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Implicit and Explicit Dehumanization of Older Family Members: Novel Determinants of Elder Abuse Proclivity

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Abstract

Elder abuse affects one in six older persons globally. Three limitations impede progress in prevention: most research is victim- rather than perpetrator-based; the reliance on explicit, self-reported factors; and failure to account for psychological factors, such as dehumanization, that motivate abuse. The current study addressed these gaps by examining whether implicit and explicit dehumanization of t could explain elder abuse proclivity. In a web-based survey of 585 family caregivers of older persons, dehumanization was found to be prevalent with 51% of the caregivers implicitly and 31% explicitly dehumanizing older persons. As predicted, implicit and explicit dehumanization contributed to elder abuse proclivity (OR = 1.23, 95% CI = 1.02–1.50, p = .03) and (OR = 1.26, 95% CI = 1.05–1.51, p = .01), respectively, after adjusting for relevant covariates including caregiver burden, and caregivers' and care-recipients' health. Developing caregiver-based interventions to humanize older persons may complement ongoing efforts in reducing elder abuse.

Keywords

elder abuse; ageism; negative age stereotypes; family caregiving; violence prevention

Eradicating elder abuse, a significant social problem affecting one in six community-dwelling older persons globally every year, has been recognized as a public health priority

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nationally and globally by researchers, practitioners, and policy makers (Pillemer, Connolly, Breckman, Spreng, & Lachs, 2015; World Health Organization, 2020). Elder abuse refers to the intentional action, or the lack of appropriate action, that causes harm and creates distress to an older adult by someone in a trust relationship with the older adult (National Research Council, 2003; World Health Organization, 2020). Subtypes of elder abuse include psychological, physical, sexual abuse, financial exploitation and caregiver neglect. Considering as high as over half of elder abuse cases involved family caregivers as alleged abusers (Wiglesworth et al., 2010), an improved understanding of perpetration risk factors in family caregiving settings is critically needed to better inform elder abuse detection and prevention. This is the aim of the present study.

Because of the multifaceted factors that contribute to abuse occurrence, researchers and policy makers have commonly employed the multi-level social-ecological framework to guide elder abuse prevention research and practice (Hall, Karch, & Crosby, 2016; World Health Organization, 2020). According to this socio-ecological perspective, and emerging theoretical models that expanded upon it (Alon, 2021; Schiamberg & Gans, 2000), risk factors for victimization and perpetration operate and interact across societal, relational, and individual level in elder abuse etiology. Currently, researchers have made considerable strides in addressing individual-level risk factor for abuse, relative to distal level of analyses (Pillemer, Burnes, Riffin, & Lachs, 2016). However, significant gaps remain at the individual level analyses that may have impeded progress in elder abuse prevention research.

First, current risk factor research has disproportionately focused on victims, rather than perpetrators. (Pillemer et al., 2016). This is problematic because it implies victims are the cause of abuse. Recent research has begun to show that abuser-level, rather than victim-level, information may be more predictive of abuse (Liu, Conrad, Beach, Iris, & Schiamberg, 2017). However, existing investigations remain limited to abusers' clinical and medical profiles, such as abusers' pathology, social isolation, substance use, or maladaptive coping to difficult life events (Alon, 2021; Pillemer et al., 2016; Storey, 2020). As a result, to date, few research has sought to examine the psycho-social factors that motivate perpetrators to commit the abuse in the first place (Jackson, 2016).

Compounding the knowledge gap on perpetrator characteristics is the reliance on explicit, self-reported data. In the broader interpersonal violence literature, researchers have shown that when predicting violence propensity, the utility of self-reported measures is limited because perpetrators tended to minimize or conceal such thoughts in order to avoid interventions and social scrutiny (Henning & Holdford, 2006). The attention on explicit measures also fails to consider the role those implicit thoughts – ones that operate without awareness – may play in predicting violence perpetration. Indeed, in studies that predict family violence, perpetrators' implicit cognitive processes were shown to have a greater impact on aggressive behaviors, relative to explicit attitudes (Rudman & Mescher, 2012). Despite the emerging evidence, implicit biases have not been investigated in elder abuse scholarship.

Additionally, the question of whether or not implicit bias may be stronger than its explicit counterpart remains. There is reason to predict that in the context of elder abuse, implicit

processes may be more prevalent than explicit processes. In general, population-based longitudinal studies have reported higher prevalence and stronger magnitude of implicit prejudice over time, compared to explicit negative attitudes (Charlesworth & Banaji, 2019). Similarly, in family violence scholarship, it has been shown that perpetrators' implicit biases toward victims were higher than explicit biases (Rudman & Mescher, 2012). Studying the inclusion of both explicit and implicit forms prejudice has not been applied to elder abuse research.

