Abstract

**Objective:** To assess the quality of life (QoL) of older Australians living in rural and urban communities over time.

**Design:** Panel survey conducted in 2012-2013 and 2014-2015.

**Setting**: Participants lived in metropolitan Melbourne (urban sample, N = 279), rural Victoria (N = 98), or Tasmania (N = 47).

**Participants:** All participants (N = 424) were clients of aged care providers or residents in retirement housing or residential care.

**Main outcome measures:** Quality of life.

**Result:** A repeated measures analysis of variance showed a decrease in quality of life over time. There was no difference in change in QoL over time by location of participants (urban vs. rural). Multiple regression analysis showed that resilience predicted baseline QoL in all three locations.

**Conclusion:** These findings generally did not support significant differences between geographic locations in trajectories of older adults’ quality of life over time. Instead, individuals’ resilience appears to be the strongest predictor of QoL.

**What is already known on this subject?**

* Challenges to maintaining quality of life at an older age may include illness and social isolation.
* Older people living in rural communities may face additional challenges to maintaining quality of life due to low access to healthcare professionals and issues with lack of infrastructure, transportation, and opportunities for social participation.
* Advantages to living in rural communities include higher social capital and opportunities to volunteer.

**What does this study add?**

* The study found lower quality of life in Tasmanian participants than those living in Victoria at baseline.
* However, there were no differences in change in quality of life over two years by location, controlling for other variables.
* Resilience was a consistent predictor of quality of life across locations.

**Introduction**

Consistent with global trends, Australian rural communities comprise a higher proportion of older adults than urban centres.1 While Australia is projected to see a considerable rise in the number of older adults in all regions, rural areas are expected to see the greatest growth in this age group.2 This phenomenon is largely due to two distinct trends: the out-migration of young adults from rural areas, and the in-migration of older adults into rural areas.3 Many older adults move to rural areas for the more desirable environmental and other geographic amenities, such as access to coastal and forested areas.4 These areas are sought after for lifestyle reasons, in order to obtain a better quality of life (QoL).5

As defined by the World Health Organisation, QoL is an individual’s perception of their life in relation to their goals, expectations, standards, and concerns.6 Due to the broad-ranging nature of this concept, QoL is affected by the individual’s physical health, psychological state, personal beliefs, social relationships, and salient features of their environment.6 Additional challenges to maintaining QoL in older age include increased risk of social isolation, as well as declining mobility and health.7-10

Rural communities encounter distinct challenges in facilitating QoL for the older population.11 For example, rural areas often possess limited infrastructure.12 Residents have access to fewer transportation options, opportunities for social participation, and social and health services.13-15 Health providers experience difficulty retaining staff.16 Conversely, Australian rural communities offer several advantages for older people, including high levels of voluntarism and social capital.17-18

Research comparing older people’s QoL in urban and rural areas has reported mixed findings. One American study found similar QoL between rural and urban older adults.19 While a Polish study demonstrated higher health-related QoL in rural adults than their urban counterparts,20 a Chinese study found the reverse.21 There is a dearth of research comparing the QoL of older people in urban and rural areas in Australia. The present study aimed to address this gap by exploring QoL and change in QoL of older adults in urban and rural areas of Australia.

**Methods**

**Research design**

The present study draws on data from a multistage project. The first wave of data was collected in 2012-2013 and the second wave in 2014-2015.

**Survey instruments**

The key outcome was quality of life measured by the WHOQoL-OLD.22 This measure comprises 24 items on physical, psychological, social, and emotional aspects of QoL relevant to older adults. Each item is scored between 1 and 5 on a Likert-type scale, with higher scores indicating higher levels of QoL. Coefficient alpha for this scale at baseline was .87.

Functional capacity was measured using 11 items from the OARS multidimensional functional assessment of older adults; items are scored on a 3-point Likert-type scale, with higher scores indicating higher levels of independence.23 Coefficient alpha for this scale at baseline was .83.

