Published in final edited form as:
J Interpers Violence. 2011 October ; 26(15): 2947–2972. doi:10.1177/0886260510390959.

Prevalence and Correlates of Elder Mistreatment in South Carolina: The South Carolina Elder Mistreatment Study

Ananda B. Amstadter, PhD, **Kristyn Zajac, PhD**, **Martha Strachan, PhD**, **Melba A. Hernandez, MS**, **Dean G. Kilpatrick, PhD**, and **Ron Acierno, PhD**
Medical University of South Carolina

Abstract

Objectives—The purposes of this study were to a) derive prevalence estimates for elder mistreatment (emotional, physical, sexual, neglectful and financial mistreatment of older adults [age 60 +]) in a randomly selected sample of South Carolinians; b) examine correlates (i.e., potential risk factors) of mistreatment; and c) examine incident characteristics of mistreatment events.

Methods—Random Digit Dialing (RDD) was used to derive a representative sample in terms of age and gender; Computer Assisted Telephone Interviewing was used to standardize collection of demographic, correlate, and mistreatment data. Prevalence estimates and mistreatment correlates were obtained and subjected to logistic regression.

Results—902 participants provided data. Prevalence for mistreatment types (since age 60) were: 12.9% emotional; 2.1% physical; 0.3% sexual; and 5.4% for potential neglect and 6.6% financial exploitation by family member. The most consistent correlates of mistreatment across abuse types were low social support and needing assistance with daily living activities.

Conclusions—1 in 10 participants reported either emotional, physical, sexual, or neglectful mistreatment within the past year, and 2 in 10 reported mistreatment since age 60. Across categories, the most consistent correlate of mistreatment was low social support, representing an area toward which preventive intervention may be directed with significant public health implications.

Keywords

Elder mistreatment; prevalence; correlates; rural United States

Elder mistreatment, defined as intentional harm inflicted on an elder or failure to protect the elder from harm or meet the elder's basic needs (National Research Council, 2003), is an important public health problem, as it is related to increased mortality (Lachs, Williams, O'Brien, Pillemer, & Charlson, 1998) and negative physical and mental health outcomes (Comijs, Penninx, Knipscheer, & van Tilburg, 1999; Laumann, Leitsch, & Waite, 2008). This problem is likely to gain in relevance as the older adult population is growing faster

Address correspondence to Ananda B. Amstadter, PhD, National Crime Victims Research and Treatment Center, Department of Psychiatry and Behavioral Sciences, Medical University of South Carolina, 67 President Street, 2-S, Charleston, SC 29425; amstadt@musc.edu..

than other age groups. Unfortunately, research into the expanding problem of elder mistreatment has lagged behind other fields, and almost no research has been conducted on mistreatment prevalence in rural states. Thus, documenting prevalence rates and determining both risk and protective correlates related to elder mistreatment in rural states is essential to informing public policy on this issue.

Several national studies have provided estimates of elder mistreatment in the U.S. The National Elder Abuse Incidence Study (Tatara, 1997) estimated that 449,924 persons aged 60 or older had been physically abused, neglected, or in some way mistreated in 1996. However, data were collected from Adult Protective Services records and reports from community professionals, which are likely to underestimate prevalence rates, as a large majority of elder mistreatment is believed to go unreported. In a later study using direct assessment of physical, verbal, and financial abuse in a sample of 3,005 individuals aged 57 to 85 (Laumann et al., 2008), approximately 1 in 9 older adults reported past-year mistreatment. Most recently, Acierno and colleagues (2010) conducted a survey of nearly 6,000 older adults via random digit dial and found that about 10% reported some form of mistreatment in the past year. With the exception of the Acierno and et al. (2010) study, significant methodological limitations have prevented a clear understanding of the prevalence rates of elder mistreatment. For example, studies often do not assess the full range of elder mistreatment types (e.g., neglect, sexual assault) and often use one item assessments for each mistreatment type. Research on interpersonal violence with younger populations have highlighted the importance of using behaviorally specific descriptions of assault with closed-ended questions in order to identify mistreatment events adequately (Acierno, 2003).

Several studies have also examined prevalence of elder mistreatment using samples from specific geographic regions, revealing a wide range in estimated prevalence. For example, lifetime estimates ranged from 1.0-2.0% in Boston and New Jersey to 4.1% in Maryland. Outside of the U.S., prevalence estimates were between 0.5% - 1.4% in Canada (Podnieks, Pillemer, Nicholson, Shillington, & Frizzel, 1989) and 2.6% in the U. K. (Biggs, Manthorpe, Tinker, Doyle, & Erens, 2009). The rates of mistreatment appear to be higher in some specific classes of older adults; for example, a study of respite medical care workers in Great Britain found that 45% admitted mistreatment (Homer & Gilleard, 1990), a study at a chronic illness center found mistreatment rates of 9.6% (Lau & Kosberg, 1979), and a study of veterans seeking medical services found mistreatment rates of 5.4% (Moon, Lawson, Carpiac, & Spaziano, 2006). Not surprisingly, a recent meta-analysis of elder mistreatment studies in the U.S. and other countries noted large discrepancies in prevalence rates across studies (Cooper, Selwood, & Livingston, 2008). Due to differences in sampling and interviewing techniques, it is unclear whether these differences are related to regional influences (e.g., urban vs rural differences) or methodological artifacts.

Nonetheless, the studies described above have shed light on the scope and correlates of the elder mistreatment problem. For example, female gender (Biggs et al., 2009; Laumann et al., 2008; Pillemer & Finkelhor, 1988; Yaffe, Weiss, Wolfson, & Lithwick, 2007) and, in some cases, younger age (Biggs et al., 2009; Klein, Tobin, & Salomon, 2008; Laumann et al., 2008) have been linked to higher rates of reported mistreatment. Age also appears to interact

with health status to predict likelihood of mistreatment, such that younger elderly who are in poor health are more likely to experience mistreatment, particularly neglect (Biggs et al., 2009). In addition, a large study in the U.K. found that marital status (being divorced or separated as compared to widowed) and health status (poorer health compared to fair or good health) increased the likelihood of mistreatment (Biggs et al., 2009). Finally, less participation in social activities was identified a risk factor (Racic, Kusmuk, Kozomara, Develnogic, & Tepic, 2006), particularly among males (Yaffe et al., 2007).