Another unresolved question is why and how a long-term family relationship may progress into a neglectful and abusive one (Schulz, Beach, Czaja, Martire, & Monin, 2020). Given that caregiving is generally considered as a positive social act – albeit a stressful one, it remains unclear why some family caregivers may be more prone to engage in abuse than others. Among caregivers who experience a high amount of caregiving-related stress and burden, only a subset become abusers (Jackson, 2016).

This suggests that elder abuse perpetration may be influenced by additional psycho-social factors that are not accounted for. One such process could be negative age stereotypes. Indeed, ageism has been hypothesized as a contributing structural driver for violence and abuse toward older persons (Phelan & Ayalon, 2020; Pillemer, Burnes, & MacNeil, 2021). A recent socio-ecological study provided some of the first evidence on this assumed linkage. It was found that country-level structural ageism, encompassing discriminatory social policies and prejudicial social norms against older persons, was associated with greater prevalence of violence toward older persons across 56 countries (Chang, Monin, Zelterman, & Levy, 2021). The current investigation will build on this study by examining whether negative age stereotypes predict proclivity toward elder abuse perpetration at the individual level and by examining the role of dehumanization and implicit processes. To better support family caregivers' engagement in adequate caregiving and to increase the safety of older care recipients, research would benefit from considering the role of these attitudinal determinants that motivate abuse.

To develop our hypothesis and analytical approach, we draw upon the Stereotype Embodiment Theory (SET), which posits that individuals assimilate negative age stereotypes from their culture and that negative age stereotypes can operate both overtly and implicitly (Levy, 2009). Considering older persons as less than humans could be seen as a particularly hateful form of negative age stereotype. SET predicts that dehumanized perception as a psychological phenomenon can stem from one's surrounding societal contexts to influence individuals' behavior, including risky health behaviors (Chang et al., 2020; Levy & Myers, 2004). Research into the development of dehumanizing biases have shown that children as young as 5 years old can dehumanize outgroup members (McLoughlin & Over, 2017). Social media further amplifies these negative and hateful biases (Levy et al, 2014); for instance, linking older persons to dehumanizing images of "trash" or "moth balls" (Sifferlin, 2012; Silver-Greenberg & Harris, 2020).

Dehumanization has been conceptualized and operationalized in various forms. Classic dehumanization theories identified dehumanization as a determinant of extreme violence against racial and ethnic group members, such as genocides or massacres (Haslam &

Loughnan, 2014). When members of a social group are treated as animals or inanimate objects, egregious acts toward the group members becomes justifiable, including killing and torturing (Haslam & Loughnan, 2014). More recent dehumanization research demonstrates that dehumanization can operate implicitly (Loughnan & Haslam, 2007) and target socially stigmatized groups beyond racial/ethnic categories (Rudman & Mescher, 2012). Older persons have been identified as targets of implicit and explicit dehumanization. The misconception that older adults are less physically and cognitively competent than their younger counterparts likely elicit the dehumanizing process as way to distance oneself from the old (Boudjemadi, Demoulin, & Bastart, 2017). However, researchers have not sought to examine the downstream consequences of dehumanizing older persons. We know of no research that examines whether implicit and explicit dehumanization of older persons are independent predictors of behavior toward older persons, including elder abuse.

To improve our understanding on the etiology of elder abuse perpetration, this study aims to examine dehumanization-of-older-persons as a key psychological risk factor for why some caregivers commit elder abuse. This study will be the first to examine whether the explicit and implicit denial of humanness to older persons may be responsible for elder abuse propensity, and to what extent. We hypothesize that: 1) some family caregivers will explicitly and implicitly dehumanize older persons, with implicit dehumanization being higher than its explicit counterpart; and 2) implicit and explicit dehumanization will uniquely predict elder abuse proclivity, after controlling for known sociodemographic, health, and psychological risk factors.

Method

Population

Participants were family caregivers recruited via Amazon's Mechanical Turk (MTurk). MTurk is an efficient internet-based crowdsourcing platform where crowd-workers can browse existing projects and complete them in exchange for a rate set by the requesters. Due to the anonymous nature, MTurk recruitment allows for the inclusion of sensitive questions, such as abuse and violent tendencies. It is also a valuable tool for researchers who might be interested in working with diverse or otherwise hard-to-reach populations (Mason & Suri, 2012). Social and behavioral data gathered through MTurk have been found to closely mirror results from standard experimental and survey paradigms with satisfactory data reliability, validity, and increased participant diversity (Crump, McDonnell, & Gureckis, 2013). Eligibility for the current study included family caregivers over 18 years old, U.S. residence, ability to read and write English, and currently providing care for an older family member at least 65 years of age. Consistent with the literature, family caregivers are defined as individuals who provide care for at least 1 task of activities of daily living (ADL) (bathing, dressing, toileting, transferring, continence, or eating), or 2 tasks of instrumental activities of daily living (IADL) (making phone calls, shopping, preparing meals, housekeeping, laundry, transportation, medication assistance, or handling finances) at the time of the study (National Alliance for Caregiving & AARP Public Policy Institute, 2015). The eligibility criteria were posted on the MTturk job boards. Eligible participants who signed up for the study were directed to our main study on Qualtrics, which is an online

survey platform where participants can give consent and respond to the survey (Qualtrics, Provo, UT).

