INT'L. J. AGING AND HUMAN DEVELOPMENT, Vol. 75(1) 71-94, 2012

SOCIAL-RELATIONAL RISK FACTORS FOR PREDICTING ELDER PHYSICAL ABUSE: AN ECOLOGICAL BI-FOCAL MODEL

LEVENTE VON HEYDRICH, PHD, MSW, LMFT, LLMSW, LBSW

LAWRENCE B. SCHIAMBERG, PHD

GRACE CHEE, MSW

Michigan State University, East Lansing

ABSTRACT

Annually in the United States, 1 to 5 million older adults, 65 and above, are physically or sexually injured or mistreated by their caregivers in family settings. This study examined the prevalence and risk factors involved in elder physical abuse by adult child caregivers, moving from the immediate elderly parent/adult child relationship context to more distal social support contexts, utilizing a subsample of 203 elderly participants from the Midlife Development in the United States study (MIDUS II, 2004-2006). LISREL modeling examined causal pathways between elderly demographic characteristics, physical/emotional health, and behavioral and contextual characteristics from an ecological perspective. Data modeling was accomplished using Mplus, PAXW, and SYSTAT statistical software packages. Results indicate that latent factors including older adult health, social isolation of the older adult, and adult child characteristics were significantly associated with elder physical abuse, as mediated by the quality of the elderly parent/adult child relationship.

Each year in the United States, 1 to 5 million adults older than 65 are physically or sexually injured, exploited, or mistreated by their caregivers (National Research

doi: http://dx.doi.org/10.2190/AG.75.1.f
http://baywood.com

Council [NRC], 2003; U.S. Department of Health and Human Services, 2006). Results of the National Elder Abuse Incidence Study indicated that the rate of abuse for individuals aged 65 and over, living independently in a community setting or semi-independently with family members, were 41 per 1,000 families (National Center on Elder Abuse, 1998). Perpetrators of this abuse were more likely to be adult children or grandchildren (77%) rather than spouses (23%) (National Center on Elder Abuse, 1998). Within this population context, the problematic character of elder abuse becomes even more serious given the grim consequences for the health and well-being of the older adults exposed to violence, such as significant emotional and psychological distress and increased mortality rates compared to non-abused elderly (Comijs, Penninx, Knipscheer, & van Tilburg, 1999; Lachs, Williams, O'Brien, Pillemer, & Charlson, 1998).

The study of elder abuse has been hampered by multiple problems including the absence of clear definitions of the multiple types of abuse, the failure to focus research on these specific types of elder abuse, inadequate sampling, and ineffective statistical models (NRC, 2003). This study will address the gaps identified by the NRC Panel (2003) in the study of elder abuse, including physical abuse by: (a) using a representative national random sample from the MIDUS II study (Ryff, Almeida, Ayanian, Carr, Cleary, Coe, et al., 2007); (b) using a standard definition of, and focusing on, a specific type of elder abuse, in this case physical abuse; (c) using clearly identified abuse measures based on these definitions (Wilber & McNeilly, 2001); and (d) employing effective statistical models that can yield generalizable results.

An ecological/contextual approach to elder physical abuse will be the primary theoretical model used because the NRC (2003) review of elder abuse research recommended models that reflect multiple causes and contexts of elder abuse. Research examining the risk factors of elder abuse from a bi-focal perspective, focusing simultaneously on the adult caregiver and the older adult dyad, is virtually non-existent. One promising theoretical model identified by the NRC (2003) is the Ecological Bi-Focal Model. This model focuses on the interplay of multiple factors both within the immediate older adult/adult child caregiver context and in distal contexts beyond that level that affect this relationship (Schiamberg, Barboza, Oehmke, Zhang, Griffore, Weatherhill, et al., 2011; Schiamberg & Gans, 2000).

REVIEW OF RESEARCH

Risk Factors in the Immediate Older Adult/ Adult Child Context

Family relationships may play an important role in elder physical abuse (Athens, 1992, 1998; Heide, 1995; Kethineni, 2004; Ulman & Straus, 2003). Dysfunctional family relationships implicated in elder physical abuse include:

(a) the history and patterns of violent interactions within the family; (b) the ongoing discord in the family created by the older adult's presence (Athens, 1992; Kethineni, 2004); and (c) prior child abuse patterns in the family (e.g., inappropriate discipline in the child's formative years) (Heide, 1995). Sometimes the abuse is a continuation of long-standing patterns of physical or emotional abuse within the family. In other instances, more commonly, the abuse is related to changes in older adult cognitive, psychological, and financial situation and his/her dependence on family members or relatives for meeting basic needs.

Adult child characteristics that may increase the likelihood of elder physical abuse include such factors as mental or emotional illness, addiction to alcohol or other drugs, and financial pressures and elevated stress levels (Griffore, Barboza, Mastin, Oehmke, Schiamberg, & Post, 2009; Schiamberg, von Heydrich, Oehmke, Zhang, Barboza, Griffore, et al., 2011; Schiamberg & Gans, 2000). Adult child caregivers with severe emotional, cognitive, and psychological health problems are more likely to abuse an older adult in their care than a caregiver without such problems (Kosberg, 1988; Pillemer & Finkelhor, 1988). Wolf and Pillemer (1989) noted that 38% of the abusers had a history of mental illness and 46% of abusers reported a recent decline in their mental health status. Substance abuse/dependence in adult caregivers have been significantly correlated with violent and irrational temperament, thus increasing the likelihood of elder maltreatment (Browne & Hamilton, 1998; Kratcoski, 1984).

As well, caregivers who admitted being physically abusive had notably higher rates of psychological and emotional health problems than non-abusive caregivers (Cooney & Mortimer, 1995; Pillemer & Moore, 1989). Caregivers' financial stress (e.g., economic pressures and or lack of financial resources) appears to be a significant risk factor for elder abuse. Kosberg and Nahmias (1996) found that adult children lacking in their financial well-being might be resentful of their parents, which in turn might lead to physical abuse. Steinmetz (1990) suggested that financially overburdened and stressed out caregivers were likelier to commit (probably repeatedly) the act of elder abuse.

Research on the relationship of older adult background factors (e.g., gender and age of the older adult) to elder physical abuse have generated mixed findings. Some studies indicate that elderly females are more vulnerable to abuse than men (Kethineni, 2004; Kosberg, 1988; Nock & Kazdin, 2002; Pillemer & Finkelhor, 1988) while others found no major differences in the likelihood of abuse along the gender line (Kosberg & Nahmias, 1996).

The age of the abused older adult generated mixed results. Kosberg (1988) suggested that there was a positive correlation between an incremental increase in the elder's chronological age and the likelihood of his/ her being abused. This may be due in part to apparent associations between increasing age and declining physical and cognitive health, which lead to abuse (Kosberg & Nahmias, 1996). Zhang et al. (2011), using a nursing home sample, suggested that age had a negative direct effect on the likelihood of elder physical abuse in nursing homes.

