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Elder Mistreatment Predicts Later Physical and Psychological Health: Results from a National Longitudinal Study

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SUGGESTED RUNNING HEADLINE: MISTREATMENT PREDICTS PHYSICAL AND PSYCHOLOGICAL HEALTH

Abstract

Objectives: Conceptual models point both to the vulnerability of older adults as increasing the risk of mistreatment and to consequences of mistreatment for emotional and physical health. But current research on elder mistreatment is limited by reliance on cross-sectional data and non-representative samples. We aim to address these limitations using nationally representative, longitudinal data from the National Social Life, Health, and Aging Project (NSHAP).

Methods: We use negative binomial regression and ordinary least-squares (OLS) regression to model the relationship between verbal, financial, and physical mistreatment experience in 2005-2006 and psychological and physical health outcomes in 2010-2011.

Results: We find that victims of mistreatment have more symptoms of anxiety and loneliness, more chronic health conditions, and worse functional health five years later, net of demographic characteristics and physical and psychological health status at baseline, than those who do not report mistreatment. Also, we show that different types of elder mistreatment lead to different physical and psychological health outcomes.

Discussion: Findings confirm the negative effect of mistreatment on later physical and emotional health, and point to the importance of both preventing elder mistreatment and lessening its ill effects for well-being at older ages.

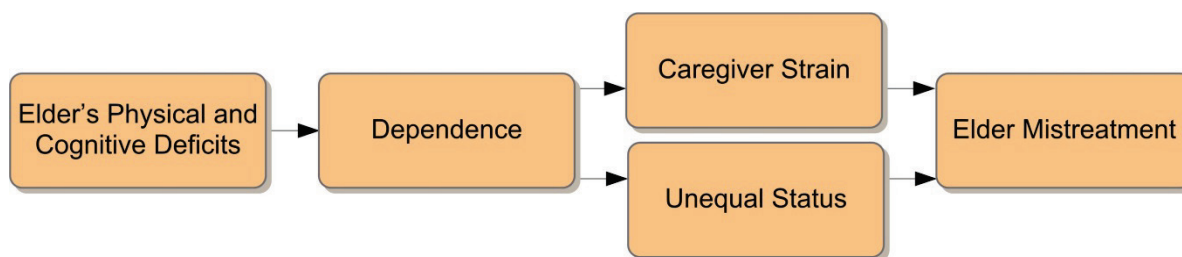
Key terms: verbal mistreatment, financial mistreatment, anxiety, chronic conditions, functional health, stress process theory

Introduction

Elder mistreatment is defined as “(a) intentional actions that cause harm or create a serious risk of harm, whether or not intended, to a vulnerable elder by a caregiver or other person who stands in a trust relationship to the elder, or (b) failure by a caregiver to satisfy the elder’s basic needs or to protect the elder from harm” (Bonnie & Wallace, 2003). This stressful life event affects slightly more than 10 percent of the older adult population (Acierno et al., 2010). Research suggests that elder mistreatment is related to both psychological distress (Comijs, Penninx, Knipscheer, & van Tilburg, 1999; Luo & Waite, 2011; Mouton, 2003) and poor physical and functional health (Amstadter et al., 2010; Cisler, Begle, Amstadter, & Acierno, 2012).

There are currently two major conceptual frameworks used in elder mistreatment research. The first framework focuses on the predictors of mistreatment, with some scholars suggesting that vulnerability precedes elder mistreatment. For example, the stressed caregiver approach (Gordon & Brill, 2001) emphasizes that impairment in the elderly creates caregiver strain, increasing the likelihood that the stressed caregiver commits mistreatment. Similarly, the conceptual framework in the National Research Council report *Elder Mistreatment: Abuse, Neglect and Exploitation in an Aging America* (Bonnie & Wallace, 2003) points to both the status inequality between the elderly person and the trusted other created by vulnerability and the dependency resulting from physical or cognitive impairments as increasing the risk for mistreatment. Essentially, these theories suggest that mistreatment is a result of preexisting characteristics of the elder and his or her caregiver: an elder’s dependence on a trusted other, whether it creates a burden for a caregiver or changes the balance of power in the elder-caregiver relationship, increases the likelihood of elder mistreatment. A conceptual model of dependence and mistreatment based on these frameworks is pictured in Figure 1.

Figure 1. Dependence Models of Elder Mistreatment

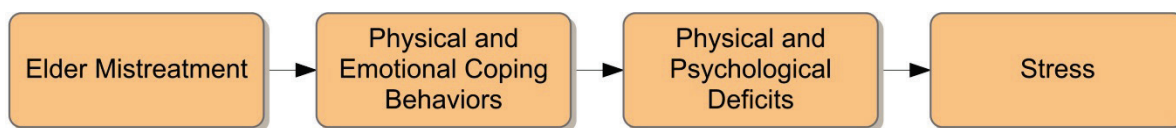


Some empirical studies provide partial support for this framework. For example, Laumann, Leitsch, & Waite (2008) find that those with physical vulnerabilities were about 13 percent more likely than those

without impairments to report verbal mistreatment. In a recent study, Dong et al. (2011a) report that low cognitive function is associated with an increased risk of elder abuse. However, since these studies use cross-sectional data, the temporal relationship between measures of mistreatment and well-being remains unclear.

The second framework used in elder mistreatment research focuses on the consequences of mistreatment rather than on the predictors. This framework draws on the stress process theory (Pearlin, Schieman, Fazio, & Meersman, 2005). Adverse life events initiate efforts to cope, changing an individual’s behavioral and emotional responses to the events. If stressors continue to mount, physical and psychological reserves become exhausted, increasing susceptibility to illness, disease, or psychological distress. Thus elder mistreatment, like other stressful life events, triggers physical and emotional distress (e.g., Lachs, Williams, O’Brien, Pillemer, & Charlson, 1998; Schofield, Powers, & Loxton, 2013). Figure 2 illustrates the stress process model of elder mistreatment.