Resilience was measured using 13 items measured on a 7-point Likert-type scale.24 Social participation was measured using the Community Integration Measure, which comprises 10 items assessing the individual’s sense of belonging in the community, measured on a 5-point Likert-type scale.25 Coefficient alpha for this scale at baseline was .91.

Self-rated health was measured using a single 5-point item asking participants, with higher scores indicating better perceived health. Financial adequacy was measured by a single 3-point item asking whether the participants were “comfortable”, had “enough to get along”, or were “unable to make ends meet”. Education level was coded as either having completed formal education since high school or not. Living arrangement compared living alone and living with someone. Age and gender were also recorded.

Rurality was defined using the Australian Statistical Geography Standard (ASGC) Remoteness Structure;26 all participants living in Melbourne, Victoria, were grouped into the urban classification while those in regional or remote areas were grouped into the rural classification. According to the ASGC, all of Tasmania is defined as regional/remote, so there were no urban Tasmanian participants.

**Procedure**

Recruitment was a two-stage process. First, organisations were recruited by approaching as many large and medium-sized aged care or housing providers as possible in two Australian states—Victoria and Tasmania—and inviting them to assist with the study. The study was initiated in services managed by Uniting AgeWell, which provides aged care and housing in Victoria and Tasmania, but other services operating in these two states were also recruited. Organisations were a mix of not-for-profit (n = 7) and for-profit (n = 4) and were providing housing and/or care. Procedures for recruiting within organisations varied and included distributing letters of invitation and attending community meetings. Participants (N = 424) were: living in a range of retirement housing settings; at home and receiving community care services; or in residential care. Participants could participate if they were: aged 55 years old or over; receiving housing and/or care from the organisations involved; able to understand and speak English; and physically and cognitively able to respond to questionnaires. Surveys were administered in face-to-face interviews in participants’ homes by staff from La Trobe University or Uniting AgeWell and took about an hour. Ethics approval was obtained from La Trobe University (FHEC11/164).

**Statistical analysis**

All data were analysed using SPSS 24, and checked for accuracy, missing values, and outliers. Missing values were minimal as good rapport was achieved between interviewers and participants. No outliers were detected.

Quality of life was calculated by averaging participants’ scores on the WHOQoL-OLD. Functional capacity was calculated by summing scores to form a scale with a (theoretical) minimum of 11 and maximum of 33. Two of the response categories for the financial adequacy item, “enough to get along” and “unable to make ends meet”, were combined for analysis due to the low number of “unable to make ends meet” responses.

Independent sample *t*-tests were used to compare the means of those living in the two rural areas with those living in urban Melbourne. Multiple regression was used to determine predictors of baseline quality of life. Repeated-measures analysis of variance (ANOVA) was used to compare QoL across the different locations over the two waves of data collection, while controlling for age, gender, and functional capacity.

**Results**

At Time 1, the sample included 279 participants in urban Victoria (Melbourne), 98 in rural Victoria, and 47 in rural Tasmania, with an age range of 55 to 99 years (see Tables 1 and 2 for participant characteristics).

Insert Table 1 about here

Table 2 shows the means on all the measures at Time 1 for those living in each location. There were significant differences between groups by location. Participants living in rural areas had lower self-rated health than those in urban Victoria. Those in rural Victoria were older than those in the urban area, and they also had lower social participation and functional capacity. Those recruited from rural Tasmania were younger, were less financially comfortable, and reported lower quality of life than those in urban Victoria.

Insert Table 2 about here

A further independent sample *t*-test was used to compare QoL between rural Victoria and rural Tasmania. Those living in rural Victoria (*M* = 4.0, *SD* = 0.4) reported higher quality of life than those in rural Tasmania (*M* = 3.8, *SD* = 0.5), *t*(143) = 2.8, *p* = 0.006, *d* = 0.21.