Several research studies on elder abuse over the last 20 years highlight individual victim characteristics that appear to be correlated with elderly abuse, including: (a) older adults in need of assisted home care services (Fulmer, Paveza, VandeWeerd, Fairchild, Guadagno, Bolton-Blatt, et al., 2005); (b) older adult limitations in mobility, especially in regard to self-care (Fulmer et al., 2005; Pillemer & Finkelhor, 1988); (c) social isolation (Fulmer et al., 2005); (d) cognitive impairments such as Alzheimer's Disease and dementia (Lachs et al., 1998); (e) behavioral problems (Coyne, Reichman, & Berbig, 1993; Paveza, Cohen, Eisdorher, Freels, Shram, Ashford, et al., 1992); and (f) serious chronic health problems (Pillemer & Finkelhor, 1988).

Findings in many empirical investigations suggest that physical stressors such as chronic illnesses and ADL limitations were significantly associated with the degree of elder abuse (Bonnie & Wallace, 2003). Poor health and limited functional ability, particularly in regard to self-care, were strongly correlated with elder abuse occurring in community settings (Fulmer, et al., 2005; Pillemer & Finkelhor, 1988). In addition, older adults with one or more physical impairments (health problems) were more vulnerable to abuse because of their diminished ability to protect themselves, and their dependence on the caregiver (Lauman, Leitsch, & Waite, 2008).

Older adults with Alzheimer's disease often display difficult behaviors which are robustly associated with caretaker physical abuse (Pillemer & Suitor, 1992). Elderly who exhibit signs of Alzheimer's may become abusive as the disease progresses, and the object of the abuse is the caregiver who provides the day-to-day care for the impaired elder (Cooney & Mortimer, 1995; Kosberg, 1988). Williamson, Martin-Cook, Weiner, Suetlik, Saine, Hynan, et al. (2005) evaluated the reactions of caregivers of cognitively impaired elderly care recipients to physically impaired elders without cognitive impairment. Their results confirmed that caring for an elder with cognitive deficits can mean not only providing more care, but also dealing with more confused and delusional behavior which, in turn, is the primary contributor to caregiver's feelings of resentment and hostility toward the older adult. Homer and Gilleard (1990) indicate that it was the older adult's disturbed and disruptive behavior that frequently resulted in abuse by the caregiver, rather than the diagnosis, per se, of cognitive impairment such as dementia.

Psychological and emotional problems may be both a cause and an effect of elder abuse in many circumstances. When elders behave in disturbing ways due to either psychological or emotional problems (mostly combined effects), it becomes more difficult to provide care for them. Higher levels of physical aggression in the elderly were associated with depression, psychosis, impaired communication, and antipsychotic drug use (Talerico, Evans, & Strumpf, 2002). Aggression in the elderly may be a symptom of inadequately treated mental health disorders rather than a conscious and volitional decision to antagonize the caregiver.

In a cross-sectional study of 184 elderly patients with mental disorders (65 with depression, 97 with dementia, and 22 with anxiety disorders) Racic et al.

(2006) found that the prevalence of elder abuse among older adults suffering from depression and anxiety disorders was high. Their findings were consistent with results from other studies in this domain (Coyne et al., 1993; Flannery, 2003). Cooney and Howard's (1995) research supported previous findings that the rate of abuse among older people with mental health problems are higher than in the general population of older people. Finally, co-morbid alcohol/drug abuse problems are frequent companions to psychiatric disorders, particularly depression (Gambert & Katsoyannis, 1995).

Aggressive, overly demanding, or otherwise unpleasant behavior of the elderly appears to contribute to the risk of elder abuse (Kosberg, 1988). Given that elder behavior problems might only be symptoms of one or more untreated physical, cognitive, mental, and emotional health problems, this study will be guided by a conceptual understanding that older adult aggression may represent an expression of unmet needs.

Contexts Beyond the Immediate Older Adult/ Adult Child Caregiver Relationship

Several studies on elder abuse suggest the influence of factors outside of the immediate older adult/adult child context that appear to increase the probability of violence against older adults. These factors include social relationships with people outside the family and the social deprivation/social isolation of older adults (Paulson, Cooms, & Landsvert, 1990). Strong predictors of elder abuse in the family include the social isolation of and the lack of a formal support system for both the older adult victim and the adult child caregiver (Fulmer et al., 2005; Fulmer, Guadagno, Dyer, & Connolly, 2004). Social isolation can be a strategy for keeping the elder abuse secret (Fulmer et al., 2005). Isolation also makes it more difficult for outsiders to intervene in an abusive situation to protect the elderly and to offer help to the abuser.

Additional risk factors at higher systemic levels, including economic and social pressures, have also been identified. The effect of these risk factors are transmitted through older adult and adult child personality characteristics. For example, stressors within the family, such as the caregiver's unemployment and financial dependence on the older adult for housing/accommodation, may be implicated in elder physical abuse (Pillemer & Wolf, 1986).

Research Questions

In conclusion, our literature review implicates several significant risk factors of elder physical abuse that play a crucial role in understanding the process, contexts, and complexity of elder abuse. Specifically, emphasis should be directed at a better understanding of the impact of risk factors of elder physical abuse at the following contextual levels: a) the immediate or bifocal elderly parent/ adult child relationship context, including older adult characteristics, adult child

characteristics, and the older/adult child relationship quality, as a mediator/moderator of elder physical abuse; and (b) the distal contexts beyond the focal older adult/adult child relationship which may exert significant influence on the quality of that relationship, in turn contributing to elder physical abuse.

The aim of the current investigation was to examine the risk factors of elder physical abuse using an ecological bi-focal model. The four main questions of the research are as follows: What is the prevalence of elder physical abuse by adult children in the family/community setting? At the immediate older adult/adult child context, will the relationship quality between the older adult and the adult child influence the likelihood of elder physical abuse? Also at that focal contextual level, do victim health characteristics influence the likelihood of elder physical abuse by influencing the quality of the older adult/adult child relationship? Again, at that immediate contextual level, do older adult behavioral problems such as aggressive or threatening behaviors diminish the quality of the older adult/adult child relationship, in turn increasing the possibility of physical abuse? At the level of contexts beyond the focal older adult/adult child relationship, does older adult isolation from social networks influence the likelihood of elder physical abuse by reducing the quality of the older adult/adult child relationship? Likewise, at contextual levels beyond the immediate older adult/adult child relationship, do adult child psychological characteristics (i.e., adult child problems of financial distress or substance abuse, which may have their origins in settings such as the workplace) diminish the quality of the older adult/adult child relationship, in turn increasing the likelihood of elder physical abuse?

METHODS

Mathematical Definitions of the Model

The following mathematical equations will express the structural relationships among the study's latent factors:

$$P(Y = 1|X = x) = P(Y^* > \tau \mid x) = 1 - P(Y^* < \tau| x),$$

(Raykov, 2005; Raykov & Marcoulides, 2006), where τ is an unknown threshold, Y^* is the underlying latent normal variable, Y is a random vector of criterion variables, and X is the random vector of predictor variables. Finally, the Elder Physical Abuse endogenous latent variable, modeled as a linear function of its predictors can be expressed as:

$$P(Y = 1 \mid X1 = x1 \text{ and } X2 = x2) = \Phi (\alpha + \beta\ 1\ x\ 1 + \beta\ 2\ x\ 2 + \beta\ 3\ x\ 3 \ldots + \beta\ 28\ x\ 28),$$

where Φ is the CDF (cumulative distribution function) of the standard normal distribution, α and βs are unknown constants (parameters).

