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Rodrigo Cantarero

University of Nebraska-Lincoln, rcantarero1@unl.edu

James J. Potter

University of Nebraska-Lincoln, jpotter2@unl.edu

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Quality of Life, Perceptions of Change, and Psychological Well-being of the Elderly Population in Small Rural Towns in the Midwest

Rodrigo Cantarero, PhD, and James Potter, PhD

University of Nebraska–Lincoln

Corresponding author – Rodrigo Cantarero, PhD, 330 Architecture Hall, University of Nebraska–Lincoln, Lincoln, NE 68588, email rcantarero1@unl.edu

Abstract

This study examines the quality of life of the elderly residents of two rural Nebraska towns, both having experienced a large increase in population. The study examines how the residents' perception of changes in the community affect their view of quality of life, and identifies determinants of psychological well-being for these elderly residents. The results are compared to the non-elderly residents of these two communities for purposes of contrast. A face-to-face survey of the residents addressed physical, social/cultural, economic, and service issues. Both correlation and regression were used to analyze the data. The quality of life of the elderly residents in our study, in terms of satisfaction with the various components of general well-being—home and neighborhood, accessibility and adequacy of services (including transportation), health and safety—were very positive or satisfactory; this applies equally to the non-elderly population, with the exception of access to public transportation.

Introduction

Quality of life and the perception of well-being are issues affecting everyone. The perception of quality of life determines the ways in which a person views their place in society

and their personal life. According to the World Health Organization, there will be approximately one billion persons age 60 and older in the world by the year 2020 (WHO, 1999). The needs of the elderly population are diverse and complex due to growing health concerns in the older years. In addition, a large proportion of the elderly population can be found aging in place in small towns in rural areas. With the growing elderly population and extension of the life span, it is very important to understand the factors which affect the quality of life of the elderly population, particularly in these small towns which contain an ever growing proportion of elderly persons.

This study will examine the quality of life of the elderly residents of two rural Nebraska towns, Crete and Schuyler (both have experienced an increase in population), examining how their perception of changes in the community affect their view of quality of life, specifically, their psychological well-being; and identify determinants of psychological well-being for these elderly individuals. The results are compared to the non-elderly residents of these two communities for purposes of contrast, and to help guide quality of life related community programs.

Literature Review

Defining Quality of Life

The term "Quality of Life" (QOL) is not new. It has been a relatively well known and well-worn term (Rapley, 2003) since the early general studies of Campbell, Converse and Rogers (1976), and Liu (1975), as well as Hawley and Maize (1981) for rural families. Wish (1986) said research about quality of life began with President Hoover's Committee on Social Trends. Although quality of life research has progressed since the committee issued its report (1933), many serious problems have yet to be solved (Wish, 1986). Most importantly, although the term, quality of life, is common, the exact definition is not clear.

The World Health Organization defines QOL, "as the individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by a person's physical health, psychological state, level of independence and their relationships to salient features of their environment" (WHO, 1997, p. 11). Fry (2000a) and O'Boyle (1997) agree the concept of quality of life is difficult to define and operationalize so there is still considerable debate in the scientific community over its precise definition and measurement. It is often left to each individual researcher to determine what will and will not contribute to the quality of life for their subjects; Liu (1975) concludes the major problem in defining the QOL is that each researcher has his own set of favored criteria. While the debate continues for a precise definition of QOL, many definitions do have similarities as to aspects to be included in a QOL measurement. Some of the more common variables for measuring QOL found in the literature include crime, housing, physical health and functioning, independence, social functioning, economic stability, and privacy. (Wish, 1986; Gabriel & Bowling, 2004; Liu, 1975; Milbrath, 1979).

Quality of Life: Subjective and Individual Construct

A recurring theme found in the QOL literature is that it should be a subjective measure largely developed by each separate individual, thus, QOL is a highly subjective value concept which people tend to alter depending upon their life's position, time and place (Liu, 1975). The construct is not one which has a single definition applying to all persons. Each person will view their QOL from a different perspective (Ranzijn & Luszcz, 2000).

Fry (2000a) believes the most effective approach to assessing consumers' QOL is for researchers to allow them to articulate their perspectives in a relatively unencumbered way, where quality of life expectations, needs, preferences, and assurances can be stated in their own words through open-ended questions which capture the essence of what the quality of life concept means for them. Milbrath (1979) also agrees on the importance of subjective measures, reasoning that the most valid evaluations of QOL will be obtained by asking individuals about their thoughts on QOL. Thus, high importance is placed on individual ideas for defining QOL, and the variability of the construct from person to person.

