



Published in final edited form as:

*J Am Acad Nurse Pract.* 2007 March ; 19(3): 137–142. doi:10.1111/j.1745-7599.2007.00205.x.

## The Utility of the KELS Test in Substantiated Cases of Elder Self-neglect

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### Abstract

**Purpose**—Self-neglect is the most prevalent finding among cases reported to Adult Protective Services and is characterized by an inability to meet one's own basic needs. The Kohlman Evaluation of Living Skills (KELS) has been validated in geriatric populations to assess performance with both instrumental (IADL) and basic activities of daily living (ADL), and as an assessment tool for the capacity to live independently, therefore, the purpose of this analysis was to compare the scores of the KELS between substantiated cases of self-neglect and matched community-dwelling elders.

**Methods**—This is a cross-sectional pilot study of 50 adults aged 65 years and older who were recruited from Adult Protective Services (APS) as documented cases of self-neglect and 50 control participants recruited from Harris County Hospital District outpatient clinics. Control participants were matched for age, race, gender and zip code. A geriatric nurse practitioner-led team administered a comprehensive geriatric assessment in homes of all study participants. The assessment included the KELS and Mini-Mental State Examination (MMSE) tests. Chi-square analyses were used to determine if cases of self-neglect were significantly more likely to fail the KELS test than matched controls.

**Summary of Results**—The analyses revealed that self-neglectors were significantly more likely to fail the KELS than non-self-neglectors (50% vs. 30%,  $p=0.025$ ). When stratified by MMSE scores, self-neglectors with intact cognitive function remained significantly more likely to fail the KELS compared to matched, cognitively intact controls (45% vs. 17%,  $p=0.013$ ).

**Conclusion**—Abnormal results using an in-home KELS test was significantly associated with substantiated cases of self-neglect. These findings suggest that the KELS test has significant utility as part of a comprehensive geriatric assessment to aid clinicians in suspected cases of self-neglect.

**Implications for Practice**—There is currently no gold standard measure for identifying capacity with self-care behaviors among cases of self-neglect. As a result, self-neglect may remain unidentified in many clinical settings. The KELS provides clinicians with an objective measure of an individual's capacity and performance with everyday life supporting tasks and thus, provides information that can help nurse practitioners identify elders at risk for self-neglect.

### Introduction

Elder self-neglect is the most prevalent finding among cases reported to Adult Protective Services (APS) and is characterized by an inability to meet one's own basic needs (Lachs, Williams, O'Brien, Hurst and Horwitz, 1997; Pavlik, Hyman, Festa and Dyer, 2001; Fulmer, Abraham and Fairchild,

2000; Mosqueda, Burnight, Liao and Kemp, 2004; Payne & Gainey, 2005). Self-neglectors often have untreated medical conditions, are socially isolated and found to be living in squalor (National Center on Elder Abuse, 2005; Clark, 1975). Early reports termed this condition senile breakdown syndrome in which self-neglectors failed to maintain self-care standards as accepted by their community (Macmillan & Shaw, 1966). Self-neglect is a serious public health issue and has been demonstrated to be an independent risk factor for death (Lachs, O'Brien and Hurst, 1998; Payne & Gainey, 2005). The etiology of self-neglect is unknown yet may be associated with the development of executive dysfunction, a condition in which an individual is unable to translate simple tasks into complex, goal-directed behaviors such as cooking, dressing oneself and performing housework (Royall, Palmer, Chiodo and Polk, 2004). Since self-neglect is difficult to detect and diagnose, Adult and Gerontological Nurse Practitioners need to become familiar with this syndrome and its health consequences. Furthermore, Nurse Practitioners can lead multidisciplinary home assessments of elders at risk for self-neglect. The purpose of this paper is to determine whether abnormal scores on the Kohlman Evaluation of Living Skills (KELS), a validated measure of capacity and performance with self-care behaviors, is associated with substantiated cases of elder self-neglect compared to matched controls.