Three multiple regression analyses were conducted to determine which variables predicted QoL in urban Victoria (*R*2 = 0.47, *F*(9,238) = 23.6, *p* <0.001), rural Victoria (*R*2 = 0.51, *F*(8,79) = 10.2, *p* <.001), and rural Tasmania (*R*2 = 0.79, *F*(8,32) = 6.7, *p* <0.001). Results are summarised in Table 3. These analyses showed that resilience was the only significant predictor of quality of life in all locations. Additional predictors included: social participation and functional capacity in urban Victoria; social participation in rural Victoria; and health status and female gender in rural Tasmania.

Insert Table 3 about here

**Longitudinal**

The participation rate at follow-up was 75%. Altogether, 35 people had died, 23 no longer wished to participate, 17 were too physically frail to participate, 15 had moved from the community to residential care and could not participate, 11 were not contactable, and seven had developed cognitive issues. A one-way between groups analysis of variance (ANOVA) showed no difference in attrition rates between locations, *F*(2,421) = 0.5, *p* = .62.

Several tests were used to examine the effects of location on the quality of life of older people over time. A paired sample *t*-test was used to investigate change in QoL from Time 1 to Time 2 in each location. The mean QoL in urban Victoria change from Time 1 (*M* = 4.1, *SD* = 0.4) to Time 2 (*M* = 4.1, *SD* = 0.5) was not significant, *t*(209) = 0.8, *p* = .42. The mean QoL increase seen in rural Tasmania from Time 1 (*M* = 3.9, *SD* = 0.5) to Time 2 (*M* = 4.0, *SD* = 0.7) was also not significant, *t*(36) = -1.5, *p* = .14. However, the decrease in QoL in rural Victoria from Time 1 (*M* = 4.0, *SD* = 0.4) to Time 2 (*M* = 3.9, *SD* = 0.5) was significant, *t*(68) = 2.5, *p* = .016, *d* = 0.33.

The interaction between time and location in predicting change in QoL was investigated with age, gender, and functional capacity at Time 1 as covariates. An overall main effect for repeated measures showed a significant difference between the two waves, *F* (2,308) = 11.6, *p* =.001, partial *ɳ2* =.04. The mean quality of life rating during the first wave of the study was 4.1 (SD = 0.4), which dropped to a mean of 4.0 (SD = 0.1). The overall main effect for participant location was not significant, *F* (2,308) = 2.6, *p* =.079, partial *ɳ2* =.02. The interaction between time and location was not significant, *F* (2,308) = 2.5, *p* =.084, partial *ɳ2* =.02.

**Discussion**

During the initial wave of data collection, older people living in rural areas of Victoria rated their quality of life similarly to those living in urban Victoria. These results support those obtained from an American study.19 However, reported quality of life was lower in rural Tasmania than either urban or rural Victoria. This may be due to the lower health and financial status reported in the Tasmanian population in the current study. This result is consistent with Australian reports which have found economic gaps between Tasmania and mainland Australia,27 as well as lower health ratings, higher prevalence of mental health problems, and lower life expectancy.28 The current study demonstrated health predicted QoL only for those living in rural Tasmania.

The only common factor associated with QoL in all three locations was resilience. Many studies have reported that resilience contributes to QoL in older people.29-30 Greater resilience promotes the ability to adapt well to sources of stress through key characteristics such as strong coping skills, optimism, and positive thinking.30-31 In addition, social participation predicted QoL in both Victorian locations. The importance of social participation for the QoL of older adults is also consistent with prior research.32

The longitudinal data suggests that QoL overall decreased slightly in participants over the course of the study. However, when each location was assessed independently, only in rural Victoria was this change significant. Previous research has established a trend of decreasing QoL over time at older ages.9,33 Increasing age itself is not a predictor of lower QoL,34 but as age-related comorbidities occur, QoL worsens.9,10,33,34 Further, the current study found no significant interaction between QoL changes over time and the location of participants. This suggests that the rurality does not play a significant role in determining change in an individual’s QoL as they age. These findings are supported by another Australian study investigating the wellness of rural Australians, in which personal factors such as health, financial capability, loneliness, and size of social network were stronger predictors of wellness than community-related factors such as access to services and perception of the community.35 The present study adds to the body of literature on exploring the impact of geographic location on QoL.