A total of 25 participants were excluded in the final analytical sample because of missing data on the predictor or outcome variables. The final analytical sample, consisting of 575 participants, were 49.4% female, 64.5 % white, 17.2% African American, 16.4% Hispanic, and 1.9 % Asian. Participants' mean age was 40.4 (*SD* = 11.8) and ranged from 22 to 71 years old. The majority had completed a college degree (87.1%), were married (80.8%), and reported having taken care of the care-recipient for an average of 5.5 (*SD* = 7.0) years. Most of the participants (76.5%) were caregivers for parents, 15.0% were caregivers for grandparents, and 5.1 % were caregivers of spouses. Data collection took place from July to September, 2020. This study was approved by the Institutional Review Board at Yale University.

Measures

Predictors

Implicit dehumanization of elders: To determine whether participants are more likely to implicitly associate old people with animals than humans compared to young people, we developed a novel dehumanization-of-older-people Implicit Association Test (IAT) based on an accepted format. As a widely-used response-time test that measured association strengths between target categories and concept domains (Greenwald, Nosek, & Banaji, 2003), the IAT has exhibited greater measurement consistency compared to other latency-based priming tests and can effectively aid in the prediction of behaviors that are sensitive and stigmatizing, including domestic violence proclivity (Eckhardt & Crane, 2014).

In the 7-block dehumanization IAT, participants were asked to categorize either older or younger people with either animals or humans. The older and younger people were each represented by six face photographs drawn from the publicly-available Project Implicit database (Nosek et al., 2007). The animals and humans were each represented by eight words (Please see supplemental material). A higher dehumanization score occurred when participants were quicker during the congruent task (i.e., matching older people with animals; younger people with humans), relative to incongruent task (i.e., matching younger people with animals; older people with humans). The final score, or the D-score, was calculated with the standard D-score statistical algorithm in the IATgen platform in Qualtrics (Carpenter et al., 2019).

The metaphor-based approach has shown greater conceptual clarity in capturing the dehumanization phenomenon relative to using trait-based approaches (Boudjemadi et al., 2017; Viki et al., 2006). Therefore, we used directly humans-related and animals-related metaphor words (e.g., citizen vs. creature) for our IAT. The human and animal words were drawn from one of the first IAT studies that utilized the metaphor-approach in assessing dehumanization (Viki et al., 2006). As the initial validation study took place in the U.K., we conducted a separate pre-test to ascertain that the target words were indeed similar in its valence, and yet distinctively animals- and humans- related, in the U.S. context. Our pilot test sample consisted of 50 participants with the mean age of 35.84 (*SD* = 10.41) and ranged

from 24 to 60 years old. Participants were asked to rate the extent to which each word was associated with humans and animals on a scale of 1 (*not at all associated with*) to 7 (*totally associated with*); and also rate each word's valence on a scale of 1 (*very negative*) to 7 (*very positive*). As expected, results showed that the selected human words were more associated with humans ($M = 6.12$, $SD = .98$) than animals ($M = 2.91$, $SD = 1.75$), $t(49) = 8.73$, $p < .001$ and the animal words were more associated with animals ($M = 5.45$, $SD = 1.03$), than humans ($M = 3.78$, $SD = 1.36$), $t(49) = 5.68$, $p < .001$. The human words and animal words did not differ in valence, $t(49) = .73$, $p = .47$.

The dehumanization IAT has demonstrated satisfying construct validity, criterion validity, and internal reliability in the present study. Consistent with the literature on explicit-implicit attitudes relations (Nosek, 2007), we first examined the construct validity of the implicit measure by testing its correlation with the parallel explicit dehumanization measure. As expected, both measures were significantly correlated ($r = .09$, $p = .04$). The relatively weak correlation magnitude was in line with prior implicit attitude studies in which correlations tended to be lower for socially stigmatized topics compared to less sensitive topics (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). Testifying to its criterion validity, high ratings on the IAT measure were significantly correlated with high endorsement of negative age stereotypes, measured by a 9-item negative-age-stereotype subscale of the Image of Aging Scale ($r = .09$, $p = .03$) (Levy, Kasl, & Gill, 2004). The internal consistency reliability for the dehumanization IAT was .70 in the study, also in line with the range of satisfactory internal consistency for IAT tests (Nosek, 2007).