From a subjective perspective, time plays an important role in QOL assessments. It is the difference, at a particular period in time, between the hopes and expectations of the individual and their present experience. In other words, it depends on the individual's past experience, present lifestyle as well as their personal hopes and ambitions for the future (O'Boyle, 1997). In an individual's assessment of their QOL, their perceptions of the past will play a large part in determining their present satisfaction. In their research, Gabriel and Bowling (2004) found that almost all respondents stated that their personalities and experiences contributed to their overall QOL. If their previous situation was bleaker than their current situation, then their QOL is likely to be perceived as better. If they feel that the past was a happier time, then their current determination of their QOL may not be as good. This aspect of QOL measurement will be a large factor for the elderly population. However, in contrast to O'Boyle's (1997) and Gabriel and Bowling's (2000) research, Haug and Folmer (1986) found that prior life events had less of an impact on QOL than the aging process.

Quality of Life in Elderly Populations

As with QOL in general, there is no consensus for measuring the QOL for the elderly population (O'Boyle, 1997); they vary by the investigators' discipline (Bowling, Hankins, Windle, Bilotta, & Grant, 2013). Many of the earlier models used to measure the QOL of elderly persons were not based on their views or priorities; basically the views of elderly people's needs, and their perceptions of what constitutes an acceptable quality of life were often ignored (Fry, 2000a). Gabriel & Bowling (2004) believe this major flaw is being corrected. Approaching it as an individual concept, researchers are conducting more open-ended and input driven research concerning the QOL of the elderly population, and devising variables to specifically measure QOL of the elderly populations.

One of the earlier studies, conducted by Fry (2000b), asked open-ended questions to the elderly population about their view of their QOL. Respondents in Fry's survey were asked to respond to questions about: income, material possessions, legal and social rights, major environmental and physical conditions of the last few years, personal safety, life style, bi-

ological and psychological well-being, assurances and guarantees from family, health professionals, social and legal services, to help with fears for the future of their QOL. O'Boyle (1997) also looks to the respondent for guidance as to the question of how to measure the quality of life, along three dimensions:

1. what areas of life are important to the respondent;
2. how are they currently doing in each of these areas; and
3. what is the relative importance of each of these areas to them.

In a later study by Gabriel and Bowling (2004), when asked, elderly respondents ranked their top definitions of QOL to include: social relationships, home and neighborhood, psychological well-being, other activities done alone, health, social roles and activities, financial circumstances, independence, and society and politics.

This research served as a foundation in the development of new measures of QOL for use with older people, and developed specifically from the perspective of older people. Prominent among them are: the Control, Autonomy, Self-realization and Pleasure (CASP-19), a needs satisfaction measure of QOL grounded on the domains of control, autonomy, pleasure, and self-realization (Hyde, Wiggins, Higgs, & Blane, 2003); the World Health Organization's WHOQOL-OLD, which reassessed the validity and relevance of the generic WHOQOL (WHOQOL Group, 1998) instrument as well as possible areas of greater importance for older populations on psychological, physical and social domains (Power, Quinn, & Schmidt, 2005); the Older People's Quality of Life questionnaire (OPQOL), which highlighted the importance of social relevance (and social capital) and the need for a "bottom-up" approach (with the population of interest), and identified the domains of life overall, health, social relationships and participation, home and neighborhood, psychological and emotional well-being, financial circumstances, and culture and religion; and its shorter version, the OPQOL-brief, which prioritized the elderly respondents' most important items from the full version (Bowling et al., 2013); the OPQOL-brief has been recently tested and found to be highly reliable when compared with the other three measures (Bowling et al., 2013).

Health and QOL of Elderly Population

Fry (2000b) indicates the elderly population is more at risk for psychological, morale, and health issues than younger persons. Careful definition and measurement of quality of life is of special significance for the elderly population since their quality of life may often become compromised by a complexity of related physical and mental health declines. Also, one should not forget that the elderly population has a different and changing lifestyle often more so than other age groups.

When reviewing the QOL for elderly persons a commonly occurring theme is health (Spiro & Bosse, 2000; Asakawa, Wataru, Takatoshi, & Hiroshi, 2000). At the upper range of lifespan more health issues develop than at any other time; deteriorating health can largely impact QOL, especially as it affects an individual's functionality (Asakawa et al., 2004). In a study by Gabriel and Bowling (2004), the majority of older people said that having good

health gave them a good QOL, but many reported that deteriorating health adversely affected their QOL. Adding subjective measures of QOL concerning health can also be beneficial. O'Boyle (1997) emphasized that although professionals rely on objective, easily quantifiable functional criteria, older people are more concerned with issues of self-identity and the preservation of meaning in their lives.