A limitation of the study is that participants were recruited through service providers. This resulted in a sample in which all participants were receiving either assistance with housing and/or some level of care, either in the community or in residential care.

Taken all together, the present study suggests that the location of older adults is not a critical factor to their QoL as they age. Rather, QoL was consistently associated with resilience. Therefore, resilience should be fostered in older adults, regardless of where they live. While there are few evaluations of programs to increase resilience in older people,30 research on assisting older adults to savour positive experiences and tools to strengthen relationships have shown promise.36-37

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Table 1.

*Frequencies for gender, living arrangement, and accommodation option at Time 1*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Location | | |
|  | Urban Victoria | Rural Victoria | Rural Tasmania |
| Gender  Male  Female | 99  180 | 22  76 | 19  28 |
| Living arrangement  Living alone  Living with someone  Missing value | 139  109  31 | 70  18  10 | 31  12  4 |
| Accommodation  Private housing  Retirement village  Residential care | 26  225  28 | 3  85  10 | 28  10  1 |
| Education  Has post-school formal education  No post-school formal education | 199  80 | 62  36 | 24  23 |

Table 2.

*Means and differences for all variables*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Location | | |
|  | Urban Victoria | Rural Victoria | Rural Tasmania |
| Age | 78.9 | 81.5\*\* | 76.1\* |
| Financial adequacy | 1.6 | 1.6 | 1.4\* |
| Health | 3.1 | 2.7\*\* | 2.4\*\*\* |
| Functional capacity | 3.2 | 2.9\* | 3.2 |
| Social participation | 4.7 | 4.5\*\* | 4.6 |
| Resilience | 6.1 | 6.9 | 6.0 |
| Quality of life | 4.1 | 4.0 | 3.8\*\*\* |

Note. Means of all variables are reported at Time 1.

Significant differences from urban Victoria: \*p<.05. \*\*p<.01. \*\*\*p<.001.

Table 3

*Summary of multiple regression analysis for variables predicting quality of life*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Urban Victoria | | Rural Victoria | | Rural Tasmania | |
|  | *B* (95%CI) | *p* | *B* (95%CI) | *p* | *B* (95%CI) | *p* |
| Gender | -0.09  (-0.1, 0.01) | 0.08 | -0.06  (-0.26,0.11) | 0.47 | 0.37  (0.13,0.56) | 0.003 |
| Age | -0.01  (-0.01,0.01) | 0.85 | 0.03  (-.01,0.01) | 0.74 | -0.1  (-0.02,0.01) | 0.49 |
| Education | -0.02  (-0.11,0.07) | 0.73 | -0.02  (-0.17,0.14) | 0.84 | 0.14  (-0.08,0.34) | 0.22 |
| Accommodation | -0.01  (-0.71,0.55) | 0.80 | NA |  | NA |  |
| Financial adequacy | 0.08  (-0.03,0.14) | 0.18 | 0.04  (-.12,0.18) | 0.66 | 0.22  (-0.02,0.43) | 0.08 |
| Health | 0.00  (-0.04,0.04) | 0.95 | 0.18  (-0.00,0.16) | 0.06 | 0.38 (0.06,0.27) | 0.003 |
| Functional capacity | 0.12  (0.01,0.1) | 0.02 | 0.05  (-0.06,0.1) | 0.62 | 0.13  (-0.06,0.18) | 0.33 |
| Social participation | 0.31 (0.2,0.4) | <0.001 | 0.23  (0.07,0.45) | 0.009 | 0.1 (-0.24,0.49) | 0.50 |
| Resilience | 0.49 (0.23,0.35) | <0.001 | 0.53 (0.19,0.38) | <0.001 | 0.47 (0.09,0.37) | 0.002 |

Note. *Accommodation was coded as residential care versus private housing and retirement village living (applicable only to respondents living in urban Victoria)*