Sample Characteristics, Instrumentations, and the Path Model

This study utilized data collected in the MIDUS II study (4,963 participants ranging in age from 35 to 86 years old). From this larger sample, a subsample was developed to include older adults meeting the following criteria:

1. the older adult's chronological age had to be equal to 65 years or above; and
2. the elderly had to be residing with his/her adult child who was providing the care.

Out of 4,963 cases, 1880 respondents indicated that they were at least 65 years old and, from that population, 203 participants met the dual criteria.

Several latent variables were constructed to examine the relationships of risk factors identified in the review of research (see Figure 1). These latent variables were measured via their direct indicator variables derived from the following MIDUS II measurement instruments:

1. MIDUS II: Phone Questionnaire With Index;
2. MIDUS II Self-Administered Questionnaires (SAQ 1 & 2); and
3. MIDUS II Cognitive TACT instrument, Telephone Assisted Cognitive Testing (http://midus2.ssc.wisc.edu/).

To screen for the possibility of the cognitive impairment of MIDUS II participants affecting their responses to the MIDUS II research questions, standard screening techniques were applied to the phone interview questionnaire. More specifically, MIDUS II was a follow up study of participants originally contacted in 1995, such that the MIDUS I interview criteria (i.e., English-speaking American adults, aged 25-75, with the ability to complete a telephone interview) determined the MIDUS baseline sample. Therefore, if there was some obvious cognitive impairment at MIDUS II that prevented a participant from taking the phone interview, they would have been screened out and their status appropriately coded (e.g., using industry standards—AAPOR or CASRO—for coding response/non-response that include "Physically or mentally unable/incompetent" and "Respondent language problem").

The proposed path model diagram for this study is based on the Ecological Bi-Focal Model for Elder Physical Abuse developed by Schiamberg and Gans (2000). Figure 1 outlines the anticipated causal relationships among the model's 31 manifest variables with their respective six latent variables and the influence of the four exogenous variables on the mediator and the outcome endogenous latent (elder abuse) variables.

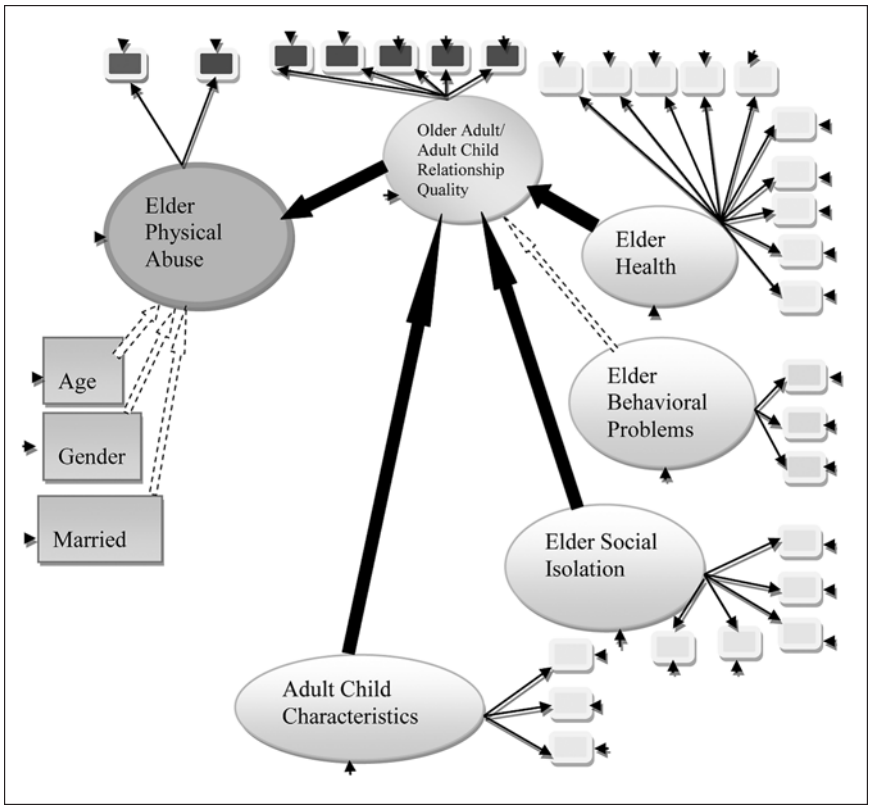

Figure 1. Structural relationships in the model.
Note: Statistically significant paths signified by black arrows, dashed paths – statistically non-significant relationships.

Latent Factors and Related Measurement Indicators

Physical Abuse

The main outcome factor used in this research study is elder physical abuse. This factor had two primary indicators: (a) physical abuse and (b) sexual abuse. In this case, combining the two factors into a physical abuse latent variable is justifiable and supported (Hawes, 2002; Kosberg & Nahmias, 1996). Physical abuse is defined as any direct or indirect action that affects the physical survival, welfare, or health of elderly, causing pain, unnecessary suffering, or health deficiency (Hawes, 2002). Sexual abuse includes any nonconsensual sexual involvement, including being forced, threatened, or deceived into sexual activities ranging from looking or touching to intercourse or rape (Hawes, 2002).

The Elderly Parent/Adult Child Relationship Quality

This first-order endogenous factor captures the quality of relationship between the elderly parent and the adult child caregiver. This construct is measured via five direct indicators. Analytic considerations, model conceptualization, and testing for mediating effects will follow guidelines set forth by Baron and Kenny (1986).

Victim Health

This construct captures both the physical and psychological well-being of the elderly person/victim, as these two factors are intimately intertwined in a consideration of health. Older adults in poor health require a great deal of care that increases the demands, dependency, and stress on the caregiver (Lachs, Mark, & Pillemer, 2004). Victim's emotional and mental health conditions increase the risk for elder abuse (Wang, Berglund, & Kessler, 2000). In addition to the presence of victim psychological disorders, this study uses individual negative affect variables as suggested by Mroczek and Kolarz (1998).

Victim Behavioral Problems

Although there is no universally, or even commonly, accepted definition of what is a behavior problem, there is a general agreement to what it refers to: (a) behavior that goes to an extreme—behavior that is not slightly different from the usual; (b) a problem that is chronic—one that does not quickly disappear; and (c) behavior that is unacceptable because of social or cultural expectations (Segen, 2006).

Adult Child Characteristics

In this study, behavior problems involve: (a) behavior that goes to an extreme (e.g., propensity for physical violence); (b) a problem that is chronic or persistent; and (c) unacceptable behavior that violates social or cultural expectations (Segen, 2006). Indicators of the latent variable, adult child characteristics, are as follows: emotional/psychological problems, alcohol/substance abuse, and financial problems.

Social Relations: Victim Social Isolation and Elderly Parent/Adult Child Relationship Quality

The term social relations describes a wide array of interpersonal interactions that characterize social exchanges among people (Antonucci, 2001). For the purpose of this study two factors were constructed (e.g., social isolation and elderly parent/adult child relationship quality) to operationalize the social relations dimensions. The former variable (social isolation) focused on connections to more distal contexts beyond the elderly parent/adult child relationship and the

subsequent factor (relationship quality) focused on the quality of interactional relationship between the dyad. The victim's social isolation factor captures the virtual absence of interaction with others, outside of the contacts required to perform basic life functions, such as food shopping, transportation, work, and entertainment (Segen, 2006). Victim's social isolation construct was measured via five manifest indicator variables, as suggested by Ryff et al. (2007) (see Table 1).

