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The Abrams geriatric self-neglect scale: introduction, validation and psychometric properties

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Abstract

Objective: Self-neglect is an imprecisely defined entity with multiple clinical expressions and adverse health consequences, especially in the elderly. However, research has been limited by the absence of a measurement instrument that is both inclusive and specific. Our goal was to establish the psychometric properties of a quantitative instrument, the Abrams Geriatric Self-Neglect Scale (AGSS).

Methods: We analyzed data from a 2007 case–control study of 71 cognitively intact community-dwelling older self-neglectors that had used the AGSS. The AGSS was validated against two “gold standards”: a categorical definition of self-neglect developed by expert consensus; and the clinical judgment of a geriatric psychiatrist using chart review. Frequencies were examined for the six scale domains by source (Subject, Observer, and Overall Impression). Internal consistency was estimated for each source, and associations among the sources were evaluated.

Results: Internal consistency estimates for the AGSS were rated as “good,” with the Subject responses having the lowest alpha and omega (0.681 and 0.692) and the Observer responses the highest (0.758 and 0.765). Subject and Observer scores had the lowest association (0.578, $p < 0.001$). Using expert consensus criteria as the primary “gold standard,” the Observer and Overall

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Author contributions

Dr. Robert C. Abrams developed the concept for the Scale, completed the literature review, oversaw data analysis, and wrote the final manuscript. Dr. M. Carrington Reid supervised the concept development and study design and also edited the manuscript. Dr. Cynthia Lien managed the data organization, storage, and cleaning, and also participated in the analyses. Dr. Maria Pavlou completed the field testing of the Scale and generated data from the original case-control study. Dr. Anthony Rosen supervised data organization, storage, cleaning and other aspects of data management, and helped create the conceptual basis for the content of the Scale. Dr. Nancy Needell developed the interrater reliability component and the dimensional comparisons within the study. Mr. Joseph Eimicke directly undertook all data analyses reported in this manuscript. Dr. Jeanne Teresi supervised Mr. Eimicke and selected the data analytic approaches and strategies that were used.

Conflict of interest

None declared.

Supporting information

Additional Supporting Information may be found online in the supporting information tab for this article:

Impression subscales were “good” at classifying self-neglect, while the Subject subscale was “fair.”

Conclusions: The AGSS correctly classified and quantified self-neglect against two “gold standards.” Sufficient correlations among multiple sources of information allow investigators and clinicians to choose flexibly from Subject, Observer, or Overall Impression. The lower internal consistency estimates for Subject responses are consistent with self-neglectors’ propensity to disavow symptoms.

Keywords

geriatric; self-neglect; scale

Introduction

The term “self-neglect” subsumes a range of behaviors, including refusal of needed services, as well as inattention to health, hygiene, nutrition, finances, environment, and social engagement (Pavlou and Lachs, 2006; Pavlou and Lachs, 2008). A growing and probably under-reported syndrome (Dong *et al.*, 2012a; Boothroyd, 2014), self-neglect is especially consequential in the elderly, in whom it has been associated with adverse health outcomes, among them higher rates of hospitalization (Dong *et al.*, 2012b), mortality (Dong *et al.*, 2009), depression (Abrams *et al.*, 2002), and misuse of prescription medicines (Culbertson *et al.*, 2011). Etiologically, self-neglect in later life has been linked to childhood or adolescent traumas (Lien *et al.*, 2016). Older self-neglectors are often unable or unwilling to accept responsibility for their circumstances, a deficit in insight that may exacerbate their distress (Rathborn-McCuan and Fabian, 1992).

The study of self-neglect has been constrained by the absence of a consensual standard for diagnosing, measuring severity, and evaluating the effectiveness of interventions (Rathborn-McCuan and Fabian, 1992). Unlike hoarding, the construct of “self-neglect” encompasses multiple manifestations, a likely contributor to the suboptimal sensitivity or specificity of existing measurement tools (Dyer *et al.*, 2006; Kelly *et al.*, 2008). A parsimonious protocol that balances breadth against depth would constitute an important advance.

