Secondary Analysis of the National Elder Mistreatment Study: Exploration of Prevalence, Risk, and Protective Factors within American Indian and Alaska Native Populations

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Abstract

Limited research on elder abuse among American Indians and Alaska Natives suggest higher rates of abuse. However, no research has used a nationally representative sample to measure elder abuse prevalence among both American Indian and Alaska Native men and women. Using data from the National Elder Mistreatment Survey, comparisons were made between American Indians and Alaska Natives, Black and White respondents. Descriptive statistics were calculated within each of the three racial groups. Comparison between the three race groups consisted of chi-square test of independence or Fisher's exact tests for categorical variables, and non-parametric Mann-Whitney U or Kruskal Wallis tests for continuous variables. Bivariate, unadjusted logistic regression was conducted with twenty-four independent variables. Multiple logistic regression was conducted for six abuse types using a stepwise selection method that incorporated significant variables for the American Indian and Alaska Native group. Replication of the final American Indian and Alaska Native group's model identified via stepwise logistic regression was conducted for other race groups as the final step.

There were differences in the prevalence of multiple abuse types and also demographic, socioeconomic, social, and health status of American Indian and Alaska Native elders, White and Black respondents. We also found that American Indian and Alaska Native respondents had more similarities in demographic and socioeconomic characteristics compared with Black respondents than White, though significant differences still existed between the two samples. The three groups differed significantly in twenty-two of twenty-four contextual variables analyzed. There were significant

differences in five contextual variables between the American Indian and Alaska Native and Black groups. The cumulative prevalence of emotional, physical, and sexual mistreatment in the past year; neglect; and financial abuse by a family member for the American Indian and Alaska Native group was 33%. This is almost double that of the overall findings (17.1%) reported in the original NEMS study. Lifetime prevalence of mistreatment for American Indians and Alaska Natives were 34.9% for emotional mistreatment, 25% for physical mistreatment and 17.6% for sexual mistreatment. Since the age of 60, the prevalence of abuse for American Indians and Alaska Natives was 24.7% for emotional mistreatment, 4% for physical mistreatment, and .6% for sexual mistreatment.

No single set of bivariate predictors was the same for any abuse type between the three race groups. Logistic regression models constructed based on predictors specific to the American Indian and Alaska Native group contained some similar variables in the models constructed for the original study, most specifically social support. Models built to American Indian and Alaska Native group's specification were not all significant nor was there good model fit for the Black and White groups for all models. The predictive capacity and ability to classify abuse cases was better for the American Indian and Alaska Native group's models. There was much room for improvement in the predictive capacity of all final models.

This dissertation addresses gaps in elder abuse literature for the American Indian and Alaska Native population by identifying prevalence and predictors that incorporated large comparison groups and consistently measured abuse types. Furthermore, it revealed

that the complex context and how it intersects to shape abuse outcomes among the American Indian and Alaska Native population must be considered. There is a need for the development of more advanced predictive modeling to aid health care providers and others who work with elders in the screening and detection of abuse. These gaps identified among the American Indian and Alaska Native population mirror those of the larger elder abuse field. Researchers, health care providers, tribal leaders, and other policy makers must take notice and then act to aid in reducing morbidity, mortality, and the overall impact of violence perpetrated against American Indian and Alaska Native elders.

Dedication

For Warren, Joseph, and Jenevieve my ever-enduring cheerleaders and daily source of support, love, laughter, tear-wiping, and encouragement.

Mom, we made it!

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Chapter One: Introduction and Problem Statement

Elder abuse is a worldwide phenomenon that exacts a significant toll on individuals, families, and communities. Recent one-year prevalence estimates indicate that 1 in 6 older adults, or 15.7%, have experienced some form of abuse globally, with a prevalence of 11.7% in the Americas (Yon, Mikton, Gassoumis, & Wilber, 2017). However, similar to other forms of abuse, elder abuse is underreported with only 1 in 24 cases reported, meaning the problem is likely more widespread (Lifespan of Greater Rochester, Inc., Weill Cornell Medical Center of Cornell University, & New York City Department for the Aging, 2011).

Though a single definition of elder abuse remains elusive (Killick, Taylor, Begley, Carter Anand, & O'Brien, 2015), the Elder Justice Roadmap, a plan supported by the U.S. Department of Justice (DOJ) and Department of Health and Human Services (HHS), defines it as:

> physical, sexual or psychological abuse, as well as neglect, abandonment, and financial exploitation of an older person by another person or entity, that occurs in any setting (e.g., home, community or facility), either in a relationship where there is an expectation of trust and/or when an older person is targeted based on age or disability (Connolly, Brandl, & Breckman, 2014, p.3).

According to the United States (U.S.) Centers for Disease Control and Prevention (CDC) elder abuse, mistreatment, or maltreatment can take the form of physical, emotional/psychological, sexual, financial, or neglect (Hall, Karch, & Crosby, 2016). The CDC defines the various abuse types as follows:

Physical abuse: “The intentional use of physical force that results in acute or chronic illness, bodily injury, physical pain, functional impairment, distress, or death” (p. 31).

Sexual abuse: “Forced and/or unwanted sexual interaction (touching and non-touching acts) of any kind with an older adult” (p. 32).

Emotional/psychological abuse: “Verbal or nonverbal behavior that results in the infliction of anguish, mental pain, fear, or distress, that is perpetrated by a caregiver or other person who stands in a trust relationship to the elder” (p. 33).

Neglect: “Failure by a caregiver or other person in a trust relationship to protect an elder from harm or the failure to meet needs for essential medical care, nutrition, hydration, hygiene, clothing, basic activities of daily living or shelter, which results in a serious risk of compromised health and/or safety, relative to age, health status, and cultural norms” (p. 34).

Financial abuse or exploitation: “The illegal, unauthorized, or improper use of an older individual’s resources by a caregiver or other person in a trusting relationship, for the benefit of someone other than the older individual” (p. 35).

The effects of abuse create various negative physical and psychological consequences

Its impacts range from visible broken bones and bruises to insidious psychological sequelae including depression, post-traumatic stress disorder, or higher rates of later life disability, elder abuse has significant negative consequences (Hall et al., 2016). Mortality rates for abuse victims are twice that of those not abused (Baker et al.,

2009). The economic impact of elder abuse, including direct losses due to time missed from work by both older adults and family caregivers, financial exploitation (MetLife Mature Market Institute, 2009), higher hospital utilization rates, and institutionalization in nursing homes or other care facilities (Rovi, Chen, Vega, Johnson, & Mouton, 2009) is in the billions. An oft-quoted figure of $5.3 billion in direct costs based on 1994 estimates (Mouton et al., 2004), is not inclusive of the indirect losses attributable to financial abuse and exploitation signaling a much higher actual cost. Tangible social costs, like the provision of services including adult protective services (APS) or provider education and intervention, are more easily quantified than indirect costs such as pain, grief, loss of faith in family, or the breakdown in community cohesiveness or social norms (Spencer, 1999). Based on this information, it is accurate to suggest that the total and actual cost of elder abuse remain unknown.

The implications of the prevalence of elder abuse are staggering. Given the U.S. Census Bureau (2017) estimates of 47.8 million people *65 and over* (as of 2015), applying a 10% likelihood of abuse based on global estimates (Dong 2015) would mean at least 4.7 million older people may likely experience some form of abuse. This is a problem that will compound as the population increases. The year 2030 marks the first time in history that older adults will outnumber children, as all baby boomers will be 65 or older (U.S. Census Bureau, 2017). By then, 20% or more of U.S. residents will be 65 and over, up from just 13% in 2010 and in 2050, the 65 and over population will reach 83.7 million (Ortman, Velkoff, & Hogan, 2014).

Moreover, the demographic picture of elders will look different than today and life expectancy will increase. The oldest-old (85 and older) will number 18 million by 2050 and the percentage of people who self-identify as White will decline. Black, Asian, American Indian and Alaska Native, and Native Hawaiian and other Pacific Islander populations will increase. The American Indian and Alaska Native and Hawaiian and Pacific Islander populations are projected to grow significantly at a rate two or more times faster than Whites (Ortman et al., 2014). From 2000 to 2010, the American Indian and Alaska Native population grew 27 percent (Norris, Vines, & Hoeffel, 2012). In the next four decades, the number of American Indians and Alaska Natives ages 65 and older will more than triple from 464,000 to 1,624,000. Those 85 years of age and older are projected to increase more than sevenfold-- from 42,000 in 2012 to 300,000 in 2050 (Ortman et al., 2014).

Race and Elder Abuse

Research findings related to the differential risk of elder abuse based on race are conflicting. Though, there seems to be a consensus that African Americans are at increased risk of abuse compared with Whites (Beach, Schulz, Castle, & Rosen, 2010; Dong, 2015; Hamby, Smith, Mitchell, & Turner, 2016; Peterson et al., 2014). A review of seven studies that included subgroup analysis for African Americans found that in four studies the odds of abuse increased for African Americans 3.66 – 4.99 times over Whites (Dong, 2015). There have been fewer studies focused on elder abuse in Hispanic / Latino populations. Research with Latino immigrants (n = 198), which used promotores (Hispanic/Latino health community health workers) to conduct in-person interviews with elders in Los Angeles, found 40.4% of respondents experienced some form of abuse or

neglect in the previous year (DeLiema, Gassoumis, Homeier, & Wilber, 2012). A small pilot study (*n* = 112) examining elder abuse among community residents seeking legal aid services found that Hispanic respondents had 11.7 higher odds of experiencing abuse than non-Hispanic respondents (Strasser, Smith, Weaver, Zheng, & Cao, 2013). Baker and colleagues (2009) found mid and late-life American Indian and Hispanic women self-reported higher percentages of either physical or verbal abuse (17.9% and 16.6% respectively) than did their White or Black counterparts. Baker (2009) also found a significant association between low income and lower education levels (having a high school education or less) and higher rates of abuse. Mouton et al. (2004) had similar findings in his earlier study. Minority race, low income, poor health, or poor social support were identified as significant predictors of neglect for people 60 and older participating in the 2010 National Elder Mistreatment Study of 5,777 elders (Acierno et al., 2010).

Unique American Indian and Alaska Native Demographic and Health Profile

As a result of, or perhaps in the context of historical trauma (discussed later), the American Indian and Alaska Native demographic and health profile, which is significantly different from Whites, include a higher prevalence of many known abuse risk factors. Many of these risk factors mirror those of the larger population (Sapra, Jubinski, Tanaka, & Gershon, 2014). Older Indians are more likely to experience socioeconomic and health coverage disparities including lower incomes, higher rates of poverty, lower education, and higher rates of being uninsured than the general population (Goins et al., 2015). Native elders are also more likely to describe their overall health status as fair or poor, are twice as likely to be hospitalized, have higher rates of diabetes,

stroke or heart attack, and reported suffering from depression more frequently than the overall U.S. population (Boccuti, Swoope, & Artiga, 2014). American Indians have also been found to experience a higher incidence of traumatic events over their lifetime and suffer psychological sequelae as a result (Çayır, Burke, Spencer, Schure, & Goins, 2018).

Elder Abuse Research Among American Indians and Alaska Natives

The state of the science on elder abuse among American Indians and Alaska Natives, the primary population of interest in the present study, mirrors that of other minority and vulnerable groups. The amount of research is limited, progress has been slow, and prevalence estimates are lacking (Jervis & Sconzert-Hall, 2017; Sapra et al., 2014). A recent systematic review conducted by this author revealed nine research articles from studies that span 30 years, with only one research article published in the past five years (Crowder, Burnett, Laughon, & Driesbach, 2019). There was little consistency in study design, most were qualitative or mixed methods, no measurement tool was used more than once, and few studies referenced a theoretical framework. Only one study focused on the urban-dwelling Indian population (Buchwald et al., 2000), despite the fact the majority of American Indians and Alaska Natives now reside off-reservation (Goins et al., 2015).

The available elder abuse research demonstrates a potentially high prevalence for American Indians and Alaska Natives. For studies exclusive to American Indian and Alaska Native elders, abuse rates of 10 to 49% have been reported (Brown, 1989; Buchwald et al., 2000). In studies that compared racial subgroups including American Indians, abuse rates were higher than Whites (Baker et al., 2009; Mouton et al., 2004).

Research suggests that the most common forms of abuse experienced in Indian Country are neglect and financial exploitation (Brown, 1989; Jervis & Sconzert-Hall, 2017; Kauffmann Associates, 2015; Maxwell & Maxwell, 1992). Common risk factors are thought to include economic issues, substance abuse, gender (female), mental health problems, poor health, high rates of disability, single-parent households, lower educational attainment, marital status, employment status, acculturation, and caregiving-related issues (Baldridge, Nerenberg, & Benson, 2004; Brown, 1989; Buchwald et al., 2000; Jervis & Sconzert-Hall, 2017; Kauffmann Associates, 2015; Maxwell & Maxwell, 1992).

American Indian and Alaska Native Contextual Influences on Elder Abuse

Intra-tribal cultural diversity, tribal sovereignty, complex tribal justice systems, historical trauma, acculturation, urban migration, and demographic and health disparities are just a few issues that create the unique ecology in which abuse of American Indian and Alaska Native elders occurs and perhaps increase risk (Baldridge et al., 2004; Brown, 1989; Goins et al., 2015; Jervis & Sconzert-Hall, 2017; Kauffmann Associates, 2015; Sapra et al., 2014). American Indians and Alaska Natives are a geographically and culturally diverse population with members hailing from 567 federally recognized tribes (U.S. Department of the Interior, 2016), 60 state-recognized tribes (National Conference of State Legislatures, 2016), and other tribes and villages that have no official designation. Jervis and colleagues acknowledge the complexity of drawing conclusions about American Indians and Alaska Natives as a whole given the breadth of cultural, social, economic, and demographic diversity that is present within the hundreds of tribes

in existence (Jervis, Fickenscher, Beals, & the Shielding American Indian Elders Project Team, 2014).

Sovereign nations and the Federal Trust Responsibility.

Article 1, Section 8 of the Constitution dating back to 1787 codified the special government-to-government relationship between Indian tribes, considered sovereign nations, and the Federal government ("About IHS," n.d.). Decades ago these sovereign nations negotiated treaties exchanging millions of acres of land for the promise of benefits, protections, and rights, including health services (Kauffmann Associates, 2015). Later, when the Indian Health Service (IHS) was formed as a result of the Transfer Act, it was given responsibility for seeing to the safety, health, and welfare of Indian people, including American Indian and Alaska Native elders. This trust relationship between American Indian and Alaska Native tribes and their people and the federal government, which encompasses both legal rights and moral obligations, form the basis of the U.S. responsibility to address the issue of elder abuse (Kauffmann Associates, 2015).

Tribal justice systems.

As sovereign nations, federally recognized tribes have legal jurisdiction over their lands and citizens residing on those lands. Each tribe is authorized to enact its own laws, courts, and justice systems through the Indian Self-determination and Education Assistance Act and the Tribal Self-Governance Act of 1994, though not all do (U.S. Department of the Interior Indian Affairs, n.d.). The Bureau of Indian Affairs has contracts or compacts with 225 tribes to perform adjudicatory functions and manage 23 Courts of Indian Offenses (U.S. Department of the Interior Indian Affairs, n.d.).

Some tribes have a response system they manage in cases of elder abuse while others rely on federal, county, or state adult protective service programs. Tribes who choose to manage the response to elder abuse may develop tribal codes (similar to U.S. or state-based laws) to define abuse and outline the process for reporting, investigation, or response (Baldridge et al., 2004). Jurisdiction can vary by the location of the offense, whether that land is Indian trust land or tribally controlled, whether the elder resides on or off the reservation, the race and ethnicity of the victim and perpetrator, and the nature of the crime. Any of tribal, state, or federal courts could maintain jurisdiction based on these factors. In addition, jurisdiction may be concurrent (more than one jurisdiction can hear a case), or exclusive (only one government can hear a case). Non-tribal Deputies and local police may be cross-deputized with local police departments to allow them to respond. Jurisdiction limits imposed on tribal courts, including the inability to prosecute non-Indian perpetrators and federal law limiting tribal courts to imposing no more than one-year sentences, is also an issue (Baldridge et al., 2004).

The resultant system can be complicated, and navigation can be a challenge for both elders and law enforcement. Tribal police "function within a complicated jurisdictional net, answer to multiple authorities, operate with limited resources, and patrol some of the most desolate of territory, often without assistance from partner law enforcement agencies" (Judicial Council's Center for Families, Children & the Courts, 2012, p. 2). For elders residing on tribal land or who have abuses perpetrated by a family member living on tribal lands that subsequently fall under various jurisdictions, these

issues create a complex investigation and adjudication process that can be a barrier to reporting abuse.

Historical trauma and loss.

Beyond tribal sovereignty and jurisdictional issues, historical trauma and loss have been suggested as possible causative factors for higher rates of violence directed at Native elders (Baldridge, 2001; Maxwell & Maxwell, 1992; Sapra et al., 2014). Early American history of colonization including genocide, mandatory tribal relocation practices, forcible placement of Indian children into overcrowded or abusive boarding schools, and other policies and programs designed to deny fundamental human rights and disrupt traditional ways of tribes and challenge tribal sovereignty have only been addressed in the last few decades ("American Indian boarding schools," 2016; Garrett & Pichette, 2000).

Garrett & Pichette (2000) detail the long-standing history of attempts to subdue and eliminate the American Indian and Alaska Native population. Attempts that began with early colonization efforts including the massacre of entire tribes and as many as 150 million American Indians and Alaska Natives in the name of protecting English settlers, replaced in the 1930s by forced removal and attempts to subdue and civilize, and move forward to the late 1970s to when the Indian Religious Crimes Code (passed in 1889) was overturned. It was not until the passage of the law in 1978 that American Indian and Alaska Native people were finally granted the constitutional right to conduct traditional religious practices.

The theory of historical trauma and loss is rooted in trauma experiences of Holocaust survivors, as such, it is not a phenomenon unique to American Indian and Alaska Native people (Whitbeck, Adams, Hoyt, & Chen, 2004). What is unique is the extent and duration of ongoing emotional and psychological trauma across the lifespan encompassing generations of a massive population of people. Also, the extent to which many of these people are faced with near-daily reminders of these losses as they are manifested in often destitute conditions on some reservations, poverty in urban settings, ongoing discrimination, and reminders of loss of culture and language are exceptional (Armenta, Whitbeck, & Habecker, 2016; Whitbeck et al., 2004).

Acculturation.

Acculturation, assimilation, or the degradation of tribal customs and norms are another frequently cited causative factors of elder abuse among American Indians and Alaska Natives (Baldridge et al., 2004; Baldridge, 2001; Hudson, Armachain, Beasley, & Carlson, 1998; Jervis & Sconzert-Hall, 2017; Maxwell & Maxwell, 1992). Acculturation is the dynamic process of adapting to the mainstream culture that includes four adaptations: assimilation, integration, rejection, and deculturation (as cited in Padilla & Perez, 2003, p.37). Acculturation and assimilation (forced or otherwise) are thought to have contributed to the degradation of some tribe's sense of duty and honor to elders or resulted in a weakening of community and social structures.

“We must either butcher them or civilize them, and what we do we must do quickly” (The Boarding School Healing Project, 2008, p.2).

During the early 1900s, the practice of forcibly removing Indian children from their homes and sending them to boarding schools began in earnest under government forced acculturation and assimilation policies. Having determined that cultural genocide was cheaper than war with the Indians, the government made a significant investment in these programs (The Boarding School Healing Project, 2008). In these schools, Native customs, practices, and languages were forbidden, as missionaries and educators worked towards ensured adherence and assimilation. These practices continued, and boarding schools proliferated even after the 1928 Meriam Report which detailed atrocities occurring at many boarding schools at that time. The report cited problems such as the inability to provide food, physical and sexual abuse, overcrowding, and death rates more than six times higher than other groups (Meriam et al., 1928). Boarding school enrollment peaked in the mid-1970s, with the last schools noted to be in existence as recently as 2007 (“American Indian boarding schools,” 2016). Unlike the Canadian government, which has acknowledged their history of human rights violations involving the abuse of Native Canadian children forced into boarding schools, the U.S. government has yet to acknowledge the decades of human rights violation or discuss reparations for their role (The Boarding School Healing Project, 2008).

Urban migration.

Another later forced assimilation attempt was the urbanization of American Indians, which started largely in the 1950s with the Bureau of Indian Affairs’ (BIA)

relocation and employment assistance program ("American Indian urban relocation," 2016) and continued to 1972. This program was part of a larger policy directed at terminating government support for tribes and ending the protected status of Indian-owned lands. The Voluntary Relocation Program offered incentives (bus ticket, promised housing, and employment) to encourage American Indians and Alaska Natives to move from reservations to urban areas like Chicago and Los Angeles. Fierce competition for jobs, loss of traditional cultural supports, and racism created a challenging environment, and the program was in large measures a failure. Many American Indians and Alaska Natives ending up staying in these cities unable or unwilling to return to their homes. At the start of BIA relocation efforts, just 8% of American Indians lived in urban areas ("American Indian urban relocation," 2016).

The trend of Natives migrating from reservations has continued, prompted by the BIA relocation program and likely owing to ongoing generational poverty and other structural issues associated with reservations (Garrett, Baldridge, Benson, & McGuire, 2008; Williams, 2013). According to the 2010 Census, 71% of American Indians and Alaska Natives now reside off-reservation; a 34% increase from 2000 (U.S. Census Bureau, 2010). The move to urban locations has resulted in minimal improvement in the health and socioeconomic status of American Indians and Alaska Natives who face rates of poverty twice that of the general population, with Indians in some metropolitan areas experiencing rates of poverty that equal or eclipse the most destitute reservations (Williams, 2013). Compared to the general population, urban-dwelling Indians also have higher rates of accidental deaths, diabetes, liver disease, unemployment, and

homelessness than their White urban counterparts (Harvard Project on American Indian Economic Development, 2007; Urban Indian Health Institute, 2004). Little is known about this cohort of urban American Indian and Alaska Native elders who migrated. Though, it appears they are a group that has significantly limited access to resources to which they are entitled based on federal trust responsibilities.

Federal programs and services that serve Indian elders, which are largely reservation-based, have failed to follow the migration of the population. To receive primary care, most urban Indians must return to their tribal or Indian Health Services facilities (IHS, 2015), sometimes located hundreds of miles away or more. Their right as Native citizens to pre-paid health care does not mean free local health care, and many cannot afford the sometimes-extensive costs of travel back to their tribes for care. Passage of the Indian Health Care Improvement Act (IHCIA), PL. 94-437 in 1976 provided funding through the IHS for the development of a limited number of urban health programs (Indian Health Service, 2018). At present, 41 urban programs are operating 59 sites, but just 25% of American Indians and Alaska Natives who live in urban areas live in a county served by an Urban Indian Health Center (Indian Health Service, 2018). More current legislation has resulted in a slightly increased federal budget for IHS and tribes, yet funding remains at just over half of what is needed to meet the needs of the population. IHS expenditures per capita lag behind virtually every other Federal program-- from Medicare (more than quadruple that of IHS) to Federal Employee Health Benefits. The 2017 IHS per user average of $3,851, is less than half that of

average U.S. expenditures of $10,348 (“IHS Profile,” 2018). The clinical programs that do exist are overworked and under-resourced.

Measuring historical trauma and loss.

Boarding schools, mandatory relocation to reservations likened to concentration camps or penal colonies, forced loss of culture, policies promoting urban migration, and rampant discrimination (that persists) were among the lived experiences of many tribal elders alive today, and have created historical individual, community, and structural traumas, with intergenerational impacts (Braveheart & DeBruyn, 1998). A handful of studies have assessed the prevalence of historical loss and associated symptoms among American Indian adult, adolescent, and college-aged students using two validated measurement scales (Armenta et al., 2016; Ehlers, Gizer, Gilder, Ellingson, & Yehuda, 2013; Whitbeck et al., 2004; Wiechelt, Gryczynski, Johnson, & Caldwell, 2012). Findings show that loss and grief associated with historical trauma are not limited to older generations and are associated with adverse psychological, behavioral, and emotional effects. American Indian adult parents of children (n = 143) experience frequent thoughts about historical losses that are associated with negative feelings, with nearly 21% of parents indicating they think daily or weekly about loss of their tribal lands, 43% who think daily or weekly about loss of language, and 49% who think daily or weekly about loss of traditional spiritual ways. This recurring sense of loss is associated with sadness, depression, anger, discomfort around white people, fear, and shame (Whitbeck et al., 2004). Among 636 indigenous adolescents, historical loss was found to be psychologically distressing and associated with increased anxiety (Armenta

et al., 2016). An urban American Indian study (*n* = 120) found higher degrees of historical trauma compared with reservation-dwelling counterparts in previous studies, and significant relationships with alcohol use, illicit drugs, and lower family cohesion. A study of reservation-dwelling American Indians (*n* = 306) found that more than half thought about historical loss at least occasionally, and a significant association with anxiety/affective disorders and substance disorders.

The relationship of historical trauma and loss to elder abuse or other forms of interpersonal violence appears to be as yet untested. The relationship to elder abuse may be the direct or indirect result of sustained systemic and structural exposure to violence, elder's adverse childhood exposure to violence such as abuse as children in boarding schools, or lifelong issues of family violence, substance use, psychological issues, or socioeconomic stressors.

The Role of Health Care Providers in Addressing Elder Abuse

Providers are in a unique position to screen, assess, and intervene to prevent or ameliorate the effects of elder abuse (Burnett, Achenbaum, & Murphy, 2014; Dong, 2015; Twomey & Weber, 2014). Nearly 20 years ago Buchwald and colleagues (2000), authors of one of the few empirical studies of elder abuse in the American Indian and Alaska Native population, called for health care provider training to enable screening and an adequate response to mistreatment in the clinical setting. However, health care providers conduct very little screening for abuse or risk factors, though they have multiple opportunities to do so (Burnett et al., 2014)

The U.S. Preventive Services Task Force (USPSTF) did not recommend general screening for elder abuse, having concluded the evidence was insufficient in regards to benefits and harm from screening (U.S. Preventive Services Task Force, 2014). They were unable to locate any valid, reliable screening tools for use in the primary care setting and they were also unable to identify any intervention studies involving elderly or vulnerable adults. The USPSTF also noted that there was no direct evidence that screening for elder abuse could be harmful, though literature surrounding intimate partner violence (IPV) screening indicated that there could potentially be a small risk. These risks included repercussions in the event of false-positive results, fear of retaliation or abandonment, guilt, shame, or self-blame. This supposition is largely theoretical, as few studies supporting these assertions exist. The Taskforce did, however, go on to recommend routine screening of women of childbearing age without signs or symptoms of abuse for intimate partner violence and indicated that screening is likely to identify victims of abuse (U.S. Preventive Services Task Force, 2014). In the most recent update, some five years later, the USPSTF found there are still no studies assessing screening and treatment for elder abuse (Feltner et al., 2018).

Perhaps related to USPSTF recommendations or a host of provider-identified barriers, little screening for elder abuse occurs. According to Shefet et al., (2007) physicians report that lack of education and training, reimbursement issues, and psychological barriers on the part of providers create roadblocks for screening and management of elder abuse. In the face of these concerns, the American Medical Association continues to recommend abuse screening for all elderly patients. Other

recommendations for screening in the elder abuse literature are anecdotal and lack evidence or theoretical basis, but put forth a solid rationale for health care provider involvement (Burnett et al., 2014; Dong, 2015; Hoover & Polson, 2014). Burnett et al., (2014) posit that elder abuse should be treated like any disease state, noting that while most physicians believe treatment of elder abuse is important, have the opportunity to intervene, and are in the best position to detect abuse, that physician-initiated reports of abuse account for less than 2% of cases reported to social service agencies.

There is only identified study that incorporates nurse involvement in elder abuse detection and management. Loh et al. (2015) described the planned methodology for a future randomized control trial in Malaysia designed to improve nurses' detection and management of elder abuse, though not specifically testing a screening protocol. The multi-site trial was targeting recruitment of 390 registered nurses to participate in a three-phased study. The premise for the intervention was based on the Precede-Proceed model and was to evaluate the effectiveness of continuing nursing education, face-to-face training, and an educational video on nurses' ability to respond to elder abuse.

The estimated scope and severity of elder abuse warrants action on the part of health care providers to ameliorate the problem. Though the body of literature and evidence-base supporting the role of the health care provider in addressing elder abuse is limited, this should not be seen as a deterrent to action. There is a critical need for research on provider screening for elder abuse, including studies of measurement tools (of which there are many) accompanied by process and outcome evaluations. In addition, evidence-based tools and resources are needed to support clinical provider decision-

making in the screening and management process, expanding on resources like the vulnerability index designed to aid providers in identifying elders at risk of abuse using demographic, health, and psychosocial risk factors (Dong & Simon, 2014).

Study Goal, Objectives, and Aims

The scarcity of research about elder abuse in the American Indian and Alaska Native population, the complexity of the contextual and societal issues they face, and the absence of a nationally representative prevalence study that included both men and women, was the genesis for the present study. The **goal** of this study was to establish the scope and severity of elder abuse in the American Indian and Alaska Native population. The results would serve as a foundation for future research, evidence-based prevention and intervention practices, and policy development, as well as raise awareness of the epidemic of abuse against American Indian and Alaska Native elders among health care providers.

The **objectives** were to define and describe prevalence and predictors of elder abuse within the American Indian and Alaska Native population through secondary analyses of the National Elder Mistreatment Study (NEMS) (Acierno, Hernandez-Tejada, Muzzy, & Steve, 2009). The NEMS is the largest existing elder abuse dataset using a national sampling framework (Dong, 2015; Sooryanarayana, Choo, & Hairi, 2013). Neither the original NEMS study (Acierno et al., 2009) nor the subsequent analysis of race and ethnicity (Hernandez-Tejada, Amstadter, Muzzy, & Acierno, 2013) attempted to explore differences in the prevalence or predictive factors within any single non-White racial cohort.

Specific aims.

1. Describe the demographic, socioeconomic, social and health status of American Indian and Alaska Native elders.
2. Identify the one year, since 60, and lifetime prevalence of emotional, physical and sexual abuse; the prevalence of current potential neglect; the lifetime prevalence of financial exploitation; and predictors for each type of abuse among American Indian and Alaska Native respondents of the NEMS.
3. Explore differences in the prevalence and predictors of elder abuse among American Indian and Alaska Native elders and White, Black and Hispanic* respondents.

Hypotheses.

- There are differences in the demographic, socioeconomic, social and health status of American Indian and Alaska Native elders and White, Black and Hispanic* respondents.
- There is a difference in the prevalence of abuse types among American Indian and Alaska Native elders and White, Black and Hispanics*.
- There is a difference in the predictors of abuse types among American Indian and Alaska Native elders and White, Black and Hispanics*.

**During feasibility testing in preliminary phases of the research, the lead statistician recommended eliminating Hispanic respondents as a comparison group based upon the small number of Hispanic respondents, challenges comparing American Indians and Alaska Natives (race variable) to Hispanics (ethnicity variable) including the co-occurrence of Hispanic ethnicity within each of the race variables. It was also noted that*

an analysis of Hispanic respondents in the NEMS had previously been conducted. The committee approved this change.

Conceptual Framework

A revised adaptation of Bronfenbrenner's ecological model was developed to guide the present study and help identify appropriate independent study variables, all considered potential predictors of risk or abuse (Bronfenbrenner, 1979). The ecological model served as the theoretical basis for the NEMS (Acierno et al., 2009), having been proposed for use in elder abuse as early as 2000 (Schiamberg & Gans, 2000). Variations of the ecological model have been used as a framework to guide multiple studies on elder abuse (Donder et al., 2016; Melchiorre et al., 2016; Phelan, 2009; Von Heydrich, Schiamberg, & Chee, 2012; Wangmo et al., 2014). Modifications to the ecological model were proposed that factored in unique cultural attributes of each population for elder abuse research with Latino families (Parra-Cardona, Meyer, Schiamberg, & Post, 2007) and African Americans (Horsford, Parra-Cardona, Schiamberg, & Post, 2011).

The NEMS description of the model included four components (1) the **microsystem** consists of the individual and family (or spouse), (2) the relationship between families and other settings comprises the **mesosystem**, (3) the **exosystem** consists of environments within which the family members interact but are removed from the individual, and (4) the **macrosystem** is comprised of values, norms, and other patterns of culture. The four-part, nested, interconnected system is subject to change over time as transitions and shifts in the lifespan occur and are influenced by socio-historical contexts (**chronosystem**) (Acierno et al., 2009). Integration of social-historical context is

of particular interest in American Indian and Alaska Native populations given acknowledged historical traumas.