Most of the research thus far has focused on urban areas, whereas little attention has been paid to rural populations and no studies have recruited samples from Southern states. Older adults make up a larger percentage of the population in rural areas than in urban areas (18% versus 15%) and older adults represent a higher percentage of the population in the relatively more rural southeastern and midwestern parts of the US than in the Northern and coastal regions (Rogers, 2003; Ricketts, 1999). Furthermore, research suggests that living in rural areas is associated with variables that increase mistreatment risk including facing greater barriers to health care (e.g., lack of public transportation, social isolation), having a greater likelihood of being an ethnic minority, and having poorer functional and physical health status relative to urban and suburban older adults (e.g., Goins, Williams, Carter, Spencer, & Solovieva, 2005; Bennett, Olastosi, & Probst, 2008). Finally, little is known about elder maltreatment in the southern part of the U.S., as large scale studies have focused on northeastern U.S. and non-U.S. populations. This problem is compounded by the fact that what we do know about elder mistreatment in northern U.S. states is currently outdated, as few of these studies have been conducted within the last decade.

The aim of the current study is to examine prevalence rates of elder mistreatment in South Carolina, where 39.5% of the population live in federally designated rural locations compared to the 21% national average (U.S. Census Bureau, 2000). This study represents a unique opportunity to investigate the prevalence and correlates of elder mistreatment in a southern state with a significant rural population, using methodological specifications designed to address limitations in previous studies. First, the study assessed all potential forms of elder mistreatment, including physical, sexual, emotional, financial exploitation, and neglect, some of which have been omitted from past studies. Second, the study utilized behaviorally specific descriptions of assault with closed-ended questions to assess elder mistreatment, which has been shown to be superior to single-item assessments of trauma (Acierno, 2003). In addition, the study used telephone surveys conducted when the participant could be in a private setting, which increases the likelihood of disclosure.

Method

Sampling

The survey sample was derived using stratified RDD with an area probability sample based on Census-defined ‘size of place’ parameters (e.g., rural, urban). The state of South Carolina served as the sampling location. A systematic selection procedure (i.e., the ‘most recent birthday method’) was used to designate one respondent for each household sampled. Interviews were conducted in either English or Spanish, depending on participant preference. To increase participant privacy and protection, respondents were asked if they

were in a place where they could talk privately, and sensitive questions were worded to elicit a “yes/no” response, rather than a description of the mistreatment event. Interviewers determined if the designated participant clearly possessed the cognitive capacity to consent to participation, and only these individuals were surveyed. This method yielded a representative sample (based on age and gender) of 902 older adults age 60 or above. Interviewers used standardized Computer Assisted Telephone Interviewing (CATI) procedures to ask participants about a variety of mistreatment experiences, potential correlates, and demographics. CATI incorporates complex ‘skip-out’ patterns which assures only relevant questions are asked of participants, greatly enhancing interview efficiency. Supervisors listening to real-time telephone interviews while monitoring the CATI interview on their own computer performed random checks of each interviewer's assessment behavior and data-entry accuracy at least twice during each shift. If an error were detected, supervisors required its correction and discussed the error with the interviewer following the interview. If the error were detected again in following interviews, the interviewer was removed from the study. The field interviewing commenced on February 6, 2008. The cooperation rate was 82%, and was calculated according to the American Association for Public Opinion Research (Research, 2000) as the number of completed interviews, including those that screen out as ineligible, divided by the total number of completed interviews, including those that screen out as ineligible, terminated interviews, and refusals to interview. The final average interview length was approximately 16 minutes and participants were compensated for their time.

Variable and Risk Factor Definitions

Mistreatment Variables

Elder mistreatment variables included emotional, physical, sexual, financial, and neglect. After a mistreatment was reported the timeframe of its occurrence was determined. If the event happened since age 60, this was then classified as elder mistreatment. Additionally, information regarding the event was assessed (see below) following affirmative answers to the questions below. Assessment questions were determined from previous research and followed guidelines of the National Research Council on Elder Mistreatment monograph.

Emotional mistreatment was assessed by the following questions: 1. “Has anyone ever verbally attacked, scolded, or yelled at you so that you felt afraid for your safety, threatened or intimidated?” 2. “Has anyone ever made you feel humiliated or embarrassed by calling you names such as stupid, or telling you that you or your opinion was worthless?” 3. “Has anyone ever forcefully or repeatedly asked you to do something so much that you felt harassed or coerced into doing something against your will?” 4. “Has anyone close to you ever completely refused to talk to you or ignored you for days at a time, even when you wanted to talk to them?”

Physical mistreatment was defined as an affirmative answer (in the timeframe of since age 60) to any one of the following: 1. “Has anyone ever hit you with their hand or object, slapped you, or threatened you with a weapon?” 2. “Has anyone ever tried to restrain you by holding you down, tying you up, or locking you in your room or house?” 3. “Has anyone

ever physically hurt you so that you suffered some degree of injury, including cuts, bruises, or other marks?"

Sexual mistreatment was defined as an affirmative answer (in the timeframe of since age 60) to any one of the following three questions: 1. "Regardless of how long ago it happened or who made the advances, has anyone ever made you have sex or oral sex by using force or threatening to harm you or someone close to you?" 2a. (for females) "Has anyone ever touched your breasts or pubic area or made you touch his penis by using force or threat of force?" 2b. (for males) "Has anyone ever touched your pubic area or made you touch their pubic area by using force or threat of force?" 3a. (for females) "Has anyone ever forced you to undress or expose your breasts or pubic area when you didn't want to?" 3b. (for males) "Has anyone ever forced you to undress or expose your pubic area when you didn't want to?"

Neglect was defined as instances in which an older adult identified that they had one of the needs listed below, but this need was not always met (in the timeframe of since age 60). 1. "Now we would like to ask you some additional questions about whether or not there is someone who helps you with day to day things. You may not need help with any of these things, and if that is the case, just feel free to tell us you don't need this type of help. Some older adults do need help with these things, so it's important for us to ask. Do you need someone to help you get to the places you need to go, for example do you need someone to drive you to the grocery store, a place of worship, the doctor?" 2. "Do you need someone to make sure you have enough food, medicines or any other things you need in your house?" 3. "Do you need someone to help you with household things, like cooking meals, helping you eat, or making sure you take the correct medicines each day?" 4. "Do you need someone to help you with house cleaning or yard work?" 5. "Do you need someone to help you get out of bed, get showered, or get dressed?" 6. "Do you need someone to make sure your bills get paid?"