More recently researchers have been considering the relationship between QOL and other factors. For example, in a study by McAuley et al. (2006), they found that older women who were more active had greater self-efficacy, exhibited a more positive mental and physical health status, which were associated with QOL. Whereas, the results obtained by Bakshi and Sood (2012) clearly indicate an association between physical well-being and QOL, irrespective of gender. Hirosaki et al. (2011) found that for older adults living in a community, functional ability, mood, quality of life, and income were important factors for perceived happiness. Finally, Butler and Ciarrochi's (2007) results support the assertion that objective factors—that is, health and marital status—account for less than 15% of the variance in QOL among the elderly population.

Impact of Social Relationships and Family on the QOL in the Elderly Population

Many respondents say they have a strong desire for and indicate a better QOL when they have people they know well, around them. They feel more secure when they have someone they can depend on or call upon for help nearby. Neighborhood or social resources were also seen as being beneficial (Adams & Jackson, 2000). Many respondents indicate that a good relationship with neighbors improves their QOL (Gabriel & Bowling, 2004).

The living arrangements of elderly persons have changed in the last 100 years. Whereas, in the early 1900s the majority of the elderly resided with their children (if they had any), today a majority live alone or solely with their spouses (Kramarow, 1995). The ability to live alone can be related to increased income for the elderly population. It also may be a product of a decreasing number of children a woman has in her lifetime. Living alone can contribute to loneliness or isolation from others. Living alone may also lead to privacy, which is not necessarily a negative value. (Kramarow, 1995). Counting on family support, however, has been suggested as an important component of QOL among the elderly population (Adams & Jackson, 2000). Thus, Lin, Yen, and Fetzer (2008) found that elders living alone in a rural neighborhood with little social support had a greater likelihood of lower QOL. Further, Golden, Conroy, and Lawlor (2009) found that higher levels of social engagement were associated with a broad spectrum of health and well-being: reduced prevalence of depression, generalized anxiety, physical and cognitive impairment, as well as a higher level of quality of life. Conjecture by Berkman and Glass (2000) is that the positive effects of a social network may be explained by its ability to mitigate stressful circumstances and provide company and assistance when needed. Likewise, Sun, Lucas, Meng, and Zhang (2011) suggests that frequent social interaction may ameliorate the effects of living alone on the QOL of older adults.

The contribution of the social capital literature to our understanding of the QOL of elderly individuals is apparent from inclusion of social relations and participation items in QOL measures aimed at the elderly population (e.g., OPQOL), and research findings highlighting the contribution of social networks (conduits/access to social capital) to elderly

population well-being (Gabriel & Bowling, 2004; Gray, 2009; Hiltner, Smith, & Sullivan, 1986; Litwin & Shiovitz-Ezra, 2010).

Cochrun (1994) finds that identifying with a community brings satisfaction with a neighborhood. Also people who expect to remain in an area, have lived there for a long time and own their home will have strong behavioral connections to that place. Many elderly persons, especially elderly long-term residents will fall into that category. It is also important to recognize the relevant role of place attachment found in among the elderly population, especially in rural areas (Burholt, 2012; Filkins, Allen, & Cordes, 2000).

Privacy as a Variable for QOL of the Elderly Population

In a study by Fry (2000a), a majority of the elderly population indicated the right to privacy was a component essential to their quality of life and their psychological well-being. Fry (2000a) also found that many respondents felt an enhanced QOL from personal control and autonomy which is related to their sense of privacy. Referring to work by Burch and Matthews (1987), Kramarow states, “. . . it is the result of broad institutional changes reflecting societal values that encourage people to be independent in old age. The increased economic security likely allowed some elderly people to realize their desire for privacy, but also contributed to changes in people’s valuation of privacy in living arrangements” (Kramarow, 1995, p. 349).

Summary

A special issue of the *International Journal of Aging and Human Development* (50(4), 245–261, 2000) on QOL as it particularly applies to the elderly population confirmed some of the indicators mentioned above—social support and family help (Adams & Jackson, 2000), physical health (Spiro & Bosse, 2000), functionality (Asakawa et al., 2000)—and highlights the role of anxieties, sense of control, and deficits in their environment (Fry, 2000a). Thus, competencies, social domains, health and psychological well-being appear to be a common theme among these and previous researchers (Lawton, DeVoe, & Parmalee, 1995). The journal’s guest editor, Fry (2000b) summarizes by proposing that we should recognize that QOL encompasses general well-being phenomena (satisfactions), social phenomena (e.g., social support, work, interpersonal relationships), and health-related phenomena (e.g., functionality), but that the over-arching dimension of the QOL concept is psychological well-being (Fry, 2000b). He concludes by suggesting that “providing a set of multi-item measures of a variety of domains of QOL, are appropriate and more preferable for older adults than are specific domain measures” (p. 254). We heavily rely on the conclusions from the prior research summarized above upon which to base the analysis that follows. However, the start of the research pre-dated the development of instruments specifically for surveying older adults, and thus, these did not inform the development of our study instrument.