Explicit dehumanization of elders: Parallel to the implicit dehumanization measure, explicit dehumanization was measured by a one-item, Likert-scale measure that requested a comparative appraisal of the two target categories (i.e., old people vs young people) on the attribute dimension (i.e., animals vs human). This validated semantic differential strategy is commonly used to measure explicit dehumanization attitudes toward stigmatized groups (Greenwald et al., 2003). Participants were asked about their level of agreement from 1 (*strongly associate humans with old people and animals with young people*) to 7 (*strongly associate animals with old people, and humans with young people*). A midpoint of 4 (*I associate old people and young people with humans and animals equally*) was also provided. Higher values indicated stronger explicit animalistic dehumanization toward older persons.

Outcome

Proclivity to elder abuse: We used the 8-item Caregiver Abuse Screen to assess caregivers' proclivity for elder abuse (Reis & Nahmiash, 1995). The scale's authors phrased the questions to allow for caregivers to respond in an honest manner. Sample statements included "*do you sometimes feel that you are forced to be rough with your care recipient?*" (physical abuse), "*do you often feel like you have to yell at your care recipient*" (psychological abuse), and "*do you often feel you have to reject or ignore the needs of your care recipient*" (caregiver neglect). Responses for each question were either *yes* (1) or *no* (0). The scale has demonstrated good reliability, internal consistency, and predictive validity across diverse groups of family caregivers (Dong & Li, 2015). Consistent with prior

literature (Reis & Nahmiash, 1995), we used the cut-off point of four or more as indicative of high proclivity to elder abuse. Cronbach's alpha was .79 in our study.

Covariates—We selected covariates a-priori based on risk factors for elder abuse (Alon, 2021; Pillemer et al., 2016) including age (continuous), sex (binary), race/ethnicity (White vs minority), income (continuous), self-reported health (continuous), care-recipients' functional impairment operationalized as number of impairments in Activities of Daily Living (ADL) (continuous), and caregiver burden measured by a valid and reliable 10-item short version of the Burden Scale for Family Caregivers (continuous) (Graessel, Berth, Lichte, & Grau, 2014).

Statistical Analysis—To test the first hypothesis that some family caregivers will explicitly and implicitly dehumanize older persons, with implicit dehumanization being higher than its explicit counterpart, descriptive statistics were used to examine the overall proportion of those who expressed dehumanization from strong, moderate, slight, to no preference in both implicit and explicit forms. To do this, we transformed the IAT D-score into a 7-point relative preference measure similar to the explicit preference scale of strong preference (a score ≥ .65), moderate preference (a score < .65 and ≥ .35), and slight preference (a score <.35 and ≥.15) for dehumanization of older persons, with no preference as the middle point (a score > −.15 and <.15). The transformation, based on prior IAT literature (Sriram & Greenwald, 2009), allowed us to directly compare the magnitude of dehumanization across its implicit and explicit forms. We conducted a paired t-test to examine whether the level of bias measured by implicit dehumanization was significantly higher than explicit dehumanization.

To test the second hypothesis that implicit and explicit dehumanization will uniquely predict elder abuse proclivity after controlling for known sociodemographic, health, and psychological risk factors, we first used independent t-tests to examine the bivariate association between implicit dehumanization and abuse proclivity. Logistic regression analyses were then conducted to account for covariates including demographic information, and health profiles of both caregivers and care-recipients. We also controlled for caregiver burden, one of the most frequently cited risk factors for abuse perpetration (Storey, 2020). Model 1 is the age-adjusted model. Model 2 is the sociodemographic model, adjusting for age, sex, race, and income. Model 3 is the health-adjusted model, controlling for all of the sociodemographic covariates as well as health of both caregivers and care-recipients. Model 4 controls for caregiver burden, in addition to all the previous risk factors. In separate models, we repeated all the above-mentioned analyses with explicit dehumanization as the main predictor.

As we were also interested in investigating whether implicit dehumanization significantly predicted elder abuse proclivity above and beyond explicit dehumanization, we repeated the steps above. We then built a separate hierarchical logistic regression model with implicit dehumanization as the main predictor, and included explicit dehumanization as an additional term to control for in Model 5.

To further evaluate the predictive ability of the dehumanization IAT, we supplemented logistic regression analyses with the receiver operating characteristics (ROC) curve analyses (Hsiao, Bartko, & Potter, 1989), a widely-used statistical method for testing improvement in prediction performance. This method helps to ascertain whether or not a family caregiver in our study, chosen at random, could be distinguished with high abuse proclivity to low abuse proclivity by levels of implicit dehumanization of older persons.