Two recent reviews offered a general consensus on the level of evidence for risk and protective factors for elder abuse considered for inclusion in the adaptation of the ecological model for the current study (Dong, 2015; Pillemer, Burnes, Riffin, & Lachs, 2016). A subsequent version of the proposed framework for this study was developed that identified predictive factors (risk or protective). This information was comprised of information taken from a systematic review of the literature on elder abuse in the American Indian and Alaska Native community, supplemented with additional factors identified in recent research (or reviews), and other factors proposed by the author based upon experience working with American Indian and Alaska Native populations. **See Figure 1.** Finally, a third adaptation of the model mapped variables from the NEMS dataset within the five levels of the original ecological model. **See Figure 2.**

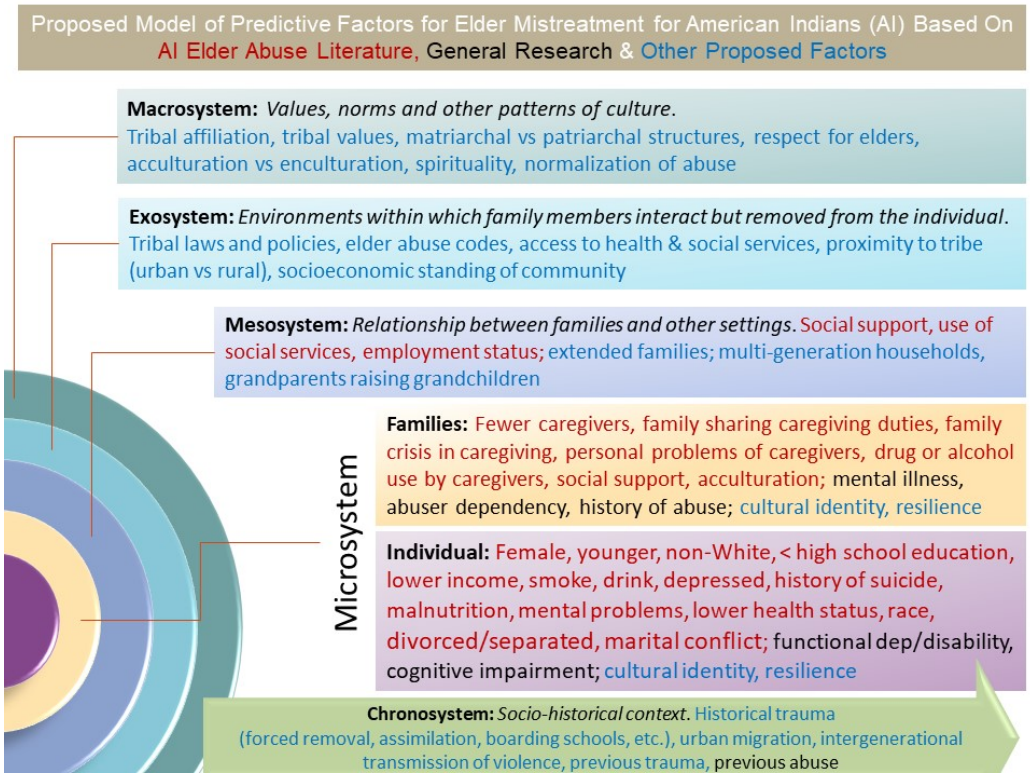

Figure 1: Proposed Model of Predictive Factors for Elder Mistreatment for American Indians

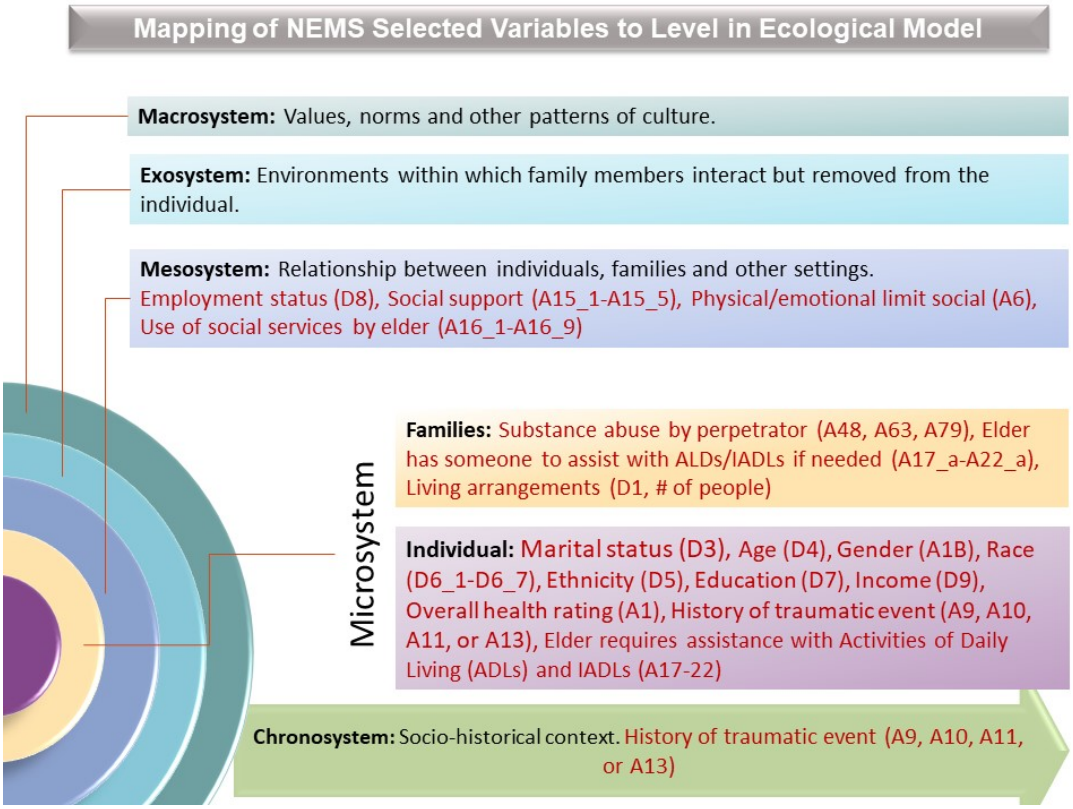

Figure 2 Mapping of selected variables from NEMS to conceptual model

Overview and Organization of Dissertation

This dissertation is the synthesis of scholarly work on elder abuse in the American Indian and Alaska Native population. It provides methods, results, and discussion of findings from a secondary analysis of the National Elder Mistreatment Survey. The results focus on a comparison of demographic, social, and health characteristics as well as prevalence and predictors of elder abuse for American Indian and Alaska Native, Black, and White respondents from the original study. To my knowledge, this is the first elder abuse study to include a nationally representative sample of American Indians and Alaska Natives of both men and women.

The dissertation follows the manuscript format guidelines established by the University of Virginia School of Nursing and includes six chapters. Chapter one is an introduction to the dissertation topic. Chapter two is the proposal which is a formatted as a grant application submitted to the National Institute of Justice that was approved by the committee. Chapter three is an integrative review on elder abuse and the American Indian and Alaska Native population, formatted and structured according to journal submission guidelines. This manuscript is slated for submission to the *Journal of Forensic Nursing.* Chapter four is a manuscript that includes findings from descriptive analyses including an overview of demographic, social, and health characteristics in addition to prevalence, and is formatted to journal specifications. Chapter five is an advanced methods manuscript that includes findings from logistic regression models for six types of abuse types built based on predictors significant to the American Indian and Alaska Native study sample, also formatted to journal specifications. Manuscripts in Chapters four and five are slated for submission to the *Journal of Elder Abuse and Neglect.* Chapter six includes a summary of findings, contribution to the state of the science, implications for practice and policy, limitations, lessons learned, and final concluding remarks.

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Chapter Two: Approved Proposal

Secondary Analysis of the National Elder Mistreatment Study: Exploration of Prevalence, Risk, and Protective Factors within American Indian and Alaska Native Populations

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Secondary Analysis of the National Elder Mistreatment Study: Exploration of Prevalence, Risk, and Protective Factors within American Indian and Alaska Native Populations

Abstract

Problem Statement: Elder abuse exacts a significant toll on individuals, families and communities including a greater risk of premature death. The impact of race on the prevalence of elder abuse is poorly understood, especially among American Indian and Alaska Native populations. High-quality studies describing elder abuse in the American Indian and Alaska Native population are scant, but suggest a potentially high prevalence of abuse (10% to 67.6%) in a population plagued by lifelong health and socioeconomic disparities. This study seeks to address gaps by establishing the scope and severity of the violence and victimization of a nationally representative cohort of American Indian and Alaska Native elders. Results will serve as a foundation to inform future research, evidence-based prevention and intervention, and policy development in order to reduce violence against elders. **Partnerships:** The student will lead a multi-disciplinary team from the University of Virginia, Medical University of South Carolina and Southwest Center for Law and Policy comprising expertise in domestic violence, aging, research methodologies, tribal law and policy, and secondary data analysis. **Research Design and Methods:** The major objective is to define and describe elder abuse within the American Indian and Alaska Native population through analyses of the National Institute of Justice's National Elder Mistreatment Study (NEMS). Specific Aims: 1. describe demographic, socioeconomic, social, and health status indicators within the cohort of American Indians and Alaska Natives and compare to White, Black and Hispanic

respondents; 2. identify prevalence and predictors of elder abuse and neglect within the cohort of American Indian and Alaska Native respondents; and 3. explore differences in the prevalence and predictors of elder abuse and neglect between American Indians and Alaska Natives, White, Black and Hispanic respondents. **Subjects:** The study will include analysis of "base" interviews conducted with adults age 60 and older. Respondents who identify as American Indian and Alaska Native alone or in combination with any another race will be included in the American Indian and Alaska Native cohort. Comparison subgroups of White, Black, and respondents of Hispanic ethnicity will be created. Power analysis on the identified count of American Indian and Alaska Native respondents (n = 191) confirmed adequacy of the sample size for medium effect size. **Primary Analysis:** The statistical plan will mirror analyses from the original study: two-tailed bivariate chi-square and logistic regression. A four-phase analytic plan that includes project team review after each phase will be used to identify necessary adjustments in approach and ensure reliability and validity of process and findings. **Products:** Findings will be disseminated through a published dissertation, peer-reviewed publication(s), and academic and practitioner conference presentations for tribal and non-tribal audiences.

Statement of the Problem

Elder abuse exacts a significant toll on individuals, families and communities, including numerous negative physical and psychological consequences and a greater risk of premature death (Baker et al., 2009; Dong et al., 2009; Lachs, Williams, Pillemer, Charlson, & O'Brien, 1998; Schofield, Powers, & Loxton, 2013). Elder abuse, mistreatment or maltreatment can take the form of physical, psychological, or sexual abuse, financial exploitation or neglect (including self-neglect) (Dong, 2015). Though a single definition of elder abuse remains elusive (Killick, Taylor, Begley, Carter, & O'Brien, 2015), the U.S. Centers for Disease Control (CDC) 2016 Uniform Definitions report defines elder abuse as: "An intentional act or failure to act by a caregiver or another person in a relationship involving an expectation of trust that causes or creates a risk of harm to an older adult." (Hall, Karch, & Crosby, 2016).

Elder abuse prevalence for those people 60 and older ranges from 10% to 47.3% in North and South America, with higher rates for people with dementia (Dong, 2015). In addition to higher morbidity and mortality rates, the economic impact of elder abuse, including direct losses due to time missed from work by both older adults and family caregivers, higher hospital utilization rates, institutionalization in nursing homes or other care facilities (Rovi, Chen, Vega, Johnson, & Mouton, 2009), and financial exploitation run in the billions (MetLife Mature Market Institute, 2009). Tangible costs, like the provision of adult protective services (APS), criminal litigation, or provider education and intervention, are more easily quantified than intangible costs like pain, grief, loss of faith in family, or the breakdown in community cohesiveness or social norms (Spencer, 1999). Though, the full scope of direct and indirect costs of all types of abuse have not

been fully investigated as the issue of elder abuse has largely been ignored (World Health Organization (WHO), 2008).

Older populations forecasted growth. Elder abuse is a problem that will compound as the population ages and life expectancy continues to increase. By 2030, 20% or more of U.S. residents will be 65 and over, up from just 13% in 2010, and by 2050, the 65 and over population will reach 83.7 million, more than doubling today's count (Ortman, Velkoff, & Hogan, 2014). Tomorrow's elder population will look different than todays. Life expectancy will increase, with the oldest-old (85 and older) numbering 18 million by 2050. The percentage of people who identify their race as White will decline, while Black, Asian, American Indian and Alaska Native, and Native Hawaiian and other Pacific Islander populations will increase—American Indian and Hawaiian and Pacific Islander populations at a faster rate than others. By 2050, the older population will increase from 20.7% minority to 39.1%, with large growth in the multi-racial population (Ortman et al., 2014).

As the overall population continues to age, American Indian and Alaska Native populations, in particular, are poised to see significant growth rates. The American Indian and Alaska Native population grew 27 percent from 2000 to 2010 (Norris, Vines, & Hoeffel, 2012). Today, there are approximately 6.1 million American Indians and Alaska Natives in the U.S., representing approximately 2% of the population, with about 40% of those identifying as multi-racial (U.S. Census Bureau, 2016). American Indians and Alaska Natives are a geographically and culturally diverse population with members hailing from 567 federally recognized tribes (U.S. Department of the Interior, 2016), 60 state-recognized tribes (National Conference of State Legislatures, 2016), and tribes and

villages that have no official designation. In the next four decades, the number of American Indians and Alaska Natives ages 65 and older is projected to more than triple, numbering 1,624,000, and American Indians and Alaska Natives 85 years of age and older will increase more than sevenfold (Ortman et al., 2014).

Elder Abuse Prevalence Among Minority Races and Ethnicities

Current research findings related to prevalence and risks associated with race or ethnicity conflict. Though, there seems to be consensus that African Americans are at increased risk of elder abuse compared with whites (Beach, Schulz, Castle, & Rosen, 2010; Dong, 2015; Hamby, Smith, Mitchell, & Turner, 2016; Peterson et al., 2014). A review of seven studies that included subgroup analysis for African Americans found that in four studies the odds of abuse increased for African Americans 3.66 – 4.99 times over whites (Dong, 2015).

There have been fewer studies focused on elder abuse in Hispanic / Latino populations. A study of Latino immigrants (n = 198), which used promotores (Hispanic/Latino health community health workers) to conduct in-person interviews with elders in Los Angeles, found 40.4% of respondents experienced some form of abuse or neglect in the previous year (DeLiema, Gassoumis, Homeier, & Wilber, 2012). A small pilot study (n = 112) examining risk of elder abuse among community residents seeking legal aid services found that Hispanic respondents had odds 11.7 times higher than non-Hispanic respondents to have experienced abuse (Strasser, Smith, Weaver, Zheng, & Cao, 2013).

While the number, quality and rigor of the studies exploring elder abuse in the American Indian and Alaska Native population are scant, they demonstrate a potentially

high prevalence of abuse (10% to 67.6%) (Brown, 1989; Buchwald et al., 2000). The largest, two population-based studies which included only older American Indian and Alaska Native women reported rates of physical and verbal abuse of 17%; rates significantly higher than other racial groups (Baker et al., 2009; Mouton et al., 2004).

Risk divergence. Variations in cultural norms and beliefs, individual demographic and social factors, and family and social composition unique to different races and ethnicities have been suggested as possible causes of the higher prevalence of abuse, as well as differences in risk for the various typologies of elder abuse (Beach et al., 2010; Dong, 2012). Different racial and ethnic minorities have been found to be at increased risk for different types of elder abuse (Baker et al., 2009; Beach et al., 2010; Dong, 2015; Dong et al., 2009; Johannesen & Buchwald, 2013; Mouton et al., 2004). Pillemer and colleagues (2016) refer to these unique patterns as risk divergence. They cited studies that found African American elders were at greater risk for psychological and financial exploitation, Canadian indigenous elders were at greater risk of physical and sexual abuse, and Hispanic elders were at decreased risk of emotional abuse, financial exploitation, and neglect (Pillemer et al., 2016). Financial abuse and neglect were the most frequent types of abuse reported in a small study of elder abuse among American Indian and Alaska Native (Jervis & Sconzert-Hall, 2017).

An analysis of the Women's Health Initiative (WHI) data from 91,749 women aged 50-79 examining physical abuse (alone), verbal abuse (alone) or both physical and verbal abuse also found differences in risk profiles by race. Baseline prevalence were 2.84 times higher (CI 1.89-4.26) for African American women for physical abuse only, whereas American Indian and Hispanic women were more likely to have experienced

both physical and verbal abuse (OR 3.10, CI 1.73-5.54; OR 1.95, CI 1.49-2.54 respectively), but not physical abuse alone or verbal abuse alone. Higher odds ratios were maintained at the three-year follow-up for American Indian women, but not for African American women, while the odds ratio for all types of abuse increased for Hispanic women 2-4.5 times. A later study combining two data sets from the WHI included a sample of 160,676 older women; researchers found that American Indian and Hispanic women had higher percentages of any type of abuse than both whites and African Americans, while African Americans were more likely than whites to be exposed to physical abuse alone (Baker et al., 2009).

Whites versus non-whites. Several studies aggregated non-white (race) or non-Hispanic (ethnicity) participants into a single category for purposes of analysis. Two of three studies that aggregated race presented in a systematic review by Dong (2015) found race was not a significant risk for abuse (Abrams, Lachs, & McAvay, 2002; Amstadter, Cisler, et al., 2010; Lachs, Williams, O'Brien, Hurst, & Horwitz, 1997). Acierno (2010) also aggregated race in the National Elder Mistreatment Study (NEMS) (n = 5,777) analysis and found in multivariate analysis that race was a significant risk factor for neglect (OR 1.87, CI 1.13-3.08, p = .014), but not other forms of abuse. In a follow-up analysis of the NEMS dataset Tejada and colleagues (2013), who also aggregated all races into a non-white category, found that while race was a risk factor for physical mistreatment in bivariate analysis (OR 2.19, CI 1.26-3.83, p = .007), it was not sustained in multivariate analysis; race was not a predictor for any other type of abuse.

Review of the original Amstadter study (2010) referenced in the Dong (2015) review article actually found race *was* a significant risk factor for neglect in multivariate

analysis (OR 3.49, CI 1.37-8.89, $p = .009$), but not overall or for other types of mistreatment. Lachs and colleagues (1997) authored the only study in Dong's review that showed that non-white race was a significant predictor of abuse (OR 4.0, CI 2.2-7.2, $p < .01$). The authors noted reporting bias was thought to have a strong influence on the race and poverty variables because of study design (merging an adult health dataset with case findings from Adult Protective Services).

This author hypothesizes that aggregation of respondents by race (and/or ethnicity) into a single group, while prudent for analyses given the small occurrence of events of abuse, may result in masking true differences between subgroups. This may follow the concept of risk divergence patterns owing to race suggested by Pillemer and colleagues (2016), or perhaps is the result of differences in other contextual variables e.g., socioeconomic status or cultural beliefs, over or under-represented in different subgroups. Regardless, based on the available literature, race and ethnicity as risk or protective factor is not well understood and available research is limited. The proposed study will attempt to dis-aggregate available data from the largest existing study of elder abuse in an attempt to better understand differences in rates of elder abuse between different races and ethnicities, and explore the impact of contextual variables.

Lifelong History of Violence and Disparities Among American Indians and Alaska Natives

American Indian and Alaska Native violence across the lifespan. Potentially linked to a lifelong history of disparities, American Indians and Alaska Natives suffer disproportionate rates of abuse at all ages. The prevalence for child abuse among American Indian and Alaska Native populations is almost twice that of the general

population, with studies reporting rates of childhood abuse and neglect as high as 77% (Sapra, Jubinski, Tanaka, & Gershon, 2014). “Domestic violence directed at American Indian women occurs more frequently, is more violent, and is perpetrated by persons from outside their racial group in far greater numbers than is true for the general population in the U.S.” (Hand, 2013). According to a National Institute of Justice (NIJ) report, 84.3% of American Indian and Alaska Native women and 81.6% of men have experienced some form of violence in their lifetime, and nearly 39.8% of American Indian and Alaska Native women experienced violence in the past year (Rosay, 2016).

What we know about elder abuse among American Indians and Alaska Natives. There is little recent research examining elder abuse in the American Indian and Alaska Native population (Jervis & Sconzert-Hall, 2017), including a dearth of prevalence estimates (Sapra et al., 2014). A current systematic review of the literature revealed 17 research articles reporting findings from nine studies. The studies span 23 years, with only three conducted in the last 10 years. There was little consistency in the study design; most were qualitative or employed a mixed method approach; there was no common measurement tool used to assess abuse; and few studies referenced a theoretical framework. Only one study focused on the urban Indian population (Buchwald et al., 2000), though the majority of American Indians and Alaska Natives now reside off reservation (Goins et al., 2015).

The largest study focused exclusively on American Indians and Alaska Natives (a medical chart review of 550 elderly patient records from one urban clinic in King County, Washington), identified the following risk factors among those patients with a high suspicion of abuse: younger age, female, depression and need to depend upon others

for food (Buchwald et al., 2000). Other American Indian and Alaska Native-specific risk factors for elder abuse mirror many of those of the larger population (gender, disability, cognitive impairments, poor health, mental health issues, isolation and lack of resources, etc.) (Sapra et al., 2014). The difference, Sapra and colleagues' notes, is the significantly different demographic profile for American Indians and Alaska Natives, which includes a higher prevalence of many risk factors for abuse.

Disparities and unique historical context for American Indian and Alaska Native elders. American Indian and Alaska Native elders experience pronounced socioeconomic and health disparities, placing them at increased risk of abuse. These disparities include lower incomes, higher rates of poverty, lower education, higher rates of uninsured, and substantially higher rates of major physical and mental health problems (Boccuti, Swoope, & Artiga, 2014; Goins et al., 2015). Disproportionate disease burden and socioeconomic disparities, coupled with higher rates of violent crime yield one of the lowest life expectancies among minority populations (Indian Health Service, 2016).

Higher substance abuse rates among American Indians and Alaska Natives have been identified by researchers as a possible link between violence and historical trauma, with substance use thought to serve as a mechanism for coping with historical atrocities (Sapra et al., 2014). Native elders also blame substance abuse and loss of culture as direct causative factors for elder abuse (Jervis & Sconzert-Hall, 2017). Multiple studies focused specifically on elder abuse in American Indian and Alaska Native populations have discussed the connection between historical trauma, acculturation, forced assimilation, the degradation of tribal community and social structures, as possible causative factors for violence directed at elders (Brown, 1989; Hudson & Carlson, 1999; Jervis et al.,

2014; Jervis & Sconzert-Hall, 2017; Maxwell & Maxwell, 1992). Mandatory tribal relocation practices, forcible placement of Indian children into overcrowded and abusive boarding schools as recently as 2007, and other policies and programs designed to deny basic human rights and disrupt traditional ways of tribes and challenge tribal sovereignty have only been addressed in the last two decades ("American Indian boarding schools," 2016; Garrett & Pichette, 2000). These individual, community, and structural issues, many unique to American Indian and Alaska Native people, are believe to pass from one to the next generation (Braveheart & DeBruyn, 1998). While difficult to measure, these cultural, social and economic issues provide unique context for exploring elder abuse in the American Indian and Alaska Native population.

Tribal Justice System Complex, Law Enforcement a Challenge

Federally recognized tribes are sovereign nations that have legal jurisdiction over their lands and citizens residing on those lands. Each tribe is authorized to enact its own laws, courts and justice systems. Jurisdiction varies by the location of the offense, the race and ethnicity of the victim and perpetrator, and the nature of the crime. Tribal police "function within a complicated jurisdictional net, answer to multiple authorities, operate with limited resources, and patrol some of the most desolate of territory, often without assistance from partner law enforcement agencies." (Judicial Council's Center for Families, Children & the Courts, 2012, p. 2). For elders residing on tribal land or who have abuses perpetrated by family living on tribal lands, the investigation and adjudication process can be a significant barrier to ending violence.

National Elder Mistreatment Study

The NEMS is the largest existing elder abuse dataset using a national sampling framework (Dong, 2015; Sooryanarayana, Choo, & Hairi, 2013). It includes a large enough sample (N = 6,589) to produce a reasonable size subgroup of American Indians and Alaska Natives for analysis (n = 191) (Acierno, Hernandez-Tejada, Muzzy, & Steve, 2009). Other elder abuse datasets exist, but are city or state-specific (Burnes et al., 2015a; Dong, Beck, & Simon, 2010; Lachs et al., 1997), are unlikely to yield a large enough count of American Indian and Alaska Native respondents for subgroup analysis (Laumann, Leitsch, & Waite, 2008), focused on a limited number of abuse typologies (Beach et al., 2010), or include only women (Baker et al., 2009; Mouton et al., 2004). Rosay's analysis of the National Intimate Partner and Sexual Violence Survey (NISVS) examined a large nationally represented sample of American Indian and Alaska Native men and women, however, it was not limited to older adults (Rosay, 2016). Technical notes caution users against using this data set to determine the prevalence of or understand patterns of elder abuse and note multiple limitations.

Neither the original NEMS study nor the subsequent analysis of race and ethnicity attempted to explore differences in the prevalence or predictive factors within any single non-White racial cohort. While concerns about small cell size for one-year prevalence within the dataset are a reasonable rationale for data aggregation, it is believed there is more to be learned by attempting to dis-aggregate data and examine different racial and ethnic subpopulations, to the extent allowed by the samples. Previous analyses have focused on past year prevalence, which have relatively small counts particular for certain types of abuse (e.g., sexual). The dataset also includes prevalence since 60 and lifetime

prevalence, which could serve as the basis for multivariate analysis if past year prevalence counts do in fact prove to be problematic (Acierno et al., 2009).

Conceptual Model

Acierno and colleagues (2009) note use of Bronfenbrenner's (1979) *Ecological Model* as the theoretical basis for the National Elder Mistreatment Survey (NEMS). In their application of the model the (1) **microsystem** is comprised of the individual and family (or spouse), (2) the relationship between families and other settings comprises the **mesosystem**, (3) the **exosystem** consists of environments within which the family members interact but are removed from the individual, and (4) the **macrosystem** is comprised of values, norms, and other patterns of culture. This four-part, nested, interconnected system is subject to change over time as transitions in shifts in the lifespan occur and are influenced by socio-historical contexts (**chronosystem**) (See Figure 1 in appendix).

Ecological model evolution in elder abuse. Schiamberg & Gans (2000) first proposed use of an applied adaptation of Bronfenbrenner's model for elder abuse perpetrated by adult children, noting that human behavior and development are complex and influenced by multiple inter-related systems. In a 2003 landmark report on elder abuse in the U.S. the National Research Council recommended that future theories and models of elder abuse be robust enough to reflect multiple causes and contexts. Subsequently, modified ecological models were proposed as frameworks for research that incorporated unique cultural attributes of Latino families (Parra-Cardona, Meyer, Schiamberg, & Post, 2007) and African Americans (Horsford, Parra-Cardona, Schiamberg, & Post, 2011). Additional variations of the ecological model that address

family violence across the life span (Reilly & Gravdal, 2012) and incorporate critical theory (encompasses ideologies of power, control and transformation) have also been proposed for use in elder abuse research (Norris, Fancey, Power, & Ross, 2013).

Ecological model applied in elder abuse research. A number of studies have been designed based on or to test application of the ecological model to elder abuse. One of the earliest studies based upon the ecological model, tested Schiamberg's proposed "bifocal" modification to the ecological model and confirmed the importance of the interplay (bi-directional relationships) between older adults and their children and the surrounding environmental context which contributes to increased risk of elder abuse (Von Heydrich, Schiamberg, & Chee, 2012). In addition, versions of the ecological model have been used as the framework for two multi-country studies of elder abuse (Donder et al., 2016; Melchiorre et al., 2016), a study of macro and exo dimensions of elder abuse at the country level in Ireland (Phelan, 2014), and as a framework for examining Adult Protective Services (APS) casework in Kentucky through the lens of nested systems (Wangmo et al., 2014).

The two multi-national studies each offered the most robust set of empirically tested variables and measures specifically identified within each level of the ecological model. The Melchiorre (2016) study was unique in that it used the ecological model to create a step-wise multi-level logistic regression model based upon each level of the ecological model, with country of origin (representing the macro level) as the first step in the regression modeling process. The authors found that factors tested at the individual, community, (exo) and society (macro) levels were associated with elder abuse in males, however, relationship-level (meso) variables tested were not. Donder's (2016) study of

elder abuse in five European countries found eighteen significant predictors of abuse encompassing all four levels of the ecological model in bivariate analysis. Subsequent multinomial logistic regression designed to identify risk factors that predict severity of abuse found that older women most at risk of the most severe abuse exhibited six significant predictors tied to factors of social isolation and exclusion (macro). Study authors noted the difficulty of testing every level of the ecological model in a single study (Donder et al., 2016).

These studies have demonstrated the importance of taking a multi-dimensional approach to exploring the causes of elder abuse that includes consideration for the social ecology in which a victim and a perpetrator exist. At the same time, they demonstrate the complexity of designing metrics and research methods that can reasonably address each or every level of the ecological model. The range of proposed models and research based upon the ecological model presented make recommendations about variables used to inform each level of the adapted ecological model developed as part of this research proposal (see below). In addition, two recent reviews provide a summation of evidence about various risk and protective factors that were used to inform each level of the model developed for the proposed dissertation research framework. There was generally consensus on level of evidence for risk factors between a recent systematic review (Dong, 2015), and a scoping review which organized risk and protective factors according to levels of the ecological model, providing individual ratings of the level of existing evidence, (strong, potential contested) (Pillemer et al., 2016). All of these resources will also be used to aid in guiding analysis and interpretation.

Revised framework to underpin current and future research. A proposed adaptation of Bronfenbrenner's ecological model was developed by this author that identifies risk factors from the systematic review on elder abuse in the American Indian and Alaska Native community, supplemented with additional risk factors identified in key recent research (or reviews), and a set of risk factors proposed by this author considered unique to the American Indian and Alaska Native culture (See Figure 2 in appendix). In addition, a third adaptation of a model was developed that identifies how variables from the NEMS dataset align with the five levels of the original ecological model. In the NEMS variable mapping model, some variables are proposed for consideration because of recent research findings (e.g., substance abuse by perpetrators), but require further discussion with a statistician to determine appropriateness for the planned regression modeling technique (See Figure 3).

Research Strategy and Methods

Goals and Objectives

The **goal** of this study is to establish the scope and severity of elder abuse in the American Indian and Alaska Native population as a foundation for future research, evidence-based prevention and intervention practices, and policy development, and ultimately to reduce the epidemic of abuse against American Indian and Alaska Native elders. The **objectives** for this study are to define and describe prevalence and predictors of elder abuse within the American Indian and Alaska Native population through secondary analyses of the NEMS.

Specific Aims

1. Describe demographic, socioeconomic, social and health status of American Indian and Alaska Native elders.
2. Identify the one year, since 60, and lifetime prevalence of emotional, physical and sexual abuse; prevalence of current potential neglect; lifetime prevalence of financial exploitation; and predictors for each among American Indian and Alaska Native respondents of the NEMS.
3. Explore differences in the prevalence and predictors of elder abuse among American Indian and Alaska Native elders and White, Black and Hispanic respondents.

Hypotheses

- There are differences in the demographic, socioeconomic, social and health status of American Indian and Alaska Native elders and White, Black and Hispanic respondents.
- There is a difference in the prevalence of abuse types among American Indian and Alaska Native elders and White, Black and Hispanics.
- There is a difference in the predictors of abuse types among American Indian and Alaska Native elders and White, Black and Hispanics.

Design

Secondary analysis of data from NEMS will be conducted for the current project. Secondary data analysis has been identified as an effective and efficient means for conducting research. Advantages include a reduction in time and resources needed for original research, reduced risk to participants and access to larger samples that might not otherwise be feasible (Dunn, Arslanian-Engoren, DeKoekkoek, Jadack, & Scott, 2015).

The original study was a cross-sectional random digit dialed, computer-assisted telephone interview (CATI) with 6,589 geographically stratified households (Acierno et al., 2009). Field interviews were conducted from February 2008 to September of 2008, yielded a cooperation rate of 69%, and averaged approximately 15 minutes (Acierno et al., 2009). See Table 1 for a detailed description of methods and measures by study aim for the proposed project.

Description of Sample

The NEMS dataset includes interview data from adults age 60 and older as well as data from "proxy" interviews obtained from individuals who lived in the home with an adult age 60 and older. The survey samples were based on a multi-stage, modified stratified random digit dialing (RDD) method, using an area probability/RDD sample. The sampling frame was restricted to land-line telephones due to lack of public listings of cell phones and a federal law which prohibits the use of auto-dialers in calling of cell phone numbers. The following households / participants were excluded from the original study: no adult in the household; non-residential contacts; residences with more than five unrelated persons living together; households where a language barrier was encountered (other than Spanish); and any older adult deemed by the operator to be potentially unable to give informed consent. Original analysis included a two-stage weighting plan, the first to correct for unequal probability of selection within a household and the second to correct for non-response bias based upon Census projections for age and gender (Acierno et al., 2009).

The proposed analysis will include unweighted base interview data from adults age 60 and older (N = 5,777 respondents). The original study PI advised against using

sample weighting for the proposed project, noting sample weighting resulted in only small corrections to align with Census data and had little effect on the outcome analysis (R. Acierno, personal communication, September 20, 2016). A review of subsequent research using the NEMS dataset, indicates that the weighted sample consisted of 5,776 participants (Hernandez-Tejada, Amstadter, Muzzy, & Acierno, 2013), and subsequent studies also opted to use the unweighted sample of 5,777 (Amstadter, Begle, et al., 2010; Cisler, Begle, Amstadter, & Acierno, 2012; Policastro & Finn, 2015).

Plan for Race Variable Re-Classification

Given the primary aims of the study, a plan for race re-classification and coding has been developed based upon frequency tables in the NEMS Codebook (Acierno et al., 2013). NEMS respondents were allowed to select from five different racial categories and could specify multiple race options, e.g., White and Black and American Indian and Alaska Native (to indicate multi-race status), or "other" and then describe race in their own words (Hernandez-Tejada et al., 2013). Four comparative subgroups will be created from the current sample: American Indian and Alaska Native, White, Black and separately Hispanic. This plan will be confirmed upon review of the actual original dataset, prior to proceeding with analysis.

Fifty percent of American Indians and Alaska Natives age 50 and older in the general population identify as multi-racial (Goins et al., 2015). Thus, respondents who identify as American Indian and Alaska Native alone or in combination with any another race will be included in the American Indian and Alaska Native subgroup. The NEMS Codebook also confirmed the high frequency of American Indian and Alaska Native respondents who claim a second race category. Relative to the number of respondents

who selected American Indian and Alaska Native as their primary race, an additional 18% selected American Indian and Alaska Native as a second race category, whereas only .009% selected White, and .02% selected Black (Acierno et al., 2013). As a result, for this research, subgroups were created to reflect the known large proportion of multiracial American Indians and Alaska Natives. Given that this is the priority population, the first exclusive racial subgroup will be comprised of respondents who selected American Indian and Alaska Native in any of the seven available race variables, and "other" responses will be examined for re-coding potential. Separate subgroups will be created for White alone and Black alone for purposes of comparison. Hispanic origin is coded as a separate stand-alone question. The estimated sample for each subgroup includes: n = 191 for American Indians and Alaska Natives (alone or in combination), n = 473 for Black or African American (alone), n = 5,504 for White (alone), and n = 286 for Hispanic origin.