Methods

This study uses the combined data of three previous studies collected by the faculty from the Architecture and Community and Regional Planning programs at the University of

Nebraska–Lincoln. The first study was conducted in Schuyler, Nebraska (Potter, Cantarero, Yan, Larrick, & Ramirez, 1996) and the other two were conducted in Crete, Nebraska (Potter, Cantarero, Yan, Larrick, Ramirez, & Keele, 2001) and (Potter, Cantarero, & Hussey, 2010). Both of these rural towns had relatively stagnant populations of under 5,000 persons up to 1990, but have experienced a large population increase over the past two decades: 23.7% for Crete and 30.7% for Schuyler 1990–2000, and 16.2% and 17.3% during 2000–2010. This growth was triggered by jobs in the local meat packing plants attracting large numbers of new immigrants. The low wages offered were not attractive to native residents. Most immigrants are younger Latinos coming from mainly other parts of the United States (although some came directly from Mexico and Central American countries); many with families. At the time of the immigration, both towns lacked any kind of organizational structure to deal with the immigrant population. These studies had the goals of assessing the quality of life and housing concerns of the long-term and short-term residents, of enhancing the knowledge base about the housing environments and quality of life issues in these two rural Nebraska towns, as well as suggesting recommendations for improving the quality of life of both long-term and new arrival residents. The original studies did not target the elderly population, and the questions used were based on QOL studies for the general population found in the literature at that time.

The data for the present study combines comparable items from the three surveys. The purpose of combining the three surveys is to generate a larger subsample of the elderly population. Even then, the elderly population subsample is small ($n = 59$), barely above the size of 50 considered to be a minimum (Spicer, 2005). The methods used to conduct the Schuyler and Crete studies were similar, and followed three distinct phases. The first phase was to identify the issues dealing with housing and quality of life concerns in the town. This identification process was accomplished by looking at the history of the towns, studying newspaper articles from local newspapers, talking with city leaders and conducting two focus groups for each town. One group was composed of long-term residents—those having lived in the community for more than 15 years—and a second group composed of short-term residents—those having lived in the community for less than 5 years. The focus groups were given a set of open-ended questions to answer about the city as a whole, housing, neighborhood, and changes in the last 5 to 10 years. The open-ended questions helped in the formulation of the questions in the survey instrument. The focus group meetings were aimed at providing input into the development of our general population QOL questionnaire.

The second phase consisted of a face-to-face survey of the residents of Schuyler and Crete. The survey addressed physical, social/cultural, economic, and service issues, and was administered to the town residents by graduate student interviewers (Schuyler) and undergraduate students from a local college (Crete). Prior to administering the surveys announcements had been made in the local newspapers and posters informing residents about the upcoming survey.

There were a total of 363 surveys collected in the two communities: 83 in Schuyler in 1996, 100 in Crete in 2001 and 180 in 2009. The respondents were targeted by geographic area (census blocks). In areas containing a majority of long-term residents interviewers were dropped off in randomly chosen blocks with instructions to go clockwise around each

block, interviewing volunteers who had lived 15+ years in town (no more than five respondents per block, one per household). The short-term resident areas included more apartment housing than the long-term areas. Interviewers in this area were instructed to interview single family and multi-family units. The single-family units would be done in a manner similar to the long-term resident areas. Multi-family units or apartment buildings were to be surveyed by beginning at the first unit on each floor and then proceeding in ascending order of unit number, gathering no more than six surveys per cluster.

The third phase consisted of analyzing the results with the aid of SPSS, then using community articles, field notes and the results of the surveys, to make recommendations about housing and the quality of life to the leadership of city of Schuyler and Crete.

In this study the elderly residents of Crete and Schuyler are classified as those 65 years of age and older, a figure widely found in the literature (e.g., Bowling et al., 2013), and used by the U.S. Census to define elderly population (U.S. Census, 2012). Non-elderly individuals were considered those 55 years of age or younger.

