main reasons: the full 3-item R-UCLA loneliness scale was incorporated in SHARE-Israel wave 3 but not in wave 2. To allow comparability between the waves and to evaluate change in loneliness over time, the loneliness item that was measured in both waves was selected. The “felt left out” item had a high loading on the loneliness factor measured by the full 3-item scale (entire sample: .85; Israeli veterans: .85; and FSU immigrants: .84). This was also evident in a previous study that evaluated the 3-item shortened R-UCLA loneliness scale (Hughes et al. 2004). In the multivariate model, we used the “felt left out” item measured on SHARE wave 2 (2009/2010) to control for baseline feelings of loneliness so that change in loneliness over time was tested as the outcome. In predicting the “change in loneliness” outcome, positive values of the coefficient mean more loneliness over time, whereas negative values indicate less loneliness over time.

Predictors

Predictors were measured in wave 2 (2009/2010) of SHARE-Israel that served as the baseline in the current analysis. In addition to immigration status, three domains were addressed: background demographics, social involvement and health indicators.

To test the immigration consequences with regard to late-life loneliness, we looked at two population groups: veteran Jewish Israelis and FSU immigrants after 1989. Two variables were combined to create the *immigration status* variable: country of origin and year of immigration. Respondents who emigrated from the FSU after 1989 were defined as FSU immigrants. Respondents who immigrated to Israel before 1989 or were born in Israel were classified as veteran Israelis.

Background demographics included age, years of education and gender [men (1), women (2)].

Social involvement indicators included employment status, marital status, number of children, frequency of contact with the children and social activities.

Table 1 Characteristics of dropouts from the sample

	Participated in both waves (2009/2010 and 2013)	Participated only in the 2009/2010 wave	<i>t</i> (df)/ χ^2 (df)	<i>p</i>
<i>n</i> (%)	1183 (93 %)	89 (7 %)	–	–
FSU immigrants	16.50 %	13.50 %	.54 (1)	.55
Loneliness score in 2009/2010 (1–3) [mean (std.)]	1.34 (.61)	1.87 (.80)	6.10 (95.92)	<.001
<i>Background demographics (baseline; 2009/2010)</i>				
Age [mean (std.)]	66.83 (8.41)	74.82 (9.96)	7.36 (97.86)	<.001
Years of education [mean (std.)]	13.04 (4.06)	10.41 (4.69)	–5.08 (95.78)	<.001
Women [<i>n</i> (%)]	692 (58.50 %)	55.00 (61.80 %)	.37 (1)	.54
<i>Social involvement indicators (baseline; 2009/2010)</i>				
Social activities (0–5) [mean (std.)]	.53 (.76)	.46 (.67)	–1.03 (105.75)	.30
Number of children [mean (std.)]	2.89 (1.55)	2.70 (1.74)	–1.02 (98.78)	.30
Frequency of contact with children (1–7) [mean (std.)]	6.35 (.81)	6.36 (1.09)	.10 (85.50)	.91
Percent employed	37.40 %	10.20 %	26.46 (1)	<.001
Percent married	77.50 %	64.80 %	7.34 (1)	<.01
<i>Health indicators (baseline; 2009/2010)</i>				
Depressive symptoms (0–12) [mean (std.)]	2.35 (2.30)	3.77 (2.86)	4.34 (87.53)	<.001
Self-reported health status (1–5) [mean (std.)]	2.75 (1.13)	2.00 (1.03)	–6.61 (104.72)	<.001

Employment status: Five initial categories (retired/employed/unemployed/permanently ill/house keeper) were collapsed into two categories: employed (1) versus not employed (0).

Marital status: Reported on a 6-category scale, the categories were regrouped into two [“married/cohabitating” (1)/“not married” (0)].

Number of children: Respondents reported how many living children they had (including step, adoptive or foster children).

Frequency of contact with children: Respondents were asked about the frequency of contact they had with their children in the past 12 months on a 7-point Likert scale ranging from daily (1) to never (7). The scale was reverse-coded so that a higher score indicates more frequent contact with one’s children.