In this article, we re-introduce a clinician-rated, semi-structured questionnaire created in 2007 but unchanged since that time. The Scale, now called the Abrams Geriatric Self-Neglect Scale (AGSS), measures self-neglect in community-dwelling elderly. Herein we report analyses of the validation and psychometric properties of the AGSS.

History of the AGSS

The AGSS, initially named the Cornell Scale for Self-Neglect, was developed to identify clinical characteristics of older self-neglectors and to measure self-neglect independent of comorbid medical and psychiatric conditions (Abrams *et al.*, 2002; Pavlou *et al.*, 2006; Pavlou *et al.*, 2007). The scale has now been rebranded to avoid confusion with a similarly named depression instrument (Alexopoulos *et al.*, 1988) and to include the specifier “geriatric” to better reflect its intended use. The subscales of the AGSS have also been given clearer descriptive labels, but no substantive changes have been made to the 2006–2007

original. A preliminary trial demonstrated feasibility and moderate to strong rater agreement (Pavlou *et al.*, 2007).

We now re-analyzed data from the original study to establish the properties of the AGSS. We hypothesized that the AGSS would validly distinguish between self-neglectors and non-self-neglectors and provide a quantitative assessment of self-neglect. Two categorical “gold standards” were used for validation: (i) a definition of self-neglect developed using expert consensus (Pavlou and Lachs, 2006; Pavlou and Lachs, 2008); and (ii) the independent clinical impression of a geriatric psychiatry specialist based on chart review.

Methods

Construction of the scale: Rationale and selection of items

The six items of the AGSS represent domains derived from the geriatric self-neglect literature (Rathborn-McCuan and Fabian, 1992; Pavlou and Lachs, 2008; Boothroyd, 2014). Content and syntax were revised based on critiques of local psychiatrists, geriatricians, and social workers, all of whom had extensive clinical experience with older patients.

Several queries are suggested for each item, encouraging interviewers to determine the phrasing and context most relevant to the individual. For the six domains (prescription medicines, personal care, nutrition, environment/housing, financial stewardship, and socialization), scores can be based on the following: (i) responses by the *Subjects*; (ii) ratings by *Observers*, that is, interviewers, using scrutiny of subjects’ environment and behavior as well as verbal responses; and (iii) *Overall Impression*, differing from the Observer ratings in that all sources of information (corroboration from clinicians, family members, or non-relative caregivers) are considered. Modeled from the format of the Cornell Scale for Depression in Dementia (Alexopoulos *et al.*, 1988), the AGSS offers the interviewer the option to rate one, two, or all three sources or subscales, but the final score is to be tallied from the single source that in the rater’s judgment best applies. Where informants are unavailable or the veracity of Subject responses is doubtful, the Observer score is to be used as a default.

To expand the range of scores, ratings for items are selected from a five-step gradient (0–4, with 0 for absence of self-neglect and 4 for the highest level of self-neglect). Total scores for the AGSS therefore extend from 0 (no self-neglect) to 24 (the most severe).

Design of the validation study

Subject recruitment and evaluation.—The subjects were 71 self-neglectors who had been evaluated as part of a 2007 case–control study (Pavlou *et al.*, 2006; Pavlou *et al.*, 2007). Subjects were required to be community-dwellers over age 65 and sufficiently cognitively intact to participate meaningfully in interviews (Mini-Mental State Exam score > 24) (Folstein *et al.*, 1975). Most had been referred by social service agencies, care managers, or senior centers. Subjects were paid \$40 for participation in two 90-minute home-based interviews. The study was approved by the Weill Cornell Medical College Institutional Review Board, and there are no conflicts of interest or ethical issues to report.

To facilitate examination of relationships among the subscales, interviewers were asked to rate each subject using all three sources. AGSS responses were recorded numerically and entered into a REDcap database.

“Gold standards.”—The AGSS scores were validated against two “gold standards.” These included the Pavlou definition of self-neglect (Pavlou and Lachs, 2006; Pavlou and Lachs, 2008) and the clinical judgment of a geriatric psychiatrist (RA) using information in subjects’ research charts. The Pavlou definition of self-neglect, developed from literature reviews and refined with the input of leading geriatric psychiatrists, required the presence of any *one* of the following criteria: (i) Inattention to Hygiene and/or Environment; (ii) Refusal of Indicated Services; and (iii) Evidence of Self-Endangerment. The Pavlou consensus criteria had been applied to the subjects in 2006–2007 by the original research team, and the categorical psychiatric chart assessment was completed by a psychiatrist in the present group (RA).