### Scope of the Problem

The National Center for Health Statistics predicts that the older adult population will account for 20.3% of the United States population by the year 2050, which is an increase of 8% from the 2000 census ("Federal Interagency", 2004). Due to this rapidly growing population and fears of increasing incidence of elder mistreatment, in 1992 Congress mandated that the National Center on Elder Abuse conduct a study to determine the incidence of abuse, neglect and exploitation in the elderly population. This study collected data through a nationally representative sample of 20 counties in 15 states among non-institutionalized elderly. According to this study, there were approximately 139,000 (25%) cases of reported self-neglect in persons 60 years of age and older compared to approximately 551,000 (75%) of other types of cases reported to APS. As in other geriatric disorders, such as depression, these numbers may reflect only the "tip of the iceberg" as only a small percentage of the total number of self-neglectors are likely to present to clinicians for care. In fact, only 1.4% of substantiated self-neglectors actually self-report, therefore, it is critical to develop and utilize a method to identify elder self-neglect in the home setting (National Center on Elder Abuse, 1998).

Self-neglect syndrome is often characterized by an inability to perform or obtain assistance with Instrumental and Basic Activities of Daily Living (IADL/ADLs). Basic activities of daily living (ADLs) are self-care activities that include eating, bathing, dressing and toileting. Failure to perform these tasks predict a need for caregiver support and subsequent morbidity and mortality (Naik, Concato and Gill, 2004). Instrumental activities of daily living (IADLs) include more complex levels of functioning such as preparing meals, performing housework, managing finances and using the telephone. Poor performance on these tasks indicate that an individual may not be able to live independently and correlates strongly with placement in long-term care (The Merck Manual of Geriatrics, 2003). In the clinic or emergency

department setting, it is often difficult to detect self-neglect since suspected individuals are either too impaired to provide adequate history or decline to provide the facts of their living situation out of shame or resistance to intervention (Harrell, Toronjo, McLaughlin, Pavlik, Hyman and Dyer, 2002). Physical examination may not reveal self-neglect as patients are examined away from their home settings and some bathe and change their clothes only when they see their clinician. Diagnostic tests that rely on self-report measures may be inadequate because cognitive or affective impairment are often associated with self-neglect (Dyer, Pavlik, Murphy and Hyman, 2000; Guralnik, Simonsick, Ferrucci, Glynn, Berkman, Blazer et al., 1994).

The standard measures of Instrumental and Basic ADLs rely on self-report or proxy report and may be inappropriate for assessing self-neglect. The Kohlman Evaluation of Living Skills (KELS) is a tool originally designed for occupational therapists to assess a client's ability to perform basic living skills. It assesses both Instrumental (IADLs) and Basic ADLs (Kohlman-Thomson, 1992). Unlike other measures of ADLs where assessments are either through self or proxy report, the KELS has 3 components of assessment including self-report, observation and performance. A study conducted by Zimnavoda, Weinblatt and Katz (2002) tested the validity of the KELS as a measure of safe and independent living in the community. This study of an elderly population in Israel included those living in the community, residing in assisted living, and community-dwelling but requiring day care services. Using an in-home assessment, the authors found that the KELS test had greater prognostic validity than individual measures of cognitive, ADL and IADL functions as a measure of safe and independent living in the community. Based on this prior research, we hypothesized that the KELS test could be a useful component for an in-home assessment of suspected cases of self-neglect. The purpose of the current study is to determine if abnormal scores on the KELS is associated with substantiated cases of self-neglect compared to matched controls of community-dwelling elders.

## Methods

As part of a National Institutes of Health grant funded under the Roadmap Initiative, a cross-sectional pilot study was conducted between March 2005 and October 2005. Prior to enrollment, Institutional Review Board approval was obtained from Baylor College of Medicine and Harris County Hospital District in Houston, Texas.