Victim Background Variables

In this study the following manifest indicators were used as model background variables to introduce and estimate the influence of certain demographic characteristics on the primary endogenous factor: a) age, b) gender, and c) marital status.

Research Hypotheses

Our study question/focus generated the following five study hypotheses:

H1: The more positive the relationship quality between the elderly parent and adult child, the less likely that elder physical abuse will occur.

H2: Older adults in a community setting who suffer from more health problems (physical and psychological) are more likely to be physically abused.

H3: Older adult behavioral problems such as overt or covert aggression will increase the likelihood of elder physical abuse.

H4: An increase of older adult social isolation from support networks such as frequency of contact with friends will result in an increase in the likelihood of elder physical abuse.

H5: An increase in the adult child psychological and substance abuse problems and external financial pressure will increase the likelihood of older adult physical abuse.

RESULTS

Of the 203 respondents in this sample (see Table 2), 5.9% (n = 12) reported that they were physically abused and 9.4% (n = 19) indicated that they were sexually assaulted. The demographic breakdown of responding older adults was as follows: (a) Caucasian (88.7%), (b) African American (3.9%), (c) Native American (1.5%), and (d) other ancestry (5.4%). About two-thirds of respondents were females (63.1%). Although more than half (64.5%) of studied older adults indicated that they were not married (e.g., separated or spouse died), 36.5% were still married. Regarding education level, the largest percentage were high

Table 1. Model Factor Loadings: Specific Measurement Indicators

Manifest variables measuring exogenous variables	Loadings estimates	*T*-values	Statistical significance
Older adult health			
History of Parkinsons	1	N/A	N/A
History of neurological disease	0.776	4.664	0.000
Chronic medical conditions	0.699	2.225	0.026
Anxiety disorder	0.909	3.747	0.000
Felt depressed for 2+ weeks	0.27	4.95	0.000
Mental emotional health	–1.346*	–5.282	0.000
Felt upset frequency	0.785	5.405	0.000
Felt angry frequency	–0.488*	–5.363	0.000
Negative feelings	–0.694*	–4.891	0.000
Ever attended emotional group	–1.153*	–5.986	0.000
Older adult behavioral problems			
Sometimes just like to hit someone	1	N/A	N/A
When insulted I try to get even	1.366	3.639	0.000
When angry I am ready to hit	–0.617*	–2.762	0.006
Older adult social isolation			
I do not feel I belong to community	1	N/A	N/A
Few close friend	1.621	4.159	0.000
Don't fit in with people and community	1.278	4.838	0.000
Feel close to others in community	–0.535*	–3.979	0.000
Frequency of contact with friends	0.403	2.13	0.033
Adult child characteristics			
Adult child emotional/psych problems	1	N/A	N/A
Adult child alcohol/substance abuse problems	0.864	13.981	0.000
Adult child financial problems	0.937	11.678	0.000
Older adult/adult child relationship quality			
Rate relationship with adult child	1	N/A	N/A
Adult child difficult to get along with	–0.480*	–2.086	0.037
Rate the thought/effort you put into relationship	1.89	6.95	0.000
Rate control over relationship with child	0.436	1.99	0.050
Family life with child is more negative	0.390*	–5.789	0.000
Elder physical abuse			
Ever physically abused	1	N/A	N/A
Ever sexually abused	1.193	14.267	0.000

*Reverse coding.

Table 2. Elderly Parent Characteristics

Demographics	Frequencies	Percentages
Age	65-70 years old: 95	46.80%
	71-75 years old: 33	16.30%
	76-80 years old: 37	18.20%
	81-85 years old: 22	10.80%
	86 and above: 16	.90%
Gender	Male: 75	36.90%
	Female: 128	63.10%
Race	Caucasian: 180	88.70%
	African American: 8	3.90%
	Native American: 3	1.50%
	Other: 11	5.40%
Marital status	Married: 74	36.50%
	Not married: 129	63.50%
Education	Not high school: 34	16.70%
	High school: 64	63.00%
	Higher education: 41	20.40%

school graduates (n = 64, 63%), while over 18.3% (n = 37) reported having either a Bachelors or Masters Degree. Respondents mostly rated their physical health as good to very good (mean = 7.21 on a scale from 1 (poor) to 10 (excellent)) and their psychological/emotional health as fair to good (mean = 2.28, on a scale from 1(poor) to 5 (excellent)).

In this study sample, 24.9% (n = 43) of older adults reported that their adult children suffered from a major chronic illness during the last 12 months and 27% (n = 47) had a frequent minor illness. In addition, 38.3% (n = 69) of adult child caregivers suffered from frequent psychological and emotional problems that could have a negative impact on their care delivery approach and potential behavioral problems. A total of 21% (n = 38) of adult child caregivers appeared to have had a substance/alcohol abuse problem during the last 12 months and a significant proportion, 49.4% (n = 88), had financial difficulties for the last 12 months. A total of 6.4% (n = 130) older adults reported that family interaction with children at home tended to be negative (see Table 3). Finally, 12.2% (n = 45) reported that it was difficult for them to maintain close relationships, 7.2% (n = 28) indicated that they did not fit in their community, and 10.3% (n = 35) felt that they had few friends with whom they could share their concerns. In addition,

Table 3. Adult Child Characteristics

Adult child characteristics	Frequencies	Percentages
Suffering from major physical illness	YES: 43 NO: 160	YES: 24.9% NO: 75.1%
Suffering from minor physical illness	YES: 47 NO: 156	YES: 27% NO: 73%
Psychological/emotional illnesses	YES: 34 NO: 69	YES: 38.3% NO: 61.7%
Substance abuse problems	YES: 38 NO: 165	YES: 21% NO: 79%
Marital problems	YES: 56 NO: 147	YES: 31.1% NO: 68.9%
Financial problems	YES: 88 NO: 115	YES: 49.4% NO: 50.6%
Employment problems	YES: 27 NO: 176	YES: 25.6% NO: 74.4%

9.8% ($n = 37$) of elderly participants reported that they had no warm and trusting relationships with others in their family.

Missing Data Overview and Modeling

Missing data patterns were statistically modeled to determine whether data were missing at random or not (Little & Rubin, 2002). In this study no individual variable had more than 10% missing values and 95.7% ($n = 6219$) of response values were complete. The univariate analysis of missing variables yielded a mean of 7.2114 and a standard deviation of 1.7273. Data ranges were checked for each variable entered to ensure that all data were entered within the prescribed ranges. Of the over 12,000 cell ranges examined, slightly over 4% of the cases had at least one value outside the delineated variable range. These values were marked missing and treated as such. The statistical modeling of missing data patterns and results of the Little's MCAR tests yielded highly nonsignificant chi-square values such that the null hypothesis (H0: data missing at random) was not rejected. Estimated new values were imputed using the SYTSTAT statistical program.

LISREL Data Modeling Results and Specific Study Outcomes

A weighted least square parameter estimator (WLSMV) was used to examine the structural relationships in the model. Input readings terminated normally and the model converged after few iterations, yielding admissible estimates. The overall model fit was adequate ($\chi 2 = 84.834$, with 67 degrees of freedom, $p = 0.0697$). Based upon the relatively high p-value ($p > 0.05$) the model's null hypothesis (Ho: $\Sigma = \Sigma(\gamma)$) is not rejected.