Social activities: The respondents reported how often in the last 4 weeks they participated in voluntary or charity work/attended an educational or training course/gone to a sport, social or other kind of club/taken part in the activities of a religious organization/taken part in a political or community-related organization, on a 3-point scale: almost daily (1), almost every week (2) and less often (3). The scale was reverse-coded so that a higher score represented greater frequency of social activity.

Health indicators included mental health and physical health.

Mental health was measured using the Euro-D scale, which is a 12-item measure concerning depressive

symptoms over the past month (Prince et al. 1999). Five items were phrased in a positive way (e.g., what are your hopes for the future), and the remaining items were phrased negatively (e.g., were you sad or depressed in the past month). Response options were “yes” or “no.” We reverse-coded positive items, so that a higher score reflected greater depression. Range was between 0 and 12.

Physical health was measured using a single self-report item that asked respondents to rate their health status on a five-point scale ranging from excellent (1) to poor (5). We reverse-coded the scale so that a higher score indicated better health.

Statistical analysis

T test and Chi-square analyses were used to test bivariate associations. Hierarchical linear regression was used to test the associations with migration status and the two others categories (background demographic; social involvement and health) with changes in late-life loneliness over the two time points. Variables were entered in three steps: (a) migration status with baseline loneliness; (b) background demographic characteristics; and (c) social involvement and health indicators. SPSS 18 was used for the analysis. In an additional analysis, we examined potential interactions between immigrant’s status (veteran Israelis versus FSU immigrants) and various predictors of loneliness (gender, social activities, self-reported health status, depressive symptoms, education and employment status).

Results

Characteristics of the sample

Table 2 summarizes the demographic and clinical characteristics of the baseline sample (2009/2010), including the loneliness score in 2013. In 2009/2010, there were differences between veteran Jewish Israelis and FSU immigrants on all variables (with the exception of gender); veteran Jewish Israelis were less lonely, younger, less educated, more likely to be employed, more likely to be married and more socially active. They also had a higher number of children and more contact with their children. They were less depressed and had better subjective health status.

Loneliness scores in 2009/2010 and 2013

Using bivariate analysis, at baseline (2009/2010) older immigrants were lonelier than veteran Jewish Israelis [FSU immigrants mean (SD) = 1.64 (.78), veteran Israelis mean (SD) = 1.28 (.56); $t(df) = -6.2(235.38), p < .001$]. Yet, in 2013, there were no significant differences in the loneliness score between these populations [FSU immigrants mean (SD) = 1.27 (.56), veteran Israelis mean (SD) = 1.28 (.57); $t(df) = 19(279.08), p = .84$].

Within-group comparisons showed that older immigrants' baseline loneliness (2009/2010) was significantly higher than their follow-up loneliness (2013) [FSU immigrants 2009/2010 loneliness mean (SD) = 1.64 (.78); FSU immigrants 2013 loneliness mean (SD) = 1.27 (.56), $t(df) = 5.48(194), p < .001$]. This indicates that older

FSU immigrants were less lonely over time. However, veteran Jewish Israelis' loneliness scores were not significantly different between the two waves [veteran Israelis 2009/2010 loneliness mean (SD) = 1.28 (.56); veteran Israelis 2013 loneliness mean (SD) = 1.28 (.57), $t(df) = -.193(987), p = .84$], suggesting stability in their loneliness experience over time.

Predictors of loneliness

Table 3 summarizes the regression results predicting changes in loneliness scores over the two waves. In the first stage (*model 1*), we included two predictive variables: baseline loneliness score and immigration status (veteran Israelis versus FSU immigrants). Both baseline loneliness and immigration status were significant predictors. We found a negative association between immigration status and change in loneliness over time. The negative association means that loneliness was reduced over time among FSU immigrants compared to veterans. In other words, model 1 shows that the loneliness situation was significantly improved among the group of FSU immigrants compared to veterans. These results are in accordance with the bivariate findings that showed positive change in loneliness between the two waves (less loneliness) among FSU immigrants, whereas veteran Israelis presented no change in loneliness over time.

