

# The Measurement of Suicide Assessment and the development of a Treatment Strategy for Elders: Durkeimian Approach

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## Abstract

This article develops and validate a Durkheim Suicide Assessment (DSA). The DSA is designed to measure suicide risk among older adults. Despite a major influence of Durkheim's theory in understanding suicide, little effort has been made to apply such theory in gerontological practice. The DSA was developed to enable practitioners to assess suicide potential and develop a treatment strategy for elders. Data were drawn from a survey of 380 older adults over the age of 65. Exploratory factor analysis was conducted to assess factor structures of the DSA. Internal consistent reliability was examined using Cronbach's *alpha*. The results show that the DSA is a psychometrically sound measurement. Scores on each scale will inform the practitioner of the most effective treatment strategy to employ based on the type of suicide in which the elder has the highest probability of pursuing.

Keywords: suicide, assessment, treatment, elderly, Durkheim, Factor Analysis,

## Introduction

Data from American Association of Suicidology (AAS, 2011) suggests that suicide has declined but it continues to be a major social problem among elderly populations (Hooyman & Kiyak 2011). The experience is NOT uniquely American, but as De Leo and Spathonis (2004) demonstrate the high suicide rate among elders is an international phenomenon. The critical question is, "What can practitioners do to create or nurture an environment that reduces the likelihood that an elder would want to pursue *that* course of action?"

Within a two-year study, Marson (2005) learned that there is a great deal of contempt and distrust between the world of academia and the world of human service practice. He contends that practitioners are distressed because publications and research generated within the world of academia has little use within the world where practitioners must solve "real problems." For example, professors will teach single system designs with clear fabricated data that complies with all statistical assumptions. Little guidance is afforded to practitioners who rarely see such

clean data sets. The hallmark of our work with the Durkheim Suicide Assessment (DSA) instrument directly focuses on practical issues faced by practitioners.

### Durkheim's Theory of Suicide

Over hundred years ago, Durkheim (1897) constructed an empirically based sociological theory that produced non-psychological/physical causes of suicide. The prominent feature of Durkheim's original work is the theory's practicality. Once a practitioner understands the theory, he/she can be guided to produce a meaningful intervention strategy. Durkheim produced four suicidal dimensions that provide predictors for suicide which include: anomie, fatalistic, egoistic and altruistic. Marson and Powell (2011) provide a detailed theoretical description of these four central concepts. Their work provides the theoretical backdrop for our current study. However, each of the paired concepts is briefly described. Brief summaries are offered for the four dimensions.

#### *Anomie - Fatalistic*

Durkheim (1897) created the basis for a continuum between two discrete concepts "anomie" and "fatalistic." By anomie suicide, Durkheim intended to describe a social structure that was dominated by social rules for which the person could not gain familiarity or could keep up with the rapid changing social rules. The unprecedented rapid changes in technology (particularly communications) can baffle an elderly person to the point of profound frustration. When such frustration becomes unrelenting and no foreseeable slowing, the pathway for suicide becomes cleared. Marson and Powell (2011) provide more in depth examples in our contemporary social structure in which our elderly cohort resides.

Fatalistic suicide, of course, is the exact opposite of anomie suicide. Within a fatalistic social structure, the person is confronted with a social environment in which there is little to no changes in role expectations. Monotony is the centerpiece of such a social environment. The lack of and no hope of social stimulation becomes the catalyst for a desire to end one's life. Of Durkheim's four concepts, fatalistic suicide is the one which he offers little elaboration. This is somewhat ironic because within the arena of gerontology, fatalistic suicide would dominate. In fact, he limits his discussion of fatalistic suicide to a footnote on page 276 (Durkheim, 1897). Again, more in depth examples of fatalistic suicide among elders can be found in the work of Marson and Powell (2011).