Figure 2. Stress Process Models of Elder Mistreatment



Several studies provide empirical evidence in support of this framework. Luo & Waite (2011), for example, exploit the wording of the mistreatment questions in Wave 1 (W1) of the National Social Life, Health, and Aging Project (NSHAP) to suggest that mistreatment precedes psychological distress: they find that elder mistreatment in the past year is associated with psychological distress in the past week. Though these findings are useful in understanding the relationship between mistreatment and well-being, the cross-sectional data mean that psychological distress in the past week may color one’s recollection of past events, increasing the chances that the same experience was reported as mistreatment by those now distressed for other reasons. Using longitudinal data from the Chicago Health and Aging Project (CHAP), Dong and colleagues (2009) report that elder abuse is associated with significantly increased risk of overall mortality. However, not all CHAP participants were asked about mistreatment, so results from this work may not apply to all older adults. In fact, a large proportion of elder mistreatment research is done in assisted living settings (see Cooper, Selwood, & Livingston, 2008, for a review) and cannot be generalized to the much larger population of community-dwelling older adults.

The current study takes advantage of the representative nature and longitudinal design of NSHAP to test the stress process model of elder mistreatment. Because NSHAP includes measures of mistreatment only

in W1, we are unable to test the dependence model of elder mistreatment. We focus here on providing evidence on the causal effect of elder mistreatment on later psychological and physical health using measures that have clear temporal ordering. Given the current knowledge about elder mistreatment and physical and psychological distress, this study's primary hypothesis is:

Elder mistreatment increases the risks of declines in psychological and physical health over the following five years.

In addition to determining whether mistreatment leads to poor emotional and physical health outcomes, this study will explore the relationship between three different types of mistreatment and these outcomes. The literature on types of elder abuse is sparse, but recent work suggests that it is important to distinguish the different types of elder mistreatment when identifying the pathways between vulnerability and mistreatment (e.g., Dong, Chen, & Simon, 2012; Rabiner, O'Keeffe, & Brown, 2004). This study uses NSHAP's questions about verbal, financial, and physical abuse to examine whether and how different forms of elder mistreatment affect later well-being.

Verbal abuse, a type of emotional abuse, is reported by 4 to 9 percent of older adults (Acierno et al., 2010; Laumann, Leitsch, & Waite, 2008), and is strongly linked to mental health outcomes, such as greater reports of depression and anxiety (Cisler et al., 2012; Dong et al., 2012). Financial mistreatment occurs in 3.5 to 5 percent of the elderly population (Acierno et al., 2010; Laumann, Leitsch, & Waite, 2008). In addition to having practical consequences, financial mistreatment can result in negative psychological consequences such as depression and fearfulness (Hafemeister, 2003). Fewer than 2 percent of older adults report physical mistreatment (Acierno et al., 2010; Laumann, Leitsch, & Waite, 2008). While not as common as verbal or financial mistreatment, physical abuse is related to both mental and physical health deficits (Amstadter et al., 2010), including more frequent reports of emotional symptoms (Cisler et al., 2012) and greater mortality risk (Baker et al., 2009; Dong et al., 2009). These prior findings suggest that different types of mistreatment are linked to different kinds of health outcomes, so we hypothesize:

- H1. Verbal mistreatment predicts negative psychological outcomes
- H2. Financial mistreatment predicts negative psychological outcomes
- H3. Physical mistreatment predicts negative physical and emotional health outcomes

Though elder mistreatment can have detrimental consequences for well-being, research has also found that psychosocial resources can reduce these ill effects. First, those with higher levels of social support are less likely to become victims of elder mistreatment at all (Acierno et al., 2010). Further, social support is a protective factor for the elderly who have experienced mistreatment. For example, in a cross-sectional

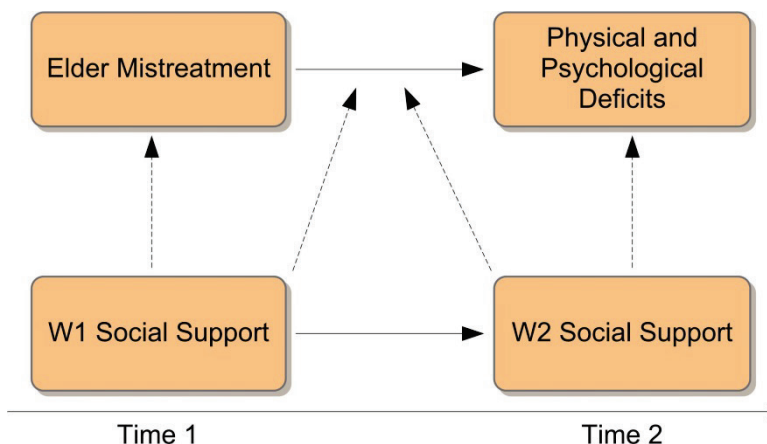
study, Luo & Waite (2009) find that among older adults who reported any mistreatment, levels of global happiness are higher and levels of psychological distress are lower if they also reported more positive social support, social participation, and feelings of social connectedness. Other studies report similar beneficial effects of social support on a variety of outcomes, including reducing later psychological distress (Comijs et al., 1999) and mortality risk (Dong et al., 2011b).

Since psychosocial resources may reduce both the risk of being mistreated and the negative effect of elder mistreatment on emotional and physical health, we hypothesize:

- H4. Social support will reduce the negative effect of elder mistreatment on both later physical and psychological health.

Figure 3 depicts our conceptual model of elder mistreatment and well-being.

Figure 3. A Conceptual Model of Elder Mistreatment and Its Consequences Over Time



Methods

Data. We use data from the National Social Life, Health, and Aging Project (NSHAP) to test this study’s hypotheses. NSHAP is a nationally representative study of health and social relationships among older Americans. The first wave of data was collected in 2005 and 2006 and includes 3,005 adults aged 57-85 (Waite et al., 2014). The W1 respondents were re-interviewed five years later in 2010 and 2011. In addition to following up with W1 respondents, Wave 2 (W2) of NSHAP also includes interviews with their spouses and cohabiting romantic partners, resulting in a total sample of 3,377 older adults (Waite et al., 2014).