In the second stage (*model 2*), we included all three demographic variables and all the predictors were significant. Those with advanced age, women and less educated older adults were lonelier over time. Older immigrants still

Table 2 Demographic and clinical characteristics of the sample

Characteristics	Total sample (<i>n</i> = 1183)	Veteran Israelis (<i>n</i> = 988)	FSU immigrants (<i>n</i> = 195)	$t(df)/\chi^2(df)$	<i>p</i>
Loneliness 2009/2010 (1–3) [mean (std.)]	1.34 (.61)	1.28 (.56)	1.64 (.78)	-6.20 (235.38)	<.001
Loneliness 2013 (1–3) [mean (std.)]	1.28 (.56)	1.28 (.57)	1.27 (.56)	.19 (279.08)	.84
<i>Background demographics (baseline; 2009/2010)</i>					
Age (years) [mean (std.)]	66.83 (8.41)	66.12 (8.37)	70.46 (7.66)	-7.11 (292.89)	<.001
Years of education [mean (std.)]	13.04 (4.06)	12.81 (4.16)	14.18 (3.29)	-5.06 (330.12)	<.001
Women [<i>n</i> (%)]	692 (58.50)	570 (57.70 %)	122 (62.60 %)	1.59 (1)	.23
<i>Social involvement indicators (Baseline; 2009/2010)</i>					
Social activities (0–5) [mean (std.)]	.53 (.76)	.59 (.78)	.26 (.55)	7.05 (368.42)	<.001
Number of children [mean (std.)]	2.89 (1.55)	3.14 (1.54)	1.65 (.81)	19.45 (510.87)	<.001
Frequency of contact with children (1–7) [mean (std.)]	6.35 (.81)	6.44 (.67)	5.90 (1.20)	5.76 (195.76)	<.001
Percent employed	37.40 %	41.10 %	19.00 %	34 (1)	<.001
Percent married	77.50 %	79.00 %	69.70 %	7.96 (1)	<.05
<i>Health indicators (Baseline; 2009/2010)</i>					
Depressive symptoms (0–12) [mean (std.)]	2.35 (2.30)	2.08 (2.21)	3.68 (2.30)	-8.98 (1131)	<.001
Self-reported health status (1–5) [mean (std.)]	2.75 (1.13)	2.90 (1.13)	2.01 (.80)	13.14 (365.1)	<.001

presented with a decrease in loneliness over time compared with veteran Israelis.

In the third stage (*model 3*), we included the social involvement and health variables. After adjusting for demographics and the social and health indicators, FSU immigrants still showed reduced loneliness over time compared with veteran Israelis. Age and marital status were significant predictors and so were mental health and self-reported health status. Older age, not being married, having depressive symptoms and poorer subjective health status were significant predictors of change for the worse in loneliness. Immigration status, on the other hand, was a predictor of positive change, so that immigrants from the FSU reported a lower loneliness level over time. When the same models were evaluated using the score of the full 3-item loneliness scale as an outcome, the findings were similar (available upon request).

To examine the differential relationship between loneliness and potential moderators based on population group, we examined several interaction effects, including: migration status \times gender: Coeff = $-.008$, SE = $.004$, $p = .07$; migration status \times social activities: Coeff = $-.002$, SE = $.02$, $p = .9$; migration status \times self-reported health status: Coeff = $-.05$, SE = $.01$, $p = .15$; migration status \times depressive symptoms: Coeff = $.6$, SE = $.009$, $p = .26$; migration status \times employment status: Coeff = $.03$, SE = $.04$, $p = .43$; and migration status \times years of education: Coeff = $.02$, SE = $.03$, $p = .51$. None of these interaction terms were significant. The

findings suggest, therefore, that these variables have similar associations with changes in loneliness in veterans and FSU immigrants.