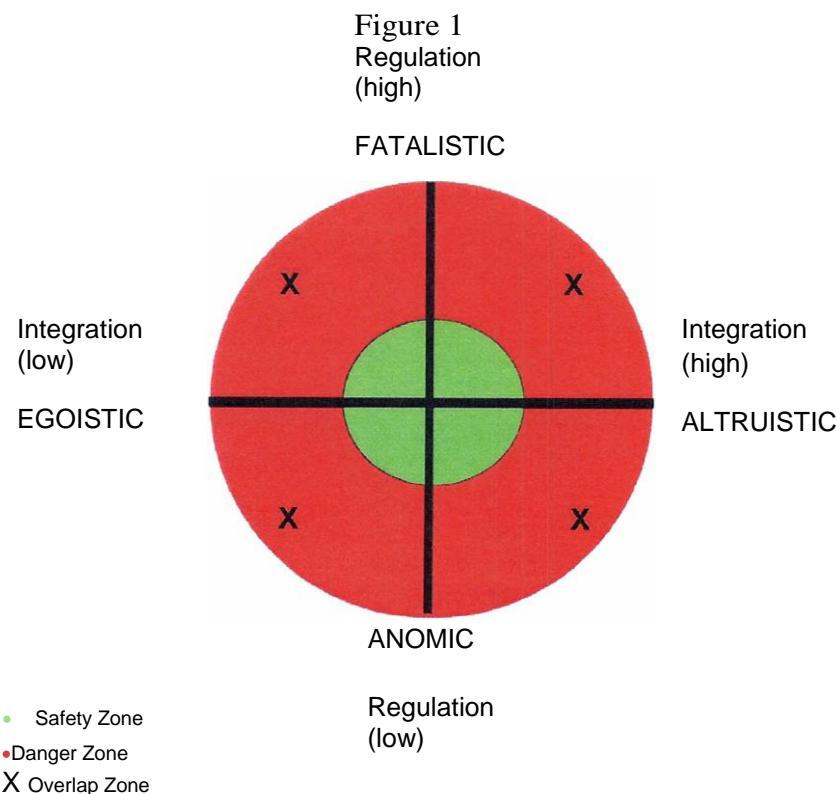
#### *Egoistic - Altruistic*

Durkheim (1897) created the basis for a continuum between two discrete concepts "egoistic" and "altruistic." By egoistic suicide, Durkheim envisioned a social structure in which the person survives in an isolated environment. Essentially, the person does not feel as part of a family, group, or has any sense of belongingness. The fertile soil for this type of environment is the nursing home where the resident has little to no visitation and where the facility is short staffed. Ultimately, the person's lack of connectedness and absence of role expectations evolves into an emotional state of hopelessness which in turn induces the person to contemplate a suicide option. More in depth examples of egoistic suicide among elders can be found in the work of Marson and Powell (2011).

By altruistic suicide, Durkheim intended to describe a social structure that characterized with social suppression. The social world becomes a clinging vine that strangles the person into

an uncompromising set of social roles and standards. Personal identity is stripped away; the group dominates the person. Although altruistic suicide more common among the general publication and *very common* within oriental cultures, we rarely find it within mainstream American society. The most common example within an elderly cohort is the person who accelerates his/her death to enable heirs to inherit as much of an estate before the cost health care bits into it. Again, more in depth examples of altruistic suicide among elders can be found in the work of Marson and Powell (2011).

Although an earlier version of Figure 1 has been published as part of the in depth theoretical description of Durkheim's work on suicide (Marson and Powell, 2011), the original intent for the graphic was illustrate the four dimensions for the Factor Analysis presented within this work.



The current factor analysis study is the first step to quantitatively identify where an elderly person moves from the safety zone (in the center) to the suicidal (red) zone.

### Methodology

Two issues are prominent to our methodology these include instrument construction and sampling. Both issues are discussed.

### Instrument Construction

Many efforts have been made to construct reliable and valid instrument to measure anomie, egoistic and altruistic patterns. Examples can be found in the works of Fischer and Corcoran (2007a; 2007b), Miller and Salkind (2002) Robinson, Shaver and Wrightsman (1991) Shaw and Wright (1967). Although Fischer and Corcoran (2007a; 2007b), Miller and Salkind

(2002) Robinson, Shaver and Wrightsman (1991) Shaw and Wright (1967) offer items that captured the essence of Durkheim theoretical intent, none of them specifically address topical areas within the elderly population. On the other hand, Kane and Kane (2000) offer sample items that address issues for the elderly population, but failed to capture the Durkeimian position. As a result, the scales for anomie, egoistic and altruistic emerged out of a synthesis of reviewing works.

Unlike the frequently cited scales for anomie, egoistic and altruistic, there has not been an interest in the development of fatalistic scales. No fatalistic scales could be identified for either the general population or more specifically for an elderly cohort. The fatalistic items were constructed from envisioning common scenarios within the context of Durkheim's theoretical construct and developing items. Because we did not have a theoretically based springboard for the development of the fatalistic items, we believed that this sub scale would emerge as the weakest of the four.

The final product evolved into 20 Likert style items for each dimension. If successful, we assumed that the factor analysis would eliminate items to produce a manageable and practical instrument. The final product can be found in the appendix.

### **Sampling**

In determining an adequate sample size, power analysis is usually conducted, but this is not useful for statistical analyses to examine psychometric properties of a measurement (Sapnas & Zeller, 2002). In general, two different criteria have been suggested regarding minimum sample size: absolute number of cases and subjects to variable ratios (STY). When an absolute number criterion is applied, 300 cases can be considered comfortable to conduct factor analysis (Tabachnick & Fidell, 2001). However, there are variations in a STY criterion ranging from two subjects per variable to 20 subjects per variables (Steve, 2002). Nonprobability sampling is used to increase feasibility of the research project. In particular, we employed a combination of volunteer samples (as required by our IRB) from a sampling frame and snowball samples. Each group we identify, we ask group members to recommend other membership groups. We have collected volunteers from the following organizations and clubs:

- Kirkland Club of the First Presbyterian Church of Lumberton, North Carolina;
- the Senior Center of Lumberton, North Carolina;
- the Senior Center of Hamlet, North Carolina;
- the Senior Center of Rockingham, North Carolina;
- the over 65 parishioners of the First Baptist Church of Rockingham, North Carolina;
- the AARP Chapter of Raleigh, North Carolina;
- residents of Wesley Pines Retirement Community of Lumberton, North Carolina;
- residents of Parks ide at Wesley Ridge Columbus, Ohio;
- Mothers and Daughters Club of Raleigh, North Carolina
- Life Styles Fitness Center of Lumberton, North Carolina.
- North High School (Columbus, Ohio) Graduation class of 1963
- Elders of Silicon Valley, San Jose, CA
- Members of Saint Michaels Church, Broken Arrow, OK

We have derived samples of between 7 to 45 from each of the organizations listed above. Some of the organizations suggested other organizations to contact. For example, the members of the Senior Center of Rockingham suggested contacting the Senior Center of Hamlet.