Our main research questions are:

1. What is the quality of life like for elderly persons in these small towns, and how does it differ from the non-elderly population? This will be determined by looking at various quality of life domains of general well-being, social phenomena, and health. Domains of well-being and specific questions within each domain were based on those generally found in the literature. The general well-being component includes questions on satisfaction with residence (e.g., satisfaction with size, safety, outdoor area, parking, physical condition, privacy, rent/mortgage paid), the neighborhood (e.g., quality of housing, maintenance of housing, visual attractiveness, traffic, garbage collection), accessibility to public services and basic goods (e.g., public transportation, recreational services, basic supplies, retail), overall satisfaction with public services, safety (police protection), income, and job (or lack of). The social phenomena component includes questions related to support from social organizations and friend, and perception of changes in "sense of community." The health (and functionality) includes self-rated health status, and access to convenient public transportation and services (also part of general well-being domains).
2. Do perceptions of change (positive or negative) in the community by the elderly residents impact (positive or negative) their quality of life? Does it differ from non-elderly residents?
3. What quality of life domains explain psychological well-being of the elderly population, and does it differ from the non-elderly population? Only questions common to all three survey where utilized.

Multi-item indexes, based on the mean of individual survey questions (see Appendix), were created to identify concerns over changes in the community (have sense of community, quality and availability of housing, crime conditions, crowding conditions, economic conditions gotten better or worse?), and various quality of life domains: residential satisfaction, satisfaction with their neighborhood and local services, access to facilities and goods, and psychological well-being. All of the indexes achieved Chronbach's alpha levels

above .70. Two individual questions related to social resources (social organizations and friends support in times of need), deemed important in the literature, were not combined into an index because of their lack of correlation ($\alpha < .7$).

Analysis

Descriptive

The population sample ($n = 335$) was divided into elderly residents (65+ years of age; $n = 59$) and non-elderly residents (55 or less years of age; $n = 276$) ($n = 28$ where not used as they fell in between 55 and 65); 35.6% of the elderly population and 53.0% of the non-elderly population were male.

Mean values for each of the variables of interest were calculated using 1–5 Likert scale with 5 being the high positive score (e.g., very satisfied, highly agree). In general, both groups were satisfied with (means ≥ 2.5 , listed in order of higher level of satisfaction) their residence, police protection, support from friends, and services in the community; their neighborhood, the accessibility to services (although less so for the non-elderly residents), and the town's sense of community. See table 1.

Table 1. Means and Standard Deviations

Variables	N	Mean	Standard deviation
Stressors Index			
Elderly pop (65+)	58	1.88**	.69667
Non-elderly pop (< 56)	276	2.60**	.82528
Residential Satisfaction Index			
Elderly pop (65+)	59	3.86	.77820
Non-elderly pop (< 56)	276	3.92**	.71218
Neighborhood Index			
Elderly pop (65+)	59	3.86	.77820
Non-elderly pop (< 56)	276	3.79	.66793
Changes in Crete Index			
Elderly pop (65+)	59	2.83*	.65163
Non-elderly pop (< 56)	270	3.09*	.93995
Accessibility Index			
Elderly pop (65+)	59	3.74**	.82556
Non-elderly pop (< 56)	276	3.24**	.91447
My job (or lack of job) is a source of stress for me			
Elderly pop (65+)	39	1.44**	.680
Non-elderly pop (< 56)	264	2.95**	1.523
My level of income is a source of stress			
Elderly pop (65+)	54	2.39*	1.250
Non-elderly pop (< 56)	274	2.85*	1.439
The "sense of community" in Crete			
Elderly pop (65+)	56	3.73*	1.053
Non-elderly pop (< 56)	263	3.41*	1.256

The level of police protection			
Elderly pop (65+)	57	4.21	.995
Non-elderly pop (< 56)	264	3.98	1.140
Access to convenient public transportation			
Elderly pop (65+)	53	3.45**	1.367
Non-elderly pop (< 56)	236	2.11**	1.410
The adequacy of public services (e.g., lights, storm drains, gutters, street cleaning, etc.)			
Elderly pop (65+)	59	4.25**	.801
Non-elderly pop (< 56)	275	3.90**	1.163
I can rely on friends for support in times of need			
Elderly pop (65+)	58	4.24	.96082
Non-elderly pop (< 56)	272	3.99	1.25375
Social organizations provide support for me, when I am in need			
Elderly pop (65+)	50	3.64**	1.13856
Non-elderly pop (< 56)	230	3.05**	1.46483

Statistical significance: * $p < .05$; ** $p < .01$.