Financial Exploitation perpetrated by family members was determined by an affirmative answer to one of the following questions (in the timeframe of since age 60). 1. "Now we would like to ask your opinion about how your finances and property are handled. Is there someone who helps you take care of your finances, or is there someone other than yourself who makes decisions about your money and your property, either with or without your approval?" 2. "Does that person ask for your PERMISSION before deciding to spend your money or sell your property?" 3. "Do you feel like that person makes good decisions about your finances?" 4. "Do you have the copies of paperwork for the financial decisions they make or can you get copies if you wanted them?" 5. "Has that person ever forged your signature without your permission in order to sell your property or to get money from your accounts?" 6. "Has that person ever forced or tricked you into signing a document so that they would be able to get some of your money or possessions?"

Incident Characteristics

For each type of mistreatment, characteristics of the perpetrator and incident were assessed. Perpetrator and incident characteristics were chosen on the basis of previous research (Acierno, 2003). To determine if the victim needed the perpetrator, they were asked, "Would

you be able to live on your own if that person no longer lived with you?" Participants were asked, "Did that person ever help you out with any day to day things, like shopping, taking medicines, driving you places, getting dressed, and that type of thing?" Participants were asked about the social network of the perpetrator, "How many friends did that person have at the time of the incident, would you say: none, very few [1-3], some [4-6], or a lot [7+]?" Responses were categorized into less than three vs. four or more). To determine if the perpetrator was unemployed, participants were asked, "Did that person have a job at the time of the incident?" The participant was asked, "Has that person ever been in trouble with the police?" The participant was also asked, "Has that person ever received inpatient or outpatient counseling for emotional problems?" To determine if the perpetrator had problems with drugs or alcohol, participants were asked, "Did that person have a problem with alcohol or drugs at the time of the incident?" To determine if the victim lived with the perpetrator, they were asked, "Did that person live with you at the time of the incident, or does he/she live with you now?" The victim's relationship to the perpetrator was assessed by asking, "What was the person's relationship to you?" Responses were categorized as being a relative or a non-relative. The victim reporting mistreatment to police/authorities was assessed by asking, "Thinking about the most recent incident where someone [type of mistreatment], was this incident reported to the police or other authorities?"

Risk Factor Variables

Demographic Variables of Participants—Standard demographic variables were assessed, including age (dichotomized into 60-70 and 71+), race/ethnicity, employment status (dichotomized into employed and unemployed), marital status (in three categories: married/cohabitating, single/divorced/separated, and widowed), income (categorized as an annual household income of $35,000 and below, and $35,001 and above), and sex (as male and female).

Health Status (Good vs. Poor)—Health status over the prior month was assessed using the general health question number 1 from the World Health Organization Short-Form 36 Health Questionnaire (Ware & Gandek, 1998). Participants were asked to rate the following question: "In general, would you say your health is "Excellent, Very good, Good, Fair, or Poor." These responses were dichotomized into Poor Health (self rating of fair or poor) and Good Health (self rating of excellent, very good, or good). This assessment is consistent with previously validated single item measures of general subjective health, which have shown both good reliability and validity (Sibthorpe, Anderson, & Cunningham, 2001), and has been found related to morbidity and mortality (Grant, Piotrowski, & Chappell, 1995; Idler & Benyamini, 1997).

Experience of Prior Traumatic Events (Yes vs. No)—Participants were asked to report if they had been exposed to the following events *and* indicated fear that they would be killed or seriously injured during this exposure: natural disasters such as earthquake, hurricane, flood, or tornado; serious accident at work, in a car, or somewhere else; or being in any other situation where you thought you would be killed.

Social Support (High vs. Low)—Perceived social support during the past month was assessed via a modified five-item version of the Medical Outcomes Study module for social support (Sherbourne & Stewart, 1991). Participants were asked about emotional (e.g., "someone available to love you and make you feel wanted"); instrumental (e.g., "someone available to help you if you were confined to bed"); and appraisal (e.g., "someone available to give you good advice in a crisis") social support and responded to items using a four-point scale from "none of the time" to "all of the time" (sample range=5-20; *M*=15.7 [*SD*=4.1]). Low social support was operationalized as a score in the lower quartile of the sample ratings, and the comparison high social support was operationalized as a score in the upper quartile of sample ratings.

Use of Social Services (Yes vs. No)—Participants were asked if they had used any of the following programs or services: senior centers or day programs; physical rehabilitation; meals on wheels or any other meal service, social services or health services provided to the home; hospice; formal senior friends services, church group home visits, any other program or service.

Assistance Required with Activities of Daily Living (Yes vs. No)—Participants were asked if they needed help from time to time with the following activities: shopping for groceries or medicines; going to the doctor, transportation to friends, church or temple, paying bills or doing related paperwork, taking medicines, getting dressed, bathing, and eating.

Data Analytic Plan

Prevalence estimates were derived in Step 1. In Step 2, two-tailed bivariate χ^2 analyses examined mistreatment (since age 60 timeframe) in relation to demographic variables, health ratings, social support, prior exposure to a potentially traumatic stressor, social services utilization, and assistance with daily living need. In Step 3, only those correlates (potential risk factors) that reached a cutoff of $p < .05$ in bivariate analyses were examined with respect to their relative association with each mistreatment type in separate logistic regression analyses; α set *a priori* at $p < .05$. SUDAAN (version 10.0) was used for all regression analyses to account for complex survey design and weighting.

Results

Participants

As mentioned, data were collected from 902 older adults with an average age of 71 years (SD = 8), range of 60 to 97 years; 59.9% (540) of the older adults were women and 40.1% (361) were men. Of the total, about 56.8% (512) were married or cohabitating, 11.6% (105) were separated or divorced, 26.8% (242) were widowed, and 3.9% (35) were never married. Considering race in order of magnitude, 77% (695) indicated that they were White, 17.3% (156) Black, 1.9% (18) American Indian or Alaskan Native, 0% Asian, 0.1% (1) Pacific Islander, and the remainder chose not to identify. Considering Ethnicity, 1.1% (10) indicated that they were of Hispanic or Latino origin. These distributions approximated those of South Carolina.