The most effective way to collect a sample from a club or institution is to appear in person. For example, we did not have funds to appear at the Parks ide at Wesley Ridge community and

derived a sample of three. We made a film explaining the research, but it was not adequate to generate the kind of interest in participating as in-person presentation. Survey Monkey [see <https://www.surveymonkey.com/s/OR7MMVL>] has also been employed to collect data. However, we have discovered that the only elderly persons willing to use this online service live in the "Silicon Valley" area of California.

In most research projects that include a questionnaire, the researcher desires to generalize from the sample to a population. Such samples are intended to create a snapshot of a point in time. To be an accurate portrayal of the population, a random sample must be collected in a specific and short time period. Our research project *does not* propose to generalize to a population. We are seeking to establish patterns consistent with Durkheim's four-dimensions found within his theory of suicide. The questionnaire was constructed by designing items consistent with Durkheim's four theoretical schemes. Each *single item* in a sub scale was designed and written to be uniquely suited for its subscale and *independent* from all other items in the other subscales. This was an extremely difficult task. The independence among items across the subscales is critical. By stressing the independence, the final product will provide the basis for guiding practitioners to an appropriate and individualized intervention for the elderly client.

#### Data analysis

Prior to performing statistical analyses, normality of the data was examined. A total of four items (item 39,57,65 and 75) were removed because of either its extreme skewness (skew greater than 3.0) or problematic kurtosis (Kurtosis greater than 10.0) (Kline, 2005). With 77 items, unrotated PCA was conducted. The main purpose of doing PCA is to reduce the number of items while keeping as much of the variances explained by the numbers of the original items (Worthington & Whittaker, 2006). Given the large number of items of DSA (i.e. 81 items), it is necessary to identify and remove either unnecessary or redundant items. Two criteria were used to decide which items remain: strong item with loading greater than .5 and single loading items. This initial process for variable reduction results in 26 items.

After identifying a simple set of the 26 items of the DSA, an exploratory factor analysis (EFA) with varimax rotation was performed to identify the factor structure of the DSA. EFA is a statistical technique used to identify the underlying dimensions of a scale (Harrington, 2009). Cronbach's  $\alpha$  was also examined to examine internal reliability of the DSA. Cronbach's  $\alpha$  of .70 or above is considered good internal consistency for a newly developed scale (Cortina, 1993; Nunnally, 1978). SPSS 18.0 were used to perform all statistical analyses.

### Results and Analysis

Prior to conducting PCA with unrotated solution, adequacy for factor analysis for the DSA was examined using the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity. KMO was .860, exceeding the recommended value of .6 (Tabachnick & Fidell, 2001) and the was statistically significant, Chi Square (3245) = 9913.910,  $p < .001$ , indicating that the data was factorable. The first unrotated PCA with 77 items yields 22 components with eigenvalue greater than 1 accounting for 64.42% of the total variance. It is difficult to interpret the initial PCAs with unrotated solution (Kline, 1994) because most items should load on the first component (Rattray & Jones, 2007). Non-strong items (i.e. loading less than .5) and multi-loaded items (i.e. loading on multiple components) were deleted, which result in 26 items.

The initial EFA with Varimax rotation with 26 items identified four factors with an eigenvalue greater than 1, yielding four dimensions of suicide risks. A total of eight items loaded on factor 1 and seven items primarily loaded on factor 2. Five items loaded on factor 3 and two items loaded on factor 4. Item 49 was removed in this stage because other items load on factors exceeding the most general cut off value for minimum loading, .32 (Tabachnick & Fidell, 2001). In addition, two more items, item 35, 36 and 37 were deleted because of cross loadings with value of greater than .45. The second EFA with 22 items was conducted. Four factor structure was identified, accounting for 46.2% of variance. Although, most of items clearly loaded on four factors, item 29 and 43 cross-loaded with the similar loadings: item 29 on factor 2 with loadings of .37 and factor 3 with .38 and item 49 on factor 1 with loading of .34 and factor 3 with loading of .37). Thus, item 29 and item 43 was removed, resulting in the final set of 20 items.

EFA with Varimax rotation with 20 items was conducted. Table 2 reports the results of final EFA with 21 items. The result revealed relatively a clear four factor structure compared to two previous results. Although the number of items were reduced to 20 items, explained variance by the set of items was increased to 48.12%. Factor 1 (Fatalistic), factor 2 (Anomie), factor 3 (Egoistic), and factor 4 (Fatalistic) explained 15.12%, 14.94%, 12.1 %, and 6.0 % of variance, respectively. Item communalities range from .29 to .89. Comrey and Lee (1992) suggests that factor loadings of absolute values are greater than .55 (30% of overlapping variance) are regarded as good and fair if they are above .45 (20% overlapping variance). Five items (item 31, 32, 33, 34, and 40) loaded on factor 1 with loadings greater than .55. Seven items (item 11, 13, 14, 15, 16, 17 and 20) loaded on factor 2 with loadings ranging from .45 to .70. Six items (item 2, 18, 25, 26, 28, and 56) loaded on factor 3 with loadings ranging greater than .45. Two items (item 8 and 9) loaded on factor 4 with loadings of .91 and .52. Except for item 11, all items loaded on each factor with loadings greater than .45, indicating fair level of loadings. A factor with fewer than three items can be deleted to develop a scale with a better factor structure. However, because this study is an exploratory study for developing a scale based on Durkheim's theory, we decided to keep factor 4 because it well represents the dimension of altruistic suicide.