For the chart-review validation, the psychiatrist (RA) was blind to the Pavlou assessment and to the AGSS scores but had access to all other information in the protocol, including a narrative for each subject. The narrative covered a description of the subject’s home, the reasons for referral, the subject’s appearance and behavior during the interview, medical history, and social history.

The psychiatrist then assigned a binary designation (self-neglector or non-self-neglector) to each subject so that the two “gold standards” could be compared categorically. In addition, the psychiatrist provided a severity score (0–3, with 3 the most severe self-neglect) that served as a dimensional measure for comparison against the number of Pavlou criteria met. The dimensional score also comprised the basis of a reliability evaluation in which two geriatric psychiatrists (RA and NN) independently rated a sub-sample of the cases ($N = 37$, 52%) for presence and severity of self-neglect.

Data analysis

Frequencies were examined for the six scale domains by source (Subject, Observer, and Overall Impression). Higher scores indicated greater self-neglect.

Internal consistency estimates (Coefficient Alpha [Cronbach, 1951], Ordinal Alpha, and McDonald’s Omega Total [McDonald, 1999]) were computed for each source based on polychoric correlations (Zumbo *et al.*, 2007). McDonald’s Omega was computed from a factor model, and the Explained Common Variance, a measure of dimensionality, was based on a bi-factor model; these statistics were computed with the psych software package in R (Revelle, 2015). Associations among the sources were evaluated using Pearson correlations.

Cohen’s Kappa (Cohen, 1960) was used to assess agreement between pairs of rating sources. The following guidelines were adopted for interpretation of Kappas: <0 = no agreement; $0-0.20$ = slight/poor; $0.21-0.40$ = fair; $0.41-0.60$ = moderate; $0.61-0.80$ = substantial; $0.81-1$ = almost perfect (Landis and Koch, 1977). Maximum Kappas were also calculated to determine the highest values obtainable, given the marginal distributions. Confidence

intervals (CI) for Kappas and maximum Kappas for non-binary data were computed using the website <http://vassarstats.net/kappa.html>.

To determine optimal cutoff points for AGSS subscales against the “gold standards,” receiver operating characteristic (ROC) curves were created, and area under the curve estimates were calculated. Values for sensitivity, specificity, positive predictive value (ppv), negative predictive value (npv), and overall correct classification (occ) were calculated at each potential cutoff point.

All other analyses were conducted using IBM SPSS Statistics version 23.

Results

Demographic data

Demographic characteristics of the 71 older self-neglectors are described in the succeeding texts. Percentage denominators comprised the total number of subjects with available data in each demographic category.

Forty-two percent ($N = 30$) of the self-neglectors were aged 65–75 years; 30% ($N = 21$) were 76–85; 24% ($N = 17$) were 86–95 years; and one subject was older than 95 years. Fifty-six percent ($N = 40$) were female. Sixteen percent ($N = 11$) were Hispanic White; 72% ($N = 51$) were Non-Hispanic White; 23% ($N = 16$) were African-American; and one subject was Asian. Nine percent ($N = 6$) were married; 21% ($N = 15$) were widowed; 21% ($N = 15$) were divorced; and 42% ($N = 30$) had never married. Eighty percent ($N = 57$) were living alone. Twenty-eight percent ($N = 20$) had a home attendant. Thirty-nine percent ($N = 28$) of the subjects were at the poverty level or below. Twenty-three percent ($N = 16$) were current smokers, and 38% ($N = 27$) were current alcohol users. Eighty-five percent ($N = 60$) had a primary care physician. Additional clinical information derived from the original interviews is published elsewhere (Pavlou *et al.*, 2007; Lien *et al.*, 2016).

The Pavlou criterion that most frequently was met to justify the designation of self-neglect and inclusion into the study was Self-Endangerment (70%, $N = 50$), followed by Inattention to Environment (63%, $N = 45$), Inattention to Hygiene (48%, $N = 34$) (either Inattention to Environment or Inattention to Hygiene sufficed to indicate self-neglect), and Refusal of Indicated Services (44%, $N = 31$).