The NSHAP data have a number of strengths for our purposes. First, NSHAP's longitudinal design allows us to establish the temporal relationship between elder mistreatment and physical and emotional health. Second, NSHAP's questions about verbal, financial, and physical mistreatment allow us to explore the differences between these types of elder mistreatment. Third, NSHAP includes measures of social context that enable us to understand the impact of psychosocial resources on health and aging. Finally, because NSHAP is representative of the elderly U.S. population, our findings are generalizable to the population of community-dwelling older adults in the United States.

Sample. Out of the 3,005 older adults who participated in W1, 573 died, were too sick to be re-interviewed, or moved to a nursing home between W1 and W2, and an additional 171 respondents were lost for other reasons. This leaves 2,261 respondents who were re-interviewed in W2; these respondents make up the sample for this study. Supplemental analyses show that women and the highly educated were more likely to be re-interviewed in W2, whereas those who left the sample due to death, illness, or other reasons were likely to be older, unpartnered, and had worse functional health and more chronic conditions than those who were re-interviewed. Supplemental analyses also controlled for mistreatment and several measures of psychological health; none of these variables significantly predicted attrition.

Variables. The primary dependent variables are measures of psychological and physical health in W2. The emotional health outcomes we examined are anxiety symptoms and felt loneliness. We chose these measures because clinical studies suggest that the effects of elder mistreatment often include feelings of fear, anxiety, alienation, and shame (Wolf, 2000). Anxiety is measured using the NSHAP Anxiety Symptoms Measure (NASM), a seven-item scale based on a version of the Hospital Anxiety and Depression Scale (HADS-A; Zigmond & Snaith, 1983). NASM scores range from 0 to 21. The NSHAP Felt Loneliness Measures (NFLM) is constructed using three items from the Revised UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980). NFLM scores range from 0 to 6. Higher scores on the NASM and NFLM scales reflect more symptoms of anxiety and loneliness, respectively. Further details about NSHAP's psychological health measures are presented in Shiovitz-Ezra, Leitsch, Graber, & Karraker (2009) and Payne et al. (2014).

We use two scales to measure physical health. The first is the NSHAP Comorbidity Index (NCI), a measure of chronic diseases and conditions. The NCI is constructed in the same manner as the validated and widely used Charlson Comorbidity Index (Charlson, Pompei, Ales, & MacKenzie, 1987), but includes additional measures for hypertension, skin cancer, bone health, and incontinence. NCI scores range from 0 to 21, and higher scores reflect a greater burden of chronic conditions. Details about scale construction and validation are available in Vasilopoulos et al. (2014). The second measure of physical

health in our analysis is a functional health scale measuring the number of difficulties with Activities of Daily Living (ADLs). Five items asking whether the respondent has any difficulty (“some difficulty,” “much difficulty,” and “unable to do” are collapsed into an “any difficulty” category) with dressing him- or herself, bathing, eating, getting in and out of bed, or toileting are summed into an ADL score ranging from 0 to 5. Higher ADL scores indicate difficulty with a greater number of daily activities.

The primary independent variables are verbal mistreatment in W1 (“Is there anyone who insults you or puts you down?”), financial mistreatment in W1 (“Is there anyone who has taken your money or belongings without your OK or prevented you from getting them even when you ask?”), and physical mistreatment in W1 (“Is there anyone who hits, kicks, slaps, or throws things at you?”). These questions are based on items from the Hwalek-Sengstock Elder Abuse Screening Test (Hwalek & Sengstock, 1986) and the Vulnerability to Abuse Screening Scale (Schofield & Mishra, 2003), two well-validated screens for elder mistreatment. Each mistreatment variable is a dichotomous measure of whether a respondent experienced that type of mistreatment in the past year. Following the methods of previously published work (Luo & Waite, 2011), we also created a variable to identify those who reported only one type of mistreatment and those who reported two or more types of mistreatment in W1 regardless of type. Although the NSHAP survey asks about the perpetrator of each type of mistreatment and the majority of incidents are committed by family members (Laumann, Leitsch, & Waite, 2008), we include mistreatment committed by all persons.

Additionally, because previous work has found that social support both reduces the risk of being mistreated (Acierno et al., 2010) and buffers the effect of elder mistreatment on well-being (Comijs et al., 1999; Luo & Waite, 2011), we control for social support in our analyses. Each social support measure, one from W1 and one from W2, combines six items assessing whether a respondent generally feels he or she can open up to and rely on spouses/partners, family, and friends. Scores range from 0 to 3 and higher scores indicate higher levels of psychosocial support. Further, we control for the basic demographic factors of gender, race, education, marital status, and age at W2.

Analysis. Most of the dependent variables have valid zeroes and long right tails in their distributions, so we use negative binomial regression to model NASM and NFLM scores and difficulties with ADLs (Long, 1997). The distribution of NCI scores is normal after taking its natural log, so we use ordinary least-squares (OLS) regression in this particular analysis. Control variables are added in a stepwise manner. The first and all subsequent models include controls for demographic characteristics. Model 2 includes controls for the physical or mental health outcome in W1 (e.g., the model predicting W2 loneliness score controls for W1 loneliness score). Models 3, 4, and 5 control for social support: Model 3

includes a control for W1 social support only, Model 4 includes a control for W2 social support only, and Model 5 includes controls for both W1 and W2 social support. These three models enable us to understand how the timing of social support may alter the effect mistreatment has on psychological and physical health. The complete set of five models is estimated separately for each key measure of elder mistreatment. All analyses include the available weights for nonresponse and sample design (O’Muircheartaigh, Eckman, & Smith, 2009; O’Muircheartaigh et al., 2014).

Descriptive statistics for the key dependent and independent variables, along with other control variables included in the analysis, are presented in Table 1.