Planned Study Variables

The final NEMS data set has 448 variables. The NEMS instrument consisted primarily of close-ended questions. The following were the primary domains included in the survey: **household demographics**: income, employment status, etc.; **recent health of the adult**: assessed using question number one from the World Health Organization Short-Form 36 (SF-36), questions regarding Activities of Daily Living, etc.; **social support and use of services**: social support assessed using a modified five-item version of the Medical Outcomes Study module for social support selected by the interview team, respondents were provided list of typical support agencies to select from; **previous traumatic events**: tornado, serious accident, life threatening illness, etc.; and self-

reported neglect, financial exploitation, and emotional, physical, and sexual mistreatment. Table 2 in the appendix includes operational definitions, levels of measurement and coding for *key* constructs and variables.

To assess the various types of abuse and neglect a series of questions was asked for each mistreatment category. A positive response to any one of these questions under each type of mistreatment was deemed affirmative for that particular type of abuse. For example, the three questions related to physical mistreatment included:

1. *"Has anyone ever hit you with their hand or object, slapped you, or threatened you with a weapon?"*
2. *"Has anyone ever tried to restrain you by holding you down, tying you up, or locking you in your room or house?"*
3. *"Has anyone ever physically hurt you so that you suffered some degree of injury, including cuts, bruises, or other marks?"*

If an individual answered yes to any one of these questions, it was considered a case of physical mistreatment. The original study analysis transformed all other variables of interest into dichotomous measures. For example, health status which is measured in the interview using a 5-point Likert scale is transformed into Good versus Poor health. For this study, all variables will be assessed for re-categorization based on substantive meaning of cut-points and their distributions.

Dependent study variables for consideration will include: emotional abuse, physical abuse, sexual abuse, neglect, and financial exploitation in the past year, since age 60, and lifetime prevalence.

Independent study variables / covariates (assessed for inclusion in regression model): age, gender, marital status, race or Hispanic ethnicity, education, income, employment status, living arrangements, health status, assistance required with Activities

of Daily Living (ADLs), assistance available to help with ADLs, history of traumatic event, social support, use of social services, and substance abuse use by perpetrators. Inclusion in final regression model will be based upon statistical significance in bivariate Chi-squared analyses.

Power Analysis

The statistical plan will mirror the analyses conducted in the original study: two-tailed bivariate Chi-squared tests (to examine differences in categorical independent and dependent variables) and logistic regression (to control for covariates and predict abuse outcomes). Acierno et al (2009) set α a priori at $p < 0.05$. Power analysis was conducted using G*Power 3.1.7 (Faul, Erdfelder, Buchner, & Lang., 2009) and guidelines established by Lipsey (1990) using a medium effect size (.30 for χ^2; odds ratio=1.72 for regression), conventional power standard of .80 (ß = 0.20), and α = 0.05 (level of significance) to determine power of final sample subgroups. The minimum sample for Chi-squared tests with up to 6 degrees of freedom is 152. For 2-tailed logistic regression the desired sample is 177. A total sample of 177 is needed to account for both statistical models, assuming a medium effect size. Given the projected total sample of American Indians and Alaska Natives (n = 191) and overall sample of 5,777, the study would be adequately powered. This assumes a 5% chance of committing a Type I error and 20% chance of committing a type II error. In the event the effect size is small, using Lipsey's (1990) guidelines (odds ratio = 1.2 for regression), while maintaining a conventional power standard and level of significance, the desired sample would be 1,484.

If the effect size (event rate for abuse cases) turns out to be small, the study may be inadequately powered and/or logistic regression modelling methods will be impacted.

The proposed study is exploratory and prevalence of elder abuse for the various subgroups in the literature vary widely, thus the magnitude of effect or event rate is unknown. Based upon higher prevalence for other types of abuse in the American Indian and Alaska Native population, it is assumed that the event rates identified by Acierno et al (2009) for the total sample will be lower than that identified for the proposed study subgroups. At least 10 cases per predictor will be needed for a reliable logistic regression (V. Rovnyak, personal communication, May 5, 2017; G. Yan, personal communication, June 5, 2017).

Analysis Plan

Data will be managed and analyzed using StataIC v14. An analysis plan similar to the original study will be used. Dr. Acierno, PI for the original study, will serve as a consultant for the project. Acierno et al (2009) set α a priori at $p < 0.05$. This will apply for the current study. As previously noted, under the advisement of Acierno (personal communication, September 20, 2016) and following the approach taken with subsequent analyses of the NEMS data (Amstadter, Begle, et al., 2010; Amstadter, Cisler, et al., 2010; Cisler, Begle, Amstadter, & Acierno, 2012; Policastro & Finn M.A., 2015), survey data will not be weighted.

The analysis will proceed in four phases, beginning with a feasibility analysis and then following each aim of the project. See Table 1 in appendix for Analytic Methods by Study Aims.

Phase one will consist of feasibility testing including the development of a process for managing data, and the selection of covariates and dependent variables. A plan for data cleaning, recoding and handling missing data will be developed in

conjunction with the project team after the dataset is obtained and prior to proceeding with analysis. A descriptive analysis of the dependent variables to determine effect size will be conducted. There are potentially 11 unique dependent variables per race/ethnic category, including psychological, physical or sexual abuse at three timepoints (within the past year, since age 60, and lifetime); lifetime exposure to financial exploitation (ever); and current potential neglect. In the event it is determined there are not enough events for analysis, the elimination of timepoints, collapsing of abuse types, and/or the method for examining the statistical significance of independent predictor variables will be considered.

Phase two will consist of descriptive analysis of sociodemographic, social and health status indicators (independent variables and possible co-variates) for each subgroup that will include frequencies and percentages for categorical variables and means and standard deviations for continuous variables. Comparison of those subgroups via Chi-squared analyses for categorical variables and independent t-test for continuous variables will be conducted. Assumptions will be assessed and alternate analytic methodologies will be applied if assumptions are not met. For example, when the parametric assumptions for the independent t-test are not met, the non-parametric Mann-Whitney U test will be used. Initial descriptive analysis will use original coding schema, versus collapsed categories.

Phase three will consist of the identification of prevalence and predictors of elder abuse and neglect for the American Indian and Alaska Native subgroup only. Frequencies and percentages will be calculated for dependent variables. Independent variables will be dichotomized and Chi-squared analyses used to identify significant predictor variables for

logistic regression modeling. Subsequently, significant predictors will be incorporated into a logistic regression model for each of the five types of abuse and separately for discrete timepoints. Logistic regression models will be adjusted to account for event rates identified in phase one.

Phase four will consist of identification of prevalence and predictors of elder abuse and neglect for the other subgroups. The same process will be followed as outlined in phase two for the American Indian and Alaska Native subgroup. Finally, a comparison of significant predictors by types of abuse for American Indian and Alaska Native and other subgroups will be developed.

Limitations

The proposed research includes analysis of a pre-existing dataset to explore new relationships. Secondary data analysis as method of research and analysis is not without limitations and carries a unique set of challenges (Polit & Beck, 2008). There is almost always some deficiency in a pre-existing dataset-- either in the sampling methods or measurement or construction of variables (Polit & Beck, 2008). Research questions must be framed in a way that they can be answered with the existing variables. It is imperative to assess the quality of data, including an assessment of missing or incomplete data. There may be a lag time between when the data were initially collected and it was made publicly available, and thus the data may be outdated (Dunn et al., 2015). There were limitations specific to the use of the NEMS data set that mirror those of secondary data analysis in general.

Instrument Psychometric Properties

Psychometric properties (reliability or validity) of interview questions or survey domains are not offered by the principal investigators. In a related study, Acierno, Resnick, Kilpatrick, & Stark-Riemer, (2003) reported on a pilot that assessed the feasibility of using telephone-based interviews to measure assault and abuse in elders. This pilot study tested phrasing to prompt disclosure, and tested behaviorally specific questions about different types of mistreatment. Forty-seven of the 107 participants in the pilot were police-referred victims of assault or abuse. Participants were randomly assigned to in-person versus telephone interviews. Rates of abuse and assault were comparable between phone and in-person interview.

According to Acierno et al, (2010), a modification of the National Women's Study interview served as the basis for demographic characteristics, trauma and interpersonal violence experiences, as well as other variables for the feasibility study. At least six of the victimization questions from this demonstration study were incorporated into the NEMS study. Some questions from other pre-existing instruments were selected by the authors and incorporated into the survey, but none appears to have been included in their entirety. The authors note one question from the World Health Organization's Short-Form 36 was included, but do not indicate whether this question is designed for use as a stand-alone measure. They also mention the creation of a five-item version of the Medical Outcomes Study (MOS) module for social support (Sherbourne & Stewart, 1991). While the authors note they deliberately selected a question from each of the four domains included in the original MOS instrument, there is no mention of measures of validity for the items selected or detail provided about the rationale, e.g., measures of

construct validity. According to Acierno et al, (2010) a pretest of the final NMES interview was conducted with 200 households.

Additional Limitations

Limitations and strategies to address limitations in the original study, were identified by Acierno et al (2009) for the original study and in subsequent publications (Hernandez-Tejada et al., 2013; Amstadter, Begle, et al., 2010; Amstadter, Cisler, et al., 2010; Cisler et al., 2012). These include:

- Responses and resultant prevalence rates are based upon self-reports. No objective measures of any variables were collected.
    - **Strategy:** Questions to assess victimization status were specifically not open-ended and were designed with the intent to refrain from being "culturally-loaded." Responses to culturally-loaded questions can be impacted by social context of respondents. Open-ended questions about assault do not generally elicit accurate descriptions of assault.
- Interviews only conducted by telephone and used live interviewers. Not all households have phones or respondents that are available during call hours. Some respondents may be reluctant to discuss abusive situations.
    - **Strategy:** Multiple call attempts were made to each phone number at different times of the day to attempt contact. Earlier feasibility research indicated people may be more likely to disclose interpersonal violence over the phone versus in-person.

- Interviews only conducted in English and Spanish which excludes individuals who speak other languages.
    - **Strategy:** Stratification by race using Census benchmarks was incorporated into the sampling strategy, however, will not address issues of respondents who speak only other languages, e.g., Chinese.
- The study used a cross-sectional design which limits understanding of temporal relationships and causality.
- Results reflect only cognitively intact community-dwelling adults. Adults with cognitive impairments, e.g., dementia or elders who reside in-group living quarters (nursing home, skilled nursing facilities, etc.) were excluded. No objective measures of cognitive function were included in the study, although interviewers were trained to exclude participants who gave any indication of cognitive deficits.

Additional potential limitations and selected strategies to overcome these issues, where possible, include:

- The original analysis reported that small cell sizes encountered during logistic regression modeling resulted in under-powering of some abuse sub-type analyses. As the current project will include analysis of smaller racial sub-groups, these same limitations in the analysis phase are anticipated. Power analysis using data from the NEMS codebook indicate the preliminary estimate of American Indian and Alaska Native respondents may be adequate for the type of analysis, however, this estimate fails to account for missing data or extremely low event rates.

- **Strategy:** When called for and where possible, categorical variables will be collapsed to produce adequate cell counts. Otherwise, this may be a limitation of the analysis.

- Preliminary analysis of potential independent variables found a range of blank/refused/don't know responses for individual variables from 0% (living arrangements) to 26.4% (income), with an average of 4% of variables with missing responses.
    - **Strategy:** Once the original dataset is received, cleaned, and narrowed to the appropriate sample, an assessment of missing data will be conducted. Imputation of data will be considered, given the importance of each of the selected independent variables, and if data is imputed analyses will be run with and without imputation methods.

While the NEMS dataset and proposed research design presents with limitations, many similar to issues encountered with any secondary data analysis project, the project presents an opportunity to address gaps in the current state of science and knowledge of elder abuse in the American Indian and Alaska Native population.

Innovation and Potential Impact

Interest in elder abuse has increased in recent years. The Institute of Medicine, U.S. Government Accountability Office (GAO), Centers for Medicare and Medicaid Services, U.S. Preventive Services Task Force (Dong, 2015), National Institutes of Health (National Institutes of Health, 2016) and the White House (White House Conference on Aging, 2015) have supported reports, conferences or Congressional

recommendations for research and funding appropriations all within the last four years. NIJ, has been at the forefront of elder abuse research, which has largely been systematically under-funded within the federal government. NIJ's reported portfolio of past research totals $13,385,770 for 34 projects in a timespan from 2005-2015; one project focused exclusively on minority populations; and none on American Indians and Alaska Natives ("Awards Related to: Elderly (65+)," n.d.). The proposed study would yield the largest known sample of American Indian and Alaska Native elders with whom elder abuse was directly assessed, and the first nationally represented sample. The hope is that the findings from this study will serve as actionable evidence that can be used to form the basis of future culturally specific interventions.

Implications for Policy and Practice

Given the high rates of family violence across the lifespan and unique demographic profile of American Indians and Alaska Natives, attention to the scope and severity of elder abuse warrants action on the part of health care providers, law enforcement, advocates, and policy makers, at the national, state, local and tribal levels. Disaggregating and examining the multitude of variables related to abuse and neglect available in the NEMS dataset specific to American Indians and Alaska Natives, as well as other racial minorities will be a significant contribution to the field. Findings may allow health care providers, protective service agencies, community agencies, and law enforcement providers to better identify unique risk factors for elder abuse specific to this high-risk group.

Descriptive details on the prevalence of elder abuse in non-White populations, specifically including different typologies, using a nationally represented sample may be

useful in setting priorities for community planning and response, and in prioritization of already scarce funding for additional research at the tribal, local, state and national level. Evidence will increase awareness across the board, and this attention will enable a move from a "call for more…" to the actual the development of strong(er) culturally appropriate interventions and programs aimed at victim safety and perpetrator accountability. Better understanding of specific risk factors also holds the potential to generate new or targeted culturally specific public safety measures. As the aging population is poised to expand and diversify rapidly, particularly the Native elder population, the impact and cost of elder abuse on individuals, families, and communities will only compound exponentially.

Planned Scholarly Products

Deliverables mandated in the NIJ request for proposals include an official signed copy of the doctoral student's dissertation and a list of scholarly products and products developed for dissemination. In addition to the submission of these items, the University's manuscript option for doctoral dissertations will be pursued in lieu of a traditional five-chapter dissertation. As a result, three scholarly articles related to the research will be submitted for publication in a peer reviewed journal. In addition to the submission of three articles to peer-reviewed publications, opportunities will also be sought to disseminate findings at academic and practitioner conference presentations for both tribal and non-tribal audiences, as well as dissemination of a concise summary of findings for practitioner and policy audiences.

Plan for Dissemination to Broader Audiences

Bridging the gap from research to practice is a significant issue in the criminal justice and social science fields. Significant effort expended following the dissertation research phase will focus on a goal of broad dissemination, including participation at several conferences over the course of the 12-month project period. The intent is to submit presentation proposals to these conferences to share preliminary and final results, use these conferences to generate new collaborations for future work on elder abuse, and aid with future dissemination efforts. In addition, the Southwest Center on Law and Policy (project consultant) will provide substantial guidance on the preparation and assistance with dissemination of project findings to tribal audiences. The Center is the recipient of multiple federal grants designed to address domestic violence of all forms in Indian Country. They have multiple websites and electronic distribution methods that reach attorneys, judges, law enforcement, advocates and community members, and have agreed to assist in distribution of project-related resources to these audiences. The student also has an established professional relationship with the International Association for Indigenous Aging (IA2), a national nonprofit focused on issues of health and well-being for indigenous elders. IA2 distribution channels include a robust set of local, regional and national federal and non-profit Native advocacy organizations and membership in the Leadership Council on Aging, all of which will be made available as a platform for distributing findings.

Capabilities and Competencies

The project team will consist of the student Principal Investigator (PI), biostatistician, consultant from the Medical University of South Carolina (MUSC),

consultant from the Southwest Center for Law and Policy (SWCLAP), and the student's dissertation committee. The dissertation committee includes four researchers at the University of Virginia from the school of nursing and the school of public health sciences that have experience in domestic violence, aging, advanced research methodologies and analysis of large existing datasets. The consultant from MUSC, Dr. Ronald Acierno, is the co-PI of the original NEMS study. He will provide expertise on both the framework and variables utilized in NEMS as well as elder abuse. The consultant from SWCLAP, Hallie Bongar White, is an attorney with extensive experience in tribal law and policy in domestic violence, and serves as executive director of the organization. White will lend her expertise in contextualizing findings specific to American Indians and Alaska Natives, specifically providing reflections on the results and assisting with review of discussion and implication narratives.

Management Plan and Organization

The dissertation study is designed to commence in August of 2017, with a 12-month timeline (see Table 3 - Timeline in appendix). Because the project involves secondary analysis of a pre-existing data set, this allows for an expedited timeline compared with traditional research projects. Accomplishment of study aims and completion of major tasks is contingent upon timely review and exemption or approval by the University of Virginia IRB. For planning purposes, the start-up phase assumes full IRB approval will be required. Project tasks in the latter half of the project overlap to keep within the timelines.

The data is housed and maintained by the National Archive of Criminal Justice Data (NACJD), maintained by the Inter-university Consortium for Political and Social

Research (ICPSR). According to a representative from ICPSR, the dataset is de-identified and is appropriate for IRB exemption; however, the funding agency require the proposal undergo IRB review (A. Mathur, personal communication, March 30, 2016). The research protocol will be submitted to the IRB for Health Sciences Research at the University of Virginia by the student and dissertation chair, and an exempt review requested. In the event the IRB deems the project is not exempt, the request will be submitted for expedited review.

After the protocol is under review with the IRB, the student will commence monthly virtual meetings with project team members. The initial meeting will be used to review the project aims, timeline and projected analysis plan. Subsequent regularly scheduled monthly meetings will focus on different phases of the project as they are underway. The student will maintain close ongoing contact with the project team throughout the process. Once the dataset is received, the student will develop and implement a plan for data cleaning and recoding in conjunction with the biostatistician and secondary data management expert with input from the remainder of the project team. Given the size (6,000+ records) and scope (448 variables) of the dataset, this is projected to require substantial work effort. Analyses will be conducted by the student and will commence after the cleaned dataset is reviewed by both the student, biostatistician and secondary data management expert. Results will be reviewed by the project team in phases and the analysis strategy re-confirmed after each phase of the project. The project team will discuss and troubleshoot analysis and data management issues as they arise.

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Chapter Three: Elder Abuse in American Indian Communities: An Integrative Review (Manuscript 1)

(To be submitted to the Journal of Forensic Nursing)

Elder Abuse in American Indian Communities: An Integrative Review

[Formatted per submission guidelines for the Journal of Forensic Nursing]

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Elder Abuse in American Indian Communities: An Integrative Review

Background: Disproportionate disease burden, socioeconomic disparities, higher rates of violence across the lifespan, and higher rates of trauma exposure experienced by American Indian elders result in one of the lowest U.S. life expectancies, and are thought to contribute to higher rates of elder abuse.

Review Methods: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines informed an integrative review aimed at assessing the literature on elder abuse among American Indians.

Review Results: Of nine studies in 30 years, rates of elder abuse varied by study, location, and tribal affiliation from 4.3% to 45.9%. Large studies with comparison populations found higher rates for American Indians. There was a consensus for three risk factors: substance abuse, mental health problems, and caregiving issues. Importance of tribal norms, the notion of respect conferred to elders, and the concept of acculturation were three major culturally relevant themes in qualitative studies. Perceived tribal norms and strengths, e.g., respect for elders, were at odds with abuse experiences, particularly financial exploitation and neglect. Historical trauma, shame, and fear impacted reporting. There was little consistency in study design; most were qualitative or mixed methods; samples were small; there was no common measurement tool or timeframe for abuse; and only one intervention study.

Discussion & Implications: High rates of abuse suggest health care providers, uniquely positioned to help, should be encouraged to screen and intervene despite the

lack of empirical evidence. Providers should not assume traditional culturally ascribed strengths, such as honor and respect for elders, provide any degree of protection.

Keywords: elder mistreatment, elder maltreatment, minority, elder abuse, American Indian, Native American, interpersonal violence

Elder Abuse in American Indian Communities: An Integrative Review

Elder abuse, mistreatment or maltreatment can take the form of physical, psychological, sexual, financial exploitation, or neglect (including self-neglect) (Dong, 2015). According to the United States (U.S.) Centers for Disease Control (CDC) 2016 Uniform Definitions report elder abuse is: “An intentional act or failure to act by a caregiver or another person in a relationship involving an expectation of trust that causes or creates a risk of harm to an older adult” (Hall, Karch, & Crosby, 2016, p.28).

Elder abuse prevalence for those 60 and older range from 10% to 47.3% in North and South America, the latter for people with dementia (Dong, 2015). Many non-white racial and ethnic groups are at an increased risk for various types of elder abuse compared to their white peers (Baker et al., 2009a; Beach, Schulz, Castle, & Rosen, 2010; Dong et al., 2009; Dong, 2015; Dong, Simon, & Evans, 2010; Johannesen & LoGiudice, 2013; Mouton et al., 2004). Black, Hispanic, and Chinese elders experience abuse rates up to four times that of whites for specific forms of abuse (Dong, 2015). Pillemar and colleagues (2016) review found that African American elders were at greater risk for psychological and financial exploitation, Canadian indigenous elders were at greater risk of physical and sexual abuse, and Hispanic elders were at decreased risk of emotional abuse, financial exploitation, and neglect compared to white elders. A national study of elders (n = 5,777) found that non-white race, low income, poor health, or poor social support were significant predictors of neglect for people 60 and older (Acierno et al., 2010).

Native Americans Experience Disparities

In the U.S., compared to whites, American Indian and Alaska Native elders experience lower incomes, higher rates of poverty, lower education, higher rates of uninsured, and substantially higher rates of major physical and mental health problems (Boccuti, Swoope, & Artiga, 2014; Goins et al., 2015). Such pronounced social, economic and health disparities, are confounded by the historical experience of a higher incidence of traumatic events over their lifetime creating negative psychological sequelae (Çayır, Burke, Spencer, Schure, & Goins, 2018), as well as historical traumas (Braveheart & DeBruyn, 1998; Ehlers, Gizer, Gilder, Ellingson, & Yehuda, 2013; Whitbeck, Adams, Hoyt, & Chen, 2004)

American Indian and Alaska Native individuals experience high rates of violence across the lifespan. Prevalence of child abuse among the populations is almost twice that of the general population, with studies reporting rates of childhood abuse and neglect as high as 77% (Sapra, Jubinski, Tanaka, & Gershon, 2014). Similarly, Hand (2013) found that Native women experience more frequent and more serious intimate partner violence than the general U.S. population. The National Institute of Justice (NIJ) reports that 84.3% of American Indian and Alaska Native women and 81.6% of men have experienced some form of violence in their lifetime, and nearly 39.8% of women experienced violence in the past year (Rosay, 2016). Disproportionate health and socioeconomic disparities, coupled with higher rates of violent crime yield one of the lowest life expectancies among minority populations (Indian Health Service, 2016).

This review aimed to synthesize the body of research on elder abuse in the American Indian and Alaska Native population. The study sought to answer the following questions: 1) What is the prevalence or incidence of elder abuse among American Indians and Alaska Natives? 2) What are the risk factors for abuse? 3) What are unique cultural attributes, attitudes, beliefs, or perceptions that provide context for elder abuse?

Review Methods

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement guidelines informed the review process (Moheri, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009). Refer to supplemental digital content to review the PRISMA Flow Diagram. A structured database search was conducted in: OVID Medline, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsychINFO, Cochrane Collaboration, Web and of Science with a strategy developed in conjunction with a health sciences librarian. The following search terms were used in open keyword searches and mapped to subject headings where appropriate: elder abuse, elder mistreatment, elder maltreatment, Native American(s), and American Indian(s). A second independent search strategy was developed and tested by co-author (C.D.) with a set of broader search terms, and results compared to optimize the search strategy. Database searches were supplemented by a manual review of reference lists of both research and non-research articles, in addition to an expanded search of the grey literature via Google Scholar. Searches were initially conducted in September of 2015 and re-run in February of 2019.

Due to the broad scope of this review and the limited number of articles identified, all methods of empirical research (e.g., qualitative, quantitative), any year of publication, and any publication format (e.g., abstracts, posters, reports) were included. No specific numeric limitation on the age of study participants was set, as the definition of American Indian and Alaska Native "elder" can vary by Federal agency and/or tribe. Non-U.S. studies were excluded.

Review Results

The database search yielded 202 results, with 13 additional articles identified through reference review and Google Scholar. Articles were excluded during a review of abstract or full articles because: (1) the article was not specific to elder abuse, or (2) the article was not empirical research. A number of articles included the phrase "American Indian" or the word "Native," but full article review found there was not separate analysis or reporting on American Indians. Twelve articles with findings from nine studies were analyzed.

Research Design, Methods & Measures

There was little consistency in research design among the nine identified studies. Two were qualitative, and two employed a mixed method approach. Three quantitative studies included a researcher-developed survey, researcher-developed chart abstraction tool, and an exploratory descriptive study testing researcher-developed abuse instruments. Two studies relied on analysis of existing data. One used the Women's Health Initiative (WHI) data set (Baker et al., 2009), one using only one portion of the available WHI dataset (Mouton et al., 2004).

A community based participatory research (CBPR) model was employed by two of the three most recent studies (Holkup, Salois, Tripp-Reimer, & Weinert, 2007; Jervis, Fickenscher, Beals, & the Shielding American Indian Elders Project Team, 2013; Jervis & Sconzert-Hall, 2017). Only one study evaluated an intervention. The timeframe for study publication spans 30 years, with only two studies and three articles published in the last 10 years. Only one study proposed or referenced a theoretical framework. Maxwell et al. (1992) discussed the applicability of the social exchange. Others made only limited reference to theories, models or frameworks.

There was no common tool or timeframe for measures of abuse across identified studies. Five studies utilized researcher developed instruments, surveys, or abstraction tools to measure abuse. Three studies used a version of the Medical Outcomes Study Short-Form (SF), one the SF-12, and the two secondary analyses studies used the SF-36. These three studies also employed a tool to assess mental health and/or depression. Buchwald and colleagues (2000) also included several variables for depression and mental health as well as an assessment of physical health problems in their data extraction tool.

Baker and colleagues (2009) and Mouton and colleagues (2004) used the least robust measures of abuse. Participants were asked two questions, one each about physical abuse and verbal abuse in the past year. Whereas Jervis et al., (2013) used the Hwalek-Sengstock Elder Abuse Screening Test (HS-EAST) which contained 15 items, in addition, the NELS-FE and NELS-Neglect developed by their research team contained an additional 30 questions.

Table 1: Design Characteristics of Studies of Elder Abuse in American Indian and Alaska Native Populations

Sample Characteristics

Table 2 describes sample characteristics. Samples ranged in size from 10 Native families to 703 American Indian women. Four studies included families or a family member. The minimum age for inclusion for three studies was 50 years and for two others was 60. Buchwald et al. (2000) notes that 50 years of age was used as a cut off in their study because 1) in the American Indian culture chronological age is not the sole defining factor for identifying a person as an elder, 2) increased morbidity and mortality result in shorter life spans, and 3) some federal and state programs use lower age eligibility criteria. The majority of studies (6) were conducted in areas located from the West Coast to Great Plains; only one study was based in the East Coast.

Table 2: Sample Characteristics of Studies of Elder Abuse in American Indian and Alaska Native Populations

Study Findings

Frequency of Abuse. Rates of elder abuse among American Indians varied by study, location, and tribal affiliation. Additionally, the types of abuse measured in each study varied, though virtually all included a measure of physical abuse. Elder abuse, neglect, and exploitation rates ranged widely from 4.3% to 45.9%. Hudson and colleagues (1998; 1999) found the percentage of elders reporting abuse was 4.3% for "Native" participants, a rate lower than Caucasians (7.7%) and African Americans (9.2%). It was the only study in this review that found rates of elder abuse lower for

American Indians than other races. However, they note identifying the prevalence of abuse was not the purpose of the study.

Baker et al. (2009) and Mouton and colleagues (2004) found that older American Indian women (their study only included women) had the highest one-year prevalence for self-reported physical or emotional abuse 17.9% and 18% respectively, compared to the prevalence rate of 11.3% for all races and ethnicities. In Buchwald's (2000) review of American Indian urban health clinic patient records 10% of patients were identified as definitely or probably physically abused, and another 7% classified as "suggestive" of abuse. Among nursing home residents in Arizona, Mercer and colleagues (1994, 1996) found a history of abuse or neglect recorded in the medical records of 24% of female and 6% of male residents. Brown (1989) found the highest rates of abuse with 45.9% of participants reporting neglect, 21.6% reporting psychological abuse, 21.6% financial exploitation, and 16.2% indicating physical abuse. Similarly, Jervis et al., (2013) identified 41% of American Indian study participants across two different sites were *at risk* for abuse, neglect, or exploitation with statistically significant differences in abuse rates between the urban site in their study (28%; 17 different tribes), and those from the second site (54%; all but two participants from the same tribe).

Financial exploitation and neglect were identified as more frequently occurring forms of abuse in qualitative research, in addition to studies that quantified these two types of abuse. Financial exploitation and the economic standing of tribal members and communities were often discussed in tandem with the culturally held belief of one's duty and honor to share resources with family, even at the expense of an elders' standing

(Brown, 1989; Hudson et al., 1998; Jervis & Sconzert-Hall, 2017; Maxwell & Maxwell, 1992; Mercer, 1996). Maxwell and Maxwell (1992) discussed abuse in the context of financial dependence of youth on elders. They found that one of the tribes in their study experienced fewer instances of abuse when younger people were less dependent upon their elders, and their community had consciously worked to achieve greater economic opportunities. Brown (1989) described patterns of mutual assistance and cooperative spirit that were held by Navajo tribal members, and noted families' commitment to caring for their elders as they became more dependent. However, he went on to identify very high rates of neglect even in the face of these beliefs. Jervis et al. (2013; 2017) also suggest neglect as a frequently occurring type of abuse, a problem that is "juxtaposed" with strong beliefs about how elders should be held in high regard.

Table 3: Rates and Types of Abuse Measured in Studies of Elder Abuse in American Indian and Alaska Native Populations

Risk factors and outcomes of abuse. Three studies quantified risk factors or correlates, and one reported on survey findings. There was a consensus between the studies on three risk factors including alcohol use, mental health issues, and caregiving-related issues. In addition, Buchwald et al. (2000) found victims of abuse were more likely to be female (OR = 9.4), currently experiencing depression (OR = 4.4), and dependent upon others for food (OR = 2.7). They also found relationships between potential abuse victims and a history of depression/suicide, health problems, multiple clinic visits, bilateral injuries, malnutrition, marital conflict, and fewer caregivers. Baker et al**.** (2009) and Mouton et al. (2004) also reported on a variety of risk factors but did not

limit their findings to American Indian women. Both found an association between abuse and younger age, less than high school education, lower income, divorced or separated marital status, and smoking. In Brown's (1989) survey research, respondents identified additional risk factors for abuse tied specifically to caregiver roles including families sharing care duty, dependency patterns (suddenness, increased degree), family crises due to sudden caregiving responsibilities, and personal problems of caregivers.

Only one study addressed abuse-related outcomes, and the findings were not exclusive to the American Indian study population. Baker et al. (2009) found a higher mortality risk and other negative physical and psychological health outcomes for their entire study population. No other study quantified abuse-related outcomes.

Unique Culturally Specific Attitudes, Beliefs, and Perceptions from Qualitative Findings

Tribal norms and cultural beliefs. Three themes emerged in qualitative findings specific to the intersection of culture and elder abuse. The importance of individual tribal norms and the unique cultural context and the impact on abuse when working with American Indian populations was a consistent theme. The societal notion of respect accorded to Indian elders was discussed frequently. A third major theme encompasses the concepts of acculturation, forced assimilation, or loss of culture: processes that have seemingly degraded many tribal communities' sense of duty and honor to their elders or weakened social infrastructures, which in turn potentially lead to abuse.

Causative factors for elder abuse. Beyond acculturation, multiple reasons were identified as indirectly or directly contributing to the abuse of American Indian elders in

the qualitative studies. Proposed causative factors included substance abuse, sudden increase in caregiving needs, historical trauma, disparities in social determinants of health, social and ecological changes (for example a move away from agriculture-based economies), out-migration of younger family members, and laws and programs favoring non-extended families (Brown, 1989; Jervis & Sconzert-Hall, 2017; Maxwell & Maxwell, 1992, 1992)

Reporting abuse. Multiple studies explored reasons why tribal elders failed to report abuse. One rationale discussed was elders' strong hostility towards government as a result of historical trauma and abuse wrought upon their community by these entities (Maxwell, 1992). In Mercer et al.'s 1994 study of an Arizona Navajo nursing home, they found elders often denied allegations of abuse by family members out of shame or fear. The perception of being a "victim," as an elder, was at odds with the embedded tribal belief of strength and convergence of resources in times of great need.

Limitations

There were limitations in the studies analyzed. Small samples, weak research design, lack of grounding in theory, or limitations in tribal representation were consistent across the studies reviewed. Generalizability of findings is limited as none of the studies used a nationally representative sample. Studies were limited to specific geographic areas, types of sites (e.g., nursing home, urban clinic) or used convenience samples. There were no studies specific to Alaska Natives. Community-specific studies or those drawing on only healthy subjects do not represent the full spectrum of the population.

Most studies relied on self-reports of abuse. Baker et al. (2009) acknowledged that self-reports of abuse are limited and there is a large risk of failure to disclose.

Discussion and Implications for Practice

The review synthesizes the body of research on elder abuse in the American Indian population. Out of the nine studies identified, seven reported varying rates of different types of abuse, ranging from 4.3% to 45.9%. Rates varied by study, location, and tribal affiliation. No two instruments measured abuse the same or measured the same types of abuse. There was only one intervention study. In the two large studies with comparison populations (which used similar datasets), rates of physical and emotional abuse were higher for American Indian women. There was consensus on three risk factors in quantitative studies including alcohol use, mental health issues, and caregiving-related issues. Potential causative factors identified in qualitative research varied, though multiple studies cited the issues of acculturation, assimilation, and culture loss; substance abuse; and a variety of social and ecological issues. The importance of tribal norms, the notion of respect conferred to elders, and the concept of acculturation were three major themes in qualitative studies. At times, perceived tribal norms and strengths, e.g., respect for elders, were at odds with abuse experiences, particularly with regards to financial exploitation and neglect. Some issues unique to the American Indian population discussed included, historical trauma, strong hostility towards the government, cultural views on interdependency within families, out-migration of younger family members (potential caregivers), and extreme socioeconomic disparities.