Reliability of the 20 item of the DSA was examined using Cronbach's  $\alpha$ . The result indicates the excellent internal consistency with an  $\alpha$  of .90. In addition, internal consistency of four subscales were examined and yields. Cronbach's alpha coefficients for the fatalistic, anomie, egoistic, and altruistic are .89, .84, .76, and .63, respectively. According to the most common rule of thumb for reliability (Cortina, 1993; Nunnally, 1978), all subscales demonstrate good internal reliability except for the altruistic subscale. However, a low reliability for the altruistic subscale could be explained by its small number of items. Researchers pointed out that small number of items underestimate reliability (Tavakol & Dennick, 2011), whereas large number of items lead to an increase value of Cronbach's alpha (Waltz, Strickland, & Lenz, 2005)

Table 1. Result of unrotated pEA with 81 items (absolute value of loadings)

	Component																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Item1	.01	.04	.38	.03	.16	.25	.13	.00	.23	.16	.15	.28	.03	.16	.09	.07	.09	.26	.08	.23	.12	.00
item 2	.52	.08	.02	.18	.10	.06	.27	.07	.31	.25	.20	.04	.18	.02	.12	.09	.02	.03	.05	.08	.06	.06
item 3	.49	.15	.00	.02	.03	.08	.33	.02	.21	.13	.13	.18	.17	.21	.27	.12	.07	.04	.07	.16	.06	.20
item 4	.19	.04	.20	.21	.11	.10	.28	.22	.43	.02	.22	.09	.08	.05	.07	.10	.08	.12	.02	.20	.22	.08
itemS	.48	.09	.05	.15	.14	.02	.10	.04	.20	.07	.09	.19	.23	.10	.08	.22	.06	.06	.21	.02	.12	.37
item 6	.11	.02	.38	.43	.04	.07	.02	.26	.04	.25	.03	.03	.14	.07	.08	.12	.03	.02	.21	.17	.05	.02
item 7	.26	.00	.48	.20	.12	.16	.05	.09	.03	.21	.08	.25	.08	.22	.09	.19	.10	.16	.04	.05	.04	.05
item 8	.06	.07	.51	.43	.13	.04	.10	.17	.08	.04	.05	.19	.03	.22	.07	.07	.01	.14	.19	.05	.03	.03
item 9	.25	.06	.53	.33	.16	.27	.02	.15	.08	.13	.00	.13	.09	.03	.05	.01	.13	.17	.08	.14	.08	.07
item 10	.18	.14	.15	.04	.03	.22	.29	.09	.40	.18	.20	.01	.24	.07	.03	.00	.18	.23	.05	.17	.04	.20
item 11	.51	.16	.08	.12	.11	.16	.03	.06	.05	.15	.10	.19	.03	.07	.18	.11	.10	.09	.17	.15	.04	.11
item 12	.46	.06	.01	.11	.06	.40	.14	.03	.07	.03	.14	.17	.02	.09	.32	.01	.12	.16	.02	.11	.03	.07
item 13	.59	.25	.05	.13	.03	.24	.14	.02	.06	.12	.00	.07	.11	.07	.04	.19	.09	.12	.07	.05	.13	.08
item 14	.60	.04	.01	.09	.12	.37	.02	.06	.21	.05	.12	.01	.08	.06	.07	.02	.01	.07	.06	.05	.06	.01
item 15	.65	.13	.02	.03	.15	.25	.08	.07	.15	.01	.07	.05	.12	.00	.11	.09	.14	.11	.07	.13	.00	.08
item 16	.68	.21	.07	.01	.14	.18	.10	.15	.12	.09	.03	.14	.09	.00	.02	.08	.15	.05	.00	.05	.17	.02
item 17	.61	.13	.04	.09	.12	.01	.09	.05	.05	.06	.10	.04	.08	.18	.02	.04	.15	.17	.08	.13	.15	.10
item 18	.69	.15	.10	.06	.07	.10	.09	.02	.09	.02	.03	.13	.08	.08	.06	.06	.01	.06	.09	.07	.18	.04
item 19	.37	.11	.00	.09	.41	.06	.03	.04	.01	.09	.17	.01	.03	.03	.16	.11	.11	.05	.21	.16	.08	.04
item 20	.66	.19	.09	.05	.03	.21	.01	.07	.01	.02	.01	.24	.12	.15	.02	.10	.09	.07	.03	.07	.04	.13
item 21	.41	.14	.10	.15	.33	.18	.14	.04	.14	.11	.28	.11	.07	.03	.04	.29	.08	.14	.05	.18	.12	.04
item 22	.49	.32	.06	.13	.16	.00	.01	.11	.20	.20	.16	.23	.02	.16	.02	.06	.04	.04	.12	.08	.08	.08
item 23	.16	.26	.01	.20	.24	.12	.11	.13	.08	.25	.17	.19	.05	.05	.29	.04	.18	.36	.03	.09	.04	
item 24	.50	.27	.08	.34	.39	.05	.03	.07	.02	.13	.03	.01	.12	.06	.07	.02	.01	.00	.07	.05	.10	.16
item 25	.51	.02	.18	.28	.48	.05	.06	.12	.04	.04	.04	.09	.12	.07	.01	.06	.02	.02	.08	.02	.00	.04
item 26	.53	.15	.05	.04	.22	.01	.13	.09	.05	.06	.00	.01	.03	.20	.16	.22	.12	.02	.03	.00	.29	.06
item 27	.30	.24	.09	.04	.15	.14	.16	.03	.31	.17	.17	.02	.08	.25	.15	.04	.05	.13	.21	.28	.14	.18