The AGSS: Frequency of items by source

Table 1 displays the frequencies of the six AGSS items by source (Subject, Observer, and Overall Impression).

Internal consistency of the AGSS

Internal consistency estimates were rated as “good,” with the Subject responses having the lowest alpha and omega (0.681 and 0.692, respectively) and the Observer responses the highest (0.758 and 0.765, respectively).

The AGSS: Overall levels of self-neglect by source

Among the three rating sources or subscales, the Subject responses cited the lowest levels of self-neglect (mean = 4.42, standard deviation [SD] = 2.98), while the Observers reported the most self-neglect (mean = 5.96, SD = 4.05). Levels of self-neglect obtained using the Overall Impression subscale lay between those of the Subjects and Observers (mean = 5.50, SD = 3.78).

The AGSS against two “gold standards”

Table 2 shows descriptive statistics for the AGSS and the two “gold standards,” namely, the Pavlou self-neglect criteria (Pavlou and Lachs, 2006; Pavlou and Lachs, 2008) and the psychiatrist’s chart-review evaluations.

Rater agreement on the presence of self-neglect using the recent psychiatrist chart-review evaluations against the categorizations of self-neglect defined by Pavlou and Lachs (2006, 2008) and applied by the original research team was “moderate” (Kappa = 0.557; CI: 0.401, 0.712; maximum Kappa = 0.637).

Examining the relationships between individual Pavlou criteria and the psychiatrist chart-review evaluation, agreement between Inattention to Hygiene and/or Environment and the presence of self-neglect found by the psychiatrist was “moderate” (Kappa = 0.435; CI: 0.263, 0.607; maximum Kappa = 0.559). For Refusal of Services, there was “fair” agreement with the psychiatrist chart-review (Kappa = 0.253; CI: 0.062, 0.444; maximum Kappa = 0.511); and for Self-Endangerment, there was also “fair” agreement (Kappa = 0.392; CI: 0.216, 0.569; maximum Kappa = 0.416).

In addition, “fair” agreement was found between the psychiatrist chart-review rating of the presence and severity of self-neglect using a 0–3 gradient (absent, mild, moderate, and severe) and the *number* of Pavlou criteria met (Kappa = 0.233; CI: 0.114, 0.352; maximum Kappa = 0.316). Substantial interrater agreement was found between two independent psychiatrist raters (RA and NN) when using the 0–3 presence-severity gradient (Kappa = 0.783, CI: 0.558, 1.000; maximum kappa = 0.844).

The AGSS: Correlations among sources

The Subject and the Overall Impression scores had the highest association (0.843), while the Subject and the Observer scores had the lowest (0.578). The Pearson correlation between Observer and Overall Impression was between the highest and lowest correlations (0.750). All associations were significant at the $p < 0.001$ level.

Pearson correlations among sources or subscales of the AGSS, number of Pavlou criteria and presence and severity rated by a psychiatrist, are shown in Table 3.

Using the AGSS to identify self-neglect against “gold standards”: Histograms, ROCs, area under the curve estimates, sensitivity and specificity, recommended cut-off scores

Histograms for the AGSS Observer scores by Pavlou self-neglect criteria and by psychiatrist categorical chart-review evaluation are shown in Figures 1 and 2, respectively. Histograms for AGSS Subject and Overall Impression scores by Pavlou self-neglect criteria and by psychiatrist chart-review evaluation are shown in Supplementary Figures S1–S4.

Receiver Operating Characteristic Curves for the AGSS results against Pavlou self-neglect criteria and psychiatrist chart-review evaluation are presented in Supplementary Figures S5-S10.

Area under the curve estimates for the AGSS ratings by Pavlou self-neglect criteria and psychiatrist evaluation are shown in Table 4.

Using the Pavlou self-neglect criteria as the primary “gold standard,” the Observer and Overall Impression subscales were “good” at correctly classifying self-neglect (area under the curve = 0.878 and 0.833, respectively), while the Subject subscale was “fair” (area under the curve = 0.760).