Findings from this review have implications for practice, policy and research. In day to day practice, health care providers must recognize the unique traditions and strengths of the older American Indian patients and communities they serve. Jervis et al., (2013) acknowledged the complexity of drawing conclusions about American Indians as a whole given the breadth of cultural, social, economic and demographic diversity that exists between the hundreds of tribes in existence today. However, there were consistent themes or issues identified in the present review that cut across different tribes. Some of these issues were unique to American Indians, and other issues, like denying abuse allegations out of shame or fear, cut across race or culture. Providers must recognize that culturally relevant strengths ascribed to American Indians such as traditionalism, strong community ties, or honor and respect of elders likely provide little degree of protection against the risk of elder abuse. Buchwald and colleagues (2000) proffered the mistaken assumptions of honor and respect for elders, core values in many tribes, is likely the cause for apathy on the part of providers in screening for and addressing elder abuse.

Nearly 20 years ago Buchwald and colleagues (2000) called for health care provider training to enable screening and an adequate response to mistreatment in the clinical setting for American Indian elders. Providers are in a unique position to screen, assess, and intervene to prevent or ameliorate the effects of elder abuse (Burnett, Achenbaum, & Murphy, 2014; Dong, 2015; Twomey & Weber, 2014). However, health care providers conduct very little screening for abuse, though they have multiple opportunities to do so (Burnett et al., 2014). In addition to minimal screening efforts, physician-initiated reports of abuse account for less than 2% of cases reported to social service agencies (Burnett, Achenbaum, & Murphy, 2014). Lack of screening and

intervention by providers is perhaps the result of U.S. Preventive Services Task Force (USPSTF) recommendations against general screening for elder abuse due to insufficient evidence (Feltner et al., 2018; Moyer, 2013), or the host of provider-identified barriers. In their 2013 review (Moyer), the Task Force noted that there was no direct evidence that screening for elder abuse could be harmful, though evidence from intimate partner violence (IPV) screening indicated that there could potentially be a small risk. These risks included repercussions in the event of false-positive results, fear of retaliation or abandonment, guilt, shame, or self-blame. This supposition is largely theoretical, as few studies supporting these assertions exist. In the most recent update, some five years later, the USPSTF still finds there are no valid studies assessing screening for elder abuse (Feltner et al., 2018).

An additional barrier to screening may be the lack of evidence-based interventions, a concern echoed by Pillemar and colleagues (2016) who report on just 10 intervention studies. The USPSTF found no randomized control trials of interventions targeting older victims of abuse (Feltner et al., 2018). Since 1989, the year of the first study included in the present review, there has only been one elder abuse intervention tested in an American Indian community (Holkup et al., 2007). While there are undoubtedly programs and interventions in place, more empirical evidence is needed. The most promising interventions include services to reduce the caregiving burden, money management programs for those vulnerable to financial exploitation, helplines for elders or their family members to seek assistance, emergency shelters, and multidisciplinary teams (MDTs) which drive coordination and collaboration in cases of identified elder abuse (Pillemer et al., 2016).

Though the body of literature and evidence-base supporting the health care provider role in addressing elder abuse is limited, this should not be seen as a deterrent to action. “Sometimes clinical judgement trumps Cochrane. Sometimes humanity trumps evidence. Or perhaps the type of evidence we demand for this kind of healing should be different from what we demand for the efficacy of anticoagulation in atrial fibrillation” (Lachs, 2004, p. 400). Health care providers will be compelled to intervene in cases of elder abuse within the scope of existing policies or protocols for working with older victims of domestic violence, abuse, or exploitation. They should consider advocating for or developing culturally appropriate, elder-specific protocols and policies when such guidelines do not exist in their health care systems. These protocols, policies, as well as day-to-day practice should be guided and informed by the cultural context and priorities unique to each American Indian patient or tribal populations they serve.

Beyond practice and policy, nurse researchers can play a key role in filling significant gaps in elder abuse literature. Well-designed studies evaluating screening and intervention are high priorities. Accurate measurement of the incidence and prevalence of elder abuse also remains a challenge and is born out in the American Indian-specific research literature in much the same way as mainstream elder abuse literature.

Conclusion

This review provides an overview of the empirical research on elder abuse in American Indian populations; addressing rates of abuse, potential risk factors, and some of the beliefs unique to the population. While the quality and rigor of the small number of studies of elder abuse is low, domestic abuse and violent crime is pervasive in American

Indian communities and has been shown to disproportionally affect virtually all other age groups. The research reviewed demonstrates a high occurrence of abuse among older Indians, a population already suffering from disproportionally high health and socioeconomic disparities and higher rates of lifelong exposure to traumatic events, all in the context of historical trauma. Assessment and understanding of elder abuse within the unique and diverse cultural contexts of American Indians, both on and off reservations, is critical to the health of the population.

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Table 1: Design Characteristics of Studies of Elder Abuse in American Indian and Alaska Native Populations

Author, Year	Study Design	Measurement Tools	Theory
Jervis, 2017 (Qualitative results) & Jervis, 2013 (Quantitative results)	Mixed methods (qualitative and quantitative); Community based participatory research with word-of-mouth and snowball sampling	Qualitative study: Researcher developed interview questions Quantitative study: Hwalek-Sengstock Elder Abuse Screening Test (HS-EAST); 2 researcher developed instruments: NEL- Financial Exploitation (NELS-FE) and NELS-Neglect; Medical Outcomes Study Short-Form-12 (SF-12); 2 summary scales: Physical and Mental Component Summaries (PCS and MCS)	None
Baker, 2009	Secondary data analysis from observational study and clinical trial	Self-administered questionnaires and in-person clinic interviews Self-report of physical or verbal abuse; Short-Form-36 (SF-36); Life orientation test; Trauma exposure; Center for epidemiologic studies depression scale short form; Hostility (Cook-Medley Questionnaire); Emotional Expressiveness Questionnaire; other individual socioeconomic, health and demographic variables	None Conceptual model proposed
Holkup, 2007	Mixed methods; Community-based participatory research Pilot test intervention (convenience sample, no randomization)	None listed	None Based on Family Group Conference Model
Mouton, 2004	Secondary data analysis from observational study	Self-administered questionnaires and in-person clinic interviews Self-report of physical or verbal abuse; SF-36; Life orientation test; Trauma exposure; Center for epidemiologic studies depression scale short form; Hostility (Cook-	None

		Medley Questionnaire); Emotional Expressiveness Questionnaire; other individual socioeconomic, health and demographic variables	
Buchwald, 2000	Retrospective chart review	Researcher developed extraction tool	None
Hudson, 1998 & Hudson 1999	Exploratory, descriptive with random cluster sample stratified by race, age, and gender	2 researcher developed instruments: Elder Abuse Vignette Scale (EAVS) and Elements of Elder Abuse Scale (EEAS)	Taxonomy proposed by author
Mercer, 1994 & Mercer, 1996	Qualitative; Descriptive; Retrospective medical records review	Researcher developed interview guide and chart abstraction tool	None
Maxwell, 1992	Qualitative (ethnography); Interviews	Researcher developed interview guides	Social exchange theory
Brown, 1989	Survey	15 item measure of abuse; Researcher developed survey	None

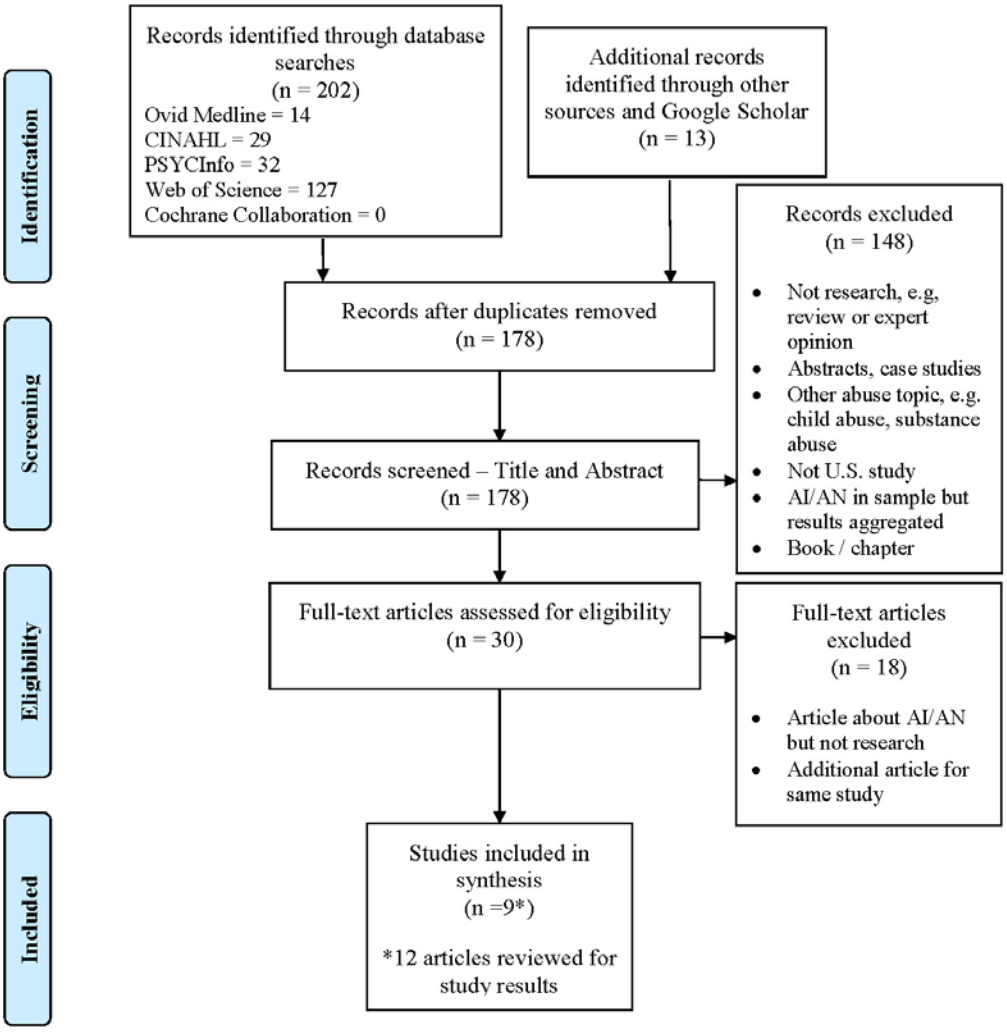
Table 2: Sample Characteristics of Studies of Elder Abuse in American Indian and Alaska Native Populations

Author, Year	Sample Size	Sample Description	Location and Setting
Jervis, 2017 & Jervis, 2013	N = 100	60 and older Urban: 17 different tribes Plains: All but 2 from local tribe	Northern Plains; Urban South Central U.S.
Baker, 2009	N = 160,675 AI n = 703	50-79 at baseline Women only	National
Holkup, 2007	AI N = 10 (families)	10 families	Northwest Native community
Mouton, 2004	N = 91,749 baseline AI n = 413; 3-year follow-up AI n = 166	50-79 at baseline Women only	National
Buchwald, 2000	AI N= 550	≥ 50 Primary care patients seen in previous 1 year	Washington; King County Urban Health Center
Hudson, 1999 & Hudson, 1998	N = 944 AI n = 202	Community dwelling adults ≥ 40	North Carolina; Two tribes
Mercer, 1994 & Mercer, 1996	AI n = 76 residents	76 residents in facility 10 resident and family interviews (chosen for representativeness) 9+ staff interviews	Chinle, Arizona nursing home; Navajo
Maxwell, 1992	N = unknown	Elders, families, political, religious leaders, and health providers	Western state; Two Plains Indian reservations
Brown, 1989	AI N = 37	Random sample of elders ≥ 60 Elder and 1 close relative	Utah; Navajo- Oljato Chapter; Very traditional Navajos

Table 3: Rates and Types of Abuse Measured in Studies of Elder Abuse in American Indian and Alaska Native Populations

Sample Size	Rate and Type of Abuse Measured	Author, Year
AI n = 703	17.9% of women; physical or verbal abuse in prior year	Baker, 2009
AI n = 550	10% definitely or probably physically abused and 7% suggestive; physical abuse seen in clinic in prior year	Buchwald, 2000
AI n = 413; 3-year follow-up AI n = 166	18% of women; physical or verbal abuse in prior year	Mouton, 2004
AI n = 202	4.3% of 92 AI adults over 65; physical psychological, social and financial timeframe not identified	Hudson, 1999 & Hudson, 1998
AI n = 100	41% *at risk* for abuse, neglect, exploitation	Jervis, 2013
AI n = 76	24% of female and 6% of male nursing home residents with community perpetrated abuse or neglect recorded in medical record	Mercer, 1994 & Mercer, 1996
AI n = 37	45.9% neglect, 21.6% financial exploitation by family, 21.6% psychological abuse, 16.2% physical abuse; neglect, psychological abuse, physical abuse, or financial exploitation	Brown, 1989

PRISMA 2009 Flow Diagram



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Chapter Four: Exploration of Contextual Characteristics and Mistreatment Prevalence among American Indian and Alaska Native Respondents: Secondary Analysis of the National Elder Mistreatment Study (Manuscript 2)

(**To be submitted to the Journal of Elder Abuse and Neglect)**

Exploration of Contextual Characteristics and Mistreatment Prevalence among Older American Indian and Alaska Native Respondents: Secondary Analysis of the National Elder Mistreatment Study

[Manuscript formatted per submission guidelines for the *Journal of Elder Abuse and Neglect*]

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Exploration of Contextual Characteristics and Mistreatment Prevalence among Older American Indian and Alaska Native Respondents: Secondary Analysis of the National Elder Mistreatment Study

Limited research on elder abuse among American Indians and Alaska Natives suggest a higher prevalence of abuse. However, no research has used a nationally representative sample to measure elder abuse prevalence among both American Indian and Alaska Native men and women. Using data from the National Elder Mistreatment Survey, comparisons were made between American Indians and Alaska Natives, Black and White respondents for this descriptive study. There were differences in the prevalence of multiple abuse types and also demographic, socioeconomic, social, and health status of American Indian and Alaska Native elders, White and Black respondents. American Indian and Alaska Native respondents had more similarities in demographic and socioeconomic characteristics compared with Black respondents than White, though significant differences still existed. The three groups differed significantly in twenty-two of twenty-four contextual variables. There were significant differences in five contextual variables between the American Indian and Alaska Native and Black groups. The cumulative prevalence of emotional, physical, and sexual mistreatment in the past year; neglect; and financial abuse by a family member for the American Indian and Alaska Native group was 33%. This is almost double that of the findings (17.1%) reported in the original NEMS study. Considering all abuse since the age of 60, the prevalence of abuse for American Indians and Alaska Natives was 24.7% for emotional mistreatment, 4% for physical mistreatment, and 0.6% for sexual mistreatment.

Keywords: elder abuse, American Indian, elder mistreatment, elder maltreatment, exploitation, neglect, Native American, minority, National Elder Mistreatment Study

Introduction

American Indians and Alaska Natives are a geographically and culturally diverse population with members hailing from 567 federally recognized tribes (U.S. Department of the Interior, 2016), 60 state-recognized tribes (National Conference of State Legislatures, 2016), and other tribes and villages that have no official designation. As the overall population continues to age, American Indian and Alaska Native populations, in particular, are poised to see significant growth (Norris, Vines, & Hoeffel, 2012). As of 2016, there were approximately 6.1 million American Indians and Alaska Natives in the U.S., representing approximately 2% of the population, with about 40% of those identifying as multi-racial. Nearly 560,000 were 65 and over (U.S. Census Bureau, 2016). In the next four decades, the number of American Indians and Alaska Natives ages 65 and older is projected to more than triple, and American Indians and Alaska Natives 85 years of age and older will increase more than sevenfold (Ortman, Velkoff, & Hogan, 2014).

Elder abuse is a worldwide phenomenon that exacts a significant toll on individuals, families, and communities. Recent one-year prevalence estimates are that 11.7% of older adults people in the Americas have experienced some form of abuse (Yon, Mikton, Gassoumis, & Wilber, 2017). However, similar to other forms of abuse, elder abuse is underreported with only 1 in 24 cases reported, meaning the problem is likely more widespread (Lifespan of Greater Rochester, Inc., Weill Cornell Medical Center of Cornell University, & New York City Department for the Aging, 2011).

There is little recent research examining elder abuse in the American Indian and Alaska Native population (Jervis & Sconzert-Hall, 2017), including a scarcity of

prevalence estimates (Sapra, Jubinski, Tanaka, & Gershon, 2014). A recent integrative review of the literature revealed nine studies focused on or including American Indians in subgroup analysis (Crowder, Burnett, Laughon, & Driesbach, 2019). Elder abuse, neglect, and exploitation rates varied from 4.3% to 45.9% among older American Indians and Alaska Natives (Baker et al., 2009; Brown, 1989; Buchwald et al., 2000; Hudson & Carlson, 1999; Jervis, Fickenscher, Beals, & the Shielding American Indian Elders Project Team, 2013; Mercer, 1994; Mouton et al., 2004). The studies spanned 30 years, with only three published in the last 10 years. There was little consistency in study designs, and there was no common measurement tool used to assess abuse. There was no research specific to Alaska Natives. The rates of elder abuse varied by study, location, and tribal affiliation. The largest, two population-based studies, which included only older American Indian and Alaska Native women, reported rates of physical and verbal abuse of 17% - 18%; rates significantly higher than other racial groups (Baker et al., 2009; Mouton et al., 2004). Contributing to higher rates of abuse of elder American Indians and Alaska Natives, Sapra and colleagues' note, is the significantly different demographic profile for American Indians and Alaska Natives, which includes a higher prevalence of many risk factors for abuse (2014).

A 2015 AARP Public Policy Institute analysis of U.S. Census data found that American Indian and Alaska Native elders, defined as 50 and older, were more likely to experience socioeconomic and health coverage disparities than the general population (Goins et al., 2015). This included lower incomes, higher rates of poverty, lower education, higher unemployment rates, higher utilization of Medicaid, and higher rates of uninsured. A Kaiser Family Foundation report reflected many of these same findings, and

also found American Indians and Alaska Natives 65 and older reported significantly more health problems than the rest of the U.S. population. In addition, native elders in their study were more likely to describe their overall health status as fair or poor, were twice as likely to be hospitalized, had higher rates of diabetes, stroke or heart attack, and reported suffering from depression more frequently than the overall U.S. population (Boccuti, Swoope, & Artiga, 2014).

Intra-tribal cultural diversity, tribal sovereignty, complex tribal justice systems, historical trauma (and loss), acculturation, urban migration, and demographic and health disparities are just a few issues that create the unique ecology in which abuse of American Indian and Alaska Native elders occurs and perhaps increase risk (Baldridge, Nerenberg, & Benson, 2004; Brown, 1989; Goins et al., 2015; Jervis & Sconzert-Hall, 2017; Kauffmann Associates, 2015; Sapra et al., 2014). Studies focused specifically on elder abuse in American Indian and Alaska Native populations have discussed the connection between acculturation, forced assimilation, the degradation of tribal community and social structures, as possible causative factors for higher rates of violence directed at Native elders (Brown, 1989; Hudson & Carlson, 1999; Jervis, Fickenscher, Beals, & the Shielding American Indian Elders Project Team, 2013; Jervis & Sconzert-Hall, 2017; Maxwell & Maxwell, 1992).

Mandatory tribal relocation practices to reservations likened to concentration camps or penal colonies, forcible placement of Indian children into overcrowded or abusive boarding schools, urbanization programs designed to enable termination of government support of tribes, and other policies and programs designed to deny basic human rights and disrupt traditional ways of tribes and challenge tribal sovereignty have

only started being addressed in the last few decades ("American Indian boarding schools," 2016; Garrett & Pichette, 2000). These individual, community, and structural issues, many unique to American Indian and Alaska Native people, and part of the lived experience of many tribal elders alive today are believed to have enduring intergenerational impacts (Braveheart & DeBruyn, 1998). They have also have shaped the cultural, social, and economic context for exploring elder abuse in the American Indian and Alaska Native population.

Objective and Study Aims

The objectives for the analyses were to describe social, demographic, and health-related characteristics, and the prevalence of elder abuse within the American Indian and Alaska Native population and compare them across other racial groups through analyses of the National Elder Mistreatment Study (NEMS) (Acierno, Hernandez-Tejada, Muzzy, & Steve, 2009). The NEMS is the largest existing elder abuse dataset using a national sampling framework (Dong, 2015; Sooryanarayana, Choo & Hairi, 2013). Neither the original NEMS study (Acierno et al., 2009) nor the subsequent analysis of race and ethnicity (Hernandez-Tejada, Amstadter, Muzzy, & Acierno, 2013a) attempted to explore differences in the prevalence or predictive factors within any single non-White racial cohort. While concerns about small case counts for one-year prevalence within the dataset are a reasonable rationale for data aggregation, it is believed there is more to be learned by attempting to dis-aggregate data and examine different racial and ethnic subpopulations, to the extent allowed by the samples.

Specific study aims included:

1. Explore differences in demographic, socioeconomic, social, and health status of American Indian and Alaska Native elders and other race groups included in the NEMS data set.
2. Identify one year, since 60 years of age, and lifetime prevalence of emotional, physical, and sexual mistreatment; prevalence of current potential neglect; and prevalence of financial exploitation among American Indian and Alaska Native respondents of the NEMS.
3. Compare the prevalence of elder abuse among American Indian and Alaska Native elders with White and Black respondents.

We hypothesized that 1) there are differences in the demographic, socioeconomic, social, and health status of American Indian and Alaska Native elders and White and Black respondents; and 2) there is a difference in the prevalence of abuse types among American Indian and Alaska Native elders and Whites and Blacks.

Methods

Study Design

The NEMS was a national cross-sectional national random digit dialed survey that consisted of computer-assisted telephone interviews (CATI) with a total of 6,589 households conducted in 2008 (Acierno, Hernandez-Tejada, Muzzy, & Steve, 2009). Following Institutional Review Board (IRB) review and exemption, study data were obtained from the National Archive of Criminal Justice Data, which is housed within the Inter-University Consortium for Political and Social Research (ICPSR) (Acierno et al., 2013a). Full details regarding the NEMS sampling methods, timeframe, interview

methods, and variable development are available in the project's final report (Acierno et al., 2009).

Sample

The NEMS dataset included "base" interviews with adults age 60 and older as well as "proxy" interviews obtained from individuals who lived in the home with an adult age 60 and older. The survey samples were based on a multi-stage, modified stratified random digit dialing (RDD) method, using an area probability/RDD sample. The sampling frame was restricted to land-line telephones. The following households / participants were excluded from the original study: no adult in the household; non-residential contacts; residences with more than five unrelated persons living together; households where a language barrier was encountered (other than Spanish); and any older adult deemed by the operator to be potentially unable to give informed consent (Acierno et al., 2009).

The dataset obtained from ICPSR contained records for 6,052 older adults and 538 "proxies" (N = 6,590). The current analysis includes only interview data from older adults. Weight adjustment could not be applied because the ICPSR dataset did not include the population weight variable for 6,320 participants. The final weighted sample for the original analysis is reported as N = 5,777 (Acierno et al., 2009). The final sample for the current analysis after the race recoding strategy, which eliminated multi-race Whites and Blacks and other races included 5,645 respondents.

Measures

The ICPSR version of the NEMS data set contained all original study variables submitted by the NEMS principal investigators (Acierno et al., 2013b). Variables were

cleaned and coded using Stata IC v14, with coding based mainly on the dichotomous strategy (see below) outlined in the original studies' final report (Acierno et al., 2009), and checked against original SPSS coding syntax provided by the NEMS principal investigator (R. Acierno, personal communication, March 7, 2018), with exceptions discussed below. Readers may refer to existing literature for full details on original variable definitions (Acierno et al., 2010, 2009; Hernandez-Tejada et al., 2013)

Twenty-four demographic, socioeconomic and health status variables (contextual) and sixteen mistreatment variables (outcomes) were constructed. Contextual variables included age (70 or less, 71 or older), gender (female, male), marital status (married or living with partner, not currently married or living with partner), race (American Indian and Alaska Native alone or in combination, Black/African American alone, or White alone), education, income (two measures), employment status, household size, overall health (two measures), help required with key daily tasks, assistance available to help with tasks, history of traumatic event, social support, use of social services (yes/no), frequency of use of social services, and seven additional items from the Short-Form 8 Health Questionnaire (Ware, Kosinski, Dewey, & Gandek, 2001).

Race (American Indian and Alaska Native alone or in combination, White alone, Black alone)

Given the primary aims of the study, a detailed protocol for race re-classification and coding was developed based upon frequency tables in the ICSPR NEMS Codebook (Acierno et al., 2013b). NEMS respondents were allowed to select from five different race categories and could specify multiple race options, e.g., White and Black and American Indian and Alaska Native (to indicate multi-race status), or "other" and then

describe race in their own words (Hernandez-Tejada et al., 2013). The five race options were American Indian and Alaska Native, Asian, Black or African American, Native Hawaiian or other Pacific Islander, and White.

Fifty percent of American Indians and Alaska Natives age 50 and older in the general population identify as multi-racial (Goins et al., 2015). Recognizing the large proportion of multiracial older American Indians and Alaska Natives, the NEMS Codebook was reviewed prior to analysis to assess the frequency of American Indian and Alaska Native, White, and Black or African American respondents who claimed a second race category. Frequency counts confirmed a large percentage of American Indians and Alaska Natives who selected an additional race (indicating multi-racial status) relative to the percentage of Whites and Blacks who selected a second race. For the current study, three comparative groups were created from the original study sample including American Indian and Alaska Native alone and in combination with other races, White alone, and Black alone. “Other” race responses were also examined and re-coded to new race groups when appropriate. Respondents who selected other race categories besides the three of interest to the current analysis, or who selected White or Black plus another race besides American Indian and Alaska Native were excluded.

Income (low/high and near poverty/above poverty)

Two dichotomous income variables were created. The first followed the income threshold set in the original study which classified low income at less than $35,000 per year. The second variable included a low-income threshold of less than $20,000. The lower cut-point was utilized to explore the impact of household incomes closer to poverty thresholds, which has been identified in previous studies as a significant predictor of

abuse (Burnes et al., 2015; Lachs, Williams, O'Brien, Hurst, & Horwitz, 1997; Peterson et al., 2014). The 2008 poverty thresholds for one and two-person households 65 and over was $10,326 and $13,030 respectively (U.S. Census Bureau, 2019). Approximately 35% of the study sample was comprised of households with 2 or more people.

History of trauma (yes/no)

Respondents were asked if they feared death or serious injury as the result of natural disasters (earthquake, hurricane, flood, or tornado), work accident, car accident, or being in any situation in which they thought they would be killed.

Social service use (social service use/no social service use) and frequency of use

Social service use was dichotomized into either yes or no. A second variable was created to categorize the frequency of use (none, 1 program, 2 programs, etc.). The original study predicted that the use of social services would reduce the risk of mistreatment, however, it was not consistently supported by the data (Acierno et al., 2009). The purpose of the second variable was to explore whether the amount or "dose" of social service use had the intended protective factor hypothesized by the original study authors and to determine if there was a quantity of social service use that had a relationship to abuse outcomes.

Social support score (range 0 – 20)

Social support was a recurring risk factor for various types of abuse in the original study. In that study, it was assessed using a variation of the Medical Outcomes Study module for social support (Sherbourne & Stewart, 1991) that included five items, each rated on a four-point scale from "none of the time" to "all of the time." A social support score was calculated then dichotomized into high support versus low support for analysis,

based on scores in the corresponding quartiles of sample ratings (Acierno et al., 2009). For the present study, the original scoring method was maintained, and the sum of the scores was used as a scaled measure of social support, with lower scores indicating lower levels of social support. This is similar to the methodology used for analysis of NEMS data (Burnes, Hernandez-Tejada, & Acierno, 2018; Policastro & Finn, 2015)

Short-Form 8 items & Overall health indicators

The original study analyzed dichotomized data from the "overall health" variable, which they note is the first question from the World Health Organization Short-Form 36 (Acierno et al., 2009). The ICPSR dataset included seven additional questions, which together comprise the SF-8. For example, "During the past 4 weeks, how much have you been bothered by emotional problems?" The overall health question was retained as a separate dichotomized variable, and scaled scores were created for all SF-8 item based on SF-8 norm-based scoring methods and analyzed as discrete continuous variables (Ware et al., 2001). **See Table 1 for SF-8 related variables.**

Outcome Variables

The sixteen mistreatment variables included potential neglect, potential neglect by an identified caregiver, financial exploitation by family, financial exploitation by a family member when help is needed, lifetime financial exploitation by a stranger, emotional, physical and sexual abuse, and polyvictimization. Emotional, physical, and sexual abuse was measured in terms of three time points: lifetime, since 60 years of age, and in the past year; and polyvictimization at two time points: lifetime (emotional, physical, or sexual mistreatment, neglect or financial exploitation) and since 60 years of age (emotional, physical, or sexual mistreatment). With the exception of emotional, physical

and sexual abuse since 60, financial exploitation by a family member when help is needed, and polyvictimization (new variables devised for this study), mistreatment variables were created using the same procedure as the original NEMS analysis; all dependent variables were treated as dichotomous measures (Acierno et al., 2009).

Neglect (yes/no)

Potential neglect was defined as an identified need for assistance with any one of a series of tasks, with a follow-up response that no one was available to meet that need. Caregiver neglect was defined as having an identified need and a caregiver, but the caregiver was not currently meeting the need. Tasks included the following Activities of Daily Living and Instrumental Activities of Daily Living: help getting to places they need to go, help with having food, medicine or other things in the home, help with household tasks like cooking or eating, help with house or yard cleaning, help getting out of bed, showered, or dressed, or help making sure bills get paid.

Financial exploitation (yes/no)

Respondents were asked 10 questions related to financial exploitation. The first in the series asked whether someone assisted them with their finances or made decisions about their money or property. Seven questions focused on financial related questions about asking permission, making good decisions, forging of their signature without permission, forced or tricked them into signing a document to get money or possessions, or stolen money or items. Financial exploitation by a family member was defined as an affirmative response to question one and any of questions two through seven, with the denominator set as the entire subgroup of respondents. Financial exploitation by a family member among those who rely on assistance followed the same format, but the

denominator was set to those respondents who required assistance with their finances and answered the additional questions. Finally, financial exploitation by a stranger was defined as an affirmative response to three additional behaviorally specific questions asking about stranger-perpetrated exploitation that asked if a stranger had: spent money or sold property, forged their signature to acquire assets, forced or tricked them into signing a document.

Emotional, physical and sexual abuse (yes/no)

The NEMS study asked a series of questions for emotional, physical and sexual abuse. A positive response to any one of these questions under each type of mistreatment was deemed affirmative for that particular type of abuse. For example, the three questions related to physical mistreatment included:

4. *"Has anyone ever hit you with their hand or object, slapped you, or threatened you with a weapon?"*
5. *"Has anyone ever tried to restrain you by holding you down, tying you up, or locking you in your room or house?"*
6. *"Has anyone ever physically hurt you so that you suffered some degree of injury, including cuts, bruises, or other marks?"*

If an individual answered yes to any one of these questions, it was considered a case of physical mistreatment. Variables for emotional, physical, and sexual abuse in the past year were created with an alternate syntax from the original analysis that excluded observations with any missing age data.

Polyvictimization (yes/no)

Recent elder abuse research has identified polyvictimization, the presence of two or more types of mistreatment at the same time, as a potentially important measure of abuse that appears to be a common occurrence (Burnett et al., 2016; Hamby, Smith,

Mitchell, & Turner, 2016). Two new variables were created to explore the prevalence of polyvictimization in the NEMS dataset. Lifetime experience of polyvictimization, which was defined as experiencing two or more of either emotional, physical, or sexual mistreatment, neglect, or financial exploitation. Polyvictimization since 60 was defined as experiencing two or more of either emotional, physical or sexual mistreatment since the age of 60. The construction of financial exploitation and neglect variables rendered them incompatible with evaluating whether those types of mistreatment occurred since the age of 60. Since the two new variables include different measures of abuse, they should not be used comparatively.

Perpetrators

Perpetrator variables were constructed from questions asked of older adults related to perpetrators of different types of abuse. These included whether the perpetrator lived with the victim at the time of the abuse, if they had substance abuse issues, or had ever received mental health counseling. Frequency tables were also created to count the types of perpetrators identified by older adult respondents for emotional, physical, and sexual abuse.

Analysis

SPSS (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.) was used for data analysis. The significance level (α) was set a priori at 0.05. Descriptive statistics were conducted. Frequencies and percentages were calculated for all categorical variables for each of the three racial groups. Medians and interquartile ranges (IQRs) for continuous variables were calculated. Comparison between the three race groups and subsequently between

American Indians and Alaska Natives and Blacks alone, and American Indians and Alaska Natives and Whites alone were conducted using chi-squared tests or Fisher's Exact test (if assumptions for χ^2 were not met) for categorical variables, and Mann-Whitney U test for continuous variables. The parametric assumptions for the independent t-test were not met, thus the non-parametric Mann-Whitney U test was used for continuous variables.

Power Analysis

Power analysis was conducted using G*Power 3.1.7 (Faul, Erdfelder, Buchner, & Lang., 2009) and guidelines established by Lipsey (1990). Assuming a medium effect size (w = .30), type I error rate of 0.05, conventional power standard of .80 (ß = 0.20), and $\alpha = 0.05$ (level of significance), and a three by five contingency table (the maximum size of the expected contingency table, degree of freedom = 8) the sample needed was 167 for χ^2. The study sample size was sufficient for most aspects of data analysis, except where noted.

Results

Demographic, Socioeconomic and Health Status Variables

Results are discussed from the perspective of and with an emphasis on findings for the American Indian and Alaska Native subgroup, which was the primary population of interest. The study sample included 5,645 respondents, 195 of whom (3.5%) identified as American Indian and Alaska Native alone or in combination with another race, 437 (7.7%) Black or African American alone, and 5,013 (88.8%) White or Caucasian alone. The average age of the American Indian and Alaska Native sample was 70.4 years (*SD* = 7.6), for the Black sample 71.1 years (*SD* = 8.7), and the White sample was 72.6 years

(*SD* = 8.9). Table 1 includes additional demographic, health-related, and social service characteristics of the three samples including Chi-square analyses.