item 28	.66	.19	.07	.06	.12	.07	.10	.17	.14	.06	.03	.01	.11	.15	.05	.00	.04	.02	.03	.05	.13	.13
item 29	.53	.03	.04	.14	.09	.15	.13	.14	.09	.02	.02	.00	.01	.18	.13	.23	.09	.18	.03	.17	.05	.12
item 30	.42	.12	.09	.08	.29	.00	.07	.04	.00	.03	.30	.02	.01	.15	.18	.20	.17	.09	.14	.17	.17	.13
item 31	.62	.25	.03	.03	.21	.06	.08	.03	.11	.13	.22	.05	.00	.08	.12	.11	.08	.10	.05	.09	.10	.15
item 32	.71	.08	.00	.04	.31	.13	.09	.06	.20	.06	.14	.12	.07	.08	.08	.10	.02	.02	.09	.05	.05	.08
item 33	.72	.14	.09	.05	.18	.05	.08	.01	.05	.10	.04	.07	.07	.13	.09	.11	.00	.13	.14	.08	.03	.17
item 34	.70	.06	.09	.06	.24	.13	.18	.12	.04	.08	.10	.09	.23	.02	.03	.03	.14	.06	.01	-.02	.00	.19
item 35	.73	.12	.10	.07	.21	.18	.08	.08	.10	.05	.09	.07	.18	.01	.02	.06	.04	.03	.04	.04	.05	.13
item 36	.69	.14	.02	.09	.16	.17	.03	.02	.01	.02	.13	.12	.14	.11	.10	.01	.05	.02	.15	.00	.01	.00
item 37	.72	.11	.09	.06	.04	.07	.17	.01	.09	.08	.03	.08	.01	.10	.15	.06	.03	.05	.03	.01	.13	.11
item 38	.05	.10	.10	.06	.15	.09	.26	.04	.17	.11	.08	.20	.16	.29	.14	.00	.39	.22	.10	.24	.27	.05
item 39	.65	.09	.12	.01	.28	.18	.03	.09	.04	.02	.04	.02	.01	.03	.11	.00	.05	.06	.12	.01	.02	.16
item 40	.39	.50	.07	.13	.01	.15	.07	.01	.01	.02	.05	.10	.26	.16	.20	.05	.04	.10	.19	.02	.09	.13
item 41	.49	.05	.03	.05	.02	.41	.16	.10	.13	.17	.07	.07	.02	.12	.15	.10	.06	.22	.07	.10	.14	.16
item 42	.51	.08	.12	.19	.01	.31	.14	.17	.00	.07	.18	.22	.04	.05	.23	.10	.07	.03	.00	.16	.04	.22
item 43	.45	.09	.04	.43	.19	.07	.07	.33	.12	.07	.09	.25	.11	.14	.16	.11	.06	.07	.05	.02	.09	.09
item 44	.41	.14	.07	.41	.11	.05	.03	.14	.20	.15	.11	.20	.14	.03	.02	.06	.03	.18	.20	.14	.11	.18
item 45	.37	.07	.14	.28	.26	.02	.04	.12	.03	.00	.15	.28	.28	.01	.12	.15	.13	.00	.00	.12	.09	.09
item 46	.19	.26	.25	.25	.26	.38	.10	.20	.24	.05	.01	.12	.09	.11	.15	.05	.07	.11	.03	.04	.10	.15
item 47	.21	.25	.31	.11	.05	.07	.09	.33	.29	.25	.03	.23	.17	.07	.02	.21	.01	.20	.01	.15	.03	.14
item 48	.41	.51	.14	.18	.20	.11	.04	.06	.02	.11	.02	.11	.06	.16	.04	.06	.16	.04	.25	.03	.01	.06
item 49	.31	.20	.36	.08	.11	.05	.12	.16	.29	.03	.00	.04	.11	.07	.03	.15	.21	.08	.14	.16	.01	.04
item 50	.23	.35	.19	.01	.23	.08	.27	.06	.14	.36	.04	.10	.13	.06	.10	.17	.05	.12	.19	.00	.16	.01
item 51	.42	.07	.31	.20	.16	.03	.15	.02	.12	.14	.03	.23	.23	.03	.02	.09	.24	.06	.00	.00	.05	.06
item 52	.30	.38	.22	.07	.12	.21	.15	.07	.01	.41	.02	.11	.06	.09	.11	.03	.11	.11	.15	.02	.13	.14
item 53	.45	.28	.09	.15	.11	.14	.12	.06	.08	.16	.22	.22	.21	.00	.13	.05	.16	.26	.05	.04	.04	.09
item 54	.10	.42	.14	.26	.10	.06	.09	.08	.07	.03	.13	.12	.02	.02	.07	.23	.24	.05	.06	.05	.20	.18
item 55	.63	.07	.05	.09	.09	.16	.17	.10	.10	.21	.13	.05	.09	.02	.02	.11	.01	.01	.17	.07	.00	.01
item 56	.40	.08	.07	.05	.25	.07	.01	.09	.12	.35	.19	.08	.15	.25	.11	.06	.17	.04	.10	.23	.19	.12
item 57	.36	.44	.00	.15	.13	.05	.26	.13	.07	.10	.06	.13	.03	.03	.16	.01	.15	.11	.07	.17	.16	.14
item 58	.25	.31	.09	.36	.09	.04	.06	.03	.07	.16	.05	.18	.02	.05	.01	.01	.19	.01	.20	.02	.22	.17