Model's fit measures ((1) RMSEA = 0.036; (2) CFI = 0.941; and (3) TLI = 0.948) suggest a good fit. Model factorial loadings on the respective latent variables (measurement dimensions) are provided in Table 1. All of the parameter estimates are significantly different from zero (at $p < 0.05$ or better) as indicated by t-values well in excess of 1.96 in absolute terms. The measurement error variances of these 28 indicators were within normal ranges (e.g., zero/close to zero measurement errors) suggesting no model specification problems.

Measurement Dimension Results

The model's factorial loadings on the respective latent variables are provided in Table 4.

Manifest variable loadings *on their respective* latent variables (e.g., *Victim Health, Social Isolation, Victim Behavioral Problems, Adult Child Characteristics, and Victim/Abuser Relationship*) indicate that variables loaded robustly (t-value greater than the absolute value of 1.96).

Structural Dimensions Results (see Table 4)

Hypothesis 1. Older Adult/Adult Child Relationship Quality was a significant predictor of elder physical abuse when it mediated between the exogenous latent factors (*Victim Health, Victim Behavioral Problem, Adult Child Characteristics,* and *Victim's Social Isolation*) and the endogenous variable *Elder Physical Abuse* ($\gamma = -0.831$; t-value = –3.908; $p = 0.00$). The negative sign for the *Older Adult/Adult Child Relationship Quality* factor indicates that a negative relationship quality (lower values) corresponds to an increase in physical abuse.

Hypothesis 2. The *Victim Health* construct was a significant predictor of *Elder Physical Abuse* in the model ($\gamma = -0.738$; t-value = –3.072; $p = 0.002$). The negative sign before the estimated parameter is due to the mediational effects of *Victim/Adult Child Relationship Quality* factor where poor relationships were coded with lower values.

Table 4. Structural Relationships among Latent Variables in the Model

	Factor estimates	*T*-values	Statistical significance
Latent Variables			
Older adult/adult child relationship ON:			
Older adult health	–0.738	–3.072	0.002*
Older adult behavioral problems	–0.541	–0.820	0.446
Older adult social isolation	–0.329	–2.157	0.041*
Adult child characteristics	–0.270	–3.422	0.001*
Elder abuse ON:			
Older adult/adult child relationship	–0.831	–3.908	0.000*
Demographic Variables			
Older adult age	–0.014	–1.357	0.175
Older adult gender	0.358	1.825	0.068
Marital status	0.229	1.244	0.213

*Statistical significance.

Hypothesis 3. Older adult behavioral problems were not a statistically significant predictor of elder physical abuse, ($\gamma = -0.541$; *t*-value = –0.820; $p = 0.446$). This hypothesis was not supported by findings.

Hypothesis 4. The *Social Isolation* of the elderly parent was a strong predictor of physical abuse, ($\gamma = -0.329$; *t*-value = –2.157; $p = 0.041$). The negative sign before the factor loading corresponds to an increase in physical abuse, when mediated by the relationship quality.

Hypothesis 5. An increase in the adult child's psychological, emotional, and substance abuse problems significantly predicted *Elder Physical Abuse* ($\gamma = -0.270$; *t*-value = –3.422; $p = 0.001$). In addition, data analysis suggests that a strong and independent external financial pressure (beyond the dyad's immediate context) on the adult child will decrease the relationship quality and increase in the likelihood of physical abuse.

Power Analysis

In the methods section, the study model was evaluated based upon specific chi-square tests, whether to reject or fail to reject the null hypothesis. Based upon statistical calculations, the null hypothesis that the model correctly fits the

population was retained. Results suggest that the probability of incorrectly retaining the null hypothesis was low (less than .05). To account for a Type II error, a power analysis was completed. For a model with 69 degrees of freedom and a sample size of 203, the appropriate table (MacCallum, Browne, & Sugawara, 1996) indicated a power strength of 0.801 for an exact fit, and 0.877 for a close fit. Thus, both power estimates indicate that the model is sufficiently appropriate and effective.

DISCUSSION

Using the Ecological Bi-Focal Model for Elder Abuse (Schiamberg & Gans, 2000), and addressing the NRC (2003) concerns about elder abuse research, this study examined risk factors for elder physical abuse at several ecological levels. The results of the study support an ecological perspective which posits the centrality of the older adult/adult child relationship quality as the primary focus or context in understanding the risk factors of elder physical abuse. Specifically, the study results supported the significance of the bifocal relationship quality as the key moderator between elder physical abuse and older adult (victim) characteristics, social isolation, and the older adult/adult child relationship quality.

With reference to the bifocal relationship quality and elder physical abuse, our results have confirmed a significant mediation effect and robust association between relationship quality and elder physical abuse such that poor relationship quality will increase the likelihood of elder physical abuse. Our findings mirror previous research that emphasized the primacy of relationship quality and elder physical abuse (Agnew & Huguley, 1989; Browne & Hamilton, 1998; Kosberg & Nahmias, 1996; Peek, Fischer, & Kidwell, 1985). However, this study points more specifically to the critical role of victim perception of lack of control over the relationship as the most significant predictor of a negative interaction and increased physical abuse. Further, a lack of control over the relationship is associated with both the older adult's negative feelings (e.g., helplessness) toward the relationship and the older adult's inability to negotiate and maintain a positive relationship. As well, study results indicate that the greater the effort that the elderly parent invests in improving the quality of the relationship (e.g., empathy and role playing, trying to understand the perspective and circumstances of the adult child), the less likely an aggressive or violent encounter will ensue. That said, there is evidence from other research that relationships characterized by long-standing family violence may be challenging to improve regardless of the elderly parent's efforts (Browne & Hamilton, 1998; Jaffe, Wolfe, & Wilson, 1990; Straus, Gelles, & Steinmetz, 1980).

Further, the quality of the bi-focal relationship as perceived by the older adult is an important factor influencing the likelihood of elder physical abuse. That is, the relationship quality is worsened and the likelihood of physical abuse is

increased when the older adult believes that family life with the child is an unhappy or negative experience. Similarly, the older adult perception that adult children exhibit difficulties getting along with family members (e.g., confrontational interaction) was directly linked to the worsening of the relationship quality between the adult child and elderly parent and the increased likelihood of elder physical abuse. Furthermore, this linkage is logical if the adult child is struggling with emotional, psychological, or substance abuse problems (see discussion below).

With reference to older adult/victim health, our findings support previous research studies that documented a significant association between victim physical and psychological health concerns (e.g., neurobiological health impairments) and an increased likelihood of elder physical abuse. A specific contribution of this research is the identification of specific mechanisms involved in the interaction of victim health characteristics and physical abuse. For example, symptoms of various neurological disorders may gradually lead to behavior and personality changes, a decline in cognitive capabilities (e.g., language skills or sound decision-making) and aggressive behaviors in the elderly, that are frequently associated with caregiver stress and physical abuse of elders. This is consistent with findings of the American Psychiatric Association (2005) which also suggest that difficulties associated with cognitive distortion and decline such as failure to recognize family members may be associated with older adult aggressive behaviors. Furthermore, our results suggest that chronic medical/health conditions (e.g., diabetes or arthritis) in older adults may be associated with caregiver psychological concerns that might lead to elder abuse, including stress and feeling overwhelmed and socially isolated. As well, our study demonstrated that chronic physiological illnesses also contributed to negative older adult emotional states (e.g., depression, anger and anxiety) which may, in turn, increase the likelihood of confrontation with a caregiver.