To examine how implicit and explicit dehumanization work together in determining abuse proclivity, we created a matrix that combined levels across implicit and explicit dehumanization measures: high-high, high-low, low-high, and low-low implicit and explicit dehumanization. To do so, we split implicit and explicit measures into binary scores, categorized based on at or above mean values (high levels), or below mean values (low levels). Our outcome, abuse proclivity, was treated as a continuous measure, with scores ranged from 0 – 8 in the study. A one-way analysis of variance (ANOVA) test with planned contrast was used to compare whether or not the high and congruent explicit and implicit dehumanization model predicts highest level of abuse proclivity.

In all of the analyses and results, we presented standardized measures in order to compare the relative impact of the explicit and implicit dehumanization on proclivity to elder abuse. We interpreted outcome odds ratio as the result of a 1-SD increase in implicit or explicit dehumanization. All tests were two-tailed with significance level set at .05. Analyses were conducted with SAS version 9.4 (SAS Institute Inc., Cary, NC).

Results

Supporting the first hypothesis, we found that caregivers reported high levels of implicit and explicit dehumanization of older persons. More than half of family caregivers implicitly dehumanized older persons (51.0 %). Approximately 24.5% implicitly dehumanized younger persons, and another 24.5% were neutral. In comparison, 30.7% explicitly dehumanized older persons, 22.8% explicitly dehumanized younger persons, and 46.5% were neutral.

Also, in support of our first hypothesis, when comparing across the 7-point relative preference measure using a paired sample t-test, our findings revealed that family caregivers held significantly more negative implicit dehumanization of older persons ($M = 4.53$, $SD = 1.65$), compared to explicit dehumanization ($M = 4.24$, $SD = 1.42$); $t(587) = 3.31$, $p = .001$.

We also found a high elder abuse perpetration prevalence in our study sample: 57.2% of family caregivers reported proclivity to elder abuse. This self-reported prevalence was relatively higher than previously found. For instance, a clinically-based study of family caregivers showed that the self-reported abuse perpetration prevalence was 47.3% (Wiglesworth et al., 2010). The higher prevalence in our study may be due to the exacerbating risk factors for perpetration during the ongoing COVID-19 pandemic (Makaroun, Beach, Rosen, & Rosland, 2021).

In support of our second hypothesis, at the bivariate level, implicit dehumanization [$t(582) = -2.40$, Cohen's $d = .21$, $p = .016$] (Figure 1a) and explicit dehumanization [$t(585) =$

−3.04, Cohen's $d = .25$, $p = .003$] (Figure 1b) were both significantly higher for caregivers with high abuse proclivity. In the final adjusted models, as predicted, family caregivers who reported higher implicit dehumanization of older persons had a greater likelihood of reporting proclivity to elder abuse (OR=1.23, 95% CI = [1.02–1.50], $p = .032$) (Table 1). In a separate model, we also found that explicit dehumanization significantly predicted greater likelihood of elder abuse proclivity (OR=1.26, 95% CI = [1.05–1.51], $p = .011$) (Table 2).

ROC analysis further supported the predictive validity of implicit dehumanization: the area under the ROC curve was .72. This indicates that a randomly selected family caregiver with high proclivity could be distinguished with 72% accuracy. This appears to be in line with the known predictive validity performance with other IAT measures commonly used in clinical settings, such as predicting individuals' suicidal behaviors (Nock et al., 2010).

Additional hierarchical logistic regression analysis revealed that, after accounting for the variance explained by significant demographic factors, as well as explicit dehumanization scores, implicit dehumanization predicted significant unique variance in elder abuse proclivity (Table 3). This indicates that accounting for implicit dehumanization improved the prediction of abuse proclivity above and beyond the influence of known risk factors as well as explicit dehumanization of older persons.

In further support of our second hypothesis, levels of explicit and implicit dehumanization were significantly associated with the intensity of abuse [$F(4, 585) = 18.93$, $p < .001$] (Figure 2). Overall, caregivers with high levels of explicit and implicit dehumanization amounted to 16.4%, whereas low levels of explicit and implicit dehumanization totaled 38.0%, in the study sample. We found that high and congruent explicit and implicit dehumanization predicts the highest level of abuse proclivity. Caregivers in the high and congruent group on average reported 5.6 positive items on the 8-item Caregiver Abuse Screen, which was the highest level of abuse proclivity relative to other combinations [$F(1, 585) = 26.8$, $p < .001$].