Table 1. Descriptive Statistics

Total N=2261			
Verbal Mistreatment	16.19%	Female	52.11%
Financial Mistreatment	5.93%	Age	72 (62-91)
Physical Mistreatment	0.36%	Race/Ethnicity	
1 Type of Mistreatment	17.50%	White	80.82%
2 or More Types of Mistreatment	2.16%	Black	10.04%
		Hispanic	6.65%
Wave 2 NASM	4.60 (0-21)	Other	2.49%
Wave 2 NFLM	1.16 (0-6)	Education	
		Less than High School	16.57%
Wave 2 NCI	2.52 (0-21)	High School	25.30%
		Vocational/Some College	31.44%
Wave 2 ADLs		College	26.69%
1 Difficulty	9.97%	Marital Status	
2 Difficulties	4.91%	Married	55.75%
3 Difficulties	3.73%	Living with a Partner	2.23%
4 Difficulties	2.52%	Separated	1.29%
5 Difficulties	1.63%	Divorced	11.12%
		Widowed	26.41%
Wave 1 Social Support	2.45 (0-3)	Never Married	3.20%
Wave 2 Social Support	1.89 (0-3)		

Numbers reported are weighted and based on the 2,261 respondents who participated in both NSHAP waves

Results

The key findings are presented in Tables 2 through 5. The first panel in each table contains the results for number of types of mistreatment, the second contains results for verbal mistreatment, and the third contains the findings for financial mistreatment. Because the number of respondents reporting physical mistreatment is small ($n=12$), estimates from those models are unreliable and not reported. However, these 12 cases are captured in the measure for number of types of mistreatment.

Psychological Health. Tables 2 and 3 contain results from the regressions predicting psychological health outcomes. The findings from the models predicting anxiety symptoms in Table 2 show that experiencing one type of mistreatment in W1, regardless of type, results in higher W2 NASM scores even after controlling for W1 anxiety symptoms and W1 and W2 social support. These results provide support for Hypothesis 1, which states that mistreatment increases the risks of declines in psychological and physical health over the following five years. Controlling for W1 social support in Model 3 reduces the magnitude of the coefficient on one type of mistreatment (from 0.104 to 0.090), but does not reduce the effect to statistical insignificance. W1 social support is itself negative and significant: those with high social support in W1 have fewer anxiety symptoms in W2. A post-estimation Wald test also shows that the reduction in the mistreatment coefficient after including W1 social support is statistically significant ($p<0.05$), suggesting that availability of social support moderates the effect of mistreatment on later anxiety symptoms. The effect of W2 social support in Model 4 is not statistically significant, and the coefficient on one type of mistreatment returns to the level it was in Model 2 before any controls for social support were included (Wald test $p>0.05$). When both W1 and W2 social support are included in Model 5, the effect of one type of past mistreatment remains, though the effect of W1 social support is negative and statistically significant. These results show that controlling for social support—and W1 social support in particular—attenuates the effect of past mistreatment on later anxiety symptoms, but does not completely reduce its effect to zero. While the interaction between one type of mistreatment and W1 social support is not statistically significant (not shown), results from Models 3 to 5 suggest that the effect of mistreatment on later anxiety symptoms is larger for those without social support.

Analyses of the individual mistreatment items show that past verbal mistreatment in particular is associated with higher NASM score. These findings provide support for the hypothesis that verbal mistreatment leads to negative psychological outcomes (Hypothesis 2). The effect of verbal mistreatment on anxiety symptoms at W2 remains positive and significant across the five models, even after adjusting for demographic characteristics, W1 anxiety score, and social support at both times.

Table 2. Mental Health Outcomes: Anxiety Symptoms

	NASM				
	M1	M2	M3	M4	M5
Number of Mistreatments (vs. None)					
1 Type of Mistreatment	0.213***	0.104*	0.090*	0.105*	0.089*
2 or More Types of Mistreatment	0.302	0.092	0.067	0.094	0.066
W1 Mental Health Status		0.087***	0.084***	0.087***	0.084***
W1 Social Support			-0.192**		-0.194**
W2 Social Support				-0.023	0.008
Constant	1.243***	0.622**	1.154***	0.677**	1.138***
N	1635	1609	1607	1609	1607
Verbal Mistreatment (vs. None)	0.240***	0.137**	0.121*	0.139**	0.120*
W1 Mental Health Status		0.087***	0.084***	0.087***	0.084***
W1 Social Support			-0.188**		-0.189**
W2 Social Support				-0.024	0.007
Constant	1.298***	0.628**	1.147***	0.685**	1.133***
N	1644	1617	1615	1617	1615
Financial Mistreatment (vs. None)	0.136	-0.014	-0.022	-0.014	-0.022
W1 Mental Health Status		0.090***	0.087***	0.090***	0.086***
W1 Social Support			-0.202***		-0.205***
W2 Social Support				-0.010	0.021
Constant	1.330***	0.670**	1.230***	0.696**	1.187***
N	1651	1624	1622	1624	1622

All models control for gender, race/ethnicity, education, marital status, and age
 Physical Mistreatment results omitted because of small sample size

Table 3 shows the results from the analyses predicting felt loneliness as measured by NFLM scores. Again, in support of Hypothesis 1, we find that experiencing one type of past mistreatment results in higher levels of loneliness at W2 net of W1 loneliness score and social support in W1 and W2. Unlike the findings for anxiety symptoms, however, the size of the effect of one type of mistreatment does not change when social support is taken into account (Models 3-5; Wald test $p > 0.05$). While both measures of social support have a negative relationship with W2 levels of felt loneliness, controlling for social support does not alter the relationship between mistreatment and loneliness scores: mistreatment predicts later loneliness net of social support.

Neither verbal mistreatment nor financial mistreatment predicts feelings of loneliness in W2 after controlling for felt loneliness in W1. These findings suggest that while mistreatment in general results in later feelings of loneliness, this effect does not depend on the type of mistreatment.