item 61	.44	.10	.04	.14	.15	.10	.15	.09	.03	.08	.20	.12	.40	.04	.01	.05	.21	.07	.01	.12	.06	.22
item 62	.02	.11	.35	.12	.18	.09	.14	.28	.03	.02	.30	.08	.07	.32	.06	.07	.28	.10	.21	.12	.06	.06
item 63	.16	.00	.24	.37	.10	.14	.23	.09	.07	.02	-.30	.04	.06	.02	.12	.00	.18	.01	.08	.12	.32	.02
item 64	.34	.32	.15	.10	.09	.10	.10	.26	.04	.30	.00	.10	.10	.20	.05	.03	.07	.21	.18	.00	.23	.05
item 66	.24	.47	.25	.20	.02	.00	.02	.03	.02	.12	.07	.23	.12	.30	.03	.02	.16	.07	.08	.26	.07	.05
item 67	.18	.08	.36	.03	.13	.10	.22	.10	.00	.01	.01	.28	.05	.12	.41	.20	.03	.08	.07	.06	.11	.16
item 68	.07	.32	.20	.08	.08	.10	.38	.09	.18	.29	.14	.11	.09	.05	.09	.22	.02	.07	.17	.16	.05	.04
item 69	.03	.31	.22	.08	.17	.03	.00	.32	.13	.04	.27	.10	.17	.20	.22	.27	.18	.01	.08	.10	.11	.06
item 70	.23	.27	.25	.07	.07	.07	.25	.01	.02	.09	.17	.07	.13	.09	.15	.39	.02	.07	.02	.08	.02	.06
item 71	.39	.32	.11	.05	.04	.01	.04	.08	.00	.04	.28	.05	.21	.11	.10	.00	.09	.11	.02	.22	.05	.11
item 72	.20	.06	.16	.06	.02	.23	.31	.40	.14	.16	.24	.23	.21	.18	.04	.06	.04	.11	.05	.02	.13	.02
item 73	.12	.04	.27	.08	.17	.03	.39	.29	.25	.12	.01	.07	.04	.04	.00	.18	.29	.18	.11	.05	.15	.09
item 74	.15	.09	.16	.29	.18	.42	.07	.18	.01	.06	.21	.01	.20	.01	.17	.26	.08	.17	.12	.09	.06	.05
item 76	.49	.20	.21	.26	.16	.21	.02	.14	.04	.07	.01	.12	.11	.23	.07	.08	.07	.06	.07	.04	.03	.04
item 77	.22	.30	.26	.14	.17	.10	.00	.15	.07	.25	.12	.03	.31	.06	.03	.05	.22	.07	.22	.13	.27	.02
item 78	.21	.19	.29	.12	.23	.14	.06	.31	.15	.09	.36	.03	.11	.24	.19	.06	.07	.12	.02	.06	.09	.05
item 79	.45	.30	.25	.13	.00	.08	.16	.21	.04	.04	.17	.00	.12	.01	.06	.16	.00	.07	.17	.06	.01	.09
item 80	.28	.22	.22	.19	.11	.15	.07	.23	.02	.04	.07	.15	.07	.20	.24	.04	.01	.26	.35	.05	.02	.13
item 81	.23	.32	.24	.10	.04	.18	.21	.34	.28	.10	.10	.09	.04	.07	.21	.10	.13	.21	.08	.16	.01	.03

Table. 2. Factor structure of the DSA.

Note: Items are sorted by size and items with loading greater than .45 are shown in bold.