Discussion

This study sought to examine whether and to what extent dehumanization of older persons could explain elder abuse proclivity. Our findings demonstrated for the first time that implicit and explicit dehumanization of older persons significantly predicted proclivity to commit elder abuse. Both forms of implicit and explicit dehumanization were shown to be common among family caregivers, with implicit forms more pervasive and negative than explicit. In addition, implicit dehumanization was associated with greater elder abuse proclivity above and beyond well-established risk factors and the parallel form of explicit dehumanization.

Congruent with our first hypothesis, we found that 31% of the caregivers explicitly and 51% implicitly dehumanized older persons. The self-reported prevalence of explicit dehumanization toward older persons was in line with previously population-based studies on the prevalence of negative age stereotypes (Levy, Slade, Chang, Kannoth, & Wang, 2020). However, considering that dehumanizing older persons is a much more severe form

of negative age stereotypes, this finding lends support to the urgency of addressing ageism across communities and societies (de la Fuente-Núñez & Officer, 2021).

In support of the second hypothesis, our findings demonstrated the unique contribution of implicit age biases in predicting health behaviors. While neither form of implicit or explicit bias construes the more authentic version of one's attitudes (Nosek, 2007), the incremental predictive validity of implicit dehumanization demonstrated the importance of capturing, and thus intervening, on psychological processes that may operate without awareness. A series of experimental studies have showed that older persons' health and behaviors can be improved through the priming of implicit age stereotypes (Levy & Leifheit-Limson, 2009; Levy, Pilver, Chung, & Slade, 2014). Considering that half of the caregivers in our sample held implicit dehumanizing thoughts and thus may not be aware of these thoughts, they may blame their willingness to abuse on what they may falsely attribute to shortcomings of the victims.

A strength of our study was to consider the detrimental effects of implicit and explicit dehumanization, both in isolation and together, in predicting abuse proclivity. This study advances current literature in two ways. First, as prior elder abuse scholarship has only theorized but not fully tested whether ageism can explain abuse proclivity on an individual level (McDonald, 2017; Phelan & Ayalon, 2020), our findings provide evidence for the link between negative age stereotypes and elder abuse. Second, the finding that those showing high and congruent forms of implicit and explicit dehumanization had the strongest proclivity to commit elder abuse suggests that implicit dehumanization can be amplified to affect behavioral outcomes. This extends dual-process models which postulate that implicit and explicit biases operate via parallel mechanisms (Rydell & McConnell, 2006) by showing how caregivers' unconscious attitudes may be amplified by explicit attitudes to cause the most violence toward older persons. On a practical level, this finding suggests that interventions that target both implicit and explicit biases simultaneously could result in greater behavioral change.

In light of the well-documented association between caregiver burden and elder abuse proclivity (Storey, 2020), the adverse effects of implicit dehumanization on abuse proclivity persisted after accounting for caregiver burden has important implications. The prominent caregiver stress theory – one of the few theories that originated from the field of elder abuse itself – has for decades postulated that caregivers resorted to abuse because of overwhelming burden associated with caregiving (Steinmetz, 1978). Even though this theory has fallen out of favor due to its implications that victims were at fault, researchers have yet to fully consider other psychological drivers for abuse other than abusers' mental illness, substance use, and previous exposure to violence (Pillemer et al., 2016). Our findings addressed this gap by bridging implicit social cognition theory with elder abuse scholarship.

A methodological contribution of our study is the development and implementation of a novel IAT measure that assessed the implicit dehumanization of older persons. We have demonstrated its construct validity, criterion validity, as well as predictive validity in the context of elder abuse. Our findings with the new IAT measure further elucidate the

pervasiveness of implicit dehumanization of older persons as it has been now assessed by various methodological approaches, stimuli, and across multiple settings and perpetrators.

Findings from this study highlight directions for future research. First, the current study is cross-sectional and thus the direction of the associations between dehumanization and elder abuse perpetration cannot be ascertained. However, we consider it more likely that greater dehumanization toward older persons led to increased risk of perpetrating abuse, as biases are thought and shown to influence behaviors (Levy, 2009). Future longitudinal investigations will bring valuable insights. Second, we relied on a novel, psychometrically-sound IAT to measure implicit dehumanization in the study. Even though implicit association test is among the most commonly used tools to measure implicit biases, debates remain in participants' ability to influence results. In order to circumvent this issue, we followed the survey-software IAT method (Carpenter et al., 2019) that allowed us to perform data cleaning and scoring algorithm introduced by Greenwald et al (Greenwald et al., 2003). Future development and use of other parallel implicit measures, such as semantic priming (Banaji & Hardin, 1996) or the Go/No-go association test (Nosek & Banaji, 2001), could allow researchers to further determine and compare prevalence across studies and samples. Third, the relationship between dehumanization and violence is shown to be context dependent (Kteily & Landry, 2022). To improve prevention and intervention efforts, future research could closely examine the moderating and mediating pathways between dehumanization and elder abuse. Furthermore, as this present study is not able to address the why, how, and under what circumstances dehumanization is activated, conducting additional qualitative studies will be an appropriate avenue for understanding what specific caregiving situations may trigger or intensify dehumanizing thoughts and lead to abusive behavior.