The cumulative stressors index was low for both groups—particularly for the elderly residents; also low, although less so, was stress from income. Changes in the community over the previous 10 years were perceived as relatively neutral (slightly negative by elderly population) in terms of negative or positive effects on the community.

The largest discrepancy in opinion between the two groups was access to public transportation, for which the elderly population were satisfied and the non-elderly population was not. Small towns typically do not have general public transportation services, but will often have special public transportation for the elderly residents (e.g., subsidized dial-a-ride). Other differences were noted in satisfaction with support from social organizations (elderly population positive, non-elderly population neutral) and job (or lack of a job) related stress which was low for the elderly population and neutral for the non-elderly population (most elderly residents would be retirees).

Correlations

Variables of interest in explaining the psychological well-being (multi-item cumulative stress index measuring the level of stress perceived by our study population) were explored using a correlation table (see table 2). We included potential explanatory variables, discussed above, which the literature suggest are of importance in determining psychological well-being (quality of life) for the elderly population. We also included satisfaction with employment (job) as it is of particular importance to the non-elderly population.

Table 2. Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Non-Elderly pop (<56 years of age)												
(1) Stressors Index	1	-.360**	-.254**	-.112	-.216**	-.242**	-.117	-.214**	-.173**	.376**	.459**	-.239**
(2) Residential Satisfaction Index	-.360**	1	.438**	.236**	.235**	.264**	.088	.278**	.113	-.195**	-.222**	.263**
(3) Neighborhood Index	-.254**	.438**	1	.378**	.377**	.224**	.502**	.071	.075	-.200**	-.148*	.245**
(4) Changes in Crete Index	-.112	.236**	.378**	1	.338**	.153*	.256**	.034	.107	-.110	-.101	.232**
(5) The "sense of community" in Crete	-.216**	.235**	.377**	.338**	1	.282**	.315**	.026	.098	-.101	-.111	.194**
(6) Accessibility Index	-.242**	.264**	.224**	.153*	.282**	1	.243**	.112	.167*	-.077	-.070	.222**
(7) The adequacy of public services	-.117	.088	.502**	.256**	.315**	.243**	1	.056	.178**	-.083	-.112	.031
(8) I can rely on friends for support in times of need	-.214**	.278**	.071	.034	.026	.112	.056	1	.275**	-.202**	-.093	.273**
(9) Social organizations provide support	-.173**	.113	.075	.107	.098	.167*	.178**	.275**	1	-.100	-.092	.116
(10) My level of income is a source of stress	.376**	-.195**	-.200**	-.110	-.101	-.077	-.083	-.202**	-.100	1	.307**	-.231**
(11) My job (or lack of job) is a source of stress for me	.459**	-.222**	-.148*	-.101	-.111	-.070	-.112	-.093	-.092	.307**	1	-.162**
(12) I would rate my health as	-.239**	.263**	.245**	.232**	.194**	.222**	.031	.273**	.116	-.231**	-.162**	1
Elderly pop (65+ years of age)												
(1) Stressors Index	1	-.410**	-.432**	-.054	-.234	-.148	-.297*	-.341**	.061	.283*	.297	-.064
(2) Residential Satisfaction Index	-.410**	1	.651**	.021	.279*	.136	.471**	.234	.127	-.255	-.290	.071
(3) Neighborhood Index	-.432**	.651**	1	.346**	.438**	.398**	.577**	.069	-.003	-.015	-.027	.123
(4) Changes in Crete Index	-.054	.021	.346**	1	.353**	.362**	.119	-.340**	-.023	.022	-.103	.342**
(5) The "sense of community" in Crete	-.234	.279*	.438**	.353**	1	.342**	.440**	.011	.164	.123	.034	.128
(6) Accessibility Index	-.148	.136	.398**	.362**	.342**	1	.353**	-.081	.207	-.051	.051	.294*
(7) The adequacy of public services	-.297*	.471**	.577**	.119	.440**	.353**	1	.099	.188	-.166	-.108	-.131
(8) I can rely on friends for support in times of need	-.341**	.234	.069	-.340**	.011	-.081	.099	1	.138	-.393**	-.223	-.018
(9) Social organizations provide support	.061	.127	-.003	-.023	.164	.207	.188	.138	1	.039	-.263	-.066
(10) My level of income is a source of stress	.283*	-.255	-.015	.022	.123	-.051	-.166	-.393**	.039	1	-.249	-.108
(11) My job (or lack of job) is a source of stress for me	.297	-.290	-.027	-.103	.034	.051	-.108	-.223	-.263	.249	1	.080
(12) I would rate my health as	-.064	.071	.123	.342**	.128	.294*	.131	-.018	-.066	-.108	.080	1

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

Among the elderly population, the cumulative stress index was moderately (Cohen, 1988) and statistically significantly correlated to their satisfaction with their residence ($r = -.410$) and neighborhood ($r = -.432$), and the support they got from friends ($r = -.341$). Other statistically significant but small correlation was found with the satisfaction with the adequacy of public services ($-.297$), and stress from level of income (.283).