Table 3. Mental Health Outcomes: Felt Loneliness

	NFLM				
	M1	M2	M3	M4	M5
Number of Mistreatments (vs. None)					
1 Type of Mistreatment	0.446***	0.235**	0.222**	0.249**	0.235**
2 or More Types of Mistreatment	0.381	-0.142	-0.139	-0.118	-0.12
W1 Mental Health Status		0.342***	0.324***	0.339***	0.323***
W1 Social Support			-0.267*		-0.237*
W2 Social Support				-0.204**	-0.163*
Constant	-0.245	-1.104*	-0.310	-0.621	-0.02
N	1684	1501	1498	1501	1498
Verbal Mistreatment (vs. None)	0.423***	0.142	0.128	0.165*	0.147
W1 Mental Health Status		0.345***	0.326***	0.341***	0.325***
W1 Social Support			-0.274**		-0.244*
W2 Social Support				-0.202**	-0.160*
Constant	-0.148	-1.009*	-0.190	-0.537	0.089
N	1694	1511	1508	1511	1508
Financial Mistreatment (vs. None)	0.293*	0.126	0.130	0.122	0.127
W1 Mental Health Status		0.347***	0.327***	0.345***	0.328***
W1 Social Support			-0.267**		-0.241*
W2 Social Support				-0.181*	-0.140
Constant	-0.013	-0.909	-0.115	-0.471	0.141
N	1702	1518	1515	1518	1515

All models control for gender, race/ethnicity, education, marital status, and age
 Physical Mistreatment results omitted because of small sample size

Physical Health. Tables 4 and 5 show the results of the regressions of mistreatment on NCI score and difficulties with ADLs, respectively. The top panel of Table 4 shows that compared to non-victims, those who report one type of mistreatment show increases in the number of chronic conditions they have, net of all control variables. These findings support our primary hypothesis that mistreatment leads to worsening psychological and physical health. Further, analyses of individual mistreatment measures show that verbal mistreatment results in a greater burden of chronic conditions. This is an interesting finding because we hypothesized that verbal mistreatment would predict negative psychological outcomes (Hypothesis 2), but these results suggest that verbal mistreatment can cause worsening physical health as well. We also note that social support has no relationship with chronic conditions and does not change the effect of mistreatment on NCI score.

Table 4. Physical Health Outcomes: Chronic Conditions

	NCI (Natural Log)				
	M1	M2	M3	M4	M5
Number of Mistreatments (vs. None)					
1 Type of Mistreatment	0.115**	0.068*	0.066*	0.068*	0.065*
2 or More Types of Mistreatment	0.161	0.052	0.048	0.052	0.047
W1 NSHAP Comorbidity Score		0.571***	0.571***	0.570***	0.570***
W1 Social Support			-0.029		-0.032
W2 Social Support				0.008	0.014
Constant	0.120	-0.001	0.087	-0.019	0.064
N	2088	2088	2084	2087	2083
Verbal Mistreatment (vs. None)	0.135**	0.075*	0.073*	0.075*	0.071*
W1 NSHAP Comorbidity Score		0.572***	0.571***	0.571***	0.571***
W1 Social Support			-0.028		-0.031
W2 Social Support				0.007	0.012
Constant	0.142	0.012	0.097	-0.003	0.077
N	2102	2102	2098	2101	2097
Financial Mistreatment (vs. None)	0.056	0.018	0.015	0.018	0.015
W1 NSHAP Comorbidity Score		0.580***	0.579***	0.579***	0.578***
W1 Social Support			-0.031		-0.034
W2 Social Support				0.011	0.017
Constant	0.229	0.059	0.152	0.034	0.121
N	2113	2113	2109	2112	2108

All models control for gender, race/ethnicity, education, marital status, and age
 Physical Mistreatment results omitted because of small sample size

The results in Table 5 show that experiencing any past mistreatment—either one type or two or more types of mistreatment—is associated with a greater log count of later ADLs, even after controlling for W1 ADLs, and both W1 and W2 social support. These findings offer support for our first hypothesis that elder mistreatment leads to poor psychological and physical health. Results from the individual measures of mistreatment show that financial mistreatment in particular is associated with a decline in physical functioning even after controlling for relevant confounding variables. We predicted that financial mistreatment would result in psychological consequences (Hypothesis 3), but these results suggest that financial mistreatment can lead to adverse physical health outcomes. Again, as in the NCI analysis, we find no relationship between social support and difficulties with ADLs, and no change in the effect of mistreatment on functional limitations when controlling for social support.

Table 5. Physical Health Outcomes: Difficulties with ADLS

	ADLS				
	M1	M2	M3	M4	M5
Any Mistreatment (vs. None)					
1 Type of Mistreatment	0.397	0.261*	0.257*	0.259*	0.255*
2 or More Types of Mistreatment	1.147***	1.094***	1.087***	1.093***	1.084***
W1 ADLS		0.701***	0.703***	0.700***	0.703***
W1 Social Support			-0.015		-0.018
W2 Social Support				0.013	0.023
Constant	-1.374	-2.469**	-2.464***	-2.503**	-2.512**
N	2087	2086	2082	2085	2081
Verbal Mistreatment (vs. None)	.455*	0.208	0.199	0.204	0.192
W1 ADLS		.697***	.699***	.697***	.699***
W1 Social Support			-0.046		-0.053
W2 Social Support				0.024	0.04
Constant	-1.294	-2.318**	-2.222**	-2.378**	-2.300**
N	2101	2100	2096	2099	2095
Financial Mistreatment (vs. None)	.649**	.834**	.825**	.836**	.826**
W1 ADLS		.716***	.718***	.715***	.717***
W1 Social Support			-0.055		-0.067
W2 Social Support				0.063	0.079
Constant	-1.146	-2.547**	-2.424***	-2.707**	-2.590***
N	2112	2111	2107	2110	2106

All models control for gender, race/ethnicity, education, marital status, and age
 Physical Mistreatment results omitted because of small sample size