Discussion

The purpose of this study was to compare changes in loneliness among older immigrants to that of older veteran Israelis and to examine whether changes in loneliness are associated with different predictors in these two groups. Various studies, conducted in different countries, have indicated that older immigrants are particularly susceptible to feelings of loneliness (e.g., De Jong Gierveld et al. 2015; Dong et al. 2012; Thyli et al. 2014; Victor et al. 2012; Wu and Penning 2015). Consistent with these findings, early studies have found high levels of loneliness among older FSU immigrants in Israel (Ponizovsky and Ritsner 2004; Ritsner and Ponizovsky 2003; Ron 2001).

The FSU immigrant group is one of the largest population groups in Israel that has been increasingly integrating into society (Amit 2012; Gorodzeisky and Semyonov 2011). At present, the older FSU immigrants are different from the older FSU immigrants of two or three decades ago. This is because they had most probably worked in Israel and had greater opportunities to integrate in the country. Nevertheless, findings indicate that FSU immigrants suffer from difficulties due to loneliness, such as distress and psychiatric problems (Mirsky et al. 2008).

Table 3 Summary of regression results predicting loneliness change over time

Predictive variables	Model 1			Model 2			Model 3		
	B	SE	β	B	SE	β	B	SE	β
Loneliness score in 2009/2010	.24	.02	.26***	.20	.02	.22***	.11	.03	.12***
FSU immigrants ^a	-.09	.04	-.06*	-.10	.04	-.06*	-.19	.05	-.13***
<i>Background demographics</i>									
Age				.009	.002	.13***	.008	.002	.12***
Women ^a				.07	.03	.06*	.02	.03	.02
Years of education				-.01	.004	-.12***	-.005	.004	-.03
<i>Social involvement and health indicators</i>									
Employed ^a							.03	.04	.02
Married ^a							-.09	.04	-.06*
Social activities							-.004	.02	-.006
Number of children							.002	.01	.006
Frequency of contact with children							.01	.02	.02
Depressive symptoms							.05	.009	.23***
Self-reported health status							-.04	.01	-.09**
R ²	.06			.10			.16		

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

^a The following categories were served as the reference: veteran Israelis, men, not employed, not married

Qualitative findings have been contradictory; whereas some have indicated that older FSU immigrants suffer from loneliness (Khorostianov et al. 2012; Ron 2007), others stressed their adjustment and social integration (Remennick 2003).

The baseline findings of the current study are consistent with various cross-sectional studies elsewhere, in which older immigrants reported greater loneliness than the native-born (Dong et al. 2012; Hurtado-de-Mendoza et al. 2015; Kim and Lee 2014; Sanchón-Macias et al. 2016). Yet, the longitudinal findings of the present study suggest a more complex picture, which may reflect different processes involved in changes in loneliness among older immigrants over time.

Without accounting for any covariates, at baseline (2009/2010) older FSU immigrants were lonelier than veteran Israelis, whereas in 2013 there were no significant differences between these populations. The older immigrants' baseline loneliness (2009/2010) was significantly higher than their follow-up loneliness score (2013), which means that the immigrant group experienced a decrease in loneliness over time. On the other hand, the veteran Jewish Israelis' loneliness scores were not different over time. In other words, whereas the immigrants experienced positive change in loneliness, the veterans presented stability. Even though older immigrants were at a disadvantage on almost all variables assessed in this study compared with veteran Israelis, immigration was *not* a risk factor for negative changes in loneliness in the multivariate models. On the contrary, immigrant status was a protective factor, associated with a change for the better.

A possible explanation might stem from a long-term process of social integration of FSU immigrants into the receiving society. Noteworthy is that the older immigrants' loneliness rate at baseline (2009) was only moderate. Because earlier studies found high loneliness scores among FSU immigrants (Ritsner and Ponizovsky 2003; Ron 2001), the current findings may point to an ongoing trend of a decrease in loneliness among this population over time.