Among the non-elderly population the cumulative stress index was statistically significant for all the variables except changes in town, the adequacy of public services, and satisfaction with public transportation. Moderate correlations were found with job stress ($r = .459$), level of income stress ($r = .376$), and residential satisfaction ($r = -.360$); others were low correlation.

Regression

Seeking to find the effect of the quality of life domains components and the various individual variables that could moderate (independent variables) on psychological well-being we regressed them on our cumulative stress index (dependent variable)—proxy for psychological well-being—for the elderly and non-elderly population separately (see table 3). Both regression models were overall statistically significant (ANOVA, $p < .01$).

Table 3. Regression Model

Population group	Independent variables	Unstandardized coefficients		Standardized coefficients	Sig. level
		B	Std. error	Beta	
Non-elderly pop (<56)	(Constant)	3.544	.434		.000
	Residential Satisfaction Index	-.235	.083	-.195	.005
	Accessibility Index	-.060	.059	-.065	.311
	Neighborhood Index	-.104	.099	-.083	.293
	My job (or lack of job) is a source of stress for me	.181	.034	.333	.000
	My level of income is a source of stress	.099	.037	.173	.008
	I can rely on friends for support in times of need	-.060	.042	-.092	.162
	I would rate my health as	.013	.053	.016	.802
	The level of police protection	.045	.047	.064	.340
	The adequacy of public services (e.g., lights, storm drains, gutters, street cleaning, etc.)	.016	.049	.023	.746
	The "sense of community" in Crete	-.058	.045	-.086	.199
	Social organizations provide support for me, when I am in need	-.026	.034	-.046	.454

Continued next page

Table 3, continued

Elderly pop (65+)	(Constant)	2.712	1.402		.069
	Residential Satisfaction Index	.464	.260	.390	.091
	Accessibility Index	.349	.209	.312	.112
	Neighborhood Index	-.881	.223	-.864	.001
	My job (or lack of job) is a source of stress for me	.442	.168	.417	.017
	My level of income is a source of stress	.113	.104	.180	.291
	I can rely on friends for support in times of need	-.303	.114	-.422	.016
	I would rate my health as	-.039	.128	-.049	.762
	The level of police protection	-.053	.128	-.073	.686
	The adequacy of public services (e.g., lights, storm drains, gutters, street cleaning, etc.)	.067	.188	.069	.725
	The "sense of community" in Crete	-.044	.131	-.060	.741
	Social organizations provide support for me, when I am in need	.009	.101	.014	.928

Dependent variable: Stressors Index.

Even though it was not the purpose of this article to find a predictive model of level of stress in our population (but rather detecting influential determinants), the elderly population model produces an R^2 of .680, indicating that 68% of the variations in our stress index is accounted for by the variations in our independent variables. The results produces statistically significant values for explanatory variables of satisfaction with the neighborhood index ($p = .001$), jobs (or lack of) ($p = .017$), and the support from the friends network ($p = .016$). The more important variable (standardized coefficients) is satisfaction with neighborhood, followed by support from friends.

The results of the non-elderly population model showed a weaker fit with only an R^2 of .359 indicating that only about 36% of variations in stress accounted for by our independent variables. The results produced statistically significant values for the explanatory variables of residential satisfaction index ($p = .005$), stress from the job ($p = .001$), and stress from the level of income ($p = .008$); the job (or lack of) proved to be the more important of the variables (based on their standardized coefficients results), followed by the satisfaction with the residence.

Discussion

The first question we sought to answer in the study was the level of satisfaction with quality of life of the elderly population in our community, and how it compared to that of the non-elderly population. The quality of life of the elderly residents in our study population in terms of satisfaction with the various components of general well-being—home and neighborhood, accessibility and adequacy of services (including transportation), health and safety—were very positive or satisfactory; this applies equally well to the non-elderly population (except for access to public transportation; the only public transportation that

typically exists in small towns is that which caters to special groups like the elderly population).

On the social environment component of quality of life—sense of community, social network support (friends, family, organizations)—there are also favorable conditions for the elderly population. The non-elderly population differed somewhat on the social organizations' support with the elderly residents having higher level of support (mean = 3.64) than the non-elderly residents (mean = 3.05). This is not surprising as the younger population is less a focus of attention for agencies, or are they likely to seek, formal or organized agency support when in need.