The majority of American Indian and Alaska Native respondents were younger (57.9% were 70 years of age or less), female (62.6%), not currently married or living with a partner (67.5%), less than a college graduate (71.1%), predominantly low income (74.1%), retired or unemployed (81.8%), lived alone (52.8%), more likely to rate their overall health as good (69.6%), more likely to have experienced a traumatic event in their life (78.5%), equally likely to use or not use social services (50%), not need help with daily tasks (53.8%), and have help available if needed for tasks (93.3%). The median total social support score for the American Indian and Alaska Native group was 15.0 [IQR = 8.0), compared with 15.0 for Blacks (*IQR* = 8.0), and 17.0 for Whites (*IQR* = 7.0) ($p < .001$ for the three groups).

There was a significant difference between the three groups in all twenty-four contextual variables, except for employment status ($p = .102$) and the availability of help if needed to perform at least one identified task ($p = .367$). When comparing the American Indian and Alaska Native and Black groups, five contextual variables were significantly different: gender ($p = .014$), household size ($p = .028$), history of trauma ($p < .001$), bodily pain in the past four weeks ($p = .006$), and whether they were bothered by emotional problems in the past four weeks ($p = .034$). A comparison of the American Indian and Alaska Native sample to the White group identified eighteen contextual variables were significantly different. The five variables that were *not* significantly different between the two groups were gender ($p = .130$), employment status ($p = .871$),

frequency of social service use ($p = .126$), help needed with at least one task ($p = .052$), and help available if needed ($p = .751$).

Mistreatment Subtypes

Neglect

The American Indian and Alaska Native prevalence of potential neglect was 6.7%, for the Black subgroup it was 10.2%, and for Whites 7.7%. There was no significant difference between the prevalence of potential neglect for the three groups. The American Indian and Alaska Native prevalence of potential neglect by a caregiver was 3.7%, for the Black subgroup it was 1.5%, and 0.5% for Whites. There was a significant difference for the three groups in the prevalence of potential neglect by an identified caregiver ($p < .001$) (note assumptions for expected cell counts were violated), and subsequently between the American Indian and Alaska Native subgroup and the White subgroup ($p < .001$), but not for the Black subgroup. Refer to Table 2 for details.

Financial exploitation

The prevalence of financial exploitation by a family member for the American Indian and Alaska Native group was 7.1%, 6.8% for Blacks, and 5.0% for Whites. Among those who have someone to help take care of their finances, the prevalence of financial exploitation by a family member for American Indians and Alaska Natives was 32.4%, for Blacks the rate was 36.6%, and 29.5% for Whites. There was no significant difference between the three groups in the prevalence of financial exploitation by a family member among those who rely on someone else to help take care of their finances or among the total race subpopulation.

The prevalence of financial exploitation by a stranger was higher for American Indians and Alaska Natives than the prevalence of exploitation by a family member for the other two groups. Fourteen percent (14%) of American Indians and Alaska Natives reported financial exploitation by a stranger, compared to 7.8% of Blacks, and 6.0% of Whites. The prevalence of financial exploitation by a stranger was significantly different between American Indians and Alaska Natives and Blacks ($p = .016$) and between American Indians and Alaska Natives and Whites ($p < .001$). Refer to Table 3 for details

Emotional mistreatment

Emotional mistreatment was assessed at three time points: lifetime, since 60 years of age, and in the past year. The lifetime prevalence of emotional mistreatment for American Indians and Alaska Natives was 34.9%, since 60 the prevalence was 24.7%, and the past year prevalence was 17.2%. Lifetime, since 60, and past year prevalence of emotional abuse were significantly different between American Indians and Alaska Natives and Whites. The prevalence of emotional abuse was 1.6 to 2.2 times higher for American Indians and Alaska Natives compared to Whites. The prevalence of lifetime and past year emotional mistreatment were significantly higher for American Indians and Alaska Natives than Blacks. Refer to Table 4 for details.

For American Indians and Alaska Natives, 33.3% of respondents indicated the perpetrator of emotional mistreatment had substance abuse issues, 20.7% indicated they had received counseling, and 16.7% stated they lived with the victim. The only perpetrator characteristic that was significantly different between groups was whether the perpetrator lived with the victim. There was a significant difference between American Indians and Alaska Natives and Whites ($p = .021$). Respondents were also asked to

identify the person who perpetrated the abuse. The top three perpetrators of emotional abuse for American Indians and Alaska Natives were a son or daughter (28.2%), a stranger (17.9%), and a spouse or partner (12.8%). For both Blacks and Whites, a spouse or partner was the most frequently identified perpetrator type, and a friend was in the top three for both. Perpetrator data is not included in an attached table.

Physical mistreatment

Physical mistreatment was also assessed at three time points. The lifetime prevalence of physical mistreatment for American Indians and Alaska Natives was 25.0%, since 60 the prevalence was 4.0%, and past year prevalence was 2.0%. Differences in the lifetime prevalence of physical abuse were significantly different between American Indians and Alaska Natives and Blacks ($p < .001$), and American Indians and Alaska Natives and Whites ($p < .001$). Physical mistreatment since 60 approached significance for American Indians and Alaska Natives compared with Whites (4.0%, 1.8% respectively; $p = .060$). Past year physical mistreatment approached significance for American Indians and Alaska Natives compared with Whites (2.0%, .06% respectively; $p = .06$). Refer to Table 5 for details.

For physical mistreatment, 60.0% of American Indian and Alaska Native respondents indicated the perpetrator had substance abuse issues, 50.0% indicated they had received counseling, and 50% stated they lived with the victim. None of the perpetrator characteristics were significantly different between groups, though the percentages reported appear to vary greatly. With only three responses reported, the three types of perpetrators of physical abuse since 60 for American Indians and Alaska Natives were a son or daughter (33.3%), a spouse or partner (33.3%), and a neighbor (33.3%).

For both Blacks and Whites, a spouse or partner was the most frequently identified perpetrator type, and second most frequent was an ex-spouse or partner. Perpetrator data is not included in an attached table.

Sexual mistreatment

Sexual mistreatment was also assessed at three time points. The lifetime prevalence of sexual mistreatment for American Indians and Alaska Natives was 17.6%, since 60 the prevalence was 0.6%, and the past year prevalence was 0.0%. Lifetime prevalence rates of sexual abuse were significantly different for American Indians and Alaska Natives and Blacks ($p < .001$), and American Indians and Alaska Natives and Whites ($p < .001$). Sexual abuse since 60 and past year sexual mistreatment were not significantly higher for American Indians and Alaska Natives than Whites ($p = .436$; $p = 1$), unlike other types of past year prevalence rates, however low cell counts for past year sexual mistreatment and since 60 for American Indians and Alaska Natives impact those findings. There were no reported perpetrator characteristics for sexual mistreatment for American Indians and Alaska Natives. For Whites, an ex-spouse or partner was the most frequently identified perpetrator type (28.6%), second most frequent was spouse or partner (21.4%), followed by a friend (21.4%). Refer to Table 6 for details.

Polyvictimization

Over their lifetime, 29.7% of American Indians and Alaska Natives reported two or more types of some form of neglect, financial exploitation, or mistreatment. Since the age of 60, 6.7% of American Indians and Alaska Natives reported two or more types of emotional, physical or sexual mistreatment (neglect and financial exploitation did not include the same question about experiences since 60 in interviews). The percentage of

American Indians and Alaska Natives who experienced two or more types of abuse in their lifetime was significantly higher for American Indians and Alaska Natives than Blacks and Whites (both p – values < .001). Lifetime polyvictimization prevalence for American Indians and Alaska Natives were 2.3 times higher for American Indians and Alaska Natives than Whites. Polyvictimization prevalence since 60 was not significantly different. Refer to Table 7 for details.

Discussion

The goal of this study was to establish the scope and severity of elder abuse in the American Indian and Alaska Native population. It was hypothesized that the prevalence of mistreatment would be different for American Indians and Alaska Natives and other groups, and there would be differences in contextual variables, as American Indians and Alaska Natives are known to suffer disproportionate rates of abuse at all ages and have a significantly different demographic profile. We found a higher prevalence of multiple abuse types and also in demographic, socioeconomic, social, and health status of American Indian and Alaska Native elders, White and Black respondents. We also found that American Indian and Alaska Native respondents had more similarities in demographic and socioeconomic characteristics compared with Black respondents than White, though significant differences still existed between the two groups. The three groups differed significantly in twenty-two of twenty-four contextual variables analyzed, primarily owing to differences between American Indians and Alaska Natives and Whites. There were significant differences in five contextual variables between the American Indian and Alaska Native and Black groups.

The cumulative prevalence of emotional, physical, and sexual mistreatment in the past year; neglect; and financial abuse by a family member for the American Indian and Alaska Native group was 33%. This is almost double the prevalence reported in the original NEMS study (17.1%) (Acierno et al., 2009). Lifetime prevalence of mistreatment for American Indians and Alaska Natives were 34.9% for emotional mistreatment, 25% for physical mistreatment and 17.6% for sexual mistreatment. Since the age of 60, the prevalence of abuse for American Indians and Alaska Natives was 24.7% for emotional mistreatment, 4% for physical mistreatment, and .6% for sexual mistreatment. This is the first study to offer comparative prevalence of elder abuse for both older males and females that includes American Indians and Alaska Natives, Blacks, and Whites drawing from a nationally representative sample. The study provides analysis of important contextual information within the American Indian and Alaska Native population, an underrepresented racial group in elder abuse research

Significant differences between demographic, socioeconomic, and health status between older American Indians and Alaska Natives and Whites in the current study reflect previous research (Boccuti et al., 2014; Goins et al., 2015). These pronounced health and socioeconomic disparities suffered by American Indians and Alaska Natives, are thought to place them at increased risk of abuse as they age, even though risk factors for interpersonal violence identified in American Indian and Alaska Native research are not thought to be exclusive to the population. Consistent risk factors for violence against women, including American Indian and Alaska Native women, include unemployment, low income, low education, being unmarried, alcohol use, and a history of abuse as a

child. For older minorities, cognitive impairment, social isolation, mental disorders, and substance abuse have been identified (Sapra et al., 2014). In the current study, American Indians and Alaska Natives were significantly more likely to have low income, low education, and differences in marital status compared with Whites, but not Blacks. In addition, the total social support score for American Indians and Alaska Natives was significantly lower than Whites which one might consider a related measure of social isolation. Social support was a significant predictor for virtually all forms of abuse in the original NEMS analysis (Acierno et al., 2009). Other known risk factors for violence against women and older minorities were not assessed in the NEMS.

Employment status (an identified risk factor for abuse against women) and the availability of help if needed were the only two contextual variables that were not different between the three groups. Older American Indians and Alaska Natives have been found to have higher rates of unemployment and a higher percentage of those not in the workforce in the 50 – 64 age group (Goins et al., 2015), however, in the present study employment status was not significantly different. The average retirement age in the U.S. is 62, and minorities are more likely to retire early (Federal Reserve Board, 2018). Given older adult survey respondents had to be at least 60, non-significant findings may reflect this trend or may merely be the result of combining unemployment and retired status into a single option.

While the availability of help if needed was not significantly different between the three groups, the percentage of American Indians and Alaska Natives who needed help with at least one task was higher than Whites. Given the significant out-migration of

younger adults (Garrett, Baldridge, Benson, & McGuire, 2008), this finding is somewhat surprising though may reflect patterns of mutual assistance and cooperative spirit exhibited by some tribes (Brown, 1989). Significantly higher rates of needed assistance and a higher percentage of those who rate their health as poor are reflected in previous research (Boccuti et al., 2014), with rates 2 – 3 times higher for reported difficulties with activities of daily living (ADLs) such as walking, bathing, and eating than that of the rest of the population. Bocutti et al. (2014) also noted that greater health needs had been associated with high rates of difficulty with ADLs. Thus, not surprisingly, the American Indian and Alaska Native group in the present study was more likely to rate their overall health as poor than Whites.

A significantly higher percentage of both American Indians and Alaska Natives and Blacks reported using social services, but the frequency with which American Indians and Alaska Natives used these services did not differ. There was no significant difference in service use between American Indians and Alaska Natives and Blacks. The most frequently used programs were senior centers or day programs, church group visits, and senior friends or other visits. Through Title VI of the Older Americans Act, which is specifically targeted to serve older American Indians and Alaska Natives only, and Title III, the Administration on Aging funds nutrition services, transportation, in-home services and other support services that play a major role in the lives of Native elders (Bylander, 2018). In 2016, the Title VI programs served 64,464 older Indians meals in congregate sites such as senior centers and provided home-delivered meals to an additional 24,810 Native elders, in addition to the provision of other services both in-

home and in senior centers. Widespread use of congregate meals sites and centers by American Indians and Alaska Natives may contribute to higher rates of social service use among the population.

Mistreatment Prevalence

Despite the use of an unweighted sample (due to the absence of the majority data for the final weight variable), the mistreatment prevalence for most types of abuse for the White group in the present study is remarkably similar to original study findings. As previously noted, in the current analyses past year emotional, physical, and sexual abuse variables were created with an alternate syntax to account for missing age data. As a result, the past year prevalence differs. See Table 8 for a comparison of prevalence between the current study and the original NEMS study data.

It was hypothesized that the prevalence of elder abuse, exploitation, and neglect would be different for American Indians and Alaska Natives and other groups, as American Indians and Alaska Natives are known to suffer disproportionate rates of abuse across the lifespan (Baker et al., 2009; Rosay, 2016; Sapra et al., 2014). Findings of higher mistreatment prevalence for most types of abuse for older American Indians and Alaska Natives compared with Whites and multiple differences between American Indians and Alaska Natives and Blacks in the present study are consistent with other available studies examining abuse for adults and older adults. National survey data found that American Indian and Alaska Native women reported lifetime rates of rape and physical assault by an intimate partner higher than Black, White and Hispanic women (Sapra et al., 2014). Compared to both Whites and Blacks, the lifetime prevalence of physical, emotional, and sexual mistreatment was significantly higher for American

Indian and Alaska Native respondents. This is not surprising given higher reported rates of abuse across the lifespan. The two largest population-based studies which included older American Indian and Alaska Native women reported rates of past year physical and verbal abuse of 18% (Baker et al., 2009; Mouton et al., 2004), a figure somewhat comparable with prevalence of emotional and physical mistreatment in the past year from the present analysis of 19.2%.

Potential neglect (when no caregiver is identified), financial exploitation by family, physical mistreatment since 60 and in the past year were the only four types of mistreatment out of eleven possible (with enough data to support analyses) where there was not a significant difference in the prevalence of reported mistreatment between American Indians and Alaska Natives and Whites. Though, both measures of physical mistreatment approached significance (p = .06). In the original NEMS analysis, race was not a predictor of physical mistreatment nor financial exploitation. There were six abuse outcome types where there was not a significant difference in the prevalence of reported abuse for American Indians and Alaska Natives and the Black group.

Financial exploitation and potential neglect are the two forms of abuse most frequently identified in previous qualitative research of elder abuse in American Indian and Alaska Native populations (Crowder et al., 2019). Financial exploitation and tribal member and community economic issues are often discussed in concert with the frequently held cultural belief of one's duty and honor to share resources with family, even at the expense of the elder, financial dependence of youth on elders, or belief in mutual assistance within the family or community (Brown, 1989; Hudson, Armachain, Beasley, & Carlson, 1998; Jervis & Sconzert-Hall, 2017; Maxwell & Maxwell, 1992;

Mercer, 1996). Two studies specifically discussed the paradox of neglect of older American Indian and Alaska Native adults, in the face of widely held beliefs of respect for elders and a commitment to caring for them as they age (Brown, 1989; Jervis & Sconzert-Hall, 2017). In the present study, we found no significant differences between American Indians and Alaska Natives and Whites or Blacks for potential neglect (defined as the absence of available help when needed) and financial exploitation by a family member. Prevalence of past year emotional mistreatment was higher than either neglect or financial exploitation by family or a stranger. An exploratory outcome variable was created that calculated the prevalence of financial exploitation by family *among those who rely on assistanc*e with their finances. While prevalence for this type of abuse was not significantly different between groups, they were the highest of all abuse outcomes measured (32.4%). This may indicate that financial exploitation may be more common among the more vulnerable.

In the present study, prevalence of potential neglect, defined as having a need for assistance with one or more ADLs or other tasks and not having help available, was not significantly different between the three groups. In contrast to our findings, potential neglect was the only form of mistreatment that was significantly associated with race in the original NEMS study. Authors proposed that the significance of race was perhaps the result of or related to income disparities between Whites and non-Whites, with the lack of ability to pay for help potentially resulting in greater unmet needs (Acierno et al., 2010). Burnes et al. (2015) identified ethnicity as a protective factor against neglect stating this is perhaps the result of cultural values favoring families or a perceived duty to care for their elders. They also found African American race was not a significant predictor of

neglect (Burnes et al., 2015). Ethnicity was not a variable of interest in the present study, but it is possible that the proposed protective factor afforded by Hispanic ethnicity and associated cultural values extends to our study findings. This is plausible, given that American Indians and Alaska Natives are more likely to claim Hispanic ethnicity than Whites (23% vs. 12%) (U.S. Census Bureau, 2010) or by virtue of the presence of similar values in the American Indian and Alaska Native culture, which moderates the prevalence of neglect. Methodologic differences in assessing prevalence within a race group versus controlling for race in higher-order statistical analysis may account for some degree of variation in findings from this study to the NEMS.

The original NEMS study found that perpetrators of emotional, physical, and sexual mistreatment had increased rates of unemployment, high rates of substance abuse, and a higher likelihood of having received previous mental health care. This varied somewhat depending upon the type of abuse. For example, those who perpetrated physical abuse were more likely to have a history of mental illness and substance abuse than those who perpetrated emotional abuse. In addition, perpetrators were most often someone the older adult knew, including family members, in more than half of reports (Acierno et al., 2009). The number of observations including perpetrator data in the present study was low, and there were few statistically significant differences in the perpetrator variables for emotional and physical abuse. We found that 33.3% of American Indians and Alaska Natives indicated the perpetrator of emotional abuse had substance abuse issues, whereas only 21.4% of Whites stated the same (p = .109). Similar to findings in the original study, the perpetrators of physical abuse in the American

Indian and Alaska Native group were more likely to have substance abuse and a mental health history, 60% and 50% respectively.

It is thought that higher substance abuse rates among American Indians and Alaska Natives are possibly linked to pervasive violence and historical trauma and loss, with substance use thought to serve as a mechanism for coping with historical atrocities (Sapra et al., 2014). Native elders also identify substance abuse and loss of culture as causative factors for elder abuse (Jervis & Sconzert-Hall, 2017). The issue of substance abuse may be much like the perception of financial exploitation and neglect, where the issues are perceived as greater, and yet are equally important across all populations. The key difference is perhaps in the causal mechanisms for high rates of substance abuse within American Indian and Alaska Native communities compared with other races.

For future studies, it is important to consider the implications of aggregating different race and ethnic groups into a single group or combining smaller groups into an "other" category. Multiple elder abuse studies have aggregated non-White (race) or non-Hispanic (ethnicity) participants into a single category for purposes of analysis. Results have been mixed, with some finding race a significant risk factor and others not, or finding it is only a risk factor for certain types of abuse (Abrams, Lachs, & McAvay, 2002; Acierno et al., 2009; Hernandez-Tejada et al., 2013; Amstadter, Cisler, et al., 2010; Lachs, Williams, O'Brien, Hurst, & Horwitz, 1997). This may be the result of divergent risk in patterns of abuse owing to race (Burnes et al., 2015; Pillemer, Burnes, Riffin, & Lachs, 2016). While prudent for analyses given the small occurrence of events of abuse, aggregation of respondents by race (and/or ethnicity) into a single group, may result in

masking true differences between race groups.

Limitations

Limitations identified in previous analyses of NEMS include measures of abuse were based on self-reports with no objective measures to confirm abuse findings; interviews were only conducted by telephone and live interviews which excludes households without phones or respondents that are not available during call hours; interviews were conducted in English and Spanish only which would exclude individuals who speak other languages; the cross-sectional design of the study limits understanding of causality and temporal relationships; and responses reflect only cognitively intact community-dwelling adults (Acierno et al., 2009; Hernandez-Tejada et al., 2013; Amstadter, Begle, et al., 2010; Amstadter, Cisler, et al., 2010; Cisler, Begle, Amstadter, & Acierno, 2012; Policastro & Finn M.A., 2015).

Analysis of small samples with small event rates precluded some analysis, which is a limitation of the present study. Also as noted, weighting was not applied as the ICPSR dataset was missing final weighting data for the majority of observations. As a result, comparative findings are not weighted based on age or gender to reflect a nationally representative sample.

To address real or potential limitations of the current study, the original study principal investigator was engaged and consulted on the proposed research and analysis plan. Moreover, the original coding syntax was shared and cross-checked as the new dataset was created and the detailed final report from the original study was referred to routinely throughout the database design and analysis phase to compare current and past data elements where possible. The NEMS dataset and current research design presented

with limitations, nevertheless, the project presented an opportunity to address gaps in the current state of science and knowledge of elder abuse in the American Indian and Alaska Native population.

Conclusions

Not surprisingly, the evidence from our study suggests that older American Indians and Alaska Natives, like their younger counterparts, also suffer from a higher prevalence of most types of mistreatment and exploitation than other races. As hypothesized, the present study found that there are differences in the demographic, socioeconomic, social, and health status of American Indian and Alaska Native elders and their White and Black older counterparts, though notably there were fewer differences between American Indians and Alaska Natives and Blacks. We also found differences in the prevalence of abuse types among American Indian and Alaska Native elders and Whites and Blacks, again with fewer significant differences between American Indians and Alaska Natives and Blacks, but they existed.

Disaggregating racial groups and examining the contextual variables and prevalence of elder mistreatment available in the NEMS dataset specific to American Indians and Alaska Natives, as well as other racial minorities adds to the limited data and knowledge we have about abuse and mistreatment in the population. Findings from this study can serve as a foundation for future research, evidence-based prevention and intervention practices, and policy development. Awareness of the prevalence of various abuse typologies among American Indian and Alaska Native elders may be useful in setting priorities for community planning and response, and in re-prioritization of scarce funding to allow for additional research on causative mechanisms, screening, and

interventions at the tribal, state, and national level. Increased awareness and attention are needed to propel movement from a “call for more…” to the actual development of evidence-based, culturally appropriate interventions and programs aimed at victim safety and perpetrator accountability. As the aging population is poised to expand and diversify rapidly, particularly the Native elder population, the impact and cost of elder abuse to individuals, families and communities will compound exponentially. Ameliorating the issue of elder abuse of older American Indians and Alaska Natives is both a moral and financial imperative.

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Declaration of Interest Statement

None.

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Tables

Table 1. Demographic, health status, and social service use variables with $\chi 2$ analyses or Fisher's Exact by race groups

		Race								
		American Indian and Alaska Native alone or in combination		**Black or African American alone**		**White or Caucasian alone**		***p* – value Chi-square**	***p* – value Fisher's Exact**	
		Count	Column %	Count	Column %	Count	Column %	Overall (3 Groups)	AIAN vs. Black	AIAN vs. White
Age category	70 or less	113	57.9%	236	54.0%	2357	47.0%			
	71 or older	82	42.1%	201	46.0%	2656	53.0%			
	Total	195	100.0%	437	100.0%	5013	100.0%	<.001***	.387	.003**
Gender	Female	122	62.6%	316	72.3%	3396	67.7%			
	Male	73	37.4%	121	27.7%	1617	32.3%			
	Total	195	100.0%	437	100.0%	5013	100.0%	0.039*	.015*	.139
Marital status	Married or living with partner	63	32.5%	127	29.1%	2320	46.6%			
	Not currently married or living with partner	131	67.5%	309	70.9%	2663	53.4%			
	Total	194	100.0%	436	100.0%	4983	100.0%	<.001***	.399	<.001***
Education status	Less than college graduate	135	71.1%	308	72.8%	3145	63.6%			
	College graduate	55	28.9%	115	27.2%	1799	36.4%			

	Total	190	100.0%	423	100.0%	4944	100.0%	<.001**	.697	.038*
Income: low, high	Low income (Less than $35,000)	117	74.1%	217	67.4%	1826	48.9%			
	High income (> $35,001)	41	25.9%	105	32.6%	1909	51.1%			
	Total	158	100.0%	322	100.0%	3735	100.0%	. <.001**	.141	<.001**
Income: Approximate poverty	Near poverty (Less than $20,000)	79	50.0%	157	48.8%	1056	28.3%			
	Above poverty (> $20,001	79	50.0%	165	51.2%	2679	71.7%			
	Total	158	100.0%	322	100.0%	3735	100.0%	<.001**	.846	<.001**
Employment status	Retired or unemployed	157	81.8%	365	85.5%	4045	81.3%			
	Employed	35	18.2%	62	14.5%	930	18.7%			
	Total	192	100.0%	427	100.0%	4975	100.0%	0.102	.282	.925
Household size	2+ household size	90	46.2%	243	55.6%	2795	55.8%			
	Lives alone	105	53.8%	194	44.4%	2218	44.2%			
	Total	195	100.0%	437	100.0%	5013	100.0%	.030*	.031*	.010**
Overall health	Poor	59	30.4%	144	33.3%	1056	21.2%			
	Good	135	69.6%	288	66.7%	3922	78.8%			
	Total	194	100.0%	432	100.0%	4978	100.0%	<.001**	.518	.003**
History of trauma	No history of trauma	41	21.5%	172	39.7%	1976	39.7%			
	History of trauma	150	78.5%	261	60.3%	3000	60.3%			
	Total	191	100.0%	433	100.0%	4976	100.0%	<.001**	<.001**	<.001**
Social service use	No social service use	97	50.0%	193	44.5%	2918	58.5%			
	Social service use	97	50.0%	241	55.5%	2073	41.5%			
	Total	194	100.0%	434	100.0%	4991	100.0%	<.001**	0.225	.012*
	No social service use	97	50.0%	193	44.5%	2918	58.5%			
	1 social service program	58	29.9%	120	27.6%	1232	24.7%			

Social service frequency of use	2 social service programs	21	10.8%	63	14.5%	507	10.2%			
	3 social service programs	9	4.6%	29	6.7%	200	4.0%			
	4 or more social service programs	9	4.6%	29	6.7%	134	2.7%			
	Total	194	100.0%	434	100.0%	4991	100.0%	<.001**	.362	.126
Help needed with at least one task	No help needed	105	53.8%	200	45.8%	3045	60.8%			
	Identified need for help with at least one task	90	46.2%	237	54.2%	1966	39.2%			
	Total	195	100.0%	437	100.0%	5011	100.0%	<.001**	.070	.032*
Help available if needed for at least one task	No help available	6	6.7%	24	10.2%	150	7.7%			
	Help available for at least one task	83	93.3%	212	89.8%	1810	92.3%			
	Total	89	100.0%	236	100.0%	1960	100.0%	.367	.397	1
Continuous variables		**Count**	**Median [IQR]**	**Count**	**Median [IQR**	**Count**	**Median [IQR**	**p - value Kruskal-Wallis or Mann-Whitney U**		
Social support total score		195	15.00 [8.00]	437	15.00 [8.00]	5013	17.00 [7.00]	< .001***	0.557	< .001***
Overall, how would you rate your health during the past 4 weeks? (SF-8)		195	46.43 [14.42]	437	46.43 [14.42]	5013	52.83 [6.40]	< .001***	0.981	< .001***
During the past 4 weeks, how much did physical health problems limit your physical activities? (SF-8)		195	48.33 [13.98]	437	48.33 [13.98]	5013	54.05 [13.98]	< .001***	0.974	< .001**
During the past 4 weeks, how much difficulty did you have doing your daily work…because of your physical health? (SF-8)		195	46.92 [15.27]	437	53.98 [15.27]	5013	53.98 [15.27]	< .001***	0.867	0.015*
How much bodily pain have you had during the past 4 weeks? (SF-8)		195	47.67 [13.28]	437	47.67 [20.70]	5013	47.67 [20.70]	0.001**	0.164	< .001***

During the past 4 weeks, how much energy have you had? (SF-8)	195	45.16 [19.81]	437	45.16 [19.81]	5013	45.16 [10.46]	< .001***	0.006**	< .001
During the past 4 weeks, how much did your physical health or emotional problems limit usual social activities…? (SF-8)	195	49.47 [14.84]	437	55.25 [5.78]	5013	55.25 [5.78]	< .001***	0.689	0.005**
During the past 4 weeks, how much did personal or emotional problems keep you from your work, school or other daily activities? (SF-8)	195	52.42 [6.76]	437	52.42 [6.76]	5013	52.42 [6.76]	< .001***	0.279	< .001***
During the past 4 weeks, how much have you been bothered by emotional problems…? (SF-8)	195	49.59 [15.26]	437	56.79 [7.20]	5013	56.79 [7.20]	< .001***	0.831	< .001***
* p < = 0.05, ** p < 0.01, *** p < 0.001									

Table 2. Rates of potential neglect and neglect by identified caregiver with $\chi 2$ analyses or Fisher's Exact by race groups

		Race								
		American Indian and Alaska Native alone or in combination		**Black or African American alone**		**White or Caucasian alone**		***p* - value Chi-square**	***p* - value Fisher's Exact**	
		Count	Column %	Count	Column %	Count	Column %	Overall (3 Groups)	AIAN vs. Black	AIAN vs. White
Potential neglect: identified need but no one able to help	No help available	6	6.7%	24	10.2%	150	7.7%			
	Help available for at least one task	83	93.3%	212	89.8%	1810	92.3%			
	Total	89	100.0%	236	100.0%	1960	100.0%	0.367	.397	.751
Neglect by caregiver: identified need and identified caregiver	No neglect	104	96.3%	199	98.5%	3028	99.5%			
	Potential neglect	4	3.7%	3	1.5%	15	0.5%			
	Total	108	100.0%	202	100.0%	3043	100.0%	<.001***+	.243	.003**

* $p <= 0.05$, ** $p < 0.01$, *** $p < 0.001$
+ 2 – 3 cells with expected cell count < 5 unable to run Fisher's on 2 x 3 table

Table 3. Rate of financial exploitation by family or stranger and availability of help with finances with $\chi 2$ analyses by race groups

		Race								
		American Indian and Alaska Native alone or in combination		**Black or African American alone**		**White or Caucasian alone**		***p* - value Chi-square**		
		Count	Column %	Count	Column %	Count	Column %	Overall (3 Groups)	AIAN vs. Black	AIAN vs. White
Is there someone who helps take care of finances?	Yes	38	19.6%	78	18.1%	811	16.3%			
	No	156	80.4%	354	81.9%	4169	83.7%			
	Total	194	100.0%	432	100.0%	4980	100.0%	.323	.648	.223
Financial exploitation by family *Among those who rely on assistance*	No financial exploitation by family	25	67.6%	45	63.4%	526	70.5%			
	Financial exploitation by family	12	32.4%	26	36.6%	220	29.5%			
	Total	37	100.0%	71	100.0%	746	100.0%	0.438	.665	.702
Financial exploitation by family *Among total sub-population*	No financial exploitation by family	156	92.9%	354	93.2%	4169	95.0%			
	Financial exploitation by family	12	7.1%	26	6.8%	220	5.0%			
	Total	168	100.0%	380	100.0%	4389	100.0%	0.161	.898	.218

Financial exploitation by stranger *Among total sub-population*	No financial exploitation by stranger	166	86.0%	400	92.2%	4682	94.0%			
	Financial exploitation by stranger	27	14.0%	34	7.8%	297	6.0%			
	Total	193	100.0%	434	100.0%	4979	100.0%	< .001***	.016*	< .001***
* p < = 0.05, ** p < 0.01, *** p < 0.001										

Table 4. Rates of emotional mistreatment: lifetime, since 60 and past year and perpetrator variables with $\chi 2$ analyses by race groups

		Race								
		American Indian and Alaska Native alone or in combination		**Black or African American alone**		**White or Caucasian alone**		**p - value Chi-square**		
		Count	Column %	Count	Column %	Count	Column %	Overall (3 Groups)	AIAN vs. Black	AIAN vs. White
Emotional mistreatment: Lifetime	No emotional mistreatment	125	65.1%	326	74.9%	3897	78.4%			
	Emotional mistreatment	67	34.9%	109	25.1%	1072	21.6%			
	Total	192	100.0%	435	100.0%	4969	100.0%	<.001***	.012*	<.001***
Emotional mistreatment: Since 60	No emotional mistreatment	125	75.3%	326	81.7%	3897	86.9%			
	Emotional mistreatment	41	24.7%	73	18.3%	586	13.1%			
	Total	166	100.0%	399	100.0%	4483	100.0%	<.001***	.084	<.001***
Emotional mistreatment: Past year	No emotional mistreatment	125	82.8%	326	89.3%	3897	92.2%			
	Emotional mistreatment	26	17.2%	39	10.7%	329	7.8%			

	Total	151	100.0%	365	100.0%	4226	100.0%	<.001***	.042*	<.001***
Perpetrator lived with victim	Yes	6	16.7%	17	23.3%	220	35.5%			
	No	30	83.3%	56	76.7%	400	64.5%			
	Total	36	100.0%	73	100.0%	620	100.0%	.011*	.426	.021*
Perpetrator had substance abuse issues at time of incident	Yes	11	33.3%	15	22.7%	122	21.4%			
	No	22	66.7%	51	77.3%	447	78.6%			
	Total	33	100.0%	66	100.0%	569	100.0%	.276	.258	.109
Perpetrator ever received mental health counselling	Yes	6	20.7%	10	19.2%	114	21.7%			
	No	23	79.3%	42	80.8%	411	78.3%			
	Total	29	100.0%	52	100.0%	525	100.0%	.912	.874	.896
* $p <= 0.05$, ** $p < 0.01$, *** $p < 0.001$										

Table 5. Rates of physical mistreatment: lifetime, since 60 and past year and perpetrator variables with $\chi 2$ analyses or Fisher's Exact by race groups

		Race								
		American Indian and Alaska Native alone or in combination		**Black or African American alone**		**White or Caucasian alone**		**p - value Chi-square**	**p – value Fisher's Exact**	
		Count	Column %	Count	Column %	Count	Column %	Overall (3 Groups)	AIAN vs. Black	AIAN vs. White
Physical mistreatment: Lifetime	No physical mistreatment	144	75.0%	382	88.2%	4372	87.7%			
	Physical mistreatment	48	25.0%	51	11.8%	614	12.3%			
	Total	192	100.0%	433	100.0%	4986	100.0%	<.001***	<.001***	<.001***
Physical mistreatment: Since 60	No physical mistreatment	144	96.0%	382	98.2%	4372	98.2%			
	Physical mistreatment	6	4.0%	7	1.8%	80	1.8%			
	Total	150	100.0%	389	100.0%	4452	100.0%	.145	.205	.060
Physical mistreatment: Past year	No physical mistreatment	144	98.0%	382	99.0%	4372	99.4%			
	Physical mistreatment	3	2.0%	4	1.0%	25	0.6%			
	Total	147	100.0%	386	100.0%	4397	100.0%	.056^{+}	.401	.060
	Yes	3	50.0%	8	72.7%	62	68.9%			

Perpetrator lived with victim	No	3	50.0%	3	27.3%	28	31.1%			
	Total	6	100.0%	11	100.0%	90	100.0%	.594[+]	1	.338
Perpetrator had substance abuse issues at time of incident	Yes	3	60.0%	7	70.0%	38	43.7%			
	No	2	40.0%	3	30.0%	49	56.3%			
	Total	5	100.0%	10	100.0%	87	100.0%	.241[+]	1	.475
Perpetrator ever received mental health counselling	Yes	2	50.0%	3	30.0%	21	26.9%			
	No	2	50.0%	7	70.0%	57	73.1%			
	Total	4	100.0%	10	100.0%	78	100.0%	.602[+]	.580	.316
* p < = 0.05, ** p < 0.01, *** p < 0.001 + 2 – 3 cells with expected cell count < 5 unable to run Fisher's on 2 x 3 table										

Table 6. Rates of sexual mistreatment: lifetime, since 60 and past year and perpetrator variables with $\chi 2$ analyses and Fisher's Exact by race groups

		Race								
		American Indian and Alaska Native alone or in combination		**Black or African American alone**		**White or Caucasian alone**		**p - value Chi-square**	**p – value Fisher's Exact**	
		Count	Column N %	Count	Column N %	Count	Column N %	Overall (3 Groups)	AIAN vs Black	AIAN vs White
Sexual mistreatment: Lifetime	No sexual mistreatment	155	82.4%	399	92.8%	4540	92.1%			
	Sexual mistreatment	33	17.6%	31	7.2%	388	7.9%			
	Total	188	100.0%	430	100.0%	4928	100.0%	<.001***	<.001***	<.001***
Sexual mistreatment: Since 60	No sexual mistreatment	155	99.4%	399	99.3%	4540	99.6%			
	Sexual mistreatment	1	0.6%	3	0.7%	16	0.4%			
	Total	156	100.0%	402	100.0%	4556	100.0%	.419^{+}	1	.436^{+}
Sexual mistreatment: Past year	No sexual mistreatment	155	100.0%	399	99.8%	4540	100.0%			
	Sexual mistreatment	0	0.0%	1	0.3%	2	0.0%			
	Total	155	100.0%	400	100.0%	4542	100.0%	.253^{+}	1	1
Perpetrator lived with victim	Yes	0	0.0%	2	50.0%	15	44.1%			
	No	0	0.0%	2	50.0%	19	55.9%			
	Total	0	0.0%	4	100.0%	34	100.0%	-	-	-
Perpetrator had substance	Yes	0	0.0%	0	0.0%	9	32.1%			
	No	0	0.0%	3	100.0%	19	67.9%			

abuse issues at time of incident	*Total*	0	0.0%	3	100.0%	28	100.0%	-	-	-
Perpetrator ever received mental health counselling	Yes	0	0.0%	1	25.0%	4	16.0%			
	No	0	0.0%	3	75.0%	21	84.0%			
	Total	0	0.0%	4	100.0%	25	100.0%	-	-	-
* p < = 0.05, ** p < 0.01, *** p < 0.001 + 2 – 3 cells with expected cell count < 5 unable to run Fisher's on 2 x 3 table										

Table 7. Rates of polyvictimization: lifetime and since 60 with $\chi 2$ analyses by race groups

	Race								
	American Indian and Alaska Native alone or in combination		**Black or African American alone**		**White or Caucasian alone**		**p - value Chi-square**		
	Count	Column N %	Count	Column N %	Count	Column N %	Overall (3 Groups)	AIAN vs Black	AIAN vs White
Emotional, physical, or sexual mistreatment since 60									
Not Polyvictimized	174	96.7%	416	98.3%	4739	98.3%			
Polyvictimized	6	3.3%	7	1.7%	80	1.7%			
Total							.236	.194	.090
Emotional, physical, or sexual mistreatment, neglect or financial exploitation in lifetime									
Not Polyvictimized	137	70.3%	370	84.7%	4368	87.2%			
Polyvictimized	58	29.7%	67	15.3%	644	12.8%	<.001***	<.001***	<.001***
Total	195	100.0%	437	100.0%	5012	100.0%			
* $p <= 0.05$, ** $p < 0.01$, *** $p < 0.001$									

Table 8. Comparison of current study rates to original NEMS study data.