Various migration stressors place immigrants at risk of a lack of social support and loneliness (Ahmad et al. 2005; Aroian et al. 2001; De Maio and Kemp 2010; Ponizovsky and Ritsner 2004). Hence, it is plausible that for FSU immigrants, the "loneliness peak" was experienced immediately during their post-migration period. In Finland, FSU immigrants' psychological well-being showed a minor or no change 8 years after immigration (Jasinskaja-Lahti 2008), suggesting that post-migration psychological adjustment is a long-term process, and loneliness feelings are associated with it (Lerner et al. 2005). Possibly, after a substantial time in the host country that accompanies economic and especially social adjustment, loneliness decreases. Because a large part of older FSU immigrants in Israel lives in mostly

"Russian" neighborhoods and enjoys community interaction (Remennick 2003; Raijman 2009), this support might become more evident and meaningful over time, as the migration stressors become less and less dominant.

Veteran Jewish Israelis, on the other hand, provided evidence for stability in loneliness over time. This is in accordance with the literature that found stability in late-life loneliness in prospective studies (Victor and Bowling 2012) and with studies that stressed that only a minority of older people continuously suffer from loneliness (Dykstra et al. 2005; Huisman et al. 2011; Jylhä 2004). In both waves, the veteran Israelis presented a relatively low degree of loneliness, which is in accordance with the characteristics of the privileged and well-off group in the country in terms of economic and social profiles (Gorodzeisky and Semyonov 2011; Semyonov et al. 2016).

Among the predictors of change in loneliness over time, depressive symptoms were found to be the most influential. Previous studies have stressed that depression is highly related to loneliness and vice versa, especially among older people (Cacioppo et al. 2006; Luanaigh and Lawlor 2008). The current study adds to the literature by emphasizing the strong association that depression has with change in loneliness over time: higher depressive symptoms at baseline predicted negative change in loneliness over time. Once depressive symptoms were accounted for, a large part of the variance in change in loneliness was explained; after deducting the variance that was associated with immigrants' depressive symptoms, immigrant status became a stronger predictor of positive change in loneliness over time. This means that when depression is controlled, there is a more robust decrease in loneliness over time among immigrants.

The current results shed light on the uniqueness of the situation of FSU older immigrants in Israel. Although older immigrants from the FSU face multiple challenges as a result of their immigration status, they represent a large, highly educated and well-supported immigrant group (Remennick 2003). It is plausible that the affiliation of older immigrants with a relatively strong and large group in Israeli society has eased their feelings of late-life loneliness over time. Possibly, because of their past experiences, older FSU immigrants have learned to manage adversity better than veteran Jewish Israelis, and this is particularly pronounced in old age, when both groups become increasingly disadvantaged.

Similar to other studies, one of the limitations in the present analysis is the assumption of homogeneity within each of the groups involved (Wu and Penning 2015). The FSU older immigrants group is heterogeneous: they emigrated from different republics, at different ages, and for different motives. The veteran Jewish Israeli group is also heterogenic; for instance, it consists of people who were

born in Israel and those who immigrated to it before 1989, at different ages and from different countries and regions. Another limitation stems from the fact that in the current study, loneliness was measured using a single item adopted from the shortened version of the R-UCLA. Nevertheless, an additional sensitivity analysis that incorporated the 3-items of the R-UCLA as an outcome variable, resulted in comparable findings. Another potential limitation concerns the perception of the concept of loneliness, which might be culturally derived. We suggest implementing qualitative interviews with FSU immigrants in Israel in order to better contextualize this concept. In addition, we suggest following this group over time, to better evaluate future changes in its loneliness level.

Despite its limitations, an important contribution of the current investigation lies in the comparison between immigrants and local older adults, over time, which has been rather rare in the literature (Wu and Penning 2015). The study also has practical implications concerning professional services for older immigrants. It identifies several predictors that put both groups of Israeli Jewish veterans and FSU immigrants at a higher risk of increased levels of loneliness over time. Social services should take these predictors into account.

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