Using the psychiatrist chart-review evaluation as a second “gold standard,” the Overall Impression subscale was “good” at correctly classifying self-neglect (area under the curve = 0.826), while the Subject and Observer subscales were “fair” (area under the curve = 0.775 and 0.772, respectively).

Based on reviews of sensitivity, specificity, ppv, npv, and occ, a cutoff of four and above is recommended for the Subject subscale against the Pavlou criteria as “gold standard” for the presence of self-neglect; a cutoff of five and above is recommended for the Observer and Overall Impression subscales against the Pavlou criteria (Supplementary Tables S1–S3).

Based on reviews of sensitivity, specificity, ppv, npv, and occ, a cutoff of four and above is recommended for the Subject subscale against the psychiatrist chart-review evaluation as “gold standard” for the presence of self-neglect; a cutoff of five and above is recommended for the Observer scale, and a cutoff of six and above for the Overall Impression scale against the psychiatrist evaluation (Supplementary Tables S4–S6).

Discussion

In these analyses, we found the AGSS to have “good” internal consistency; that Observers’ responses yielded higher levels of self-neglect and internal consistency than the Subjects’ responses is consistent with the tendency of self-neglectors to lack insight regarding their own self-neglecting behaviors (Rathborn-McCuan and Fabian, 1992; Dyer *et al.*, 2006). For similar reasons, the lowest associations were between the AGSS scores of Subjects and Observers. The Overall Impression scores represented a view apparently tempered by clinical judgment, with the Observers’ greater certainty of self-neglect counterbalanced by the Subjects’ proclivity to disavowal or understatement. Nevertheless, it is anticipated that the Observer column will for convenience be most frequently used. We did not emphasize a total score for all three columns because redundancy compromised its interpretive value.

For this study, the Pavlou criteria, “gold standard #1,” were accepted as the ultimate arbiters of self-neglect, so that subjects meeting one or more of the three criteria were deemed to be self-neglectors. However, the individual Pavlou criteria had Kappas consistent with only “moderate” or “fair” agreement with the categorical psychiatric chart-review evaluation; this finding may reflect the multi-symptomatic nature of self-neglect, so that psychiatric

estimates of self-neglect severity may not have been driven by the particular issues raised by the Pavlou criteria.

A related phenomenon may have also influenced the modest Kappas for the dimensional comparison between the psychiatric chart-review severity scale and the *number* of Pavlou criteria met. The psychiatric severity assessment and the Pavlou criteria may have emphasized different aspects of self-neglect; the psychiatrist could conceivably have assigned a high self-neglect severity score based on a single Pavlou criterion. Conversely, the psychiatrist may not necessarily have been impressed by severity in cases where multiple Pavlou criteria were met. Notably, the dimensional psychiatric chart-review severity assessments revealed substantial agreement between two psychiatrists.

Previous scales

The AGSS is not the first scale to measure self-neglect in the elderly. Dyer *et al.* (2006) introduced the Self-Neglect Severity Scale (SSS) before the original trials of the AGSS were completed. The SSS, like the AGSS, incorporates both observational and self-report data. However, the usefulness of the SSS may be limited by its length and scope; nearly half of this inventory's "functioning" section features items that are peripheral to self-neglect, such as a test of cognitive functioning, evidence of delusions, and ability to summon help in an emergency. In inclusive instruments a confound may arise between core aspects of self-neglect and factors that are essentially either correlates or indicators of severity (Gurland and Gurland, 2009). While the culling of items might improve the coefficient Alpha, sensitivity and specificity are sacrificed (Kelly *et al.*, 2008). We aimed to circumvent that process and create at first pass a brief, unambiguous measure with acceptable specificity and sensitivity and a dimensional capability.

Several of the other previous scales are also inexplicit, that is, they are partially or wholly devoted to content that is only indirectly related to self-neglect (Saliba *et al.*, 2001; Pickens *et al.*, 2007; Sauvageau and Hunter, 2012), while others are devoted to a single aspect (Oliver and Butler, 1979; Halliday and Snowden, 2009).

Structure of the AGSS

The most innovative aspect of the AGSS is its "tripartite" structure that permits a choice among three perspectives, that of the Subject, Observer, and the Overall Impression. This structure affords a balance between flexibility and standardization.