While older adult behavioral problems (e.g., older adult threatening behaviors) are sometimes considered a risk for elder physical abuse (Kosberg, 1988; Lachs & Pillemer, 1995), our study did not find such a direct association. As well, previous findings are mixed and inconclusive on this same relationship (Coyne et al., 1993; Paveza et al., 1992; Racic et al., 2006; Talerico, Evans, & Strumpf, 2002). Our findings, as well as the mixed results in previous research, may reflect the complex nature of behavioral problems as external manifestations of internal biological or psychological processes (e.g., neurological disorders or emotional problems). Thus, in our study our definition of victim health (which was significantly associated with elder physical abuse) was a combination of both physical and psychological problems. Perhaps the psychological/emotional features of victim health, being so closely related to our definition of behavioral problems, may have minimized their statistical significance. For future research, a case could be made for using a more realistic latent unidimensional health construct that incorporates biological,

psychological, emotional, and behavioral factors. As well, such a unidimensional construct places older adult behavioral problems, and the sometimes provocative older adult behaviors, within a more useful health context wherein individual physical and mental health status moderates older adult behavioral problems (Nebbitt, Lombe, & Williams, 2008).

For the social relations construct, our results confirmed previous findings that social isolation of older adults significantly increased the likelihood for elder physical abuse (Garre-Olmo, Planas-Pujol, Lopez-Pousa, Juvinya, Vila, Vilalta-Franch, et al., 2009). The results of our study, however, provided a more in-depth assessment of this relationship, pointing to a robust and bi-directional interaction between the social isolation of the elderly parent and the dyad relationship quality. Specifically, the impact of older adult social isolation on elder physical abuse is moderated by the quality of the dyad relationship. A less positive dyad relationship could intensify older adult social isolation, increasing the risk of elder abuse, while a more positive relationship might diminish the impact of social isolation on the likelihood of elder abuse.

A unique contribution of this research is the identification of two specific factors (i.e., manifest or direct indicators, in the model) which more specifically clarify the relationship of social isolation, moderated by the dyad relationship, to elder physical abuse. These factors are the loss of friends and the older adult's feeling of social alienation from the community. Our study points to the impact of friendship on older adult feelings of social isolation as both a result of having fewer close friends and reduced contact with such friends. Of course, the loss of friends could be due to several reasons, including the adult child's active control of access to the older adult, the older adult's physical frailty, or to friends dying or moving away. Further, the adult child control of access to the older adult might be due to fear of legal consequences or family and social ostracism, particularly if the dyad relationship is characterized by conflict and abuse.

In addition to diminished friendship opportunities, our study points to older adult social isolation as related to feelings of social alienation. Specifically, feelings of not belonging to a community or fitting in with people in the community, can clearly undermine an older adult's sense of connection to both a community, in general, and to the human resources and social networks in that community. In turn, the impact of social alienation would likely be moderated by the quality of the dyad relationship.

Consistent with the bi-focal emphasis of this study, adult child personal problems (e.g., alcohol and/or substance abuse, emotional and psychological difficulties, and financial challenges) may increase the risk of elder physical abuse. This finding is consistent with previous research (Athens, 1992; Baskin-Sommers, & Sommers, 2006; Kethineni, 2004; Ulman & Strauss, 2003). Our findings point to two unique contributions to understanding the role of adult child problems in older adult physical abuse:

1. the critical mediating role of the dyad relationship in translating such adult child problems into the anxiety and hostility toward the aging parent which may precede elder abuse (Killian, Turner, & Cain, 2005);
2. support for a well-established outcome in the field of substance abuse research—the role of controlled substances and alcohol abuse in aggressive behavior, in this case elder physical abuse (Anetzberger, Korbin, & Austin, 1994; MacDonald, Angling-Bodrug, Mann, Erickson, Hathaway, Chipman, et al., 2003).

With reference to elder physical abuse, alcohol and substance abuse may well be a driving force in generating dyad conflicts, creating an unstable and dangerous living environment for the elderly parent. In addition, such substance abuse and addiction may lead to financial problems for the adult child, which in turn could result in the financial exploitation of the older adult.

MIDUS II Data Set Limitations

While the MIDUS II data set (a large representative national sample of midlife adults) provided an opportunity to investigate the relational dynamics and contexts of elder physical abuse in the family (by adult children), it is important to recognize several limitations of the current investigation which derive from the fact that a primary focus of the MIDUS II study was not elder physical abuse.

First, archival and legal files (e.g., police reports, reports to Adult Protective Services) were not available to confirm the accuracy and veracity of respondents' indication of physical abuse. That said, in the study of elder abuse in both community and institutional settings, archival data and police reports are often quite global and usually unaccompanied by the in-depth assessment of relational dynamic and individual characteristics necessary for a full understanding of the risk factors of elder abuse.

Second, the specific subsample for this research which met the selection criteria (older adult 65 years or above, residing with his/her adult child who was providing care) did not reflect the full population diversity of the total MIDUS II sample, over representing females and Caucasians in the sample of older adults and adult children (Griffin & Williams, 1992; Shaughnessym Zechmeister, & Zechmeister, 2006). However, it is important to note that the representative character of the MIDUS II national sample involved an age range of 35-86 years. That said, the resulting over-representation of females and Caucasians in the subsample of over 65 individuals used in this study is not inconsistent with national demographic and survival trends of older adult samples, with more females outliving males and more Caucasians outliving some ethnic minorities.

Third, the direct manifest outcome variables (e.g., ever physically abused/assaulted and ever sexually abused/assaulted), as measured in the original MIDUS II data set, did not exclusively refer to physical abuse occurring after age 65. While the MIDUS II data set does not lend itself to the precise identification of

the timing of the physical abuse, the statistical modeling used in the current investigation supports the likelihood of the physical abuse happening after age 65. Specifically, a central finding of this study—the critical mediating role of the older adult/adult child relationship quality in the dynamics of elder physical abuse—suggests both the centrality of that relationship in elder physical abuse as well as the possible involvement of the adult child in the physical abuse of the older adult after age 65, particularly if the quality of the relationship has deteriorated.

Finally, shame or simple discomfort reporting discussing sensitive family issues (even with the safeguards of confidentiality in the MIDUS II protocol) may have led to an under-reporting of physical abuse (Griffin & Williams, 1992; Quinn & Tomita, 1986). These shortcomings underscore the acknowledged difficulty and challenge of collecting and analyzing data on elder physical abuse of older adults (Bonnie & Wallace, 2003; NRC, 2003).

Implications of the Study

A major implication of our study for potential intervention is the importance of building family solutions that would successfully address violence in the dyadic relationship between the older adult and the adult child. Our findings suggest that strengthening the existing elderly parent/adult child bond would be an effective intervention method for protecting the older adult from physical abuse. Based on our findings, such interventions would involve assessment of the risk and protective factors (e.g., older adult health, older adult social isolation, and adult child characteristics) as an essential basis for preventing and reducing violence. This strategy would enhance the effectiveness of therapeutic approaches which specifically involve eliminating aggression by strengthening family bonds (Stith, Williams, & Rosen, 1990).