In addition to factors such as race and gender, the study sample was also characterized in terms of important contextual risk factors that might serve to increase or decrease risk of elder mistreatment, yielding the following risk factor information: low household income (i.e., less than $35,000 per year combined for all members of the household) was reported by 49.0% (311); 82.3% (729) reported that they were not employed; poor health was self reported by 24.9% (223), a prior traumatic event was reported by 62.1% (554). Another 44.2% (225) indicated that they currently felt that they had very low levels of social support. Fully 42.5% (374) used social services of some form, and 37.4% (337) reported that they needed some assistance with activities of daily living (ADL). In order to simplify analyses, we also dichotomously grouped participants into two age groups: 'younger old' (age 60 to 69; 54.6% (486) of the sample), and 'older old' (age 70+; 45.4% (403) of the sample). No differences were observed based on Hispanic ethnicity in any mistreatment type. However, there were differences between Whites and Non-Whites on measures of physical mistreatment, and this dichotomous variable is included in analyses below.

Emotional Mistreatment—Prevalences for lifetime and since age 60, and past-year mistreatment types are given in Table 1. Limiting descriptive and risk analyses to emotional mistreatment events occurring since age 60 revealed the following: About 12.9% (N = 106) of older adults indicated that they had experienced some form of emotional abuse since age 60; only 5.6% of these incidents were reported to police. Strangers and romantic partners each accounted for about 14-18% of emotional mistreatment episodes, with other relatives and acquaintances accounting for the remainder. According to the older adult respondent, about 15% of known perpetrators had a problem with substances at the time of mistreatment, almost half were unemployed and socially isolated, 16% had prior problems with the police, and about 19% had a prior mental health treatment history.

Correlates that reached statistical significance in bivariate analyses (Table 2) for this mistreatment type included race (non-white), lower income, having experienced a prior traumatic event, reporting poor health, requiring assistance with activities of daily living, having low social support, and using social services. As shown in Table 6, only having low social support (OR=3.51) and needing assistance with ADLs (OR=2.28) remained significant in the final model. Having a prior history of exposure to a potentially traumatic event was marginally significant (OR=1.94; p=.082).

Physical Mistreatment—Overall prevalences of physical mistreatment are also given in Table 1, with prevalence since age 60 at 2.1% (N = 17). Approximately 20% of these events were reported to police. Strangers accounted for only 7% of physical assaults whereas partners accounted for 36% and other family members for 30%. Considering only known perpetrators, 58% had substance abuse problems; 28% had received counseling for a mental health problem, 28% were unemployed, 40% had prior trouble with the police, and 68% were socially isolated with fewer than 3 friends.

Bivariate analyses of individual correlates for physical assault (shown in Table 3) produced the following set of predictors: prior exposure to a traumatic event, low social support, and required assistance with activities of daily living. When all significant bivariate risk variables were entered into a final model (Table 6), only having low social support

approached significance (OR=8.14, p=.077) (we report this as potentially significant, given the low prevalence of this mistreatment type and low power for this analysis).

Sexual Mistreatment—Sexual mistreatment of non-institutionalized older adults is a relatively low frequency event and only 3 individuals reported this occurring since age 60 (0.3%; Table 1). No descriptive or risk analyses were possible, given the very low number of those who sample size.

Neglect—Overall prevalences of neglect are given in Table 1. Potential neglect since age 60 was reported by about 5.4% (49) of respondents. Partners / ex-partners were considered potentially negligent in about a 22% of identified cases, compared to 52% of cases for all other family members, and 26% for acquaintances with some fiduciary responsibilities.

Bivariate analyses (Table 4) indicated that older age, female gender, non-white racial status, lower income, poor health, low social support, and using social services all contributed to increased likelihood of reporting that one had unmet needs that could set the stage for neglect (requiring assistance with activities of daily living was not entered into the predictor set as this factor was, in fact, part of the neglect definition). The final model analysis (Table 6) revealed that only non-white racial status (3.49) and poor physical health (OR=3.79) were independently associated with increased likelihood of reporting neglect.

Financial Mistreatment—Prevalence of current financial mistreatment perpetrated by family members 6.6% (n=51; Table 1).

Bivariate analyses for financial mistreatment (Table 5) indicated that non-white racial status, low social support, needing ADL assistance, and having poor health were all associated with increased likelihood of this mistreatment type. In the final model (Table 6) only needing ADL assistance (OR=2.75) remained significant.

Discussion

Prevalence of Mistreatment

Prevalence estimates of elder mistreatment reported by the current sample were consistent with those reported by nationally representative samples (Acierno et al., in press; Biggs et al., 2009; Laumann et al., 2008); as with larger, population-based studies, approximately 1 in 10 older adults from the current study reported past year mistreatment. Although methodological differences (i.e., sampling techniques, varying definitions for specific abuse type) between studies prevent comparisons of finer distinction (e.g., comparing estimates of “physical mistreatment” across studies, comparing prevalence estimates from the current study to those from studies relying on predominantly urban or suburban-residing samples), consistent with other research, prevalence of emotional mistreatment, neglect, and financial exploitation reported by the current sample were higher than reported prevalence of physical and sexual mistreatment.

Correlates of Mistreatment

Low levels of social support—Consistent with previous literature (Lachs et al., 1998) low levels of social support significantly predicted emotional and physical mistreatment, making this relationship one of the more robust findings from the current study. Although the interview did not establish temporal relation between variables and thus, causality cannot be determined, several inferences may be drawn regarding the specific nature of the correlation. First, life transitions that occur in older adulthood such as retirement, loss of driving privileges, death of a loved one, and deteriorating physical health typically reduce the number of social opportunities for older adults. Second, social isolation reduces opportunities for community members to identify potential victims of mistreatment. Third, as the presence of mental health problems are associated with both low levels of social support and experiences of stressful or traumatic life events (Acierno et al., 2007), it may be that low social support contributes to mistreatment via its role in the development, maintenance, and exacerbation of psychopathology. Finally, it may be that social isolation is a consequence of mistreatment. That is, older adults who experience emotional, physical, and/or sexual mistreatment, financial exploitation, and/or neglect may socially withdraw because they: a) feel too ashamed to disclose mistreatment to others, b) develop mental health problems that exacerbate avoidance and withdrawal, and/or c) fear retaliation after implicating the perpetrator.