Because of the sufficiently high correlations among the three sources or subscales of the AGSS, all three subscales may be rated initially and then one source with optimal information selected for the final scoring of the Scale; it is intended that a single source be used for all items in the final score. However, it should be noted that the validity of self-report information has been challenged, with discrepant scoring of observers versus clients on screens for functional status (Rubenstein *et al.*, 1984; Brody *et al.*, 1997). Pickens *et al.* (2007) attributed this phenomenon to the tendency of older individuals, fearful of consequences involving loss of independence, to over-report their functional status.

Neglect versus self-neglect and co-morbid conditions; severity indicators

Neglect versus self-neglect and co-morbid conditions.—The distinction between self-neglect and neglect perpetrated upon a victim has been loosely drawn (Naik *et al.*, 2008). The AGSS assumes that if a function is *completely* beyond the physical or cognitive ability of an individual, as might occur more than occasionally in older individuals, that failure cannot be attributed to self-neglect and is in fact closer to abuse. Self-determination is the core of self-neglect; it is essentially a choice. However, when self-neglect is potentially avoidable by the individual but reflects impaired judgment stemming from medical or psychiatric disorders, the self-neglecting behavior is then considered to be comorbid with the accompanying entity; for example, older persons subjected to “green-dot” schemes or telephone fraud may be counter-intuitively categorized as self-neglectors rather than victims of abuse because their victimization results from impaired judgment (personal communication, Risa Breckman, MSW). For optimal clarity, the self-neglect assessment is best undertaken together with a complete physical and psychiatric evaluation.

Severity indicators.

Both the Pavlou scheme and the AGSS feature environmental neglect as one of the central foci of self-neglect. However, unlike the Pavlou criteria, the AGSS does not include the refusal of needed services, nor self-endangerment, as separate domains because these factors were viewed as severity indicators applicable across the other features of self-neglect. Thus, willingness to accept compensatory services and the extent of possible endangerment should be considered in scoring *each* AGSS item.

While it was accepted that the presence of any one of the three Pavlou criteria would be consistent with self-neglect for the present study, ambiguities are encountered in applying categorical criteria without a severity scale. To consider one criterion, how endangering must “endangering” be (Naik *et al.*, 2008)? Also, general criteria may not be sensitive to atypical cases (Lauder *et al.*, 2009). In contrast, the AGSS features specific inquiries that can serve as proxies for larger domains; adherence to prescription medications, for example, may reflect subjects’ attitudes toward medical care globally.

Limitations and conclusion

The principal limitations of this study involve unresolved questions in the characterization of self-neglect. The assumption of the AGSS that physical or cognitive inability to adhere to reasonable standards of self-care should preclude a designation of self-neglect requires closer examination. Also, there is a problem of circularity in that neither of the “gold standards” against which the AGSS was evaluated in this report should be considered ideal, because the validity of the Pavlou criteria has not been independently established, and the “expert opinion” psychiatrist evaluations were restricted to chart review.

Although the conceptual underpinnings of geriatric self-neglect have been extensively considered, the clinical course and outcomes of this important entity warrant further study. Progress in these areas has been impeded by the lack of a succinct yet comprehensive measurement scheme or benchmark (Dyer *et al.*, 2006; Kelly *et al.*, 2008). Even the

psychiatric Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition (American Psychiatric Publishing, Inc., 2013), having introduced the entity of “hoarding,” did not mention or recognize self-neglect. Despite its limitations, we present the AGSS as a usable, relevant assessment tool for the vexing problem of self-neglect in the elderly.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Key points

- Self-neglect is an entity with important adverse health consequences, especially in the elderly.
- Self-neglect research has been limited by the absence of a measurement instrument that is sufficiently inclusive but not overly broad and that uses multiple sources of information.
- Our goal was to establish the psychometric properties of an assessment instrument, the Abrams Geriatric Self-Neglect Scale (AGSS).
- The AGSS was able to classify and quantify self-neglect against two “gold standards,” and its subscales had acceptable levels of internal consistency.