Discussion

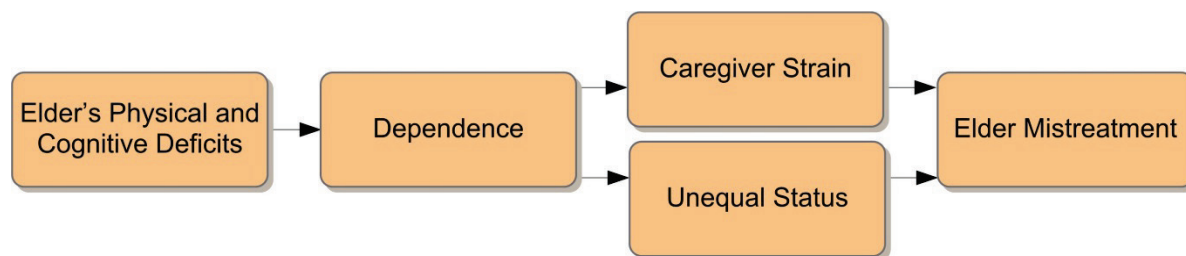
This study uses data from the National Social Life, Health, and Aging Project (NSHAP) to explore the relationship between elder mistreatment and later physical and mental health outcomes. Our findings provide evidence that supports our first hypothesis: elder mistreatment leads to negative physical and emotional health outcomes. Experiencing one type of past mistreatment (verbal, financial, or physical) results in more anxiety symptoms, greater felt loneliness, more chronic conditions, and worse functional health five years later. In support of our second hypothesis, analyses of individual measures of mistreatment show that experiencing verbal mistreatment in particular causes declines in psychological health (greater anxiety symptoms) five years later. These results are in accord with previous studies that find a tight link between emotional mistreatment and psychological outcomes (Cisler et al., 2012; Comijs et al., 1999; Luo & Waite, 2011; Mouton, 2003). However, we also find that verbal mistreatment leads to

an increase in the burden of chronic conditions. This finding fits the predictions of the stress process model, which states that negative experiences cause stress, triggering coping behaviors that tax both psychological and physical resources.

Our third hypothesis that financial mistreatment predicts negative psychological outcomes was not supported. Our analyses did not show any relationship of financial mistreatment to psychological health outcomes. Perhaps financial mistreatment affects emotional health outcomes not measured in NSHAP, such as fearfulness or sense of mistrust. This will be explored during the third wave of NSHAP now being planned. Also, while the financial mistreatment-psychological health relationship was advanced theoretically (e.g., Hafemeister, 2003; Rabiner et al., 2004), very little empirical work has been done on the subject, and it is possible that the proposed link between financial mistreatment and psychological outcomes does not appear empirically. We encourage scholars to continue theorizing and systematically researching financial mistreatment.

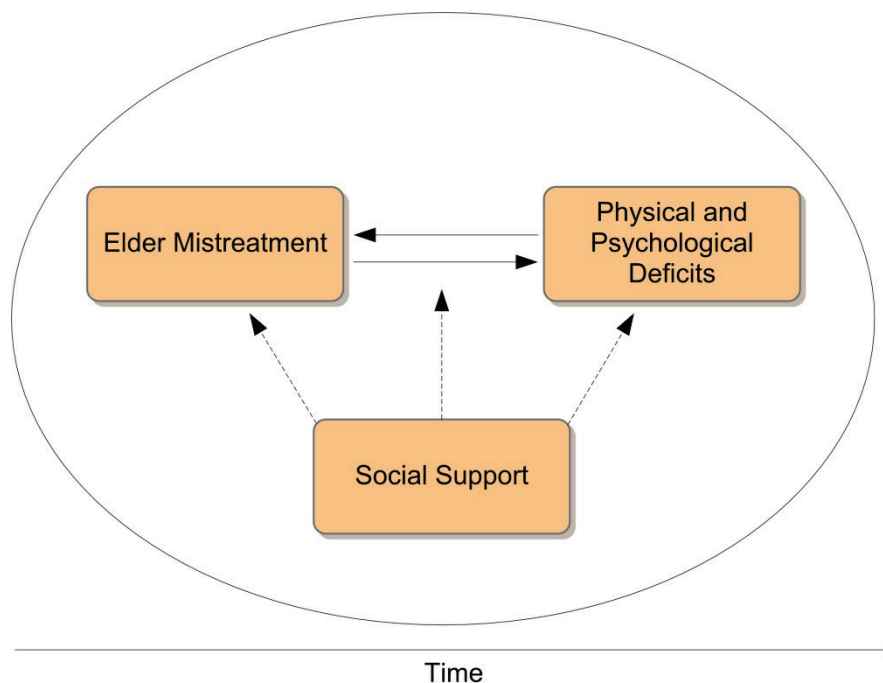
However, we contribute the novel finding that financial mistreatment, specifically, leads to poorer functional health five years later. To our knowledge, this is the first study that documents a relationship between the experience of financial mistreatment and later physical vulnerability. Respondents who report financial mistreatment in W1 report a higher count of difficulties with ADLs in W2, net of difficulties with ADLs at baseline. Previous research finds that greater levels of income and assets are related to better physical function as well as slower rates of physical decline (Kim & Richardson, 2012), so it is possible that financial mistreatment leads to functional limitations because depriving elderly individuals of financial resources compromises their ability to pay for and access other resources needed to maintain their physical health. As functional health declines, many older adults are able to maintain their independence through use of assistive devices, modifications to their dwelling, help from others, or therapies. Loss of financial resources may decrease access to these coping strategies (Mathieson, Kronenfeld, & Keith, 2002).

Because such a small proportion of our sample reported physical mistreatment (0.36 percent, $n=12$), we were unable to test the fourth hypothesis that physical mistreatment would lead to both poor mental and poor physical health. Despite the low prevalence of physical abuse in our sample, we believe that physical mistreatment can be a psychologically and physically painful experience and thus deserves continued study.



The fifth and final hypothesis of this study is that social support will reduce the negative effect of elder mistreatment on both physical and mental health outcomes. Our results did not support this hypothesis. Because previous work suggests that social support prevents mistreatment and reduces its ill effects should it occur, we expected to see the effect of mistreatment on psychological and physical outcomes shrink or even disappear after controlling for social support, but we did not find this pattern. We did find that having social support in W1 resulted in fewer anxiety symptoms in W2, and that having social support in both waves resulted in fewer loneliness symptoms in W2, but controlling for these factors did not eliminate the relationship between past mistreatment and later psychological health. Thus, mistreatment seems to increase and social support appears to decrease later psychological distress, but our results suggest that these processes operate separately. In the analyses of physical health outcomes, we did not find any relationship between social support and increases in chronic conditions or between social support and declines in functional health. Further, inclusion of these variables in the models did not alter the effect of mistreatment on physical health. We conclude that while social support affects health and could play a role in preventing mistreatment (Acierno et al., 2010) and buffer its effects if it does occur (Luo & Waite, 2011), presence or lack of social support does not account for the relationship between mistreatment and health. Thus, we find support for the general stress process framework of the effects of elder mistreatment on later health (Figure 2), but little for the model of social support as a mediator of this relationship (Figure 3).