Health and functional status—Requiring assistance with ADLs and poor health status were significant correlates of several mistreatment types. It may be that caregivers who must assist older adults in completing basic self-management tasks (e.g., bathing, dressing, feeding) experience significant stress, including loneliness and financial strain, which lowers their overall threshold for committing acts of mistreatment. Similarly, it may be that geriatric home-based health care workers charged with caring for physically impaired or demented patients are under-resourced and under-trained, which may increase perpetrator risk for mistreatment. Furthermore, caregivers and impaired older adults may co-exist in a symbiotic relationship; although the older adult depends on the caregiver for assistance with ADLs, the caregiver depends on the older adult for financial support and housing. Research suggests that fiscal and emotional dependency on an older adult (e.g., Pillemer, 2004), which may be partially a function of a caregiver's substance use and/or legal problems, is a perpetrator risk factor for mistreatment (e.g., Reay & Browne, 2002).

Gender, age, income, and race—In contrast to research that suggests women are more likely to experience elder mistreatment (Acierno et al., 2007; Comijis et al., 1999; Idler, & Benyamini, 1997; Laumann, Leitsch, & Waite, 2008), gender differences were not found for any of the mistreatment types. Similarly, previous studies have found that ‘older’ older adults (typically those 70 + years of age) are at increased risk for mistreatment (Acierno et al., 2007); in the current study, age was not a significant correlate in any mistreatment model. Although lower income was a bivariate associate of many forms of mistreatment, after controlling for other factors, this variable did not account for independent variance in the final models. However, racial/ethnic status was a significant correlate in multivariate model of neglect, in that those of minority status were at a higher risk than Caucasian participants.

Incident Characteristics

Consistent with the current elder mistreatment literature (e.g., Anetzberger, Korbin, & Austin, 1994) and with investigations of the incident characteristics associated with acts of child abuse and domestic violence, older adults who endorsed mistreatment were a) unlikely to disclose abuse to the authorities, b) more likely to be mistreated by a known rather than unknown perpetrator, and c) likely to report that their abuser had significant substance use and/or legal histories. Low disclosure rates reported by the current sample suggest that estimates based on "medically-confirmed" or "agency-reported" cases (Jeary, 2005; Reay & Brown, 2001) may drastically underestimate the prevalence of elder mistreatment. That romantic partners and family members accounted for substantial percentages of physical, emotional, and financial mistreatment and neglect is consistent with data that suggest older adults who share their residence are at a greater risk of mistreatment than older adults who live alone (Lachs et al., 1998; Pillemer & Finkelhor, 1988) and that perpetrators of elder mistreatment are likely to be emotionally and/or financially dependent on their victims (e.g., Pillemer, 2004). It may be that elder mistreatment by romantic partners and/or family members is reflective of longstanding interpersonal conflict and/or patterns of domestic violence.

Implications for Prevention Programming: Elder Mistreatment, Rural Residence, and South Carolina

Placed in the context of literature that compares state-level data on prevalence and reporting of elder mistreatment (e.g., Jogerst, Daly, Brinig, Dawson, Schmuch, & Ingram, 2003), results from the current study suggest that low threshold, community-level prevention initiatives (e.g., increasing social support for rural elders) may provide the best alternative to addressing this public health concern. Specifically, although prevalence estimates from the current study were consistent with estimates reported in national studies, South Carolina ranks below the 50th percentile in terms of reports to Adult Protective Services (APS) (Jogerst et al., 2003), suggesting that cases are often unreported. Fewer reports to APS may be related to barriers to care experienced by rural elders and/or the attitudes regarding elder mistreatment endorsed by individuals living in rural communities. As discussed, relative to their urban counterparts, elders living in rural areas must travel greater distances to medical centers, have fewer public transportation options, utilize emergent care services at higher rates than primary care services, and report lower SES. These barriers may reduce the amount of contact that rural elders have with mandated reporters of elder mistreatment (i.e., medical professionals), lessening the number of reports made to APS. Further, concerning community attitudes, individuals living in rural areas may have higher threshold definitions of elder mistreatment compared to urban dwellers (i.e., they are less likely to consider neglect as abuse) (Stones & Bedard, 2002); individuals who hold lenient definitions of elder mistreatment may be unlikely to report emotional neglect or verbal abuse which would contribute to fewer overall reports of elder abuse to APS.

Increasing social support for older adults—Although large scale initiatives to increase elder mistreatment screening efforts in primary care in rural settings are promising, such efforts may fail to reach the substantial number of older adults who do not receive routine healthcare. Additionally, to date, no data has validated the effectiveness of existing

prevention efforts such as mandatory reporting or referral to adult protective services, with some geriatric advocates arguing that the application of the child welfare model to the problem of elder mistreatment unfairly "infantilizes" older adults (in Pillemer, Mueller-Johnson, Mock, Suitor, & Lachs, p. 237).

If the development of effective prevention programming is predicated in part on the identification of the correlates of elder mistreatment, than educational campaigns and community-outreach initiatives that aim to increase the social participation of older adults may provide cost-effective, expedient, yet high impact interventions to reduce victimization risk. Social participation initiatives have characteristically "low threshold" inclusion criteria for involvement and referral; indeed, older adults do not require a referral from a health care or social service professional to volunteer at a museum or to attend church more regularly, and these professionals do not require specialized training in order to recommend that their older clients increase their social activity level. Furthermore, in light of current data that suggest older adults are unlikely to disclose mistreatment to authorities, an advantage of such "programs" is that professionals or community members do not have to identify older adults as being at "high-risk" for mistreatment, nor must older adults self-identify as needing social services in order to benefit from increased social participation. Finally, social participation initiatives may confer an important advantage for older adults living in rural communities who experience significant barriers to care (e.g., Goins, Williams, Carter, Spencer, & Solovieva, 2006).

Assistance with ADL's—For those older adults who present with additional correlates of mistreatment such as requiring assistance with ADL's, interventions that aim to improve independent living skills have been shown to increase self-efficacy and reduce reliance on others for daily care (e.g., Phelan, Williams, Penninx, LoGerfo, & Leveille, 2004**).** These interventions have demonstrated effectiveness when delivered in primary care and community health care settings (e.g., Leveille, Wagner, Davis et al., 2004; Long, Calfas, Wooten, et al., 2004); thus, provider trainings and dissemination efforts to bring these interventions to rural clinics may provide an additional "low threshold" prevention effort to reduce risk of elder mistreatment.