	Original NEMS Study[1]	**Hernandez-Tejada Article**[2] Non-White Group	**Current Study** AIAN alone or in combination	**Current Study** Black or African American alone	**Current Study** White or Caucasian alone
Emotional mistreatment: Lifetime	21.7%		34.9%	25.1%[a]	21.6%[a]
Emotional mistreatment: Since 60	13.5%		24.7%	18.3%[b]	13.1%[a]
Emotional mistreatment: Past year	4.6%	5.8%	17.2%	10.7%[a]	7.8%[a]
Physical mistreatment: Lifetime	12.0%		25.0%	11.8%[a]	12.3%[a]
Physical mistreatment: Since 60	1.8%		4.0%	1.8%[b]	1.8%[b]
Physical mistreatment: Past year	1.6%	3.0%	2.0%	1.0%[b]	.6%[b]
Sexual mistreatment: Lifetime	7.0%		17.6%	7.2%[a]	7.9%[a]
Sexual mistreatment: Since 60	0.3%		0.6%[c]	0.7%[c]	0.4%[c]
Sexual mistreatment: Past year	0.6%	0.5%	0 .0%[c]	0.3%[c]	0.0%[c]
Potential neglect: past year (identified need for assistance not being addressed)	5.1%		6.7%	10.2%[b]	7.7%[b]
Potential neglect by identified caregiver	0.5%		3.7%	1.5%[b]	0.5%[a]
Financial exploitation by family	5.2%		7.1%	6.8%[b]	5.0%[b]
Financial exploitation by non-family	6.5%		14%	7.8%[a]	6.0%[a]

a. Statistically significant difference in rate of abuse subtype between this and AIAN group
b. No statistically significant difference in rates of abuse subtype between this and AIAN group
c. Expected cell count too low to perform comparative analysis

[1] Acierno, R., Hernandez-Tejada, M., Muzzy, W., & Steve, K. (2009). *Final report: National Elder Mistreatment Study* (No. 226456). National Institute of Justice.

[2] Hernandez-Tejada, M., Amstadter, A., Muzzy, W., & Acierno, R. (2013). The National Elder Mistreatment study: Race and ethnicity findings. *Journal of Elder Abuse & Neglect*, *25*(4), 281–293.

Chapter Five: Predicting Elder Abuse in American Indians and Alaska Natives, Blacks and Whites: Secondary Analysis of the National Elder Mistreatment Study

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Predicting Elder Abuse in American Indians and Alaska Natives, Blacks and Whites: Secondary Analysis of the National Elder Mistreatment Study

[Manuscript formatted per submission guidelines for the *Journal of Elder Abuse and Neglect*]

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Predicting Elder Abuse in American Indians and Alaska Natives, Blacks and Whites: Secondary Analysis of the National Elder Mistreatment Study

Limited research on elder abuse among American Indians and Alaska Natives suggest rates may be higher. No American Indian and Alaska Native research has drawn from a nationally representative sample to measure elder abuse prevalence. Using data from the National Elder Mistreatment Survey American Indians and Alaska Natives and Blacks and Whites were compared. This builds on previous descriptive analysis that found a higher prevalence for most types of abuse, some almost double that of Whites. The present study analyzed predictors of elder abuse for American Indians and Alaska Natives; comparing American Indian and Alaska Native conceived final predictive models for six types of abuse to Black and White respondents. The White group had a much larger number of significant predictive variables, likely owing to the large sample. No single set of bivariate predictors was the same for any abuse type between the three race groups. Logistic regression models built based on predictors specific to the American Indian and Alaska Native group contained some similar variables as models constructed in the original study, most specifically social support. Models built to American Indian and Alaska Native specification were not all significant nor did they all present good model fit for the Black and White groups. Model discrimination, including predictive capacity and ability to classify abuse cases was better for the American Indian and Alaska Native group's predictive models.

Keywords: elder abuse, American Indian, elder mistreatment, elder maltreatment, exploitation, neglect, Native American, minority, National Elder Mistreatment Study

Introduction

There is limited research examining elder abuse in the American Indian and Alaska Native population (Jervis & Sconzert-Hall, 2017), including a scarcity of prevalence estimates (Sapra, Jubinski, Tanaka, & Gershon, 2014). While the number, quality, and rigor of the studies exploring elder abuse in the American Indian and Alaska Native population are scant, they demonstrate a potentially high prevalence of abuse (10% to 46%) (Brown, 1989; Buchwald et al., 2000). A recent systematic review of such studies (Crowder, Burnett, Laughon, & Driesbach, 2019) found two studies focused on older women that included a cohort of American Indian and Alaska Native women that reported rates of physical and verbal abuse of 17% and 18%, respectively; rates significantly higher than other racial groups (Baker et al., 2009; Mouton et al., 2004).

Contributing to higher rates of abuse, Sapra and colleagues' (2014) suggest, is the significantly different demographic profile for American Indians and Alaska Natives, which includes a higher prevalence of many risk factors for abuse. In addition, historical traumas experienced by tribal members and communities, believed to transfer from one generation to the next, have been identified as an important contextual factor unique to the population (Braveheart & DeBruyn, 1998). Other factors that impact elder abuse in many tribal communities include acculturation, urban migration, and complex tribal justice systems. These structural and contextual issues are experienced differently by each of the more than 567 tribes across the country. However, these issues provide an intersectional perspective for examining elder abuse in the American Indian and Alaska Native population.

Risk Divergence

Different racial and ethnic minorities have been found to be at increased risk for different types of elder abuse in some studies (Acierno, Hernandez-Tejada, Muzzy, & Steve, 2009; Baker et al., 2009; Beach, Schulz, Castle, & Rosen, 2010; Dong, 2015; Dong et al., 2009; Johannesen & LoGiudice, 2013; Laumann, Leitsch, & Waite, 2008; Mouton et al., 2004), referred to as risk divergence (Burnes et al., 2015; Pillemer, Burnes, Riffin, & Lachs, 2016). African American elders are at higher risk for psychological and financial exploitation; Canadian indigenous elders are at higher risk of physical and sexual abuse; and Hispanic elders are at decreased risk of emotional abuse, financial exploitation, and neglect, according to a recent review (Pillemer et al., 2016). An analysis of the Women's Health Initiative (WHI) data from 91,749 older women also found differences in risk profiles by race (Mouton et al., 2004). The study looked at physical abuse (alone), verbal abuse (alone) or both physical and verbal abuse. Baseline prevalence rates were 2.84 times higher (CI 1.89 - 4.26) for African American women for physical abuse only compared to White women. American Indian and Hispanic women were more likely to have experienced both physical and verbal abuse (OR 3.10, CI 1.73-5.54; OR 1.95, CI 1.49-2.54 respectively), but not physical abuse alone or verbal abuse alone. These unique patterns of risk divergence have resulted in a recent call for analyzing racial and ethnic groups separately to determine differential risk (Burnes et al., 2015).

Cost and complexity often preclude the ability to obtain adequate samples representative of all races, particularly given the relatively small occurrence of incidents of elder abuse. As a result, racial subgroup analyses are more likely to include only

Whites or Blacks (Dong, Simon, & Evans, 2010; Lachs, Williams, O'Brien, Hurst, & Horwitz, 1997), multiple races aggregated into a non-White category (Acierno et al., 2009; Hernandez-Tejada, Amstadter, Muzzy, & Acierno, 2013; Amstadter et al., 2011; Hernandez-Tejada, Frook, Steedley, Watkins, & Acierno, 2018; Williams, Racette, Hernandez-Tejada, & Acierno, 2017), and/or races with smaller samples are aggregated into "other" (Burnes et al., 2015; Laumann et al., 2008; Peterson et al., 2014). While aggregation is statistically prudent, this may result in masking risk differential, particularly in smaller racial groups.

NEMS and Race Findings

The National Elder Mistreatment Study (NEMS) is the largest existing elder abuse dataset using a national sampling framework conducted in the United States (U.S.) (Dong, 2015; Sooryanarayana, Choo & Hairi, 2013). No published analysis has attempted to explore differences in prevalence or predictive factors within any single non-White racial cohort using NEMS data. The original NEMS aggregated groups into non-White and White for analysis (N = 5,777) (Acierno et al., 2009). In the multivariate analysis, race was a significant risk factor for neglect (OR 1.87, CI 1.13-3.08, p = .014), but not other forms of abuse.

In a subsequent analysis of the NEMS dataset Hernandez-Tejada and colleagues (2013), also aggregated races into non-White and White categories, and found that while race was a risk factor for physical mistreatment in the past year in bivariate analysis (OR 2.19, CI 1.26-3.83, p = .007), it was not sustained in multivariate analysis after controlling for income, health status, and social support; abuse types included emotional, physical, and sexual mistreatment in the past year. Bivariate analysis assessed the

difference for Whites and non-Whites of four confounding variables including income, social support, health status, and lifetime exposure to trauma. Trauma was not a significant predictor for any abuse. Social support was the only significant variable for all three abuse regression models, and poor health was significant for the emotional abuse regression model. This analysis also separately analyzed and reported on ethnicity findings.

Study Background and Aims

The concept for the present study was borne out of a need to better understand the phenomenon of elder abuse in the American Indian and Alaska Native population. Given the size and scope of the NEMS dataset (6,590 observations and 448 variables) and complexity of research aims, this study used a 4-phase approach. Phase one consisted of data cleaning and re-coding, descriptive analysis of dependent variables, and feasibility testing to determine the adequacy of case counts for outcome analysis. Phase two consisted of descriptive analysis of sociodemographic, social, and health status indicators as well as the prevalence of abuse types by racial groups (American Indian and Alaska Native, Black, and White). Phase three consisted of identification of predictors of elder abuse and neglect for the three groups. Phase four consisted of logistic regression model development to determine whether predictors of elder abuse for American Indians and Alaska Natives were different than for Blacks and Whites.

Summary of initial descriptive results

This paper will report findings from phase three and four. Full descriptive results and related methodological details from phase one and two are presented elsewhere (Crowder, Burnett, Byon, et al., 2019) Briefly, in phase one and two there were

differences in the prevalence of multiple abuse types and also demographic, socioeconomic, social, and health status of American Indian and Alaska Native elders and White and Black respondents. We found that American Indian and Alaska Native respondents had more similarities in demographic and socioeconomic characteristics compared to Black respondents than White, though multiple significant differences still existed. The three groups differed significantly in twenty-two of the twenty-four contextual variables analyzed. There were significant differences in five variables between the American Indian and Alaska Native and Black groups, and eighteen of the twenty-four variables examined were significantly different between the American Indian and Alaska Native and White groups.

The cumulative prevalence of emotional, physical, and sexual mistreatment in the past year, neglect, and financial abuse by a family member for the American Indian and Alaska Native group was 33%, almost double that of the overall findings of (17.1%) reported in the original NEMS study (Acierno et al., 2010). No significant difference in the prevalence of reported mistreatment between American Indians and Alaska Natives and Whites was identified in six of fourteen possible outcomes analyzed, though two approached significance ($p = .06$). The prevalence of abuse for six mistreatment outcomes was significantly higher for American Indians and Alaska Natives than Blacks. **See Table 1 for a comparison of prevalence.**

Study aims

The specific aims of this study were to 1) identify predictors of elder abuse among American Indian and Alaska Native elders, and then 2) compare with White and Black respondents. Based upon the existing literature which suggests higher rates of abuse in

elder American Indians and Alaska Natives, the unique social and cultural experiences of American Indians and Alaska Natives, and what is known about differential patterns of elder abuse risk, it is hypothesized that there would be differences in the predictors of abuse between American Indian and Alaska Native elders and White and Black respondents.

Methods

Conceptual framework

Similar to the original study, Bronfenbrenner's ecological model was used to inform the selection of variables and to give consideration to potential predictors of risk of abuse (Bronfenbrenner, 1979). Bronfenbrenner's model is a four-part, nested, interconnected system subject to change over time as shifts in the lifespan occur and are influenced by socio-historical contexts. The NEMS report describes the model as four components (1) the **microsystem** is comprised of the individual and family (or spouse), (2) the relationship between families and other settings comprises the **mesosystem**, (3) the **exosystem** consists of environments within which the family members interact but are removed from the individual, and (4) the **macrosystem** is comprised of values, norms, and other patterns of culture. This interconnected system transitions over time as it is shaped by socio-historical contexts (**chronosystem**) (Acierno et al., 2009). Integration of social-historical context is of particular interest in American Indian and Alaska Native populations given known historical traumas.

The ecological model was proposed for use in elder abuse as early as 2000 (Schiamberg & Gans, 2000) and continues to be used as a guiding framework for studies on elder abuse (Donder et al., 2016; Melchiorre et al., 2016; Phelan, 2009; Von Heydrich,

Schiamberg, & Chee, 2012; Wangmo et al., 2014). Adaptations to the ecological model were proposed for elder abuse research with Latino families (Parra-Cardona, Meyer, Schiamberg, & Post, 2007) and African Americans (Horsford, Parra-Cardona, Schiamberg, & Post, 2011) in light of the unique cultural attributes of each population.

The framework supported the identification of predictive factors (risk or protective) used in this study that emerged from a systematic review of the literature on elder abuse in the American Indian and Alaska Native community (Crowder, Burnett, Laughon, et al., 2019) and recent scoping and systematic reviews of elder abuse in the general population (Dong, 2015; Pillemer et al., 2016). This, in addition to supplemental information based on author (JC) experience working with the American Indian and Alaska Native population helped with the adaptation of the ecological model (**See Figure 1).** Subsequently, variables from the NEMS dataset were mapped within the five levels of the model.

NEMS Dataset

Data from the NEMS, a 2008 national random digit dial survey that consisted of telephone interviews with a total of 6,589 households were used for this study (Acierno, Hernandez-Tejada, Muzzy, & Steve, 2009). The NEMS dataset (including all original study variables) was obtained from the National Archive of Criminal Justice Data, which is housed within the Inter-University Consortium for Political and Social Research (ICPSR) (Acierno et al., 2013). A detailed overview of the NEMS sampling methods, timeframe, interview methods, and variable development are available in the project's final report (Acierno et al., 2009). Additional information regarding variable development for this study are detailed in Crowder et al. (2019). Institutional Review

Board (IRB) review and exemption was obtained from the University of Virginia prior to the acquisition of the dataset.

Sample

The original survey sample was obtained based on a multi-stage, modified stratified random digit dialing (RDD) method, using an area probability/RDD sample and included a final weighted sample of N = 5,777 adults age 60 and older (Acierno et al., 2009). The current unweighted study sample had a total of 5,645 observations for adults age 60 and older after race category recoding (see details below). Data for the final weight variable was missing for 95.9% of observations from the ICPSR dataset; as a result, the weighting variable was not applied during analysis.

Measures

StataIC v14 was used to clean and code data, with variables defined based mainly on the dichotomous strategy outlined in the original study (Acierno et al., 2009), and checked against original SPSS coding syntax provided by the NEMS principal investigator (R. Acierno, personal communication, March 7, 2018), with exceptions noted below. Refer to existing literature for additional details on original variable definitions (Acierno et al., 2010, 2009; Hernandez-Tejada et al., 2013).

Independent variables

Twenty-four independent variables whose influence on elder abuse according to the literature was probable were constructed for analysis. These variables included age (70 or less or 71 and older), gender (female or male), marital status (married or living with a partner or not), race (American Indian and Alaska Native alone and in combination, White alone, and Black alone), education (less than college graduate or college graduate), income (two measures), employment status (retired/unemployed or

employed), household size (lives alone or 2+ in the household), overall health (two measures), help needed with daily tasks, assistance available to help with daily tasks, history of traumatic event (yes/no), social support (continuous), use of social services (yes/no), frequency of use of social services, overall health (good or poor)and eight Short-Form 8 (SF-8) Health Questionnaire variables (continuous) (Ware, Kosinski, Dewey, & Gandek, 2001).

Race

NEMS respondents were allowed to select from five different race categories and could specify multiple race options, e.g., White and Black and American Indian and Alaska Native (to indicate multi-race status), or "other" and then describe race in their own words (Hernandez-Tejada et al., 2013). In this study, three comparative racial groups were created: American Indian and Alaska Native alone and in combination with other races was devised due to the large multi-racial composition of the American Indian and Alaska Native population (Goins et al., 2015); White alone; and Black alone. "Other" race responses were examined and re-coded when appropriate. For example, a response for other that listed "Native American" was recoded to American Indian and Alaska Native alone and in combination.

Income

Two dichotomous income variables were created. Following the income threshold set in the original study, low income was classified at less than $35,000 per year. The second exploratory variable included a low-income threshold of less than $20,000. The

lower set point was designed to examine income that was a closer approximation to poverty level based upon 2008 poverty thresholds for one and two-person households 65 and over ($10,326 and $13,030 respectively) (U.S. Census Bureau, 2019).

History of trauma

History of trauma was dichotomized (history or no history). Respondents were asked four questions ascertaining if they ever feared death or serious injury as the result of natural disasters (earthquake, hurricane, flood, or tornado), work accident, car accident, or being in any situation in which they thought they would be killed.

Social service use, frequency of use

Social service use was transformed into two variables. Participants were asked to identify services they used from a list of nine health, social, and community-based services or could identify an "other" response. The first variable was dichotomized into yes or no. A second exploratory variable was created to categorize the frequency of use (none, 1 program, 2 programs, etc.), to explore whether the amount ("dose") of social service use had any relationship to abuse outcomes.

Social support score

An excerpt from the Medical Outcomes Study module for social support that included five items rated on a four-point scale was used to measure social support (Sherbourne & Stewart, 1991). Respondents were asked, in the past month, how often was someone available to help you if you were confined to bed, give you good advice

about a crisis, get together with you for relaxation, or talk to you about your problems. Similar to other recent methodologies used for analysis of NEMS study data, a sum of scores was maintained as a continuous variable (range 5 – 20), where lower scores indicate a lower level of social support (Burnes, Hernandez-Tejada, & Acierno, 2018; Policastro & Finn M.A., 2015).

SF- 8 items

The ICPSR dataset included eight questions, which together comprise the short form-8 (SF-8). Scaled scores were created for all eight items based on SF-8 scoring methods which assign an average score to each answer selection, and then was analyzed as continuous variables (Ware et al., 2001). The original study analyzed dichotomized data from the "overall health" variable only. In this study, overall health was also retained as a separate dichotomized variable though used primarily to assess whether the continuous re-coding strategy had implications for its relationship to abuse outcomes. **See Table 2 for SF-8 variables and results**.

Dependent variables

Sixteen dependent (mistreatment) variables were constructed for the initial phase of analysis to determine the prevalence, and then feasibility was assessed for application of logistic regression. Six dependent variables that met case count criteria for use in multivariate analysis (at least 10 cases within the American Indian and Alaska Native group) included lifetime emotional abuse, emotional abuse since 60, lifetime physical abuse, physical abuse since 60, lifetime sexual abuse, and financial exploitation by a stranger. The final mistreatment variables used in the analysis for this study were created

and dichotomized (yes/no) using the procedural definitions outlined in the NEMS final report (Acierno et al., 2009).

Financial exploitation by a stranger

Financial exploitation by a stranger was defined as an affirmative response to three behaviorally specific questions about stranger-perpetrated exploitation that asked if a stranger had: spent money or sold property, forged their signature to acquire assets, forced or tricked them into signing a document.

Emotional, physical, and sexual abuse

The NEMS study included a series of behaviorally specific questions assessing each abuse type including emotional, physical, and sexual abuse. A positive response to any one question within each type of mistreatment was considered a case of abuse. For example, the four questions related to emotional mistreatment included:

1. “Has anyone ever verbally attacked, scolded, or yelled at you so that you felt afraid for your safety, threatened or intimidated?”

2. “Has anyone ever made you feel humiliated or embarrassed by calling you names such as stupid, or telling you that you or your opinion was worthless?”

3. “Has anyone ever forcefully or repeatedly asked you to do something so much that you felt harassed or coerced into doing something against your will?”

4. “Has anyone close to you ever completely refused to talk to you or ignored you for days at a time, even when you wanted to talk to them?”

Analysis

Alpha (α) was set a priori at 0.05. SPSS (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.) was used for data analysis. Feasibility testing in phase one included analyzing case counts for abuse variables by race to determine adequacy for logistic regression. The number of independent variables allowable for each regression model differed by abuse outcome. Approximately one independent variable was allowed for every 10 events per predictor variable (EPVs) within the American Indian and Alaska Native group (Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996). For example, there were 41 cases of emotional mistreatment since 60 in the American Indian and Alaska Native group, thus, a maximum of four independent variables was considered for that final regression model. Multicollinearity was assessed for continuous independent variables. Variables had a tolerance of 0.4 or higher and variance inflation factor of 2.6 or below, indicating no issues with multicollinearity.

Three methods were devised for comparing predictors between American Indians and Alaska Natives and Blacks or Whites. These methods included 1) comparison of significant predictors from bivariate logistic regression, 2) comparison of significance and differences in magnitude of odds ratios between race groups from regression models created based on significant variables for the American Indian and Alaska Native group, and 3) assessment of final model fit and performance within each race group (overall predictive capacity) with comparison between the three groups. The latter was not a specific aim at the outset of the study, but the findings were worthy of inclusion.

Unadjusted bivariate logistic regression was conducted with all 24 independent variables within each race to examine relationships with abuse variables. Due to the limited number of cases and need to restrict the number of independent variables, two steps were undertaken to develop a parsimonious model. Logistic regression models were created using stepwise selection (forward selection likelihood ratio (LR)), including significant variables from the bivariate analysis ($p < .05$) and considering thresholds set for EPV *within* the American Indian and Alaska Native group. Forward LR adds independent variables to a model sequentially based upon significance, and then removes them based on the probability of a likelihood-ratio statistic (IBM, n.d.). The independent variables from the final stepwise models for the American Indian and Alaska Native cohort were then used to replicate regression models for both the White and Black groups using the same variables from the last American Indian and Alaska Native model.

Overall model significance was assessed using Chi-square test significance ($p < .05$). Goodness-of-fit was tested using the Hosmer and Lemeshow test. Hosmer and Lemeshow compares the expected and the observed when the null hypothesis is true, and results are presented as a p-value (Chan, 2004). Models were potentially rejected if $p < .05$. Three tests were used to evaluate model performance and compared between the three groups. Negelkerke $R,^2$ which estimates the proportion of the variance in the outcome variable that is accounted for by all predictor variables, was compared between race groups. Classification tables, which compare observed and predicted categories based on the model, were evaluated to assess the ability to properly classify abused versus non-abused respondents and are reported as percentages (Chan, 2004). Finally, area under the receiver operating characteristic (ROC) curve was calculated from

predictive probabilities to assess model discrimination (sensitivity or true positives; and specificity or false-positives). ROC AUC values closer to 0.5 are considered suboptimal (Chan, 2004), and a range of .7 - .8 on par with well-performing behavioral health tools (Youngstrom, 2014). The narrative reports ROC AUC values as percentages.

Results

Mistreatment Predictors and Models

Emotional mistreatment

In bivariate analysis, five predictors were significantly associated with lifetime emotional abuse for the American Indian and Alaska Native group ($p < .05$) including being 71 or older (odds ratio (OR) = 0.32, 95% CI = 0.17– 0.62), total social support score (OR = 0.90, 95% CI = 0.84 – 0.96), how much bodily pain have you experienced in the past four weeks (OR = 0.97, 95% CI = 0.94 – 0.10), how much personal or emotional problems keep you from usual activities in the past four weeks (OR = 0.96, 95% CI = 0.92 – 0.98), and how much have you been bothered by emotional problems in the past four weeks (OR = 0.97, 95% CI = 0.94 – 0.99). Thirteen predictor variables were significant for the Black group, and seventeen were significant for the White group (See Table 3).

The final overall model for lifetime emotional abuse, based on significant predictors identified for the American Indian and Alaska Native group, included age and total social support score. The model was significant for American Indians and Alaska Natives (χ^2 (2) = 20.30, $p < .001$), Blacks (χ^2 (2) = 11.42, $p = .003$), and Whites (χ^2 (2) =254.69, $p < .001$). There was a difference in magnitude of odds ratios between the three models. For example, American Indian and Alaska Native respondents 71 or older were less likely to experience emotional abuse in their lifetime than the respondents younger

than 71 (OR = .33), while this odds ratio was smaller for the Black group (OR = .59).The American Indian and Alaska Native group model explained 14.7% of the variance in lifetime emotional abuse, for the Black group the model explained 4.2% of the variance, and for Whites the model explained 5.6% of the variance. The ROC area under the curve for American Indians and Alaska Natives was 69.3%. The model accurately classified 88.1% of American Indians and Alaska Natives in the non-abused group and 30.6% in the lifetime emotional mistreatment group. The model accurately classified 100% of Blacks in the non-abuse group and 0% in the lifetime emotional mistreatment group. It also accurately classified 98.9% of Whites in the non-abuse group and 3.0% in the lifetime emotional mistreatment group.

See Table 3 for significant bivariate logistic regression results for lifetime emotional abuse.

See Table 4 for the final logistic regression model for lifetime emotional abuse.

Emotional abuse since 60 was significantly associated with eleven predictors for the American Indian and Alaska Native group ($p < .05$) including being 71 or older (OR = 0.39, 95% CI = 0.19 – 0.84), help needed with at least one task (OR = 3.08, 95% CI = 1.44 – 6.58), total social support score (OR = 0.81, 95% CI = 0.74 – 0.89), overall health in the past four weeks (continuous) (OR = 0.94, 95% CI = 0.90 – 0.98), physical health problems limit physical activities in the past four weeks (OR = 0.95, 95% CI = 0.92 – 0.99), difficulty doing daily work in the past four weeks (OR = 0.96, 95% CI = 0.93 – 0.99), bodily pain in the past four weeks (OR = 0.94, 95% CI = 0.90 – 0.98), energy in the past four weeks (OR = 0.96, 95% CI = 0.92 – 0.99), physical health or emotional

problems limit social activities in the past four weeks (OR = 0.96, 95% CI = 0.92 – 0.99), personal or emotional problems keep you from usual activities in the past four weeks (OR = 0.94, 95% CI = 0.90 – 0.97), been bothered by emotional problems in the past four weeks (OR = 0.95, 95% CI = 0.92 – 0.98) (data not provided). Nine predictor variables were significant for the Black group and 21 were significant for the White group.

The final overall model for emotional abuse since 60 included help needed with at least one task, age, and total social support score. The model was significant for American Indians and Alaska Natives (χ^2 (3) = 38.47, $p < .001$), Blacks (χ^2 (3) = 17.44, $p = .001$), and Whites (χ^2 (3) = 206.98, $p < .001$). There was a difference in the magnitude of odds ratios between the three models. For example, American Indian and Alaska Native respondents who needed help with at least one task were more likely to experience emotional abuse since 60 than those who did not need help (OR = 3.40), while this odds ratio was smaller in the White group (OR = 1.88).

Hosmer and Lemeshow goodness-of-fit test p values for the American Indian and Alaska Native and Black group's final models were > .05; $p = .019$ for the final model for the White group (indicating potentially poor fit). For the American Indian and Alaska Native group, the model explained 32.6% of the variance in emotional abuse since 60, for the Black group the model explained 4.7% of the variance, and for Whites the model explained 9.4% of the variance. The model accurately classified 94.1% of American Indians and Alaska Natives in the non-abuse group and 42.1% in the emotional mistreatment since 60 group. The model accurately classified 100% of Blacks in the non-abuse group and 0% in the emotional mistreatment since 60 group. The model accurately classified 99.9% of Whites in the non-abuse group and 1.0% in the emotional

mistreatment since 60 group. The ROC area under the curve for the American Indian and Alaska Native model was 80.3%. **See Table 5 for the final logistic regression model results for emotional abuse since 60.**

Physical mistreatment

Lifetime physical abuse for the American Indian and Alaska Native group was significantly associated with five independent variables ($p < .05$) including being 71 or older (odds ratio (OR) = 0.36, 95% CI = 0.18– 0.75), being married or having a partner (OR = 2.55, 95% CI = 1.14 – 5.68), history of trauma (OR = 5.39, 95% CI = 1.58 – 18.39), how much physical or emotional problems limit social activities in the past four weeks (OR = 0.96, 95% CI = 0.93 – 0.996), and how much have you been bothered by emotional problems in the past four weeks (OR = 0.97, 95% CI = 0.94 – 0.999). Six predictor variables were significant for the Black group, and 17 were significant for the White group.

The final overall model for lifetime physical abuse included age, marital status, and history of trauma and was significant for American Indians and Alaska Natives (χ^2 (3) = 33.50, $p < .001$), Blacks (χ^2 (3) = 17.78, $p < .001$), and Whites (χ^2 (3) = 274.96, $p < .001$). There was a difference in magnitude of odds ratios between the three models. For example, American Indian and Alaska Native respondents who experienced a traumatic event were more likely to experience physical abuse in their lifetime than those who did not experience trauma (OR = 6.56), while the odds ratio was smaller in the Black group (OR = 1.97). In addition, American Indian and Alaska Native respondents who were married or living with someone were more likely to experience physical abuse in their

lifetime than those who were not married or living with someone (OR = 5.62), while the odds ratio was smaller in the Black group (OR = 1.68).