There were several limitations in our study. First, because NSHAP did not include measures of mistreatment in W2, we were unable to test the dependence model of elder mistreatment (Figure 1), which emphasizes vulnerability and other conditions that precede mistreatment. However, our findings suggest that the effects of mistreatment and vulnerability may be reciprocal, pointing to the importance of future data collection efforts that would make it possible to test a reciprocal, longitudinal model of elder mistreatment. This reciprocal model is presented in Figure 4.

Figure 4. Reciprocal Model of Elder Mistreatment Over Time

Our findings are also limited by the broad and general nature of the questions in NSHAP on elder mistreatment. Because the mistreatment questions do not use specific, behaviorally defined descriptions of interpersonal violence events, these items may produce over-estimations of its prevalence. For example, anyone who has been insulted or put down, even once, during the past 12 months regardless of context would be identified as a victim of verbal mistreatment according to the verbal mistreatment item in NSHAP. The increased prevalence of mistreatment may also have resulted from our decision to include mistreatment by all persons, not just family members, in our analyses. However, until the field and state laws reach a consensus on what counts as “intentional actions that cause harm or create a serious risk of harm, whether or not intended, to a vulnerable elder by a caregiver or other person who stands in a trust relationship to the elder,” or “failure by a caregiver to satisfy the elder’s basic needs or to protect the elder from harm,” we favor over-identification of this negative event to under-identification.

One final limitation concerns our study sample. Because 744 of the original 3,005 W1 respondents were lost in W2 and supplemental analyses showed that those who left the sample were likely to be older, with worse functional health and more chronic conditions, results from this study may apply only to the most robust group of community-dwelling elderly adults. However, on the whole, attrition was relatively low, and given that much research on elder mistreatment to date has been conducted in assisted living and other institutionalized settings (Cooper, Selwood, & Livingston, 2008), findings based on this sample of relatively healthy older adults describe the effects of elder mistreatment in the general population.

This study makes several contributions to our understanding of the consequences of elder mistreatment. Our analyses of nationally representative, longitudinal data on community-dwelling older adults show negative consequences of mistreatment for psychological and physical health. These consequences appear to depend on type of mistreatment and on whether one considers psychological or physical health as the outcome. Our results provide the strongest evidence to date on the *causal* effects of mistreatment of older adults on their later psychological and physical health. These findings tell us something about the mechanisms—psychological health, chronic illness, and physical functioning—by which mistreatment may increase risks for mortality (e.g., Dong et al., 2011b) thereby pointing to possible points for intervention. Preventing elder mistreatment is an important policy goal. Our findings help lay the groundwork for the design of treatments and interventions to reduce the negative consequences of mistreatment for emotional and physical health, should mistreatment occur.

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References

- Acierno, R., Hernandez, M. A., Amstadter, A. B., Resnick, H. S., Steve, K., Muzzy, W., & Kilpatrick, D. G. (2010). Prevalence and correlates of emotional, physical, sexual, and financial abuse and potential neglect in the United States: The national elder mistreatment study. *American Journal of Public Health, 100*, 292-297. doi: 10.2105/AJPH.2009.163089.
- Amstadter, A. B., Begle, A. M., Cisler, J. M., Hernandez, M. A., Muzzy, W., & Acierno, R. (2010). Prevalence and correlates of poor self-rated health in the United States: The national elder mistreatment study. *The American Journal of Geriatric Psychiatry, 18*, 615-623. doi: 10.1097/JGP.0b013e3181ca7ef2.
- Baker, M. W., LaCroix, A. Z., Wu, C., Cochrane, B. B., Wallace, R., & Woods, N. F. (2009). Mortality risk associated with physical and verbal abuse in women aged 50 to 79. *Journal of the American Geriatric Society, 57*, 1799-1809. doi: 10.1111/j.1532-5415.2009.02429.x.
- Bonnie, R. J., & Wallace, R. B. (Eds.). (2003). *Elder Mistreatment: Abuse, Neglect and Exploitation in an Aging America*. Washington, DC: National Academies Press.
- Charlson, M. E., Pompei, P., Ales, K. L., & MacKenzie, C. R. (1987). A new method of classifying prognostic comorbidity in longitudinal studies: Development and validation. *Journal of Chronic Diseases, 40*(5), 373-383. doi: 10.1016/0021-9681(87)90171-8.
- Cisler, J. M., Begle, A. M., Amstadter, A. B., & Acierno, R. (2012). Mistreatment and self-reported emotional symptoms: Results from the national elder mistreatment study. *Journal of Elder Abuse and Neglect, 24*, 216-230. doi: 10.1080/08946566.2011.652923.
- 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*, P240-P245. doi: 10.1093/geronb/54B.4.P240.
- Cooper, C., Selwood, A., & Livingston, G. (2008). The prevalence of elder abuse and neglect: A systematic review. *Age and Ageing, 37*, 151-160. doi: 10.1093/ageing/afm194.
- Dong, X., Simon, M., Mendes de Leon, C., Fulmer, T., Beck, T., Hebert, L.,...Evans, D. (2009). Elder self-neglect and abuse and mortality risk in a community-dwelling population. *The Journal of the American Medical Association, 302*, 517-526. doi: 10.1001/jama.2009.1109.
- Dong, X., Simon, M., Rajan, K., & Evans, D. A. (2011a). Association of cognitive function and risk for elder abuse in a community-dwelling population. *Dementia and Geriatric Cognitive Disorders, 32*, 209-215. doi: 10.1159/000334047.
- Dong, X., Simon, M. A., Beck, T. T., Farran, C., McCann, J. J., Mendes de Leon, C. F.,...Evans,