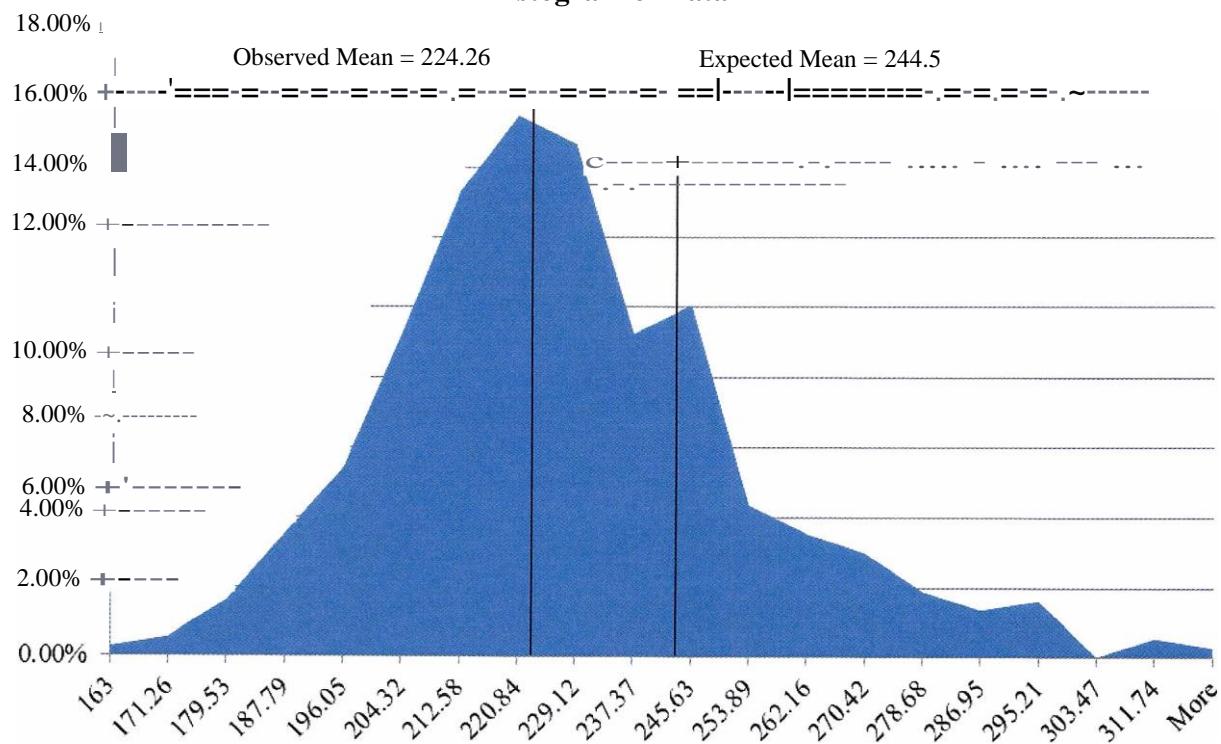
	R t t d F tor Matrix			
	Fatalistic	Anomie	Egoistic	Alturistic
32. I feel that my situation is hopeless.	.75	.27	.25	.00
34. I feel overwhelmed and defeated.	.72	.22	.28	-.13
33. I feel excluded by others.	.64	.36	.26	-.14
31. I feel that nobody really cares about me.	.61	.33	.16	.00
40. I have difficulty getting myself to stop thinking about how sad I am.	.55	.25	.35	.08
15. I am better off when I keep to myself.	.29	.66	.21	-.07
16. Most social relationships are meaningless.	.31	.66	.28	-.08
14. Everyone is out to manipulate you toward his own ends.	.21	.61	.26	.04
13. I try to avoid close relationships with people so that I will not be obligated to them.	.21	.56	.27	-.09
20. I long for a simple life in which no one needs me.	.23	.49	.43	.03
17. Most of my activities are determined by what society demands.	.36	.47	.19	-.05
II. I often feel alone when I am with other people.	.19	.41	.30	.07
26. I do not feel included in church activities.	.12	.25	.53	-.02
18. Often when I interact with others, I feel insecure.	.32	.31	.53	-.01
28. It is difficult to find someone to help me.	.29	.37	.48	-.10
25. I rarely visit others.	.11	.19	.49	-.10
56. I am bored with my life.	.33	.21	.47	-.09
2. I feel like I am a burden on my family.	.26	.16	.45	.02
9. When I die, I don't want to leave any debts or burdens on my family.	-.08	.01	-.24	.91
8. I don't want my family to go on welfare in order to pay my medical expenses.	-.01	-.04	.08	.52

### Limitations and implications for future research

The central problem with any social science research project is assuring that the sample is an accurate portrayal of the universe of desired subjects. One way to assess the precision of a sample is to examine the distribution. One needs to expect a normal distribution. As illustrated in Figure 2, our distribution approximates the normal curve. However, there is a problem. The sample mean is 224.26; while the expected mean is 244.5. The expected mean lies beyond one standard deviation from the sample mean. This helps explain why the factor loading were not as robust as expected. Our sample was collected in elderly who participate in churches, senior centers, volunteers from nursing homes, volunteers from a graduating class. The samples were derived from elders who are active and have group connections.

The sampling distribution is skewed in a manner that suggests the subjects are far from the red zone as identified in Figure 1. This configuration makes sense. The elders within the sample are connected within a social group and have relatively strong social ties. According to Durkheim's theory, ties to social groups, as long as the ties are not extreme, reduce the probability of suicide. High scores suggest movement toward the danger zone (red); while low scores suggest movement in the safety zone (green). Figure 2 illustrates that our sample is falling into the green zone. It is clear that because we collected our data within group settings we left out those who fall toward the red zone. In the end, because of the configuration of the distribution and the loading of the factors, Durkheim's theory is supported.

**Figure 2**  
**Histogram of Data**



The big question is, "what could have been done to create a better sample?" With the constraints of the Institutional Research Board (IRB) and the inability to extract a random sample, it is unlikely we could do better. However, one alternative may improve the distribution. If we were able to collect a larger sample that would include individual living in the community without firmly established ties to a social group, the distribution (according to the theory) would move more toward the red zone. That is likely to be part of the next trial.

Most importantly, the weaknesses of uncovering the four factors cannot be attributed to a weak theory. Operationalizing these concepts is a Herculean task. More work needs to be done.

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## ApPENDICE

The questionnaire that will be administered to elderly subjects is included below. For the subjects, the introduction and the questionnaire is printed in extra large, Times New Roman font (14 pt) and on legal size paper.

### Introduction:

I want to thank you for your willingness to participate in our research. It is important that you understand that your participation in this research is voluntary and you will not be penalized in any way for not completing the questionnaire. You may also refuse to answer any question that you don't feel comfortable answering, and you may decide at any time to withdraw your participation.

As you know, we are seeking a large group of people over the age of 65 to complete our questionnaire. Our mission is to determine if the questionnaire is well-written and complies with statistical standards.