Figure 1. Histogram of Abrams Geriatric Self-Neglect Scale (AGSS) observer scores by Pavlou self-neglect criteria.

Figure 2.
Histogram of Abrams Geriatric Self-Neglect Scale (AGSS) observer scores by psychiatrist evaluation.

Table 1

Frequencies of Abrams Geriatric Self-Neglect Scale items by source

	Subject			Observer			Overall Impression		
	N	%	Valid %	N	%	Valid %	Count	%	Valid %
1. PRESCRIPTION MEDICATIONS: How do you take your medicines? Do you fill prescriptions? Do you ever skip/forget? How frequently?	72	62.07	63.16	44	37.93	54.32	58	50.00	51.33
Takes meds exactly as prescribed									
Once or twice a month may forget/skip/take too much/wrong time	25	21.55	21.93	18	15.52	22.22	26	22.41	23.01
Once or twice a week may forget/skip/take too much/wrong time	10	8.62	8.77	8	6.90	9.88	19	16.38	16.81
Mostly any way/variable, or do not bother much about it	4	3.45	3.51	8	6.90	9.88	4	3.45	3.54
Usually do not get prescriptions filled at all	3	2.59	2.63	3	2.59	3.70	6	5.17	5.31
No answer	2	1.72	0.00	35	30.17	0.00	3	2.59	0.00
Every day	66	57.39	57.39	32	27.59	37.21	61	52.59	53.04
2. PERSONAL CARE: How frequently do you bathe/shower or wash yourself? Dress in clean clothes and brush your teeth/clean your dentures?	46	40.00	40.00	44	37.93	51.16	46	39.66	40.00
Dress clean/brush teeth on most days (may bathe/wash 1-3x/week)									
Dress clean/brush teeth once a week (may bathe/wash 1-2x/month)	2	1.74	1.74	8	6.90	9.30	6	5.17	5.22
Dress in clean clothes/brush teeth less than once a week	1	0.87	0.87	2	1.72	2.33	1	0.86	0.87
Usually do not do any of these	0	0.00	0.00	0	0.00	0.00	1	0.86	0.87
No answer	0	0.00	0.00	30	25.86	0.00	1	0.86	0.00
3. NUTRITION: How is your diet? How many meals do you have? Any vitamins? Do you take enough or too many calories?	51	43.97	43.97	27	23.28	31.40	42	36.21	36.52
Eat three good meals a day, nearly every day									
Eat one to two good meals a day and take a vitamin/supplement	51	43.97	43.97	39	33.62	45.35	49	42.24	42.61
Half the time not enough calories/overeat/a lot of junk food	9	7.76	7.76	13	11.21	15.12	15	12.93	13.04
More than half the time not enough calories/overeat	3	2.59	2.59	4	3.45	4.65	7	6.03	6.09
Diet is very poor/do not pay any attention to it	2	1.72	1.72	3	2.59	3.49	2	1.72	1.74
No answer	0	0.00	0.00	30	25.86	0.00	1	0.86	0.00
4. ENVIRONMENT/HOUSING: How clean is your home? Are things working properly?	43	37.07	37.07	25	21.55	29.76	33	28.45	30.56
Clean/heat/decent repair									
Not spotlessly clean or perfect repair, but still pretty good	46	39.66	39.66	18	15.52	21.43	34	29.31	31.48
Some areas are dirty, but most not bad/some areas have piled up papers or things that need to be	14	12.07	12.07	26	22.41	30.95	18	15.52	16.67