The associations between both explicit and implicit dehumanization with elder abuse proclivity have implications for designing future prevention and intervention programs. First, renewed attention toward identifying interventions to reduce dehumanization is warranted (Haslam & Loughnan, 2014). In the context of reducing dehumanization of older persons, a possible mechanism may be through the increase of greater, and higher-quality, intergroup contact between older and younger persons. Research has shown that positive contacts between members of different age groups can lead to more favorable intergroup attitudes and relations (Burnes et al., 2019). These positive interactions may be fostered in social settings including age-diverse work places, religious congregations, or social media communities. Furthermore, developing caregiver-based and family-based interventions to humanize older persons could complement ongoing public health efforts in reducing elder abuse. This may include fostering familial interpersonal connections by using a person-centered approach that helps caregivers see their older family members as individuals, rather than patients being obscured behind the illnesses or diagnostic categories.

In conclusion, this study highlights the importance of extending the work on preventing dehumanization to increase the safety and well-being of older persons.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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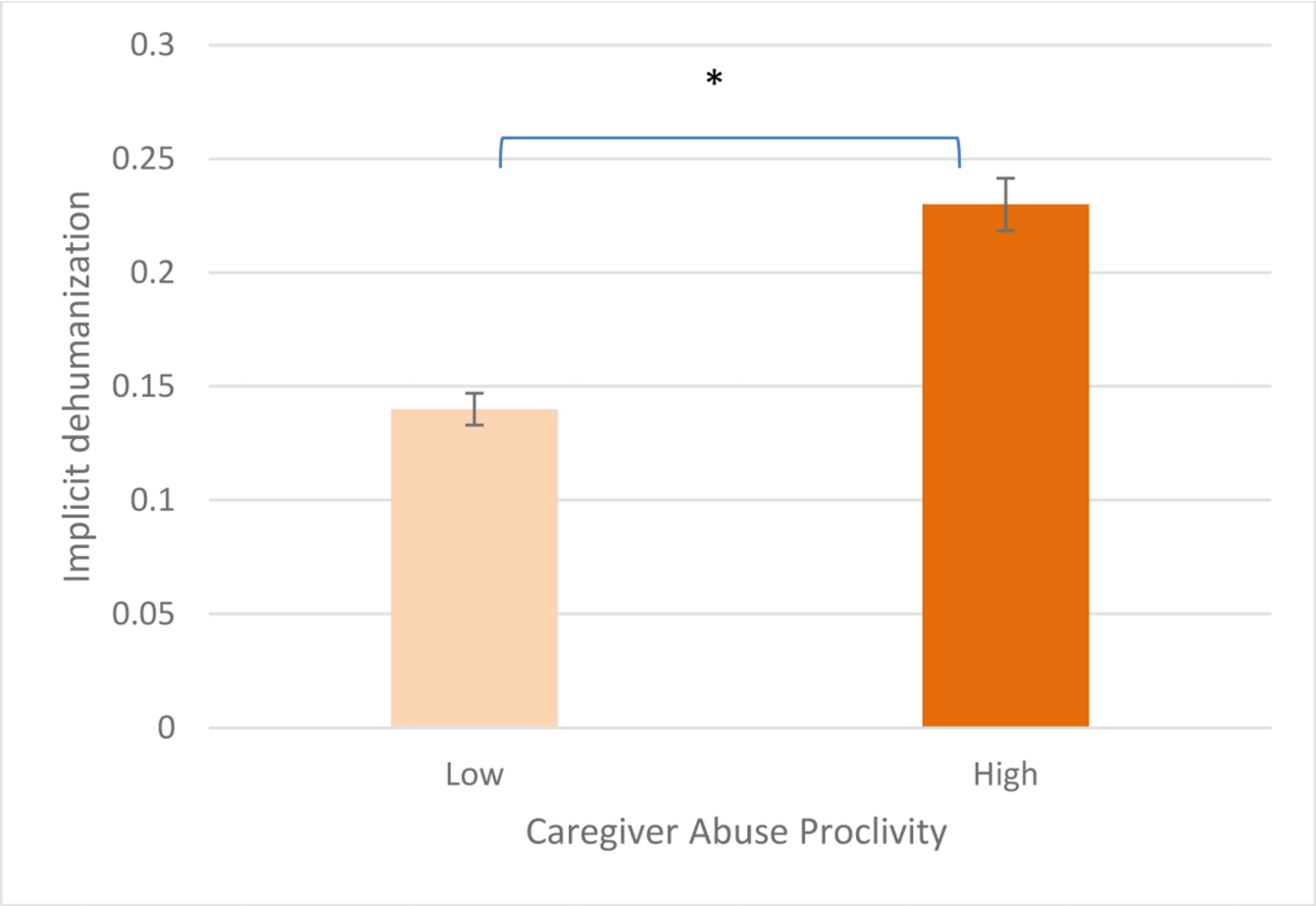