- D. A. (2011b). Elder abuse and mortality: The role of psychological and social wellbeing. *Gerontology*, 57, 549-558. doi: 10.1159/000321881.
- Dong, X., Chen, R., Chang, E. S., & Simon, M. (2012). Elder abuse and psychological well-being: A systematic review and implications for research and policy—A mini review. *Gerontology*, 59, 132-142. doi: 10.1159/000341652.
- Gordon, R. M., & Brill, D. (2001). The abuse and neglect of the elderly. *International Journal of Law & Psychiatry*, 24, 183-197. doi: 10.1007/978-94-017-0675-9_13.
- Hafemeister, T. L. (2003). Financial exploitation in domestic situations. In R. J. Bonnie & R. B. Wallace (Eds.), *Elder Mistreatment: Abuse, Neglect, and Exploitation in an Aging America* (pp. 382-445). Washington, DC: National Academies Press.
- Hwalek, M., & Sengstock, M. C. (1986). Assessing the probability of abuse of the elderly: Toward the development of a clinical screening instrument. *Journal of Applied Gerontology*, 5, 153-173. doi: 10.1177/073346488600500205.
- Kim, J. & Richardson, V. (2012). The impact of socioeconomic inequality and lack of health insurance on physical functioning among middle-aged and older adults in the United States. *Health and Social Care in the Community*, 20, 42-51. doi: 10.1111/j.1365-2524.2011.01012.x.
- Lachs, M. S., Williams, C. S., O'Brien, S., Pillemer, K. A., & Charlson, M. E. (1998). The mortality of elder mistreatment. *The Journal of the American Medical Association*, 280, 428-432. doi: 10.1001/jama.280.5.428.
- Laumann, E. O., Leitsch, S. A., & Waite, L. J. (2008). Elder mistreatment in the United States: Prevalence estimates from a nationally representative sample. *Journal of Gerontology: Social Sciences*, 63B, S248-S254. doi: 10.1093/geronb/63.4.s248.
- Long, J. S. (1997). *Regression Models for Categorical Limited Dependent Variables*. Thousand Oaks, CA: Sage.
- Luo, Y. & Waite, L. J. (2011). Mistreatment and psychological well-being among older adults: Exploring the role of psychosocial resources and deficits. *Journal of Gerontology: Social Sciences*, 66B, 217-229. doi: 10.1093/geronb/gbq096.
- Mathieson, K., Kronenfeld, J. J., & Keith, V. M. (2002). Maintaining functional independence in elderly adults: The roles of health status and financial resources in predicting home modifications and use of mobility equipment. *The Gerontologist*, 42, 24-31. doi: 10.1093/geront/42.1.24.
- Mouton, C. P. (2003). Intimate partner violence and health status among older women. *Violence Against Women*, 9, 1465-1477. doi: 10.1177/1077801203259238.
- O'Muirheartaigh, C., Eckman, S., & Smith, S. (2009). Statistical design and estimation for the

- National Social Life, Health, and Aging Project. *Journal of Gerontology: Social Sciences*, 64B, i12-i19. doi: 10.1093/geronb/gbp045.
- O’Muircheartaigh, C., English, N., Pedlow, S., & Kwok, P. K. (2014). Sample design, sample augmentation, and estimation for Wave II of the National Social Life, Health, and Aging Project (NSHAP). *Journal of Gerontology: Social Sciences*.
- Payne, C., Hedburg, E., Kozloski, M. J., Dale, W., & McClintock, M. (2014). Using and interpreting mental health measures from the National Social Life, Health, and Aging Project. *Journal of Gerontology: Social Sciences*.
- Pearlin, L. I., Schieman, S., Fazio, E. M., & Meersman, S. C. (2005). Stress, health, and the life course: Some conceptual perspectives. *Journal of Health and Social Behavior*, 46, 205-219. doi: 10.1177/002214650504600206.
- Rabiner, D. J., O’Keefe, J., & Brown, D. (2004). A conceptual framework of financial exploitation of older persons. *Journal of Elder Abuse and Neglect*, 16, 53-73. doi: 10.1300/J084v16n02_05.
- Russell, D., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA loneliness scale: Concurrent and discriminant validity evidence. *Journal of Personality and Social Psychology*, 39, 472-480. doi: 10.1037//0022-3514.39.3.472.
- Schofield, M. J., & Mishra, G. D. (2003). Validity of self-report screening scale for elder abuse: Women’s Health Australia Study. *The Gerontologist*, 43, 110-120. doi: 10.1093/geront/ 43.1.110
- Schofield, M. J., Powers, J. R., & Loxton, D. (2013). Mortality and disability outcomes of self-reported elder abuse: A 12-year prospective investigation. *Journal of the American Geriatrics Society*, 61, 679-685. doi: 10.1111/jgs.12212.
- Shiovitz-Ezra, S., Leitsch, S., Graber, J., & Karraker, A. (2009). Quality of life and psychological health indicators in the National Social Life, Health, and Aging Project. *Journal of Gerontology: Social Sciences*, 64B, i30-i37. doi: 10.1093/geronb/gbn020.
- Vasilopoulos, T., Kotwal, A., Huisingh-Scheetz, M. J., Waite, L. J., McClintock, M. K., & Dale, W. (2014). Comorbidity and chronic conditions in the National Social Life, Health, and Aging Project (NSHAP), Wave 2. *Journal of Gerontology: Social Sciences*.
- Waite, L. J., Laumann, E. O., Levinson, W., Lindau, S. T., & O’Muircheartaigh, C. A. (2014). National Social Life, Health, and Aging Project (NSHAP): Wave 1. ICPSR20541-v6. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2014-04-30. doi:10.3886/ICPSR20541.v6.
- Waite, L. J., Cagney, K., Dale, W., Huang, E., Laumann, E. O., McClintock, M.,... & Cornwell,

- B. (2014). National Social Life, Health, and Aging Project (NSHAP): Wave 2 and Partner Data Collection. ICPSR34921-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2014-04-29. doi:10.3886/ICPSR34921.v1.
- Wolf, R. (2000). Introduction: The nature and scope of elder abuse. *Generations*, 24, 6-11.
- Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica*, 67, 361-370. doi: 10.1111/j.1600-0447.1983.tb09716.x.