While this study focused on elder physical abuse, it is important to consider possible implications of our findings on the importance of the dyadic relationship for other types of elder abuse and neglect. As noted in this article, there is evidence from a variety of other studies that the quality of the dyadic relationship may be an important factor in multiple types of elder abuse such as neglect or psychological abuse. However, future research needs to confirm the critical mediating role of the dyad relationship for other types of elder abuse and neglect. More specifically, future research needs to identify and confirm the contribution of factors such as older adult health, social isolation, and adult child characteristics which operate through the dyad relationship to impact other types of elder abuse.

In summary, this study represented the first efforts to understand the risk factors of elder physical abuse by adult children using an ecological/contextual framework. In addition, this study examined in detail the largely understudied mediating/moderating role of the older adult/adult child relationship quality, including the multiple constituent measures of the dyad relationship quality in predicting and more fully understanding physical abuse of older adults in family and community settings.

REFERENCES

Agnew, R., & Huguley, S. (1989). Adolescent violence toward parents. *Journal of Marriage and Family, 51*(3), 699-711.

American Psychiatric Association (APA). (2005, May 21-26). Annual meeting. Atlanta, Georgia.

Anetzberger, G. J., Korbin, J. E., & Austin, C. (1994). Alcoholism and elder abuse. *Journal of Interpersonal Violence, 9*(2), 184-193.

Antonucci, T. C. (2001). Social relations: An examination of social networks, social support, and sense of control. In J. E. Birren & K. W. Schaie (Eds.), *Handbook of the psychology of aging* (5th ed., pp. 427-453). San Diego: Academic Press.

Athens, L. (1992). *The creation of dangerous violent criminals.* Urbana: University of Illinois Press.

Athens, L. (1998). Types of violent persons: Toward the development of a symbolic interactionist theory of violent criminal behavior. In N. K Denzin (Ed.), *Studies in symbolic interaction* (Vol. 7B, pp. 259-268). Bingly, UK: Emerald Group Publishing Ltd.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Baskin-Sommers, A., & Sommers, I. (2006). Methamphetamine use and violence. *Journal of Criminal Justice, 34,* 661-674.

Bonnie, R. J., & Wallace, R. B. (2003). *Elder mistreatment: Abuse, neglect, and exploitation in an aging America.* Washington, DC: National Academic Press.

Browne, K. D., & Hamilton, C. E. (1998). Physical violence between young adults and their parents: Associations with a history of child maltreatment. *Journal of Family Violence, 13*(1), 59-79.

Comijs, H. C., Penninx, B. W. J. H, Knipscheer, K. P. M., & van Tilburg, W. (1999). Psychological distress in victims of elder mistreatment: The effects of social support and coping. *Journal of Gerontology: Psychological Sciences, 54B,* 240-245.

Cooney, C., & Howard, R. (1995). Abuse of patients with dementia by their caretakers: Out of sight but not out of mind. *International Journal of Geriatric Psychiatry, 10,* 735-741.

Cooney, C., & Mortimer, A. (1995). Elder abuse and dementia. *International Journal of Social Psychiatry, 41*(4), 276-283.

Coyne, A. C., Reichman, W. E., & Berbig, L. J. (1993). The relationship between dementia and elder abuse. *American Journal of Psychiatry, 150*(4), 643-646.

Flannery, R. B. (2003). Domestic violence and elderly dementia sufferers. *American Journal of Alzheimer's Disease and Other Dementias, 18,* 21-23.

Fulmer, T., Guadagno, L., Dyer, C. B., & Connolly, M. T. (2004). Progress in elder abuse screening and assessment instruments. *Journal of the American Geriatrics Society, 52*(2), 297-304.

Fulmer, T., Paveza G., VandeWeerd, C., Fairchild, S., Guadagno, L., Bolton-Blatt, M., et al. (2005). Dyadic vulnerability and risk profiling for elder neglect. *The Gerontologist, 45*(4), 525-534.

Gambert, S. R., & Katsoyannis, K. K. (1995). Alcohol-related medical disorders of older heavy drinkers. In T. P. Beresford & E. Gomberg (Eds.), *Alcohol and aging* (pp. 70-81). New York: Oxford University Press.

Garre-Olmo, J., Planas-Pujol, X., Lopez-Pousa, S., Juvinya, D., Vila, A., & Vilalta-Franch, J. (2009). Prevalence and risk factors of suspected elder abuse subtypes in people aged 75 and older. *Journal of American Geriatrics Society, 57,* 815-822.

Griffin, L. W., & Williams, O. J. (1992). Abuse among African-American elderly. *Journal of Family Violence, 7*(1), 19-35.

Griffore, R. J., Braboza, G. E., Mastin, T., Oehmke, J., Schiamberg, L. B., & Post, L. A. (2009). Family members reports of abuse in Michigan nursing homes. *Journal of Elder Abuse and Neglect, 21,* 105-114.

Hawes, C. (2002). *Elder abuse in residential long-term care facilities: What is known about prevalence, causes and prevention.* Testimony before the U.S. Senate Committee on Finance.

Heide, K. M. (1995). *Why kids kill parents: Child abuse and adolescent homicide.* Beverly Hills, CA: Sage.

Homer, A., & Gilleard, C. (1990). Abuse of elderly people by their carers. *British Medical Journal, 301,* 1359-1362.

Jaffe, P. G., Wolfe, D. A., & Wilson, S. K. (1990). *Children of battered women: Developmental clinical psychology and psychiatry.* Thousand Oaks, CA: Sage.

Kethineni, S. (2004). Youth-on-parent violence in a central Illinois county. *Youth Violence and Juvenile Justice, 2*(4), 374-394.

Killian, T., Turner, J., & Cain, R. (2005). Depressive symptoms of caregiving women in midlife: The role of physical health. *Journal of Women and Aging, 17,* 115-127.

Kosberg, J. I. (1988). Preventing elder abuse. Identification of high risk factors prior to placement decisions. *The Gerontologist, 28*(1), 43-50.

Kosberg, J. I., & Nahmias, D. (1996). Characteristics of victims and perpetrators and milieus of abuse and neglect. In L. A. Baumhorer & S. C. Bell (Eds.), *Abuse, neglect and exploitation of older persons: Strategies for assessment and intervention* (pp. 31-50). Baltimore, MD: Health Professions Press.

Kratcoski, P. C. (1984). Perspectives on intrafamily violence. *Human Relations, 37,* 443-453.

Lachs, M. S., Mark, K., & Pillemer, K. A. (2004). Elder abuse. *The Lancet, 364,* 1192-1263.

Lachs, M. S., & Pillemer, K. (1995). Abuse and neglect of elderly persons. *New England Journal of Medicine, 332*(7), 437-443.

Lachs, M. S., Williams, C. S., O'Brien, S., Pillemer, K. A., & Charlson, M. E. (1998). The mortality of elder mistreatment. *Journal of the American Medical Association, 280,* 428-432.

Lauman, E. O., Leitsch, S. A., & Waite, L. J. (2008). Elder mistreatment in the United States: Prevalence estimates from a national representative study. *The Journal of Gerontology, 63B*(4), 248-254.