Limitations

Several limitations from the current study are noteworthy. First, as previously discussed, the interview did not determine the temporal sequence of mistreatment events and related variables. Thus, no conclusions regarding the direction and nature of these relationships can be drawn. Second, the current study did not assess for the presence of mental health disorder, a known consequence of domestic violence and child abuse. Thus, we cannot make any conclusions about the potential contribution of mistreatment events to the development of subsequent psychological health problems in an older adult population. Future studies should examine the relationship between mistreatment and subsequent mental health problems as this could inform the development of behavioral health interventions to address the psychological needs of older adults exposed to mistreatment. Additionally, this study did not assess for the presence of cognitive impairment, a risk factor for mistreatment. Instead, control was achieved experimentally over this variable by requiring interviewers to have no

doubt whatsoever as to the ability of respondents to understand and respond to questions. In this way, our data reflect responses of a cognitively intact, community residing sub-population of older adults; and prevalences and risk factors should be considered in that context. Thus, we cannot examine the potential moderating or mediating role of cognitive impairment in the relation between social support, requiring assistance with ADL's, and elder mistreatment. Lastly, telephone interviewing methodology may contribute to some selection bias as abused elders living with the perpetrator may have been prevented from using the phone; if this is the case, results from the current study would misrepresent true prevalence rates. Subsequent investigations may consider using follow-up surveys administered in-person by field interviewers with a random selection of respondents; this method has yielded promising results in other studies assessing prevalence of potentially illegal behaviors (e.g., The National Survey on Drug Use and Health NSDUH; SAMHSA, 2007).

Future Directions

To our knowledge, the current study represents the first epidemiological study investigating the prevalence of elder mistreatment among community-residing older adults who live in a rural state; thus, findings fill an important gap in the literature and may challenge common assumptions about the risk of elder mistreatment in rural states.

References

Acierno, R. Epidemiological assessment methodology. National Academy of Sciences; Washington, DC: 2003.

Acierno, R.; Hernandez, MA.; Amstadter, AB.; Resnick, HS.; Steve, K.; Muzzy, W., et al. Prevalence and Correlates of Emotional, Physical, Sexual, Neglectful, and Financial Abuse in the United States: The National Elder Mistreatment Study. American Journal of Public Health; in press

Acierno R, Ruggiero KJ, Galea S, Resnick HS, Koenen K, Roitzsch J, et al. Psychological sequelae resulting from the 2004 Florida Hurricanes: Implications for postdisaster intervention. Research and Practice. 2007; 97:S103–S108.

Anetzberger G, Korbin J, Austin C. Alcoholism and elder abuse. Journal of Interpersonal Violence. 1994; 9(2):184–193.

Biggs S, Manthorpe J, Tinker A, Doyle M, Erens B. Mistreatment of older people in the United Kingdom: findings from the first national prevalence study. Journal of Elder Abuse and Neglect. 2009; 21:1–14. [PubMed: 19197619]

Comijs HC, Penninx BWJH, Knipscheer KPM, van Tilburg W. Psychological distress in victims of elder maltreatment: The effects of social support and coping. Journal of Gerontology. 1999; 54B(4):P240–P245.

Cooper C, Selwood A, Livingston G. The prevalence of elder abuse and neglect: A systematic review. Age and Ageing. 2008; 37:151–160. [PubMed: 18349012]

Grant M, Piotrowski Z, Chappell R. Self-reported health and survival in the longitudinal study of aging, 1984-1986. Journal of Clinical Epidemiology. 1995; 48:375–387. [PubMed: 7897459]

Homer AC, Gilleard C. Abuse of elderly people by their careers. British Medical Journal. 1990; 301(6765):1359–1962. [PubMed: 2271883]

Idler EL, Benyamini Y. Self-rated health and mortality: A review of twenty-seven community studies. Journal of Health and Social Behavior. 1997; 38:21–37. [PubMed: 9097506]

Jeary K. Sexual abuse and sexual offending against elderly people: a focus on perpetrators and victims. Journal of Forensic Psychiatry and Psychology. 2005; 16:328–343.

Klein, A.; Tobin, T.; Salomon, A. A statewide profile of abuse of older women and the criminal justice responses. 2008.

Lachs MS, Williams CS, O'Brien S, Pillemer KA, Charlson ME. The mortality of elder mistreatment. Journal of the American Medical Association. 1998; 280:428–432. [PubMed: 9701077]

Lau E, Kosberg J. Abuse of the elderly by informal care providers. Aging. Sep.1979 :11–15. [PubMed: 10242745]

Laumann EO, Leitsch SA, Waite LJ. Elder mistreatment in the United States: Prevalence estimates from a nationally representative study. Journal of Gerontology. 2008; 63:S248–S254.

Moon A, Lawson K, Carpiac M, Spaziano E. Elder abuse and neglect among veterans in greater Los Angeles: Prevalence, types, and intervention outcomes. Journal of Gerontological Social Work. 2006; 46:187–204. [PubMed: 16803784]

Pillemer K, Finkelhor D. The prevalence of elder abuse: A random sample survey. Gerontologist. 1988; 28:51–57. [PubMed: 3342992]

Pillemer, K. Elder abuse is caused by the deviance and dependence of abusive caregivers. In: Loseke, R.; Gelles, R.; Cavanaugh, M., editors. Current controversies on family violence. 2nd ed.. Sage; Newbury Park: 2004. p. 207-220.

Pillemer, K.; Mueller-Johnson, K.; Mock, S.; Suitor, J.; Lachs, M. Interventions to prevent elder mistreatment.. In: Doll, L.; Bonzo, S.; Mercy, J.; Sleet, D., editors. Handbook of injury and violence prevention. Springer Publishing; New York: 2006. p. 241-254.

Podnieks, E.; Pillemer, K.; Nicholson, JP.; Shillington, T.; Frizzel, A. National Survey on abuse of the elderly in Canada. Ryerson; Toronto, ON: 1989.

Racic M, Kusmuk S, Kozomara L, Develnogic B, Tepic R. The prevalence of mistreatment among the elderly with mental disorders in primary healthcare settings. The Journal of Adult Protection. 2006; 8:20–24.

Reay C, Browne K. Risk factor characteristics in carers who physically abuse or neglect their elderly dependents. Aging and Mental Health. 2001; 5:56–62. [PubMed: 11513015]

Reay C, Browne K. The effectiveness of psychological intervention with individuals who physically abuse or neglect their elderly dependents. Journal of Interpersonal Violence. 2002; 17(4):416–480.