For the American Indian and Alaska Native group, the model explained 24.1% of the variance in lifetime physical abuse, for the Black group the model explained 7.9% of the variance, and for Whites the model explained 10.3% of the variance. The model accurately classified 85.6% of American Indians and Alaska Natives in the non-abuse group and 52.1% in the lifetime physical mistreatment group. The model accurately classified 100% of Blacks in the non-abuse group and 0% in the lifetime physical mistreatment group. The model accurately classified 100% of Whites in the non-abuse group and 0% in the lifetime physical mistreatment group. The ROC area under the curve for the American Indian and Alaska Native model was 74.5%. **See Table 6 for the final logistic regression model results for lifetime physical abuse.**

Physical abuse since 60 for the American Indian and Alaska Native group was significantly associated with two variables ($p < .05$) including total social support score (OR = 0.71, 95% CI = 0.56 – 0.91) and overall health in the past four weeks (continuous) (OR = .91, 95% CI = .82 – .995). Two different predictor variables were significant for the Black group, and 15 were significant for the White group.

The final overall model for physical abuse since 60 included total social support score. It was significant for American Indians and Alaska Natives (χ^2 (1) = 11.25, p = .001), Blacks (χ^2 (1) = 3.96, p = .047), and Whites (χ^2 (1) = 33.19, $p < .001$). There was a difference in the magnitude of odds ratios between the three groups. For example, for each 1-point increase in the total social support score, the odds of American Indian and

Alaska Native respondents experiencing physical abuse since 60 decreased by 28.6% (OR = 0.714), while the decrease was 16.8% for the Black group (OR = .832).

The American Indian and Alaska Native group model explained 25.9% of the variance in physical abuse since 60, for the Black group the model explained 6.3% of the variance, and for White group the model explained 5.1% of the variance. The model accurately classified 100% of the individuals in the non-abuse group but 0% in the physical mistreatment since 60 group for all three race groups. The ROC area under the curve for the American Indian and Alaska Native model was 81.9%. **See Table 7 for the final logistic regression model results for physical abuse since 60.**

Sexual mistreatment

Lifetime sexual abuse for the American Indian and Alaska Native group was significantly associated with four variables ($p < .05$) including age 71 or older (OR = 0.19, 95% CI = 0.07 – 0.52), male gender (OR = .24, 95% CI = .09 - .66), history of trauma (OR = 5.00, 95% CI = 1.14 – 21.91), and bothered by emotional problems in the past four weeks (OR = .96, 95% CI = .93 - .995). Five predictor variables were significant for the Black group and 21 were significant for the White group.

The final overall findings lifetime sexual abuse included age, male gender, and history of trauma was significant for American Indians and Alaska Natives (χ^2 (3) = 36.33, $p < .001$), Blacks (χ^2 (3) = 25.15, $p < .001$), and Whites (χ^2 (3) = 220.42, $p < .001$). The magnitude of the odds ratios differed between groups. For example, American Indian and Alaska Native respondents who were male were less likely to experience sexual abuse in their lifetime than female respondents (OR = 0.12), while the odds ratio for the Black group was larger (OR = .44). American Indians and Alaska Natives who

experienced a traumatic event were more likely to experience sexual abuse in their lifetime than those who did not experience trauma (OR = 6.53), while the odds ratio was smaller in the White group (OR =2.87).

Hosmer and Lemeshow goodness-of-fit test p values for the American Indian and Alaska Native and White group's final models were > .05; p = .018 for the final model for the Black group (indicating potentially poor fit). For the American Indian and Alaska Native group, the model explained 29.7% of the variance in lifetime sexual abuse, for the Black group the model explained 14.1% of the variance, and for Whites the model explained 10.4% of the variance. It accurately classified 100% of the individuals in the non-abuse group but 0% in the lifetime sexual mistreatment group for all three race groups. The ROC area under the curve for the American Indian and Alaska Native group's model was 80.0%. **See Table 8 for the final logistic regression model results for lifetime sexual abuse.**

Financial exploitation by stranger

Financial exploitation by a stranger for the group was significantly associated (p < .05) with a history of trauma (OR = 8.13, 95% CI = 1.07 – 61.93), amount of bodily pain in the past four weeks (OR = 0.95, 95% CI = 0.91 – 0.99), physical health or emotional problems limit social activities in the past four weeks (OR = 0.96, 95% CI = 0.92 – 0.999), personal or emotional problems keep you from usual activities in the past four weeks (OR = 0.95, 95% CI = 0.91 – 0.99), how much have you been bothered by emotional problems in the past four weeks (OR = 0.95, 95% CI = 0.92 – 0.98).

The final overall model for financial exploitation by a stranger included history of

trauma and how much have you been bothered by emotional problems in the past four weeks, and was significant for American Indians and Alaska Natives (χ^2 (2) = 11.94, p = .003) and Whites (χ^2 (2) = 2.85, p < .001), but not Blacks (χ^2 (2) = 89.44, p = 0.24). The magnitude of the odds ratios differed between groups. For example, American Indians and Alaska Natives who experienced a traumatic event were more likely to experience financial exploitation by a stranger in their lifetime than those who did not experience trauma (OR = 6.2), while the odds ratio was smaller in the Black group (OR = 1.7).

For the American Indian and Alaska Native group, the model explained 11.6% of the variance in financial exploitation by a stranger, and for Whites the model explained 5.2% of the variance. The model accurately classified 100% of the individuals in the non-abuse group but 0% in the financial exploitation by stranger group for all three race groups. The ROC area under the curve for the American Indian and Alaska Native group was 68.7%. **See Table 9 for the final logistic regression model for financial exploitation by a stranger.**

Comparison of Predictor Variables Across Abuse Types and Race

Age. Older age (71 or older) was a significant protective factor in four of six abuse types in both bivariate and final regression models.

Gender. Significant gender-based differences were largely absent except for lifetime sexual mistreatment, with male gender associated as a protective factor for the American Indian and Alaska Native group (p < .001, OR 0.11, 95% CI, 0.05 - 0.36 and Whites (p < .001, OR 0.25, 95% CI, 0.19 – 0.34), but not the Black group (p = .084).

Marital status. For the American Indian and Alaska Native group, being married or living with a partner was associated with an increased risk of lifetime physical abuse only ($p < .001$, OR 5.62, 95% CI, 2.29 – 13.77), which was also significant for Whites ($p < .001$, OR 1.68, 95% CI, 1.40 – 2.02), but not for the Black group ($p = .389$).

Living alone. For the American Indian and Alaska Native group, living alone was not significant for any type of abuse.

History of trauma. History of trauma was a significant bivariate predictor and was retained in three of the final models. The American Indian and Alaska Native groups who experienced abuse consistently had higher odds of experiencing trauma than other races, though it was not included in either of the final models of abuse since 60.

Income, education, and employment. Income, education, and employment are commonly correlated measures of socioeconomic status. None of these variables were significant for abuse in bivariate analysis for American Indians and Alaska Natives. For Whites, income was a significant predictor of four of six abuse outcomes. For Blacks, income was significant for two of six abuse outcomes including lifetime physical abuse and lifetime sexual abuse. Education was a significant predictor for three of six abuse outcomes for Whites including lifetime emotional abuse, emotional abuse since 60, and lifetime physical abuse. For Blacks, education was significant for lifetime emotional abuse, emotional abuse since 60, lifetime physical abuse, and lifetime sexual, or four of the six outcomes

Income exploratory variable. An exploration of an income variable with a lower threshold to more closely approximate poverty found no instance within the American

Indian and Alaska Native or Black group where one income variable was significant but not another. However, within the White group, the near-poverty income threshold was significant for lifetime emotional and lifetime physical abuse

Frequency of social service use. The frequency of social service use was an additional exploratory variable. The only significant findings in bivariate analysis were in the White group for emotional abuse since 60 and lifetime sexual abuse. For both, the use of one social service was associated with a reduced the risk of abuse (emotional abuse since 60 p = .007, OR .54, 95% CI, .35 - .85, and lifetime sexual abuse p = .005, OR .47, 95% CI, .28 - .79), and the use of three services was also associated with reduced risk of emotional abuse since 60 (p = .033, OR .574, 95% CI, .35 - .96).

Help needed. Help needed with at least one daily activity was significantly associated with only emotional abuse since 60 for American Indians and Alaska Natives (p = 0.007, OR 3.40, 95% CI, 1.40 – 8.25), while help needed or help available was significantly associated with five abuse types for Blacks, and all six abuse types for the White group.

Total social support. Total social support score was a positive predictive factor for American Indians and Alaska Natives for three types of abuse and was also retained in the final models for each (lifetime emotional abuse, emotional abuse since 60, and physical abuse since 60). For the Black group, total social support was only predictive of lifetime emotional abuse and emotional abuse since 60), while it was significantly associated with all six types of abuse for the White group.

SF-8 including overall health. For the American Indian and Alaska Native group, one SF-8 item was significantly associated with all six types of abuse; the

response to "*how much have you been bothered by emotional problems*" was significant for five of six abuse types for American Indians and Alaska Natives and was retained in the final model for financial exploitation by a stranger. In the Black group, SF-8 items were not significant predictors of financial exploitation by strangers or lifetime sexual abuse, but at least one item was significantly associated with all other types of abuse. For the White group, all SF-8 items were significant for all types of abuse.

Overall Model Performance

Final logistic regression models were built based on significant predictors for the American Indian and Alaska Native group. The final overall models were significant for all three groups except for financial exploitation by a stranger, and two demonstrated questionable model fit (lifetime sexual mistreatment for the Black group and emotional mistreatment since 60 for the White group).

Based upon the significance of the overall model, there were similarities in some predictors between the various subtypes of abuse. Of 24 possible predictor variables, age was the most frequently occurring (in four of six models), followed by social support (three models), and history of trauma (three models). Help needed, bothered by emotional problems in the past four weeks, marital status, and gender were each present in one model. Age was present in all three lifetime abuse models, total social support was included in both models for abuse since 60, and history of trauma was included in lifetime physical abuse, lifetime sexual abuse, and financial exploitation by a stranger. Although models shared some common predictive factors, differing risk and protective factors were found for each abuse subtype.

Examination of goodness of fit, discrimination, and ability to properly classify cases within each of the models by race group identified multiple differences in the predictive capacity of each of the models. Based upon the ability to classify cases of abuse, the best performing model was the American Indian and Alaska Native model predicting lifetime physical abuse which was able to correctly classify 52% of cases of abuse (AUC = 74.5%, R2 = .241), whereas the same model for the White and Black groups were not able to correctly predict any abuse cases. Two other American Indian and Alaska Native models were able to correctly classify some percentage of abuse cases, including emotional abuse since 60 model, which correctly predicted 42% of abuse cases (AUC = .803, R2 = .326) and the lifetime emotional abuse model, which predicted 30.6% of abuse cases (AUC = 69.3%, R2 = .147). None of the models for the Black group were successful at predicting cases of abuse. The best performing model based upon the ability to classify abuse versus no abuse cases for the White group was for lifetime emotional support. The model was able to correctly predict 3% of abuse cases (AUC = .662, R2 = .086).

Based upon ROC area under the curve results, and an arbitrary cut off of 80%, the two most discriminating models for American Indians and Alaska Natives were physical abuse since 60 (AUC = 81.9% for American Indians and Alaska Natives, 73% for Blacks, 69.4% for Whites) and emotional abuse since 60 (AUC = 80.3% for American Indians and Alaska Natives, 65.2% for Blacks, 67.3% for Whites). The model for emotional abuse since 60 performed consistently well based upon all three tests.

Discussion

This article presents the result of a comparison of predictors of elder abuse for the American Indian and Alaska Native population to Blacks and Whites from the National Elder Mistreatment Study (NEMS). It was hypothesized that the American Indian and Alaska Native group would have different predictors of abuse than other races. Findings largely support the hypothesis. Bivariate logistic regression results also seem to indicate predictors of abuse for Black respondents are also different from Whites, even though statistical analysis of differences in predictors between the two groups was not conducted.

In general, there were far more significant variables for the White group, perhaps owing in part to the very large sample for that group. For example, bivariate logistic regression of emotional abuse since 60 identified only three non-significant variables of 24 tested for Whites, whereas 13 were non-significant for American Indians and Alaska Natives, and 15 were non-significant for the Black group. Overall, no single set of bivariate predictors was the same for any abuse type for either American Indians and Alaska Natives and Whites or Blacks. Final logistic regression models built based on predictors identified for the American Indian and Alaska Native group contained some of the same variables as models constructed in the original NEMS analysis and a subsequent analysis of race and ethnicity, specifically finding social support a significant predictor in physical and emotional abuse since 60 (Acierno et al., 2009; Hernandez-Tejada et al., 2013). Though, further examination indicates there is variation in model fit and predictive capacity between race groups.

Findings from several contextual predictors merit discussion. History of trauma was retained in three final models including lifetime physical abuse, lifetime sexual abuse, and financial exploitation by a stranger (also a lifetime rate). The American Indian and Alaska Native group consistently had higher odds of experiencing abuse among those with a history of a traumatic event than other races across models. For example, for American Indians and Alaska Natives who experienced a history of a traumatic event, the odds of experiencing financial exploitation by a stranger were 6.2 times the odds of those who had not experienced a traumatic event. This compares with lower odds for Black respondents (OR = 1.7), as well as White respondents (OR = 3.22).

It is possible that the physical or sexual assault experienced earlier in respondents' lives may have been the qualifying event that resulted in a response endorsing a traumatic experience (feared for their life) for those two abuse types; and thus the trauma experience may be associated with or may have been the abuse experienced versus a predictor or cause of abuse. In the case of financial exploitation, the connection is not quite as clear, given the questions used to assess exploitation which asked if someone had spent money without asking, forged their signature, or forced them to sign documents. Events that are not as likely to be considered life-threatening. It may be that the trauma experience is a moderating factor for some other direct or indirect cause such as depression or anxiety.

The original NEMS study found an association between social service use (reference group: no use) and lower prevalence of family financial exploitation and potential neglect. However, those who used social services appeared to be more likely to

experience financial mistreatment. There were few associations with social service use and emotional, physical, or sexual mistreatment (Acierno et al., 2009). The present study included a variable that quantified the frequency of social service use, to determine if there was a potential "dose" dependent relationship with social service use and abuse. Meaning -- does more frequent social service use play a protective role? The only significant finding in bivariate analysis was with the White group for emotional abuse since 60 and lifetime sexual abuse, each significant for the use of one social service agency, and for lifetime sexual abuse the use of three social service agencies. Results indicate that increasing frequency of social service use has no meaningful impact on abuse outcomes.

Finally, total social support score was a positive predictive factor for American Indians and Alaska Natives for three types of abuse and was also retained in the final models for each (lifetime emotional abuse, emotional abuse since 60, and physical abuse since 60). Social support was a consistent predictive factor in the original analysis of the NEMS as well as the follow-up analysis of race and ethnicity, with investigators suggesting that connecting older adults to community services and promotion of interaction with community, health, and social agencies as a central intervention (Acierno et al., 2009; Hernandez-Tejada et al., 2013). This proposal is somewhat at odds with the findings that social service use at all (yes or no), or even at higher frequencies offered was not a significant protective factor in any final model and was only significant for whites for two forms of abuse. The measure of social support included questions assessing the availability of help when confined to bed, someone to give advice in a crisis, someone to talk with about a problem, and getting together with someone for

relaxation. It may be that the focus of current social service programs and supports is not to address the types of outcomes for their clients assessed by the social support measure, which by virtue of the constructs included imply the need for deeper more meaningful connections than may be had by connections with community and social services.

Compared to previous studies, this study found similarities and differences in individual risk and predictive factors in the final models, which were constructed based on the unique predictive variables for the American Indian and Alaska Native race group. This was also the case for the Black group based solely on bivariate analysis. Help needed, age, and social support were significant predictors for physical abuse since 60 in the final model, and only social support in the final model for emotional abuse since 60. Thus, social support was the one common predictor between the two models of predictors of abuse since 60. A logistic regression model of NEMS data that included emotional coercive control by an intimate partner as a predictor variable also found that lifetime experience of trauma, good health, social support, and living alone were all significant predictors of physical abuse after 60 in the total NEMS study sample (Policastro & Finn, 2015). Except for coercive control (not a variable in the present study), all of those variables were significant in bivariate analysis for the White group in the present study, none were significant for the Black group, and only one significant for the American Indian and Alaska Native group in the final model. Interestingly, though social support was not a significant bivariate predictor of physical abuse since 60 for the Black group (p = .056, OR .832, 95% CI, .69 – 1.01), the final overall model was significant (p = .047). The social support finding is consistent with previous analysis of the NEMS dataset which presented predictors for past year mistreatment, not since 60 (Acierno et al., 2009;

Hernandez-Tejada et al., 2013), as well as a South Carolina study that utilized a similar methodology to the NEMS (Amstadter et al., 2011).

Financial exploitation by a stranger is the one outcome variable that is similarly measured and analyzed in both the NEMS and present study (Acierno et al., 2009). In the NEMS, the final logistic regression model for financial exploitation by a stranger included the following significant variables: age below 70 ($p = .002$), poor health ($p = .044$), prior traumatic event ($p < .001$), and needs ADL assistance ($p = .007$). The same variables were significant in bivariate analysis for the White group in the present study. Another study of financial exploitation that included lifetime prevalence (since 60) identified the following significant predictors: African American race, poverty, increasing number of household members, at least one ADL or IADL impairment, and living with a spouse (Peterson et al., 2014). Bivariate analysis for Blacks in the present study found only two significant predictors of 24 analyzed for financial exploitation by strangers including household size and help needed with at least one task, similar to findings from the Peterson study. However, neither of those predictors were significant for American Indians and Alaska Natives. The final financial exploitation model included two significant predictors specific to American Indians and Alaska Natives (history of trauma and how much have you been bothered by emotional problems in the past four weeks). The only common significant variable between this study and NEMS for financial exploitation was a history of trauma; there were no shared variables with the Peterson et al. study. Peterson noted that other risks or confounding factors such as trauma or mental health status were not assessed in their study (Peterson et al., 2014).

The final model (p = .003) was significant for American Indians and Alaska Natives but not the Black group (p = .240).

Few elder abuse research articles discuss the performance of model fit and discrimination. Instead, most focus on odds ratios or relative risk of individual variables. One exception was a prospective study of 8,157 older items that evaluated the use of a 9-item vulnerability index, which demonstrated predictive accuracy finding ROC AUCs ranging from 77% - 86% depending upon whether variable measures were categorical (lower) or continuous (higher) (Dong & Simon, 2014). Although the aim of this study was not to construct predictive models or propose a new methodology doing so, it does illuminate the need for more work in this area. The models created could be improved in their predictive accuracy for the American Indian and Alaska Native group (and perhaps others) by incorporating more statistically valid predictors of abuse, beyond the 24 variables in this dataset. For example, the best performing model presented (i.e., American Indian and Alaska Native model for emotional abuse since 60) demonstrated an AUC of 80.3%, but only accounted for 32.6% of the variance between the two groups and could only correctly classify 42% of those in the abused group. When examining the conceptual model that guided variable selection (Figure 1) we found a large number of potential predictors that remain untested or inconclusive that may contribute to future predictive models. This was particularly noticeable at the exosystem, macrosystem, and chronosystem levels which include previously identified risk factors from the American Indian and Alaska Native elder abuse literature, such as substance abuse, acculturation, and historical trauma.

Limitations

Primary limitations were related to sample size and application of logistic regression models. Abuse outcomes were rare events, which resulted in very small case counts within the subgroups. This presents an issue in statistical modeling. Though, analysis proceeded despite small cell counts by choosing to limit the number of predictors included in final logistic regression models. Stepwise regression methods, used in the second step of model development to produce parsimonious models, have their drawbacks. The ICPSR dataset was missing final weighting data for 6,320 observations, and as a result, the weighting variable was not applied during analysis. However, a comparison of study findings to the original study indicates that differences may be largely immaterial.

Acierno et al. (2009) identified specific limitations in the original study and noted in subsequent publications (Hernandez-Tejada et al., 2013; Amstadter, Begle, et al., 2010; Amstadter, Cisler, et al., 2010; Cisler et al., 2012). Issues identified were the collection of data based on self-reports of abuse with no objective supporting measure, interviews conducted solely by telephone, and not all households have phones or respondents available when calls were conducted; and interviews conducted only in English and Spanish which excludes individuals who speak other languages. Respondents were limited to those cognitively intact community-dwelling results and may under-represent prevalence or risk and protective factors unique to cognitively impaired individuals or those living in group home settings.

In an effort to address limitations in this study, the original study principal investigator Dr. Acierno was consulted on the proposed research and analysis plan. He also shared original coding syntax that was consulted to create the new dataset.

Future Research

Evidence from this analysis supports the conclusion that models built on the unique predictive variables within each race group will generate better, more effective insights and tools. There is a compelling rationale for future research focused on building predictive models that can be incorporated into clinical practice. The power of electronic health records and clinical data systems can be harnessed to help providers use differential risk data already at hand to identify those at higher or the highest risk of abuse.

In addition, there is a clear need for future research for American Indians and Alaska Natives that in many ways reflects the global research needs of the field. Considerations include:

- Testing and comparison of standardized measurement tools, including clinical screening tools to assess for adequacy and reliability with an American Indian and Alaska Native audience.
- Implementation of a population-based prospective study of older American Indians and Alaska Natives, potentially with a sampling strategy that stratifies participants by tribal enrolment or geographic regions that includes other co and confounding variables, e.g., depression and dementia, for American Indians and Alaska Natives.

- Research that examines the relationship of other predictors using an intersectionality lens and the full spectrum of the ecological framework, so factors such as acculturation, tribal affiliation, community norms such as spirituality, proximity to tribal lands versus urban dwelling elders are considered.
- Development and testing of culturally-specific interventions for screening and response to elder abuse.
- Robust analysis of the economic impact of elder abuse to make a case for action by tribes, tribal law enforcement, and Indian Health Service.
- Evaluation of the impact of structures including policies and other contextual issues on elder abuse nationally and tribally.

For larger studies not exclusively focused on the American Indian and Alaska Native population, researchers are encouraged to discontinue the practice of aggregating American Indians and Alaska Natives into the “other” category. Instead, consideration must be given to oversampling of smaller minority populations, and to accompanying core research with a separate analysis and reporting of results for minority populations.

Given the lack of research substantiating screening of elders for abuse (Feltner et al., 2018) and scarcity of evidence-based interventions (Dong, 2015; Feltner et al., 2018; Pillemer et al., 2016), in the face of higher prevalence for American Indian and Alaska Native elders it is challenging to make practice-based recommendations. Though, this should not be seen as a deterrent to action. Health care providers will be compelled to intervene in cases of elder abuse within the scope of existing policies or protocols for working with older victims of domestic violence, abuse, or exploitation. Culturally appropriate, elder-specific protocols and policies for screening and management of cases

of abuse, if such guidelines do not exist in their health care systems is a starting point. The unique cultural context and priorities unique to each American Indian or Alaska Native patient or tribal community they serve should guide this work, as well as inform day-to-day.

Conclusions

Our findings support the hypothesis that there are differences in predictors of abuse for American Indians and Alaska Natives (and Blacks) compared with Whites, beyond the construct of social support. Results indicate that for both American Indians and Alaska Natives and Blacks the risk and protective factors common to Whites are not necessarily shared. There is much room to improve the predictive ability of models based on analysis of sensitivity, specificity, and the ability to correctly classify individuals, particularly those who have been abused. This study addresses gaps in the literature regarding elder abuse prevalence and predictors specific to the American Indian and Alaska Native population. However, many potentially significant contextual variables including cultural, societal, and structural differences between American Indians and Alaska Natives and Whites and within American Indian and Alaska Native cultures are as yet untested in empirical research. There continues to exist a great need for future research focused on predictive factors of abuse among American Indian and Alaska Native populations. Future research design should be developed based on factors unique to the American Indian and Alaska Native group, and the same for other race groups, to maximize effectiveness.

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Declaration of Interest Statement

There are no potential conflicts of interest to disclose.

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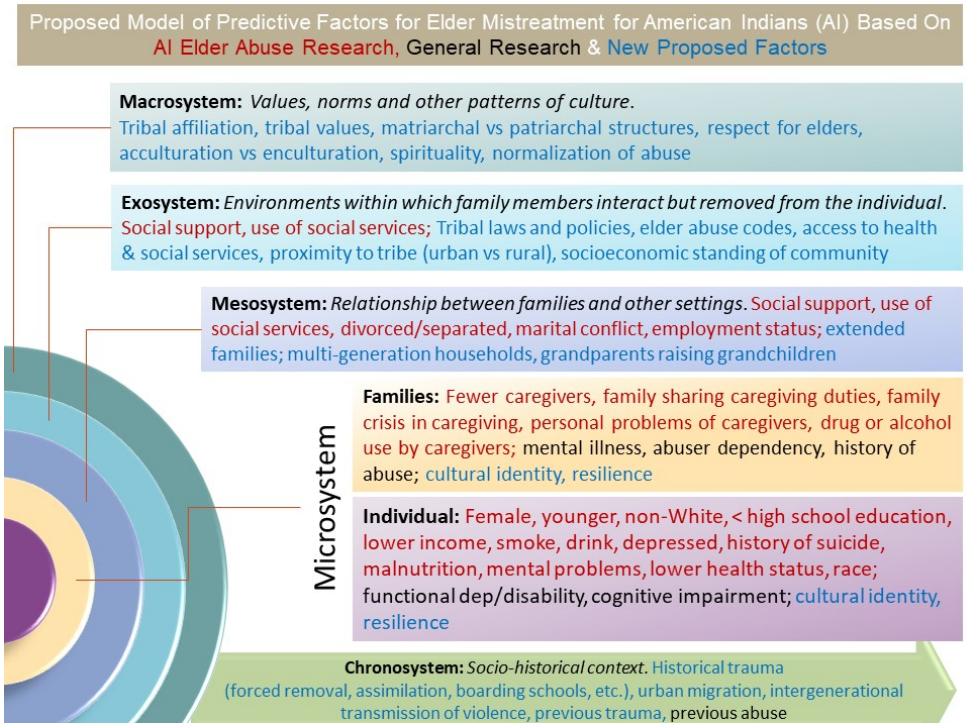
Figures



Tables

Table 1. Mistreatment prevalence rates by race group from descriptive analysis

	Current Study AIAN alone or in combination	**Current Study** Black or African American alone	**Current Study** White or Caucasian alone
Emotional mistreatment: Lifetime	34.9%	25.1%[a]	21.6%[a]
Emotional mistreatment: Since 60	24.7%	18.3%[b]	13.1%[a]
Emotional mistreatment: Past year	17.2%	10.7%[a]	7.8%[a]
Physical mistreatment: Lifetime	25.0%	11.8%[a]	12.3%[a]
Physical mistreatment: Since 60	4.0%	1.8%[b]	1.8%[b]
Physical mistreatment: Past year	2.0%	1.0%[b]	.6%[b]
Sexual mistreatment: Lifetime	17.6%	7.2%[a]	7.9%[a]
Sexual mistreatment: Since 60	[c]	[c]	[c]
Sexual mistreatment: Past year	[c]	[c]	[c]
Potential neglect: past year (identified need for assistance not being addressed)	6.7%	10.2%[b]	7.7%[b]
Potential neglect by identified caregiver	3.7%	1.5%[b]	0.5%[a]
Financial exploitation by family	7.1%	6.8%[b]	5.0%[b]
Financial exploitation by non-family	14%	7.8%[a]	6.0%[a]

a. Statistically significant difference in rate of abuse subtype between this and AIAN group
b. No statistically significant difference in rates of abuse subtype between this and AIAN group
c. Expected cell count too low to perform analysis

Table 2. Demographic, health status, and social service use variables with $\chi 2$ analysis by race groups

		Race								
		American Indian and Alaska Native alone or in combination		**Black or African American alone**		**White or Caucasian alone**		***p* – value Chi-square**	***p* – value Fisher's Exact**	
		Count	Column %	Count	Column %	Count	Column %	Overall (3 Groups)	AIAN vs. Black	AIAN vs. White
Age category	70 or less	113	57.9%	236	54.0%	2357	47.0%			
	71 or older	82	42.1%	201	46.0%	2656	53.0%			
	Total	195	100.0%	437	100.0%	5013	100.0%	<.001***	.387	.003**
Gender	Female	122	62.6%	316	72.3%	3396	67.7%			
	Male	73	37.4%	121	27.7%	1617	32.3%			
	Total	195	100.0%	437	100.0%	5013	100.0%	0.039*	.015*	.139
Marital status	Married or living with partner	63	32.5%	127	29.1%	2320	46.6%			
	Not currently married or living with partner	131	67.5%	309	70.9%	2663	53.4%			
	Total	194	100.0%	436	100.0%	4983	100.0%	<.001***	.399	<.001***
Education status	Less than college graduate	135	71.1%	308	72.8%	3145	63.6%			
	College graduate	55	28.9%	115	27.2%	1799	36.4%			
	Total	190	100.0%	423	100.0%	4944	100.0%	<.001**	.697	.038*
Income: low, high	Low income (Less than $35,000)	117	74.1%	217	67.4%	1826	48.9%			
	High income (> $35,001)	41	25.9%	105	32.6%	1909	51.1%			

	Total	158	100.0%	322	100.0%	3735	100.0%	. <.001**	.141	<.001**
Income: Approximate poverty	Near poverty (Less than $20,000)	79	50.0%	157	48.8%	1056	28.3%			
	Above poverty (> $20,001	79	50.0%	165	51.2%	2679	71.7%			
	Total	158	100.0%	322	100.0%	3735	100.0%	<.001**	.846	<.001**
Employment status	Retired or unemployed	157	81.8%	365	85.5%	4045	81.3%			
	Employed	35	18.2%	62	14.5%	930	18.7%			
	Total	192	100.0%	427	100.0%	4975	100.0%	0.102	.282	.925
Household size	2+ household size	90	46.2%	243	55.6%	2795	55.8%			
	Lives alone	105	53.8%	194	44.4%	2218	44.2%			
	Total	195	100.0%	437	100.0%	5013	100.0%	.030*	.031*	.010**
Overall health	Poor	59	30.4%	144	33.3%	1056	21.2%			
	Good	135	69.6%	288	66.7%	3922	78.8%			
	Total	194	100.0%	432	100.0%	4978	100.0%	<.001**	.518	.003**
History of trauma	No history of trauma	41	21.5%	172	39.7%	1976	39.7%			
	History of trauma	150	78.5%	261	60.3%	3000	60.3%			
	Total	191	100.0%	433	100.0%	4976	100.0%	<.001**	<.001**	<.001**
Social service use	No social service use	97	50.0%	193	44.5%	2918	58.5%			
	Social service use	97	50.0%	241	55.5%	2073	41.5%			
	Total	194	100.0%	434	100.0%	4991	100.0%	<.001**	0.225	.012*
Social service frequency of use	No social service use	97	50.0%	193	44.5%	2918	58.5%			
	1 social service program	58	29.9%	120	27.6%	1232	24.7%			
	2 social service programs	21	10.8%	63	14.5%	507	10.2%			
	3 social service programs	9	4.6%	29	6.7%	200	4.0%			
	4 or more social service programs	9	4.6%	29	6.7%	134	2.7%			

	Total	194	100.0%	434	100.0%	4991	100.0%	<.001**	.362	.126
Help needed with at least one task	No help needed	105	53.8%	200	45.8%	3045	60.8%			
	Identified need for help with at least one task	90	46.2%	237	54.2%	1966	39.2%			
	Total	195	100.0%	437	100.0%	5011	100.0%	<.001**	.070	.032*
Help available if needed for at least one task	No help available	6	6.7%	24	10.2%	150	7.7%			
	Help available for at least one task	83	93.3%	212	89.8%	1810	92.3%			
	Total	89	100.0%	236	100.0%	1960	100.0%	.367	.397	1
Continuous variables		**Count**	**Median [IQR]**	**Count**	**Median [IQR**	**Count**	**Median [IQR**	**p - value Kruskal-Wallis or Mann-Whitney U**		
Social support total score		195	15.00 [8.00]	437	15.00 [8.00]	5013	17.00 [7.00]	< .001***	0.557	< .001***
Overall, how would you rate your health during the past 4 weeks? (SF-8)		195	46.43 [14.42]	437	46.43 [14.42]	5013	52.83 [6.40]	< .001***	0.981	< .001***
During the past 4 weeks, how much did physical health problems limit your physical activities? (SF-8)		195	48.33 [13.98]	437	48.33 [13.98]	5013	54.05 [13.98]	< .001***	0.974	< .001**
During the past 4 weeks, how much difficulty did you have doing your daily work…because of your physical health? (SF-8)		195	46.92 [15.27]	437	53.98 [15.27]	5013	53.98 [15.27]	< .001***	0.867	0.015*
How much bodily pain have you had during the past 4 weeks? (SF-8)		195	47.67 [13.28]	437	47.67 [20.70]	5013	47.67 [20.70]	0.001**	0.164	< .001***
During the past 4 weeks, how much energy have you had? (SF-8)		195	45.16 [19.81]	437	45.16 [19.81]	5013	45.16 [10.46]	< .001***	0.006**	< .001
During the past 4 weeks, how much did your physical health or emotional problems limit usual social activities…? (SF-8)		195	49.47 [14.84]	437	55.25 [5.78]	5013	55.25 [5.78]	< .001***	0.689	0.005**

During the past 4 weeks, how much did personal or emotional problems keep you from your work, school or other daily activities? (SF-8)	195	52.42 [6.76]	437	52.42 [6.76]	5013	52.42 [6.76]	< .001***	0.279	< .001***
During the past 4 weeks, how much have you been bothered by emotional problems…? (SF-8)	195	49.59 [15.26]	437	56.79 [7.20]	5013	56.79 [7.20]	< .001***	0.831	< .001***
* $p <= 0.05$, ** $p < 0.01$, *** $p < 0.001$									

Table 3. Significant bivariate logistic regression results for lifetime emotional abuse by race