Little, R. J., & Rubin, D. B. (2002). *Statistical analysis with missing data.* New York: Wiley.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1,* 130-149.

Macdonald, S., Angling-Bodrug, K, Mann, R. E., Erickson, P., Hathaway, A., Chipman, M. A., et al. (2003). Injury risk associated with cannabis. *Drug Alcohol Dependence, 72,* 99-115.

Mroczek, D. K., & Kolarz, C. M. (1998). The effect of age on positive and negative affect: A developmental perspective on happiness. *Journal of Personality and Social Psychology, 75*(5), 1333-1349.

National Center on Elder Abuse. (1998). *National Elder Abuse Incident Sudy; Final Report*. Washington, DC: Administration for Children and Families, Administration on Aging, U.S. Department of Health and Human Services.

National Research Council (NRC) Panel to Review Risk and Prevalence of Elder Abuse and Neglect. (2003). Elder maltreatment: Abuse, neglect, and exploitation in an aging America. Washington, DC.

Nebbitt, V., Lombe, M., & Williams, J. (2008). Assessing the moderating effects of anxiety sensitivity on antisocial behavior among urban African American youth. *Journal of Health Care for the Poor and Underserved, 19,* 277-293.

Nock, M. K., & Kazdin, A. E. (2002). Parent-directed physical aggression by clinic-referred youths. *Journal of Clinical Child Psychology, 31*(2), 193-205.

Paulson, M. J., Cooms, R. H., & Landsvert, J. (1990). Youth who physically assault their parents. *Journal of Family Violence, 5,* 121-133.

Paveza, G. J., Cohen, D., Eisdorher, C. E., Freels, S., Shram, T. S., Ashford, W., et al. (1992). Severe family violence and Alzheimer's disease: Prevalence and risk factors. *The Gerontologist, 32*(4), 493-497.

Peek, C., Fischer, J. L., & Kidwell, J. S. (1985). Teenage violence towards parents: A neglected dimension of family violence. *Journal of Marriage and Family, 47*(4), 1051-1058.

Pillemer, K., & Finkelhor, D. (1988). The prevalence of elder abuse: A random sample survey. *The Gerontologist, 28,* 51-57.

Pillemer, K., & Moore, D. W. (1989). Abuse of patients in nursing homes: Findings from a survey of staff. *The Gerontologist, 29*(3), 314-320.

Pillemer, K., & Suitor, J. J. (1992). Violence and violent feelings: What causes them among family caregivers? *Journal of Gerontology, 47*(4), S165-S172.

Pillemer, K., & Wolf, R. S. (1986). *Elder abuse: Conflict in the family*. New York: Auburn House Publishing.

Quinn, M. J., & Tomita, S. K. (1986). *Elder abuse and neglect: Causes, diagnosis, and intervention strategies*. New York: Springer.

Racic, M., Kusmuk, S., Kozomara, L., Debelnogic, B., & Tepic, R. (2006). The prevalence of mistreatment among the elderly with mental disorders in primary health care settings. *The Journal of Adult Protection, 8*(4), 20-24.

Raykov, T. (2005). Bias-corrected estimation of noncentrality parameters of covariance structure models. *Structural Equation Modeling, 12*(1), 120-129.

Raykov, T., & Marcoulides, G. A. (2006). *A first course in structural equation modeling* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Ryff, C., Almeida, D. M., Ayanian J. S., Carr, D. S., Cleary, P. D., Coe, R., et al. (2007). *Midlife development in the United States (MIDUS II), 2004-2006* [Computer file]. ICPSR04652-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2007-03-22. doi: 10.3886/ICPSR04652.

Schiamberg, L. B., Barboza, G., Oehmke, J., Zhang, Z., Griffore, R. J., Weatherhill, R., et al. (2011). Elder abuse in nursing homes: An ecological perspective. *Journal of Elder Abuse and Neglect, 23* (2), 190.

Schiamberg, L. B., & Gans, D. (2000). Elder abuse by adult children: An applied ecological framework for understanding contextual risk factors and the intergenerational character of quality of life. *The International Journal of Aging and Human Development, 50*(4), 329-359.

Schiamberg, L. B., von Heydrich, L., Oehmke, J., Zhang, Z., Barboza, G., Griffore, R., et al. (2011). Physical abuse of older adults in nursing homes: A random sample survey. *Journal of Elder Abuse and Neglect, 23*(4), 65.

Segen, J. (2006). *Concise dictionary of modern medicine* (1st ed.). New York: McGraw-Hill.

Shaughnessy, J. J., Zechmesiter, E. B., & Zechmeister, J. S. (2006). *Research methods in psychology* (7th ed.). New York: McGraw-Hill.

Steinmetz, S. K. (1990). Myth and reality. In T. H. Brubaker (Eds.), *Family relationships in later life* (2nd ed., pp. 193-211). Newbury Park, CA: Sage.

Stith, S. M.,Williams, M. B., & Rosen, K. H. (1990). *Violence hits home: Comprehensive treatment approaches to domestic violence.* New York: Springer.

Straus, M. A., Gelles, R. J., & Steinmetz, S. K. (1980). *Behind closed doors: Violence in the American family*. Garden City, NY: Anchor Books.

Talerico, K. A., Evans, L. K., & Strumpf, N. E. (2002). Mental health correlates of aggression in nursing home residents with dementia. *The Gerontologist, 42*(2), 169-177.

Ulman, A., & Strauss, M. A. (2003). Violence by children against mothers in relation to violence between parents and corporal punishment by parents. *Journal of Comparative Family Studies, 34*(1), 41-60.

U.S. Department of Health and Human Services, Administration on Aging. (2006). Snapshot: A statistical profile of older Americans aged 65+. Retrieved from http://www.aoa.gov/PRESS/fact/pdf/Attachment_1304.pdf

Wang, P. S., Berglund, P., & Kessler, R. C. (2000). Recent care of common mental disorder in the United States: Prevalence and conformance with evidence-based recommendations. *Journal of General Internal Medicine, 15,* 284-292.

Wilber, K., & McNeilly, D. P. (2001). Elder abuse and victimization. In J. E. Birren & K. W. Schaie (Eds.), *Handbook of the psychology of aging* (5th ed., pp. 569-587). San Diego: Academic Press.

Williamson, G. M., Martin-Cook, K., Weiner, M. F., Svetlik, D. A., Saine, K., Hynan, L. S., et al. (2005). Caregiver resentment: Explaining why care recipients exhibit problem behavior. *Rehabilitation Psychology, 50*(3), 215-223.

Wolf, R. S., & Pillemer, K. A. (1989). *Helping elderly victims: The reality of elder abuse.* New York: Columbia University Press.

Zhang, Z., Schiamberg, L., Oehmke, J., Barboza, G. E., Griffore, R. J., Post, L. A., et al. (2011). Neglect of older adults in Michigan nursing homes. *Journal of Elder Abuse and Neglect, 23*, 58-74.

Direct reprint requests to:

Lawrence B. Schiamberg
Michigan State University
Dept. of Human Development and Family Studies
8 Human Ecology Bldg.
East Lansing, MI 48824-1030
e-mail: schiambe@hdfs.msu.edu