The KELS was part of a multidimensional battery performed on 50 substantiated cases of elder self-neglect and 50 matched, community-dwelling elders aged 65 years and older. The KELS assesses ADL and IADLs in five areas including self-care, safety & health, money management, transportation & telephone and work & leisure. Scoring is from 0–16 with higher scores indicating a need for assistance to live in a community setting. The scoring system was originally designed to place clients into three categories for the purpose of discharge planning to the home environment: (1) independent with a score of 5 or less (2) borderline skills with a score between 5–5½ and (3) needs assistance with a score greater than 6 (Kohlman-Thomson, 1992). For the current study, a failed KELS test is defined as a score equal to or greater than 6.

## Study Population

Fifty self-neglectors were recruited from Adult Protective Services region VI of Harris County in Houston, Texas. Self-neglectors had validated self-neglect as documented by APS caseworkers. The caseworkers sought permission for the client's name to be released to Baylor College of Medicine researchers by signing a release form if they met the following inclusion criteria: (1) Validated case of self-neglect, (2) 65 years of age and older, (3) English speaking, and (4) residents of Harris County. The study clients were contacted by telephone to schedule a home visit. While at the client's home, a consent form was administered according to a preset protocol where the document is read in its entirety and then the clients are required to state the purpose of the study including the risks and benefits of the study prior to signing the consent form. All study clients were given a copy of the consent form.

Fifty control clients were recruited from the geriatric clinic and matched for age, race, gender, and zip code (as a validated surrogate measure of socioeconomic status). Control clients were contacted by telephone to schedule a home visit. Consent to participate was the same procedure as the study clients.

## Measures

A nurse practitioner-led research team conducted a comprehensive geriatric assessment that consisted of the following tools: Physical examination, social and medical history, Mini-Mental State Examination (MMSE) (Folstein, Folstein and McHugh, 1975), Wolf-Klein Clock test (Wolf-Klein, Silverstone, Levy and Brod, 1989), Manual Muscle testing (Lafayette Instrument Company, 2003), Activities of Daily Living Efficacy (Reid, Williams and Gill, 2003), Physical Performance Test (PPT) (Reuben & Siu, 1990), Kohlman Evaluation of Living Skills (KELS) (Kohlman-Thomson, 1992), Cut-Annoyed-Guilty-Eye (CAGE) questionnaire (Ewing, 1984), Alcohol Use Disorders Identification Test (AUDIT) (World Health Organization, 1992), Geriatric Depression Scale (GDS) (Yesavage, Brink, Rose, Lum, Huang, Adey, et al. 1983), Self-Rated Health & Mortality (Idler & Angel, 1990), Brief Psychiatric Rating Scale (BPRS) (Overall & Gorham, 1962), Self-Neglect Severity Scale (Dyer, Kelly, Pavlik, Burnett and Pickens, 2005) and a food storage assessment. In addition, a comprehensive nutritional panel, developed by the nutritional biochemistry division at the Lyndon B. Johnson Space Center and APOe4 levels were obtained. All assessments were conducted in the client's home by a geriatric nurse practitioner and a research assistant who were trained in the protocol. An occupational therapist provided training on KELS administration.

## Statistical Analyses

Chi-square analyses were conducted to determine the relation of self-neglect (defined by APS) and results on the KELS tests (pass or fail as defined above). In addition, cases of self-neglect and matched controls were stratified by the presence or absence of cognitive impairment. Cognitive impairment was defined as a Mini-Mental State Examination (MMSE) score of less than 24.

## Results

The demographic information of the participants for this pilot study are found in Table 1. Chi-square analyses revealed that self-neglectors were significantly more likely to fail the KELS than matched controls (50% vs. 30%,  $\chi^2 = 5.0$ ,  $p=0.025$ ). When stratified by MMSE, self-neglectors with intact cognitive function remained significantly more likely to fail the KELS compared to matched, cognitively intact elders with normal MMSE scores (45% vs. 17%,  $\chi^2 = 6.15$ ,  $p=0.013$ ). The stratified analyses are summarized in Table 2.