	AIAN alone and in combination with other races					Black or African American alone					White or Caucasian alone				
	n	p - value	OR	95% CI		n	p - value	OR	95% CI		n	p - value	OR	95% CI	
				LB	UB				LB	UB				LB	UB
Age categorical: 71 or older (Ref: <=70)	192	0.001**	0.32	0.17	0.62	435	0.012*	0.56	0.36	0.88	4969	<.001***	0.42	0.37	0.48
Education status: College graduate (Ref: less than college graduate)	187	0.229	1.49	0.78	2.84	421	0.006**	1.94	1.21	3.10	4903	0.001**	1.26	1.09	1.45
Income: $20,001 or higher (approximate poverty) (Ref: <=$20,000	155	0.576	0.83	0.43	1.59	321	0.718	0.91	0.56	1.50	3713	0.003**	0.78	0.66	0.92
Employment status: Employed or in the military (Ref: unemployed, retired)	189	0.534	1.27	0.60	2.70	425	0.665	0.87	0.46	1.65	4933	<.001***	1.58	1.35	1.86
Overall health: Good or better (Ref: poor)	191	0.159	0.63	0.34	1.20	430	0.021*	0.59	0.38	0.92	4934	<.001***	0.69	0.59	0.81
History of trauma (Ref: no history of trauma)	189	0.222	1.61	0.75	3.47	431	<.001***	3.65	2.16	6.17	4934	<.001***	2.48	2.12	2.89
Social service use: One or more (Ref: none)	191	0.721	0.90	0.49	1.63	432	0.036*	1.62	1.03	2.53	4947	0.898	1.01	0.88	1.16

Help needed with at least one task (Ref: help not needed)	192	0.276	1.39	0.77	2.52	435	0.005**	1.90	1.21	2.98	4969	0.007**	1.21	1.05	1.39
Help available if needed for at least one task (Ref: help not available if needed)	89	0.582	0.63	0.12	3.30	236	0.003*	0.27	0.11	0.64	1944	<.001***	0.47	0.33	0.67
Continuous															
Social support total score range 5-20	180	0.002**	0.90	0.84	0.96	398	0.012*	0.93	0.89	0.98	4421	<.001***	0.92	0.90	0.94
Overall, how would you rate your health during the past 4 weeks? (SF-8)	181	0.108	0.97	0.94	1.01	397	0.043*	0.97	0.95	1.00	4687	<.001***	0.98	0.97	0.99
During the past 4 weeks, how much did physical health problems limit your physical activities? (SF-8)	181	0.355	0.99	0.96	1.02	397	0.007**	0.97	0.95	0.99	4687	<.001***	0.98	0.97	0.99
During the past 4 weeks, how much difficulty did you have doing your daily work… because of your	181	0.262	0.98	0.95	1.01	397	0.039*	0.98	0.95	1.00	4687	<.001***	0.98	0.97	0.98

physical health? (SF-8)															
How much bodily pain have you had during the past 4 weeks? (SF-8)	181	0.037*	0.97	0.94	1.00	397	0.023*	0.98	0.96	1.00	4687	<.001***	0.97	0.97	0.98
During the past 4 weeks, how much energy have you had? (SF-8)	181	0.210	0.98	0.95	1.01	397	0.126	0.98	0.96	1.01	4687	<.001***	0.98	0.98	0.99
During the past 4 weeks, how much did your physical health or emotional problems limit usual social activities…? (SF-8)	181	0.100	0.97	0.94	1.01	397	0.098	0.98	**0.96**	1.00	4687	<.001***	0.97	0.96	0.98
During the past 4 weeks, how much did personal or emotional problems keep you from your work, school or	181	0.008**	0.95	0.92	0.99	397	0.305	0.99	0.96	1.01	4687	<.001***	0.96	0.95	0.97

other daily activities? (SF-8)															
During the past 4 weeks, how much have you been bothered by emotional problems…? (SF-8)	181	0.017*	0.97	0.94	0.99	397	0.001**	0.96	0.94	0.98	4687	<.001***	0.95	0.95	0.96
* p < = 0.05, ** p < 0.01, *** p < 0.001 OR =odds ratio; CI = confidence interval; LB = lower bounds; UB = upper bounds															

Table 4. Final logistic regression model for lifetime emotional abuse

Race Group	Predictor Variable	B	Sig.	OR	95% C.I.		Model χ^2 p value	Hosmer & Lemeshow p value	Negelkerke R2	Classification - Model Detection of Abuse		ROC AUC
					LB	UB				% Not Abused	% Abused	
American Indian and Alaska Native alone or in combination	Age: 71 or older (Ref: <=70)	-1.109	0.002	0.330	0.165	0.661						
	Social support total score	-0.111	0.002	0.895	0.835	0.960						
Model							<.001	0.725	0.147	88.1%	30.6%	0.693
Black or African American alone	Age: 71 or older (Ref: <=70)	-0.529	0.027	0.589	0.369	0.941						
	Social support total score	-0.070	0.010	0.933	0.884	0.984						
Model							0.003	0.922	0.042	100.0%	0.0%	0.616
White or Caucasian alone	Age: 71 or older (Ref: <=70)	-0.981	<.001	0.375	0.322	0.436						
	Social support total score	-0.098	<.001	0.907	0.890	0.923						
Model							<.001	0.220	0.086	98.9%	3.0%	0.662

** p < = 0.05, ** p < 0.01, *** p < 0.001*
OR =odds ratio; CI = confidence interval; LB = lower bounds; UB = upper bounds

Table 5. Final logistic regression model for emotional abuse since 60 by race

Race Group	Predictor Variable	B	Sig.	OR	95% C.I.		Model χ^2 p value	Hosmer & Lemeshow p value	Negelkerke R2	Classification - Model Detection of Abuse		ROC AUC
					LB	UB				% Not Abused	% Abused	
American Indian and Alaska Native alone or in combination	Help needed with at least one task (Ref: no help needed)	1.224	0.007	3.401	1.401	8.254						
	Age: 71 or older (Ref: <=70)	-1.141	0.012	0.320	0.131	0.779						
	Social support total score	-0.221	<.001	0.802	0.729	0.882						
Model							<.001	0.428	0.326	94.1%	42.1%	0.803
Black or African American alone	Help needed with at least one task (Ref: no help needed)	0.699	0.016	2.013	1.136	3.564						

	Age: 71 or older (Ref: <=70)	-0.765	0.008	0.465	0.263	0.822						
	Social support total score	-0.070	0.027	0.932	0.876	0.992						
Model							0.001	0.987	0.076	100.0%	0.0%	0.652
White or Caucasian alone	Help needed with at least one task (Ref: no help needed)	0.633	<.001	1.883	1.543	2.298						
	Age: 71 or older (Ref: <=70)	-0.878	<.001	0.416	0.340	0.507						
	Social support total score	-0.117	<.001	0.889	0.870	0.910						
Model							<.001	0.019	0.094	99.9%	1.0%	0.673

** p < = 0.05, ** p < 0.01, *** p < 0.001*
OR =odds ratio; CI = confidence interval; LB = lower bounds; UB = upper bounds

Table 6. Final logistic regression model lifetime physical abuse by race

Race Group	Predictor Variable	B	Sig.	OR	95% C.I.		Model χ^2 p value	Hosmer & Lemeshow p value	Negelkerke R2	Classification - Model Detection of Abuse		ROC AUC
					LB	UB				% Not Abused	% Abused	
American Indian and Alaska Native alone or in combination	Age: 71 or older (Ref: <=70)	-1.536	<.001	0.215	0.094	0.491						
	Marital status: married or partner (Ref: unmarried, divorced, no partner)	1.726	<.001	5.617	2.291	13.770						
	History of trauma (Ref: no history of trauma)	1.881	0.004	6.561	1.829	23.530						
Model							<.001	0.991	0.241	85.6%	52.1%	0.745
Black or African American alone	Age: 71 or older (Ref: <=70)	-1.096	0.002	0.334	0.167	0.670						
	Marital status: married or partner (Ref: unmarried, divorced, no partner)	0.296	0.389	1.344	0.686	2.633						

	History of trauma (Ref: no history of trauma)	0.680	0.054	1.974	0.987	3.947						
Model							<.001	0.931	0.079	100.0%	0.0%	0.678
White or Caucasion alone	Age: 71 or older (Ref: <=70)	-1.111	<.001	0.329	0.272	0.399						
	Marital status: married or partner (Ref: unmarried, divorced, no partner)	0.520	<.001	1.682	1.400	2.019						
	History of trauma (Ref: no history of trauma)	1.040	<.001	2.828	2.287	3.497						
Model							<.001	0.315	0.103	100.0%	0.0%	0.698

** p < = 0.05, ** p < 0.01, *** p < 0.001*
OR =odds ratio; CI = confidence interval; LB = lower bounds; UB = upper bounds

Table 7. Final logistic regression model for physical abuse since 60 by race

Race Group	Predictor Variable	B	Sig.	OR	95% C.I.		Model χ^2 p value	Hosmer & Lemeshow p value	Negelkerke R2	Classification - Model Detection of Abuse		ROC AUC
					LB	UB				% Not Abused	% Abused	
American Indian and Alaska Native alone or in combination	Social support total score	-0.336	0.006	0.714	0.561	0.910						
Model							0.001	0.051	0.259	100%	0%	0.819
Black or African American alone	Social support total score	-0.184	0.056	0.832	0.690	1.005						
Model							0.047	0.285	0.063	100%	0%	0.730
White or Caucasion alone	Social support total score	-0.161	<.001	0.852	0.807	0.898						
Model							<.001	0.681	0.051	100%	0%	0.694

Table 8. Final logistic regression model for lifetime sexual abuse by race

Race Group	Predictor Variable	B	Sig.	OR	95% C.I.		Model χ^2 p value	Hosmer & Lemeshow p value	Negelkerke R2	Classification - Model Detection of Abuse		ROC AUC
					LB	UB				% Not Abused	% Abused	
American Indian and Alaska Native alone or in combination	Age: 71 or older (Ref: <=70)	-1.896	<.001	0.150	0.052	0.433						
	Gender: male (Ref: female)	-2.159	<.001	0.115	0.037	0.364						
	History of trauma (Ref: no history of trauma)	1.876	0.017	6.528	1.405	30.338						
Model							<.001	0.926	0.297	100%	0%	0.800
Black or African American alone	Age: 71 or older (Ref: <=70)	-1.185	0.013	0.306	0.121	0.775						
	Gender: male (Ref: female)	-0.827	0.084	0.437	0.171	1.117						

	History of trauma (Ref: no history of trauma)	1.800	0.004	6.050	1.781	20.550						
Model							<.001	0.018	0.141	100%	0%	0.755
White or Caucasian alone	Age: 71 or older (Ref: <=70)	-0.871	<.001	0.419	0.335	0.524						
	Gender: male (Ref: female)	-1.372	<.001	0.254	0.189	0.340						
	History of trauma (Ref: no history of trauma)	1.055	<.001	2.873	2.227	3.708						
Model							<.001	0.196	0.104	100%	0%	0.716

Table 9. Final logistic regression model for financial exploitation by a stranger by race

Race Group	Predictor Variable	B	Sig.	OR	95% C.I.		Model χ^2 p value	Hosmer & Lemeshow p value	Negelkerke R2	Classification - Model Detection of Abuse		ROC AUC
					LB	UB				% Not Abused	% Abused	
American Indian and Alaska Native alone or in combination	History of trauma (Ref: no history of trauma)	1.823	0.082	6.189	0.796	48.142						
	During the past 4 weeks, how much have you been bothered by emotional problems	-0.041	0.027	0.960	0.926	0.995						
Model							0.003	0.517	0.116	100%	0%	0.687
Black or African American alone	History of trauma (Ref: no history of trauma)	0.529	0.224	1.697	0.724	3.982						
	During the past 4 weeks, how much have you been bothered by emotional problems	-0.020	0.319	0.980	0.943	1.019						
Model							0.240	0.746	0.018	100%	0%	0.590
White or Caucasian alone	History of trauma (Ref: no history of trauma)	1.169	<.001	3.219	2.335	4.438						
	During the past 4 weeks, how much have you been bothered by emotional problems	-0.030	<.001	0.970	0.957	0.983						

Model							<.001	0.484	0.052	100%	0%	0.650

Chapter Six: Discussion and Conclusions

Discussion and Conclusion

This chapter provides a summary of critical findings, limitations, and implications for practice, policy, and research from the secondary analysis of the National Elder Mistreatment Study (NEMS). A major strength of this study was the use of the NEMS dataset. The NEMS was seminal research that continues to be widely cited in academic journals and by international and national organizations, e.g., World Health Organization, National Center for Elder Abuse, with wave II results recently released (Acierno, Hernandez-Tejada, Anetzberger, Loew, & Muzzy, 2017; Hernandez-Tejada, Frook, Steedley, Watkins, & Acierno, 2018). The original NEMS data continues to serve as a secondary source of data that is being tapped to answer new elder abuse research questions (Burnes, Hernandez-Tejada, & Acierno, 2018; Labrum & Solomon, 2018; Policastro & Finn, 2015; Williams, Racette, Hernandez-Tejada, & Acierno, 2017).

The NEMS dataset includes a robust set of variables including demographics, health, social, mistreatment outcomes, and perpetrator data. Given the size and scope of the dataset used for this study (6,590 observations and 448 variables) and complexity of research aims, this study used a 4-phase approach. Essential tasks included data cleaning and recoding, feasibility testing of outcome variables, descriptive analysis of sociodemographic, social, and health status indicators as well as prevalence of abuse types by racial groups (American Indian and Alaska Native, Black, and White), and finally identification of predictors of elder abuse and neglect for the three groups including multiple logistic regression modelling to determine whether predictors of elder abuse for American Indians and Alaska Natives were different than for Blacks and Whites.

Bronfenbrenner's ecological model was used to inform the selection of variables and to give consideration to potential predictors of risk or abuse (1979). Predictive factors (risk or protective) used in this study emerged from a systematic review of the literature on elder abuse in the American Indian and Alaska Native community (Crowder, Burnett, Laughon, & Driesbach, 2019) and recent scoping and systematic reviews of elder abuse in the general population (Dong, 2015; Pillemer et al., 2016). In addition, supplemental information based on experience working with the American Indian and Alaska Native population helped with the adaptation of the ecological model. See Manuscript three for more information on the ecological model.

Three manuscripts were developed as a result of this secondary analysis. The first manuscript was an integrative review aimed at synthesizing the body of research on elder abuse in the American Indian and Alaska Native population. The review sought to answer the following questions: 1) What is the prevalence or incidence of elder abuse among American Indians and Alaska Natives? 2) What are the risk factors for abuse? 3) What are unique cultural attributes, attitudes, beliefs, or perceptions that provide context for elder abuse? The second manuscript provided findings from descriptive analysis of social, demographic, and health-related characteristics, and the prevalence of elder abuse within the American Indian and Alaska Native population, and compared these results across other racial groups. The third manuscript identified predictors of elder abuse among American Indian and Alaska Native elders, provided results of multiple logistic regression models created based on predictors significant to American Indians and Alaska Natives, and then compared those findings among White and Black respondents. This chapter will integrate and summarize findings from the three manuscripts using the

following structure: highlights of key findings, discussion of limitations, an overview of implications for practice and policy, and summarize suggestions for future research.

Summary of Key Findings

There were differences in the prevalence of multiple abuse types and also demographic, socioeconomic, social, and health status between American Indian and Alaska Native elders, White, and Black respondents. American Indian and Alaska Native respondents had more similarities in demographic and socioeconomic characteristics compared with Black respondents than White, though significant differences still existed between the groups for five contextual variables. The three groups differed significantly in twenty-two of twenty-four contextual variables.

The cumulative prevalence of emotional, physical, and sexual mistreatment in the past year; neglect; and financial abuse by a family member for the American Indian and Alaska Native group was 33%. This is almost double that of the overall findings (17.1%) reported in the original NEMS study. Lifetime prevalence of mistreatment for American Indians and Alaska Natives were 34.9% for emotional mistreatment, 25% for physical mistreatment and 17.6% for sexual mistreatment. Since the age of 60, the prevalence of abuse for American Indians and Alaska Natives was 24.7% for emotional mistreatment, 4% for physical mistreatment, and .6% for sexual mistreatment.

No set of bivariate predictors was the same for any abuse type between the three race groups. Older age (71 or older) was a significant protective factor in four of six abuse types in both bivariate and multivariate models. Significant gender-based differences were mostly absent except for lifetime sexual mistreatment, with male gender serving as a protective factor for the American Indian and Alaska Native group. For the

American Indian and Alaska Native group, not being married or living with a partner increased the risk of lifetime physical abuse. History of trauma was a significant bivariate predictor and was retained in three of the final models. Income, education, and employment are commonly correlated measures of socioeconomic status; none were significant for abuse in bivariate analysis for American Indians and Alaska Natives. Help needed with at least one daily activity was a significant predictor only for emotional abuse since 60 for American Indians and Alaska Natives. Total social support score was a positive predictive factor for American Indians and Alaska Natives for three types of abuse and was also retained in the final models for each (lifetime emotional abuse, emotional abuse since 60, and physical abuse since 60). For the American Indian and Alaska Native group, one SF-8 item was significant for all six types of abuse; "*how much have you been bothered by emotional problems*" was significant for five of six abuse types for American Indians and Alaska Natives and was retained in the final model for financial exploitation by a stranger.

Two exploratory contextual variables were included. An income variable was developed with a lower threshold to more closely approximate poverty ($20,000). The original dichotomous strategy used $35,000 as a cut point for high and low income. Bivariate analysis identified no instance within the American Indian and Alaska Native group where one income variable was significant but not another. The frequency of social service use was an additional exploratory variable to assess any "dose" dependent relationship between the amount of social service use and mistreatment outcomes. The original study dichotomized social service use into yes or no. The only significant

findings in bivariate analysis were in the White group for emotional abuse since 60 and lifetime sexual abuse.

Multiple logistic regression models constructed based on predictors specific to the American Indian and Alaska Native group contained some similar variables in the models constructed for the original study, most specifically social support. Models built to American Indian and Alaska Native specification were not all significant nor was there good model fit for the Black and White groups for all models. The predictive capacity and ability to classify abuse cases was better for the American Indian and Alaska Native group's predictive models, though there was much room for improvement. Of 24 possible predictor variables considered for the final models, age was the most frequently occurring (in four of six models), followed by social support (three models), and history of trauma (three models), along with help needed, bothered by emotional problems in the past four weeks, marital status and gender each present in one model. Age was present in all three lifetime abuse models, total social support was included in both models for abuse since 60, and history of trauma was included in lifetime physical abuse, lifetime sexual abuse, and financial exploitation by a stranger. Although models shared some common predictive factors, differing risk and protective factors were found for each abuse subtype.

Based upon the ability to classify cases of abuse, the best performing model was the American Indian and Alaska Native model predicting lifetime physical abuse which was able to classify 52% of cases of abuse correctly (AUC = 74.5%, R2 = .241. None of the models for the Black group were successful at predicting cases of abuse. The best performing model based upon the ability to classify abuse versus no abuse cases for the

White group was for lifetime emotional support. The model was able to correctly predict 3% of abuse cases (AUC = .662, R2 = .086). Based upon ROC area under the curve results, and an arbitrary cut off of 80%, the two most discriminating models for American Indians and Alaska Natives were physical abuse since 60 (AUC = 81.9% for American Indians and Alaska Natives, 73% for Blacks, 69.4% for Whites) and emotional abuse since 60 (AUC = 80.3% for American Indians and Alaska Natives, 65.2% for Blacks, 67.3% for Whites). The model for emotional abuse since 60 performed consistently well inclusive of measures of goodness of fit, discrimination, and ability to properly classify cases.

This study addresses gaps in the current state of science and knowledge about elder abuse in the American Indian and Alaska Native population and is the first to draw from a nationally representative sample. The study includes the largest sample, inclusive of both men and women, of any previously published studies including American Indians and Alaska Natives that incorporate comparative groups, and assesses the array of recognized mistreatment types (except for self-neglect). Evidence from this analysis supports the conclusion that models built on the unique predictive variables within each race group will generate better, more effective insights and tools.

Limitations

Secondary data analysis as a method of research and analysis is not without limitations and carries a unique set of challenges (Polit & Beck, 2008). There is almost always some deficiency in a pre-existing dataset-- either in the sampling methods or measurement or construction of variables (Polit & Beck, 2008). In the present study, an assessment conducted prior to analysis identified two variables with high percentages of

missing data. The income variable was missing 27% of observations, and the final total social support variable was missing 11% of observations. Imputation was considered to replace missing data. However, this was not completed based on feedback from the dissertation committee.

A second issue arose regarding the weighting of survey responses. The weighting variable was not applied in the current study as the ICPSR version of the dataset was missing data for 6,320 observations. As a result, we cannot say that the findings can be generalized to the national population. A comparison of study findings of prevalence rates to the original study indicates that differences between weighted and unweighted samples may be largely immaterial to outcomes of interest.

A third issue was related to inconsistencies in variable construction for past year abuse prevalence. Preliminary assessment of outcome variables identified an inconsistency in frequencies for past year abuse variables when comparing the current dataset to the original study findings. Three past year variables were constructed from various questions specific to each type of abuse plus a formula incorporating respondent age. Further review revealed that original study syntax failed to account for missing and "don't know" responses for age variables that were recoded to 98 and 99 and subsequently interpreted as actual age of 98 or 99.

Finally, a lack of validated and reliable instruments was encountered. Psychometric properties of interview questions or survey domains were not offered in study materials (final report, published articles or accompanying documentation available from ICPSR). In a related study, Acierno, Resnick, Kilpatrick, & Stark-Riemer, (2003) reported on a pilot that assessed the feasibility of using telephone-based interviews to

measure assault and abuse in elders. Participants were randomly assigned to in-person versus telephone interviews. Prevalence of abuse and assault were comparable between phone and in-person interview. The survey instrument was tested on a sample of 200 respondents before implementation.

The NEMS study incorporated modifications to multiple standard instruments, including the National Women's study interview; authors note one question from the World Health Organization's Short-Form 36 was included, but the final dataset actually included questions from the SF-8; and a five-item version of the Medical Outcomes Study (MOS) module for social support (Sherbourne & Stewart, 1991) was also created by the research team. Instrumentation issues were identified before study commencement, and a decision was made to proceed despite noted limitations.

An additional limitation of secondary analysis is that research questions must be framed in a manner that they could be answered with the existing variables (Dunn, Arslanian-Engoren, DeKoekkoek, Jadack, & Scott, 2015). An integrative review of the literature identified multiple potential predictive variables that mapped back to the conceptual model, many of which were not included in the original study, e.g., historical loss, substance use by the elder, or acculturation (Crowder et al., 2019).

Other limitations for the present study were related to sample size and application of logistic regression models. Abuse outcomes were rare events, which resulted in very small case counts within the subgroups. This presents an issue in statistical modeling. Though, analysis proceeded despite small cell counts by choosing to limit the number of predictors included in multiple logistic regression models.

Acierno et al (2009) identified limitations specific to the original study design that was noted in subsequent publications (Hernandez-Tejada, Amstadter, Muzzy, & Acierno, 2013; Amstadter, Begle, et al., 2010; Amstadter, Cisler, et al., 2010; Burnes et al., 2018; Cisler, Begle, Amstadter, & Acierno, 2012; Labrum & Solomon, 2018; Policastro & Finn, 2015). Limitations identified included prevalence rates developed based on self-reports of abuse with no objective supporting measure; interviews conducted solely by telephone, and not all households had phones or respondents available when calls were conducted; interviews were conducted only in English and Spanish which excludes individuals who speak other languages. Also, respondents were limited to cognitively intact community-dwelling respondents, thus results and may under-represent prevalence or risk and protective factors unique to cognitively impaired individuals or those living in group home settings.

Despite limitations, the dataset offered the opportunity to analyze prevalence and predictors for American Indians and Alaska Natives drawn from the first nationally representative sample. Adequately powered primary research with the same research aims would not have been feasible as part of the present program of study. Thus, limitations were acknowledged, and the study proceeded. To address limitations in this study, the original study principal investigator Dr. Acierno was consulted on the proposed research and analysis plan. Dr. Acierno subsequently shared original coding syntax that was cross-checked as the new dataset was created and his detailed report was routinely consulted throughout the design and analysis phase to compare current and past data elements.

Implications for Practice

The scope and severity of elder abuse within the American Indian and Alaska Native population as evidenced by the limited availability of research warrants action. Currently, the U.S. Preventive Services Task Force (USPSTF) recommends against universal screening for elder abuse by health providers because of insufficient evidence (Moyer & U.S. Preventive Services Task Force, 2013). However, we know that elder abuse has clear implications for physical and psychological health. The systematic engagement of health care providers in efforts to detect and combat elder abuse seems reasonable and necessary.

In day to day practice, health care providers must recognize the unique traditions and strengths of the older American Indian patients and communities they serve. Jervis et al., (2013) acknowledged the complexity of making conclusions about American Indians as a whole given the breadth of cultural, social, economic and demographic diversity that exists between the hundreds of tribes in existence today. Though, consistent themes or issues were identified in the empirical literature in preparation for the current study that cut across different tribes. Some of these issues were unique to American Indians, and others, for instance denying abuse allegations out of shame or fear, are cross-cutting issues.

That said, providers must recognize that culturally relevant strengths ascribed to American Indians such as traditionalism, strong community ties, or honor and respect of elders likely provide little degree of protection against the risk of elder abuse. Buchwald et al., (2000) proffered the mistaken assumptions of honor and respect for elders, core

values in many tribes, is likely the cause for apathy on the part of providers in screening for and addressing elder abuse.

Providers are in a unique position to screen, assess, and intervene to prevent or ameliorate the effects of elder abuse (Burnett, Achenbaum, & Murphy, 2014; Dong, 2015; Twomey & Weber, 2014). Nearly 20 years ago, in their study of urban Indian health center patients, Buchwald and colleagues (2000) called for health care provider training to enable screening and an adequate response to mistreatment in the clinical setting for American Indian elders. Today, health care providers conduct very little screening for abuse, though they have multiple opportunities to do so (Burnett et al., 2014). In addition to minimal screening efforts, physician-initiated reports of abuse account for less than 2% of cases reported to social service agencies (Burnett, Achenbaum, & Murphy, 2014).

A barrier to screening may be the lack of evidence-based interventions, a concern echoed by Pillemar and colleagues (Pillemer et al., 2016) who report on just 10 intervention studies. In its most recent review, the USPSTF found no randomized control trials of interventions targeting older victims of abuse (Feltner et al., 2018). Since 1989, the year of the first study included in the integrative review for this dissertation, there has only been one elder abuse intervention tested in an American Indian community (Holkup et al., 2007). While there are undoubtedly programs and interventions in place, more empirical evidence is needed. Currently, the most promising elder abuse interventions include services to reduce the caregiving burden, money management programs for those vulnerable to financial exploitation, helplines for elders or their family members to seek

assistance, emergency shelters, and multidisciplinary teams (MDTs) which drive coordination and collaboration in cases of identified elder abuse (Pillemer et al., 2016).

Though the body of literature and evidence-base supporting the health care provider role in addressing elder abuse is limited, this should not be seen as a deterrent to action. Health care providers will be compelled to intervene in cases of elder abuse within the scope of existing policies or protocols for working with older victims of domestic violence, abuse, or exploitation. They should consider advocating for or developing culturally appropriate, elder-specific protocols and policies when such guidelines do not exist in their health care systems. These protocols, policies, as well as day-to-day practice should be guided and informed by the cultural context and priorities unique to each American Indian patient or tribal populations they serve.

Policy Implications

Interest in elder abuse has increased in recent years. The Institute of Medicine, U.S. Government Accountability Office (GAO), Centers for Medicare and Medicaid Services, U.S. Preventive Services Task Force (Dong, 2015), National Institutes of Health (National Institutes of Health, 2016) and the White House (White House Conference on Aging, 2015) have supported reports, conferences or Congressional recommendations for research and funding appropriations all within the last four years. The National Institute of Justice (NIJ) has been at the forefront of elder abuse research, which has largely been systematically under-funded by the federal government. NIJ's reported portfolio of past research totals $13,385,770 for 34 projects in a timespan from 2005-2015; one project focused exclusively on minority populations; and none on American Indians and Alaska Natives ("Awards Related to: Elderly (65+)," n.d.). Annual

funding by federal agencies for violence against women programs ($649) eclipses estimated total federal spending of $11.9 million across five agencies (Dong, 2013).

This study is the first to establish national-level prevalence data for elder mistreatment among American Indians and Alaska Natives. Prevalence studies, fundamental epidemiologic measures, are necessary to establish population burden, and allow for appropriate planning and allocation of scarce health care and violence prevention dollars. They also provide clinicians with useful context for making decisions about diagnosis and management (Ward, 2013). The most significant policy needs are funding of both research and programs aimed at addressing the issue of elder abuse, including sets asides for minority populations. The USPSTF has repeatedly indicated the absence of research on screening and very limited research on interventions hampers their ability to make recommendations for or against elder abuse screening (Feltner et al., 2018; Moyer VA & U.S. Preventive Services Task Force, 2013). Federal funding for rigorous studies that can address this gap is of the highest priority, specifically including evaluation in all minority populations and communities.

Relatedly, there is a need to establish elder abuse as a strategic priority at the federal, state, and tribal level.

> Health care and elders programs can be miles away…literally and figuratively. That's one of our issues. There's really no tribal home for elder abuse or long-term care either. Services are scattered and responsibility is passed from office to office with little smidgens of uncoordinated care happening from each…IHS [Indian Health Service] doesn't have a policy in place, so there hasn't been anyone giving direction or information to the tribal health programs….There

> hasn't been any funding to speak of directed towards tribes. It's been picked up by T. [Title] VI as they can, but many tribes don't have anything in place still. (personal communication, C. LaCounte, Director, Office for American Indians, Alaskan Natives and Native Hawaiian Programs, Administration on Aging/Administration for Community Living/HHS, March 14, 2019)

In addition to funding and strategic prioritization, multidisciplinary collaboration on the issue of elder abuse must happen from the tribal to the federal level to be most effective. Finally, a better understanding of various abuse typologies and the prevalence with which they affect American Indian and Alaska Native elders may be useful in setting priorities for community planning and response. There is a great need for the development of evidence-based, culturally appropriate interventions and programs aimed at victim safety and perpetrator accountability.

Suggestions for Future Research

Additional research establishing causative mechanisms, evaluating screening, prevention, and interventions for elder abuse and better understanding how it manifests in different tribal cultures is needed. There is a need for both longitudinal studies to determine causative pathways to elder abuse as well as rigorous randomized controlled trials, the gold standard of research, assessing screening and interventions. As predictors differ by type of abuse, adequately powered studies that enable conclusive findings by abuse typology for American Indians and Alaska Natives are needed.

When examining the conceptual model that guided variable selection for this study (See Manuscript three), we found a large number of potential predictors or confounding constructs, including cultural, societal, and structural issues, that remain

untested or inconclusive that may contribute to future predictive models. This was particularly noticeable at the exosystem, macrosystem, and chronosystem levels. This includes previously identified risk factors from the American Indian and Alaska Native elder abuse literature, such as substance abuse, acculturation, and historical trauma that have been proposed as significant issues but lack empirical evidence. While not within the scope of this study, there is also a need for formal programmatic evaluations and assessment of available tribal community programs and supports.

Evidence from this analysis supports the conclusion that models built on the unique predictive variables within each race group will generate better, more effective insights and tools. There is a compelling rationale for future research focused on building predictive models that can be incorporated into clinical practice. The power of electronic health records and clinical data systems can be harnessed to help providers use differential risk data already at hand to identify those at higher or the highest risk of abuse.

In addition, there is a clear need for future research for American Indians and Alaska Natives that in many ways reflects the global research needs of the field. Considerations include:

- Testing and comparison of standardized measurement tools, including clinical screening tools to assess for adequacy and reliability with an American Indian and Alaska Native audience.
- Implementation of a population-based prospective study of older American Indians and Alaska Natives, potentially with a sampling strategy that stratifies participants by tribal enrolment or geographic regions that includes other co

and confounding variables, e.g., depression and dementia, for American Indians and Alaska Natives.

- Research that examines the relationship of other predictors using an intersectionality lens and the full spectrum of the ecological framework, so factors such as acculturation, tribal affiliation, community norms such as spirituality, proximity to tribal lands versus urban dwelling elders are considered.
- Development and testing of culturally-specific interventions for screening and response to elder abuse.
- Robust analysis of the economic impact of elder abuse to make a case for action by tribes, tribal law enforcement, and Indian Health Service.
- Evaluation of the impact of structures including policies and other contextual issues on elder abuse nationally and tribally.

Tools used in elder abuse research to assess the prevalence of abuse or other comorbid conditions, e.g., depression are generally not the same tools that will be used in clinical or community settings. Researchers should consider the utility of incorporating common provider screening tools alongside other instruments for measuring abuse.

Adequately powered elder abuse research must be based on a commonly accepted framework and universal definitions of abuse. For larger studies not exclusively focused on the American Indian and Alaska Native population, researchers are encouraged to discontinue the practice of aggregating American Indians and Alaska Natives into the "other" category. Instead, attention must be paid to oversampling of smaller minority

populations, and to accompanying core research with a separate analysis and reporting of results for minority populations.

Conclusion

This study adds to the small body of research on elder abuse in the American Indian and Alaska Native population, addressing significant gaps in the literature. It demonstrates differences between American Indians and Alaska Natives and Whites and Black respondents in demographic, socioeconomic, social, and health variables as context for understanding the complex and varied manifestations of elder abuse in the American Indian and Alaska Native population. It also demonstrates a higher prevalence of many types of elder abuse for older American Indians and Alaska Natives, and differences in predictors based upon large comparison groups and consistently measured abuse types. Finally, it demonstrated that commonly collected demographic and health status variables coupled with less commonly available measures of social support are insufficient to develop an adequate model for predicting abuse among American Indians and Alaska Natives or other populations.

There is a need for the development of more advanced predictive modeling to aid health care providers and others who work with elders in the screening and detection of abuse. The conceptual framework developed for this study acknowledges the unique ecology and significant socio-historical context of American Indians and Alaska Natives and their communities. The framework, in conjunction with key findings, may serve as a stepping stone to the design and implementation of future research and interventions that incorporate culturally relevant and specific risk and protective factors of elder abuse unique to American Indians and Alaska Natives. Researchers, health care providers, tribal

leaders, and other policy makers must take notice and then act to aid in reducing morbidity, mortality, and the overall impact of violence perpetrated against American Indian and Alaska Native elders.

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