	Subject			Observer			Overall Impression		
	N	%	Valid %	N	%	Valid %	Count	%	Valid %
thrown away/one to two appliances or lights are not working									
Most is dirty/most areas have piled-up papers/things/three to four appliances or lights are not working	6	5.17	5.17	9	7.76	10.71	16	13.79	14.81
Extremely dirty/very large piles of papers/things/most appliances or lights are not working	7	6.03	6.03	6	5.17	7.14	7	6.03	6.48
No answer	0	0.00	0.00	32	27.59	0.00	8	6.90	0.00
Always paid on time (by myself/somebody else)	82	71.30	71.30	58	50.43	67.44	78	67.83	68.42
Sometimes late paying bills	23	20.00	20.00	15	13.04	17.44	23	20.00	20.18
Sometimes confused about bills but manage/lose track of money but manage	6	5.22	5.22	5	4.35	5.81	7	6.09	6.14
Most of the time confused about bills/pay late, but no threat with eviction/shutoff (phone/electricity)	4	3.48	3.48	5	4.35	5.81	4	3.48	3.51
Cannot cope with bills/money at all, do not have anyone to help, threatened with eviction/shutoff	0	0.00	0.00	3	2.61	3.49	2	1.74	1.75
No answer	0	0.00	0.00	29	25.22	0.00	1	.87	0.00
Stay in contact as much as in the past	33	28.70	28.70	19	16.52	22.09	31	27.19	27.43
Not as much as in the past but fairly close contact by visits/phone; few friends/family left (in contact), but go to senior center at least once a week	57	49.57	49.57	37	32.17	43.02	49	42.98	43.36
Mostly on holidays or special occasions	5	4.35	4.35	10	8.70	11.63	8	7.02	7.08
Hardly ever in contact/leave house only for medical appointments/food shopping	16	13.91	13.91	15	13.04	17.44	20	17.54	17.70
Hardly ever see/talk to anyone—leave home only when absolutely must do so	4	3.48	3.48	5	4.35	5.81	5	4.39	4.42
No answer	0	0.00	0.00	29	25.22	0.00	1	0.88	0.00

5. FINANCIAL STEWARDSHIP: How do you manage your bills?

6. SOCIALIZATION: How is your social life? Do you keep in touch with friends and family?

Table 2

Descriptive statistics for the AGSS by Pavlou self-neglect criteria and psychiatrist evaluation

Psychiatrist evaluation of case files for evidence of self-neglect																									
Self-neglect as defined by Pavlou criteria							No					Yes													
AGSS rating	N	Mean	SD	Median	Min	Max	N	Mean	SD	Median	Min	Max	N	Mean	SD	Median	Min	Max							
Subject	54	3.02	(2.06)	3	0	9	62	5.65	(3.13)	5	0	14	Subject	55	3.27	(2.24)	3	0	11	46	6.04	(3.06)	5	1	14
Observer	38	3.37	(2.24)	3	0	9	54	7.78	(4.05)	7	0	18	Observer	39	3.92	(2.68)	4	0	10	42	7.81	(4.38)	7	0	18
Overall													Overall												
impression	53	3.00	(1.89)	3	0	8	62	7.63	(3.70)	7	0	17	impression	55	3.75	(2.60)	3	0	11	45	7.87	(3.85)	7	0	17
Total	54	8.33	(5.26)	8	0	26	62	20.05	(9.72)	19	0	46	Total	55	9.80	(6.67)	9	0	29	46	20.87	(9.87)	19	7	46

AGSS, Abrams Geriatric Self-Neglect Scale; SD, standard deviation.

Table 3

Pearson correlations of subscales, number of Pavlou criteria met, and presence and severity rated by a psychiatrist (RA)

	Subject rating of self-neglect (prorated; high score indicates greater neglect)	Observer rating of self-neglect (prorated; high score indicates greater neglect)	Overall Impression rating of self-neglect (prorated; high score indicates greater neglect)	Number of Pavlou criteria met	Standard #2: Presence and severity (RA)
Participant rating of self-neglect (prorated; high score indicates greater neglect)	1				
Observer rating of self-neglect (prorated; high score indicates greater neglect)	.578	1			
Investigator rating of self-neglect (prorated; high score indicates greater neglect)	.843	.750	1		
Number of Pavlou criteria met	.393	.523	.581	1	
Gold standard #2: Presence and severity (Dr. Abrams)	.434	.428	.606	.522	1

Table 4

Area under the curve estimates for the AGSS ratings

Criteria/rating	Area under the curve
Pavlou self-neglect criteria	
AGSS Subject subscale	.760
AGSS Observer subscale	.833
AGSS Overall Impression subscale	.878
Psychiatrist Evaluation	
AGSS Subject subscale	.775
AGSS Observer subscale	.772
AGSS Overall Impression subscale	.826

AGSS, Abrams Geriatric Self-Neglect Scale.