In terms of psychological well-being (stress), overall both groups, but particularly the elderly population, fared well. A notable, though still low, difference was found between the groups in terms of job (or lack of) related stress, with the non-elderly population experiencing a higher level of stress. This is also not surprising, as many elderly individuals are no longer in the active work force.

In summary, quality of life for both elderly and non-elderly individuals in our two communities registered as good. Elderly individuals tend to be sensitive (more fearful) to changes in the conditions of their environment or community. Our test communities have experienced large population increases over the past decades. In response to our second question we found the elderly residents registered a slightly higher level of concern (negative perception) over the changes that have occurred in the community in recent years than the non-elderly residents who were rather neutral in their perception of the changes. Perception of changes in the community tended to be more directly associated with perception of the neighborhood (positive view on changes associated with positive view of neighborhood), accessibility to services, and feeling of safety and sense of community in the elderly population, indicating some mutual re-enforcing mechanism (but no causal direction). Non-elderly population had similar association. One odd result is the inverse relationship found between changes in the community and social support network (friends) among the elderly population. It might be that elderly individuals who have suffered a loss of social support (e.g., friends moving away because of the changes taking place, or dying) might tend to perceive the changes taking place in the community as negative.

It was surprising to find such limited number of QOL domains impacting psychological well-being, might be due to the small size of the sample. It was not surprising to note that the neighborhood and social network affect psychological well-being among the elderly population. It was somewhat surprising that the job (or lack of) was; perhaps an indication that the expanded life span of the elderly population of today is also expanding their desire to work longer. The results for the non-elderly population highlight the importance of securing adequate housing, as well as the expected importance of the job and income. This might also be a reflection of the increasing population that has taken place in these communities, of mostly young families seeking economic improvement by working in the food processing industries. The changes taking place in the community did not negatively impact either group's psychological well-being. Although reduced sense of control (which might be associated with changes in the community) has been associated with older adults' well-being and life satisfactions (Fry, 2000b), this did appear to be supported by the analysis reported here.

Caveats to the study reside mainly with use of a generic QOL instrument rather than one specifically developed for use with older people, and the limited size of the sample. It probably reduced the statistical significance of some of the correlation of the variables examined. Also, the limited number of communities studied make it impossible to attempt to generalize the results. It is also important to keep in mind that the findings relate more closely to small towns in rural areas that have experienced population increases, than small rural towns in general (who seem to be more affected by an ever declining population). This points to the need for further research of quality of life of the elderly residents in small rural towns, which are home to a growing older (65+ years) population (U.S. Census, 2011).

Appendix: List of Questions Utilized in Study

Stress Index

Tension with my neighbors is a source of stress.

Life in Crete is very stressful.

I feel pressure to do better, advance or succeed.

Racial discrimination is a source of stress for me.

The struggle for a better house is a source of stress for me.

Crime in Crete is a source of stress for me.

The social or cultural differences of people in the community are a source of stress.

Residential Satisfaction Index

I am satisfied with the size of my residence.

Satisfied with fire safety while in my residence.

I am satisfied with the level of safety from being a victim of a crime while in my residence.

I have adequate off street parking.

I am satisfied with the overall physical condition of my residence.

I have sufficient privacy from neighbors.

I have enough privacy from others in my residence.

Neighborhood Index

The quality of housing in my neighborhood.

Maintenance of housing in my neighborhood.

The overall visual attractiveness of the neighborhood.

The garbage collection.

The level of street maintenance in the neighborhood.

The traffic that goes through my neighborhood.

The parking of cars in neighborhood.

The overall quality of air in the neighborhood.

Accessibility Index

Access to convenient public transportation.

Access to recreation services (e.g. parks, programs, activities).

Accessibility of basic supplies (e.g. food).

Accessibility of retail (e.g. clothing, appliances, car).

Changes in Crete Index

Has the sense of community gotten better or worse?

Has the quality of housing gotten better or worse?

Has the availability of housing gotten better or worse?

Have crime conditions gotten better or worse?

Have crowding conditions gotten better or worse?

Have economic conditions gotten better or worse?

Nonindexed Single Questions

The “sense of community” in Crete.

I can rely on friends for support in times of need.

Social organizations provide support for me, when I am in need.

My overall level of stress.

My Job (or lack of job) is a source of stress for me.

My level of income is a source of stress.

The level of police protection.

Access to convenient public transportation.

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