Two issues are important:

First, as you respond to the items, ask yourself the question, "Does this make sense to me?" If it doesn't, circle the entire item. If you think you can help make the item clearer, let one of us know before you leave.

Second, we are NOT interested in examining how individuals responded to items, and we are NOT collecting any identifying information, such as names, so there is no need to put your name on the questionnaire. We will be examining how the individual responses are grouped together.

Do you have any questions?

If you have any questions that you don't feel comfortable to ask, you can contact Dr. Melanie Hoy, IRB Chair, at 910-775-4359 or at [melanie.hoy@uncp.edu](mailto:melanie.hoy@uncp.edu). This contact information is included at the end of the questionnaire.

Thank you for your help!

Case Number \_\_\_\_\_

1 Female 2 Male

Location: 1) Richmond      2) Robeson      3) Columbus 4) Other \_\_\_\_\_

Age \_\_\_\_\_

1. I don't want my family to see me in poor health.  
Strongly Agree Agree Not Sure      Disagree      Strongly Disagree
2. I feel like I am a burden on my family.  
Strongly Agree Agree Not Sure      Disagree      Strongly Disagree
3. My family visits me because they feel obligated to do so.  
Strongly Agree Agree Not Sure      Disagree      Strongly Disagree
4. My family is more important than I am.  
Strongly Agree Agree Not Sure      Disagree      Strongly Disagree
5. I am worth more dead than alive to my family.

<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
6. If I am dying, I do not want to be put on life support.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
7. When I die, I want my family to inherit all my belongings.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
8. I don't want my family to go on welfare in order to pay my medical expenses.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
9. When I die, I don't want to leave any debts or burdens on my family.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
10. Self sacrifice on my behalf is good for my family.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
11. I often feel alone when I am with other people.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
12. Our society holds no worthwhile values or goals.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
13. I try to avoid close relationships with people so that I will not be obligated to them.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
14. Everyone is out to manipulate you toward his own ends.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
15. I am better off when I keep to myself.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
16. Most social relationships are meaningless.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
17. Most of my activities are determined by what society demands.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
18. Often when I interact with others, I feel insecure.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
19. Big parties are very unexciting for me.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
20. I long for a simple life in which no one needs me.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
21. I have few close friends.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
22. I rarely see my family.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
23. I enjoy my time alone.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
24. I rarely have company.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
25. I rarely visit others.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
26. I do not feel included in church activities.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
27. I enjoy driving my car.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
28. It is difficult to find someone to help me.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
29. I always keep the shades/blinds on my windows closed.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
30. I do not go out to eat as often as I would like.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>

<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
31. I feel that nobody really cares about me.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
32. I feel that my situation is hopeless.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
33. I feel excluded by others.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
34. I feel overwhelmed and defeated.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
35. I feel that I am losing control of my life.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
36. I feel I bore people.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
37. I feel I get pushed around more than others.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
38. I feel like companionship.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
39. People are around me but not with me.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
40. I have difficulty getting myself to stop thinking about how sad I am.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
41. I like technology.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
42. I can't keep up with changes in my life.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
43. Too many things are going on in my life.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
44. People expect too much of me.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
45. My family can not get along without me.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
46. There are too many changes in my church.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
47. The world relies too much on computers.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
48. I don't like using a debit card.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
49. I am interested in learning new things.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
50. I like the way things use to be.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
51. I have not given up trying to accomplish what's important to me.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
52. At times I am unable to stay seated and need to pace around.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
53. My daily life were full of things that were interesting to me during the past month.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
54. I experienced trouble understanding, concentrating or remembering.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
55. I find it easy to do things I use to do.				
<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
56. I am bored with my life.				

<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
57. People often over look me.		
<b>Strongly Agree Agree Not Sure Disagree</b>		<b>Strongly Disagree</b>
58. My life rarely changes.		
<b>Strongly Agree Agree Not Sure Disagree</b>		<b>Strongly Disagree</b>
59. I am in very good health.		
<b>Strongly Agree Agree Not Sure Disagree</b>		<b>Strongly Disagree</b>
60. I frequently travel.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
61. I enjoy staying in bed all day.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
62. I enjoy old TV shows.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
63. I have the same friends I had twenty years ago.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
64. I am tired of being sick.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
65. have to wait too long to see my doctor.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
66. I still enjoy the things I use to.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
67. I become annoyed when people talk on cell phones.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
68. I don't like to use an ATM.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
69. I enjoy paying my bills online.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
70. I can not figure out how to work a DVD player.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
71. I enjoy being physically active most days of the week.		
<b>Strongly Agree Agree Not Sure Disagree</b>		<b>Strongly Disagree</b>
72. I like having certain family members involved in my medical care.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
73. I like having access to alternative medical providers-chiropractors, acupuncturists, etc.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
74. I enjoy contact with animals.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
75. I feel loved and needed.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
76. I have plans for the future.		
<b>Strongly Agree Agree Not Sure Disagree</b>		<b>Strongly Disagree</b>
77. Little things bother me more now than in the past.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
78. In looking back, I feel that I have done most of the things that I've wanted to do.		
<b>Strongly Agree Agree Not Sure Disagree</b>		<b>Strongly Disagree</b>
79. I am in good spirits most of the time.		
<b>Strongly Agree Agree Not Sure Disagree</b>		<b>Strongly Disagree</b>
80. I can no longer make repairs around the house.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
81. I walk shorter distances or stop to rest often.		
<b>Strongly Agree Agree Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>