## Discussion

The first step in any intervention for self-neglect is reliable detection of this syndrome. Recommendations to screen for self-neglect were made in the 1960s; authors recommended that healthcare workers, community workers, providers and mental healthcare providers should keep abreast of this issue in order to identify potential cases “to avoid the final degradation” (Macmillan & Shaw, 1966, p. 1037). Currently, hospital personnel, friends or neighbors, law enforcement officers, clinicians and providers report most substantiated cases of self-neglect. There are several validated screening tools in existence to screen for other conditions reported to APS such as physical and emotional abuse, neglect by a caretaker or family member, sexual abuse and financial exploitation, but these screening tools have not been validated to identify self-neglect (“Elder Abuse”, 2003).

As mentioned above, self-reporting is unlikely and difficult to validate in the clinic setting. In fact, any tool that requires self-report is unlikely to be an effective screening tool for elder self-neglect. Studies have shown a disparity between a client’s self-report compared to a clinician’s observational report on instrumental or basic activities of daily living scales (Brody, Johnson and Ried, 1997; Rubenstein, Schairer, Wieland and Kane, 1984). Usually, clients tend to overrate their ability to perform basic activities of daily living out of fear of being placed in a nursing home or are being overly optimistic in order to be discharged home sooner since these evaluations are used to assist clinicians in determining whether or not a person can live independently (Rubenstein et al. 1984). Several studies have reported that hospitalized elderly tend to overrate their functional abilities compared to observational assessments whereas community-dwelling elders often underestimate their functional abilities (Reuben, Valle, Hays and Siu, 1995; Kivela, 1984, Rubenstein et al. 1984).

Many ADL assessment tools developed and tested in the inpatient or clinic setting are not always validated for use in the community setting (Brown, Moore, Hemman and Yunek, 1996). The KELS was originally developed for use in the inpatient psychiatric setting, but was later tested and validated on different populations including geriatric in-patients and various community-based settings (Morrow, 1985; Zimnavoda et al. 2002). Although the KELS has not previously been employed to assess self-neglect, the results of this study strongly suggest that it may be a valuable tool in detecting capacity and performance with activities of daily living in persons suspected to neglect themselves. The KELS takes 20–30 minutes to perform, which may discourage its use by clinicians in a busy clinical practice or emergency

room setting. However, self-report is not the answer to improving detection of self-neglect and these clients may be overlooked. When self-reports do not coincide with clinical evidence, Nurse Practitioners can direct multidisciplinary teams using easy to perform KELS as part of an in-home comprehensive geriatric assessment.

### Limitations

There are two limitations to this study. The first is that this report is based on preliminary analyses with a small sample size, which limits statistical power as well as a generalization of the results to a larger population. The second is that there was no blinding of the interviewers or randomization in selecting the control subjects.

### Conclusion and Recommendations

Elder self-neglect has been shown to be an independent risk factor for death (Lachs et al. 1998). For clinicians, identification of this syndrome is crucial and relies on valid and effective screening tools. Future studies are needed to establish the utility of the KELS as part of a standard geriatric assessment in lieu of instruments that rely on a straight-forward client self-report. Incorporating the KELS into a comprehensive geriatric assessment as part of a multidisciplinary team evaluation may aid clinicians in identifying cases of self-neglect where a multidisciplinary treatment plan can be initiated and followed.

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**Table 1**

Demographic Comparisons Between 50 Validated Cases and 50 Community-Dwelling Elders

	Cases	Controls
<b>Age (average)</b>	76.3	76.5
<b>Race</b>		
<b>African-American</b>	58%	70%
<b>European-American</b>	36%	30%
<b>Hispanic-American</b>	6%	0%
<b>Gender</b>		
<b>Female</b>	64%	64%
<b>Male</b>	36%	36%

**Table 2**

KELS Scores Stratified by MMSE Among Substantiated Cases of Self-Neglect & Matched Controls

<b>MMSE Score</b>	<b>KELS Score</b>	<b>Cases N (%)</b>	<b>Controls N (%)</b>
Pass (24+)	Pass (<6)	16 (55)	30 (83)
	<b>Fail (6+)</b>	<b>13 (45)</b>	<b>6 (17)</b>
Fail (<24)	Pass (<6)	8 (40)	5 (36)
	<b>Fail (6+)</b>	<b>12(60)</b>	<b>9 (64)</b>