Research, T. A. A. f. P. O. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. The American Association for Public Opinion Research; Lenexa, Kansas: 2000.

Ricketts, T., editor. Rural health in the United States. Oxford University Press; New York: 1999.

Rogers C. The older population in 21st century rural America. Rural America. 2003; 17(3):1–10.

Sherbourne CD, Stewart AL. The MOS social support survey. Science Medicine. 1991; 32(6):705–714.

Sibthorpe B, Anderson I, Cunningham J. Self-assessed health among indigenous Australians: How valid is a global question? American Journal of Public Health. 2001; 91:1660–1663. [PubMed: 11574332]

Tatara, T. The National Elder Abuse Incidence Study: Executive Summary. Human Services Press; New York: 1997.

U.S. Census Bureau. Census. 2000.

Ware JE, Gandek B. Overview of the SF-36 Health Survey and the International Quality of Life Assessment (IQOLA) Project. Journal of Clinical Epidemiology. 1998; 51:903–912. [PubMed: 9817107]

Yaffe MJ, Weiss D, Wolfson C, Lithwick M. Detection and prevalence of abuse of older males: perspectives from family practice. Journal of Elder Abuse and Neglect. 2007; 19:47–60. [PubMed: 18077269]

Table 1

Prevalence of Mistreatment Subtypes in Terms of Time Frame

	Lifetime % (N)	Since Age 60 % (N)	Past Year % (N)
Emotional Mistreatment			
Overall	20.3 (182)	12.9 (106)	5.1 (44)
Verbal Abuse	9.5 (85)	4.2 (37)	3.8 (33)
Humiliation	11.0 (99)	4.9 (44)	4.9 (44)
Harassment/Coercion	4.8 (43)	2.1 (19)	1.8 (16)
Being Ignored	9.5 (86)	4.9 (44)	3.8 (34)
Physical Mistreatment			
Overall	11.0 (99)	2.1 (17)	1.8 (15)
Hit	8.7 (78)	1.6 (14)	1.4 (13
Restrained	1.7 (16)	0.2 (2)	0.1 (1)
Injured	6.4 (57)	0.6 (6)	0.8 (7)
Sexual Mistreatment			
Overall	5.9 (52)	0.3 (3)	0.3 (3)
Forced Sex	4 (36)	0.2 (2)	0.2 (2)
Molestation	3.5 (31)	0.2 (2)	0.2 (2)
Forced to Undress	1.4 (12)	0.1 (1)	0.1 (1)
Photographed Nude	0.1 (1)	0	0
Neglect			
Potential Neglect			5.4 (49)
Subtypes: Does not have someone to help with:			
Transportation			0.8 (7)
Obtaining food / medicine			1.3 (12)
Cooking / eating / taking medicine			0.6 (6)
House cleaning / yard work			3.7 (33)
Get out of bed/dressed/ showered			0.7 (6)
Making sure bills are paid			0.5 (5)
Financial Mistreatment			
Overall (current)			6.6 (51)
Spent money without permission			4.3 (39)
Did not make good decisions			0.3 (3)
Did not given copies			0.5 (5)
Forged signature			0.8 (8)
Forced to sign			0.3 (3)
Had money stolen			1.0 (9)

Note: In some cases, past year estimates are higher than estimates of mistreatment that occurred since age 60. This appears to be because respondents were more confident in rating whether an event occurred in the past year as opposed to ratings of whether it occurred since age 60 or before age 60.

Table 2

Bivariate Analyses for Emotional Mistreatment Since Age 60: Correlates

Risk Factor	%	N	χ^2	OR	CI	*p*
Age			1.96	0.74	0.49 - 1.13	.161
70 or Less	14.5	61				
71 or Greater	11.2	44				
Race			6.16	1.81	1.13 – 2.91	.013
Non-White	18.1	29				
White	10.9	69				
Employment Status			0.97	1.35	0.74 – 2.45	.325
Unemployed	13.4	90				
Employed	10.3	14				
Income			4.34	0.61	0.38 – 0.97	.037
$35k or Less	17.2	50				
$35k or Greater	11.2	33				
Gender			0.23	1.11	0.73 – 1.69	.633
Female	13.3	66				
Male	12.2	40				
Prior Traumatic Event			14.00	2.44	1.51 – 3.94	.000
Yes	16.6	82				
No	7.5	24				
Social Support			28.49	4.28	2.44 – 7.53	.000
Low	25.0	51				
High	7.2	19				
Use of Social Services			12.51	2.10	1.38 – 3.19	.000
No	9.4	43				
Yes	17.9	62				
Needs ADL Assistance			28.97	3.06	2.01 – 4.67	.000
Yes	20.8	66				
No	7.9	40				
Health Status			4.95	1.64	1.06 – 2.54	.026
Poor	17.3	36				
Good	11.3	69				

Note: the level of the variable given first represents the reference value of the variable, which is also the level the variable hypothesized to be associated with increased risk. Confidence Intervals that do not cross the value 1.00 indicate increased (if CI ranges above 1.00) or reduced (if CI ranges below 1.00) risk for the reference value of the variable.

Table 3

Bivariate Analyses for Physical Mistreatment Since Age 60: Correlates

Risk Factor	%	N	χ^2	OR	CI	*p*
Age			0.17	1.22	0.47 – 3.20	.681
70 or Less	1.9	8				
71 or Greater	2.3	9				
Race			2.51	2.22	0.81 – 6.09	.113
Non-White	3.8	6				
White	1.7	11				
Employment Status			0.43	1.64	0.37 – 7.24	.512
Unemployed	2.3	15				
Employed	1.4	2				
Income			0.65	0.65	0.23 – 1.86	.420
$35k or Less	3.2	9				
$35k or Greater	2.1	6				
Gender			0.56	0.69	0.27 – 1.82	.453
Female	1.8	9				
Male	2.6	8				
Prior Traumatic Event			5.78	5.13	1.17 – 22.60	.016
Yes	3.1	15				
No	0.6	2				
Social Support			9.33	12.59	1.58 – 100.22	.002
Low	4.6	9				
High	0.4	1				
Use of Social Services			0.43	0.72	0.26 – 1.95	.511
No	2.4	11				
Yes	1.7	6				
Needs ADL Assistance			4.58	2.91	1.05 – 8.09	.032
Yes	3.3	10				
No	1.2	6				
Health Status			0.23	1.30	0.45 – 3.72	.630
Poor	2.5	5				
Good	2.0	12				

Note: the level of the variable given first represents the reference value of the variable, which is also the level the variable hypothesized to be associated with increased risk. Confidence Intervals that do not cross the value 1.00 indicate increased (if CI ranges above 1.00) or reduced (if CI ranges below 1.00) risk for the reference value of the variable.

Table 4

Bivariate Analyses for Neglect: Correlates

Risk Factor	%	N	χ^2	OR	CI	*p*
Age			6.04	2.09	1.15 – 3.81	.014
70 or Less	3.7	18				
71 or Greater	7.4	30				
Race			5.23	2.09	1.10 – 3.97	.022
Non-White	8.6	15				
White	4.3	30				
Employment Status			3.25	2.52	0.89 – 7.10	.071
Unemployed	6.2	45				
Employed	2.5	4				
Income			6.82	0.41	0.20 – 0.81	.009
$35k or Less	8.7	27				
$35k or Greater	3.7	12				
Gender			6.70	2.41	1.21 – 4.78	.010
Female	7.0	38				
Male	3.0	11				
Prior Traumatic Event			0.62	1.28	0.69 – 2.36	.431
Yes	6.0	33				
No	4.7	16				
Social Support			22.0	8.75	3.00 – 25.53	.000
Low	11.1	25				
High	1.4	4				
Use of Social Services			5.21	1.99	1.09 – 3.64	.022
No	3.8	19				
Yes	7.2	27				
Health Status			28.78	4.45	2.47 – 8.01	.000
Poor	12.6	28				
Good	3.1	21				

Note: the level of the variable given first represents the reference value of the variable, which is also the level the variable hypothesized to be associated with increased risk. Confidence Intervals that do not cross the value 1.00 indicate increased (if CI ranges above 1.00) or reduced (if CI ranges below 1.00) risk for the reference value of the variable.

Table 5

Bivariate Analyses for Financial Mistreatment: Family - Current

Risk Factor	%	N	χ^2	OR	CI	*p*
Age			0.08	0.92	0.52 – 1.63	.774
70 or Less	6.9	29				
71 or Greater	6.4	22				
Race			6.35	2.17	1.17 – 4.01	.012
Non-White	11.3	17				
White	5.6	33				
Employment Status			0.19	1.19	0.55 – 2.60	.663
Unemployed	6.7	41				
Employed	5.7	8				
Income			0.08	0.91	0.47 – 1.78	.784
$35k or Less	7.0	19				
$35k or Greater	6.5	18				
Gender			0.73	0.78	0.44 – 1.38	.394
Female	6.0	27				
Male	7.5	24				
Prior Traumatic Event			0.21	1.15	0.63 – 2.08	.651
Yes	7.0	33				
No	6.2	18				
Social Support			6.09	2.61	1.19 – 5.71	.014
Low	10.3	20				
High	4.2	10				
Use of Social Services			1.60	1.45	0.81 – 2.57	.206
No	5.7	25				
Yes	8.0	25				
Needs ADL Assistance			22.85	4.00	2.18 – 7.33	.000
Yes	12.3	33				
No	3.4	17				
Health Status			7.59	2.25	1.25 – 4.05	.006
Poor	11.2	20				
Good	5.3	31				

Note: the level of the variable given first represents the reference value of the variable, which is also the level the variable hypothesized to be associated with increased risk. Confidence Intervals that do not cross the value 1.00 indicate increased (if CI ranges above 1.00) or reduced (if CI ranges below 1.00) risk for the reference value of the variable.

Table 6

Logistic Regressions and Correlates for Past Year Emotional, Physical, Sexual, Neglectful Elder Mistreatment, and Financial Mistreatment by Family

Variable	OR	95% CI	*B*	*W*	*p*
Emotional Mistreatment					
Race (Non-White)	1.02	0.46 – 2.26	0.02	0.002	.966
Income (Higher)	1.73	0.80 – 3.72	0.55	1.94	.164
Prior Trauma (Yes)	1.94	0.92 – 4.11	0.66	3.03	.082
Social Support (Low)	3.51	1.63 – 7.53	1.26	10.38	.001
Uses Social Services (Yes)	1.66	0.83 – 3.31	0.50	2.03	.154
Needs ADL Assistance (Yes)	2.28	1.06 – 4.93	0.83	4.43	.035
Health (Poor)	1.32	0.62 – 2.83	0.28	0.53	.468
Physical Mistreatment					
Prior Trauma (Yes)	2.60	0.51 – 13.36	0.96	1.31	.252
Social Support (Low)	8.14	0.80 – 83.26	2.10	3.13	.077
Needs ADL Assistance (Yes)	5.28	0.56 – 50.06	1.66	2.11	.147
Potential Neglect					
Age (71 and Older)	1.46	0.55 – 3.91	0.38	0.57	.452
Race (Non-White)	3.49	1.37 – 8.89	1.25	6.87	.009
Income (Higher)	1.99	0.64 – 6.16	0.69	1.42	.233
Gender (Female)	2.21	0.67 – 7.32	0.80	1.70	.192
Social Support (Low)	6.74	1.54 – 29.62	1.91	6.39	.011
Uses Social Services (No)	1.16	0.42 – 3.18	0.15	0.09	.770
Health (Poor)	3.79	1.46 – 9.81	1.33	7.53	.006
Financial Exploitation (Family, Current)					
Race (non-White)	1.08	0.44 – 2.61	0.07	0.03	.872
Social Support (Low)	1.77	0.71 – 4.42	0.57	1.48	.223
Needs ADL Assistance	2.75	1.17 – 6.48	1.01	5.39	.020
Health (Poor)	1.44	0.61 – 3.37	0.36	0.70	.402

Note: Four logistic regression models were conducted, one for each mistreatment type, based off of the significant correlates from the chi-square analyses conducted for each mistreatment category. The level of the variable given represents the value of the variable, which is also the level the variable hypothesized to be associated with increased risk. Confidence Intervals that do not cross the value 1.00 indicate increased (if CI ranges above 1.00) or reduced (if CI ranges below 1.00) risk for the reference value of the variable.