Figure 1a.
Association of Implicit Dehumanization with Elder Abuse Proclivity.
Error bars represent the standard error of the mean. *p<.05

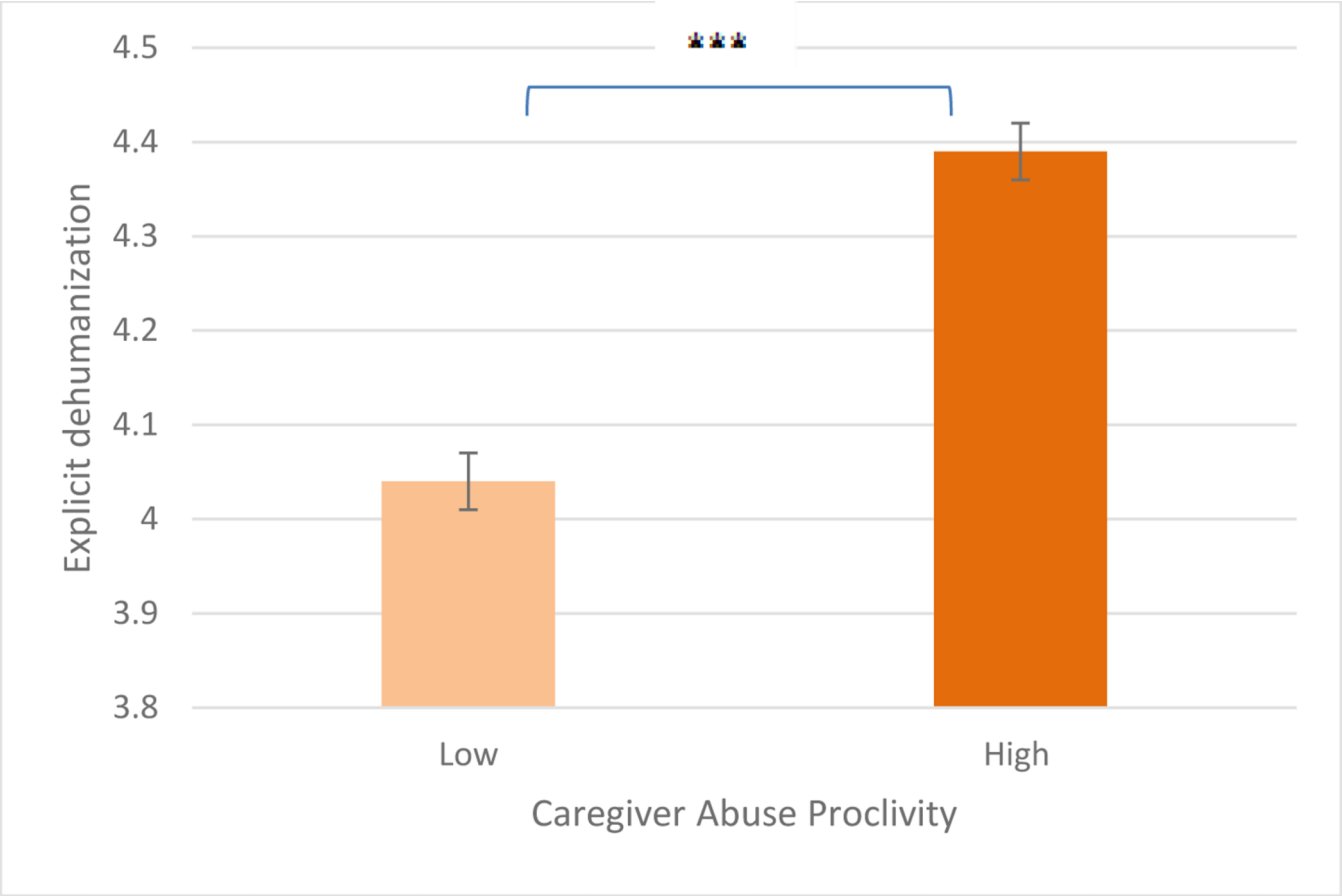

Figure 1b.

Association of Explicit Dehumanization with Elder Abuse Proclivity.

Error bars represent the standard error of the mean. *p<.05; **p<.01; ***p<.001

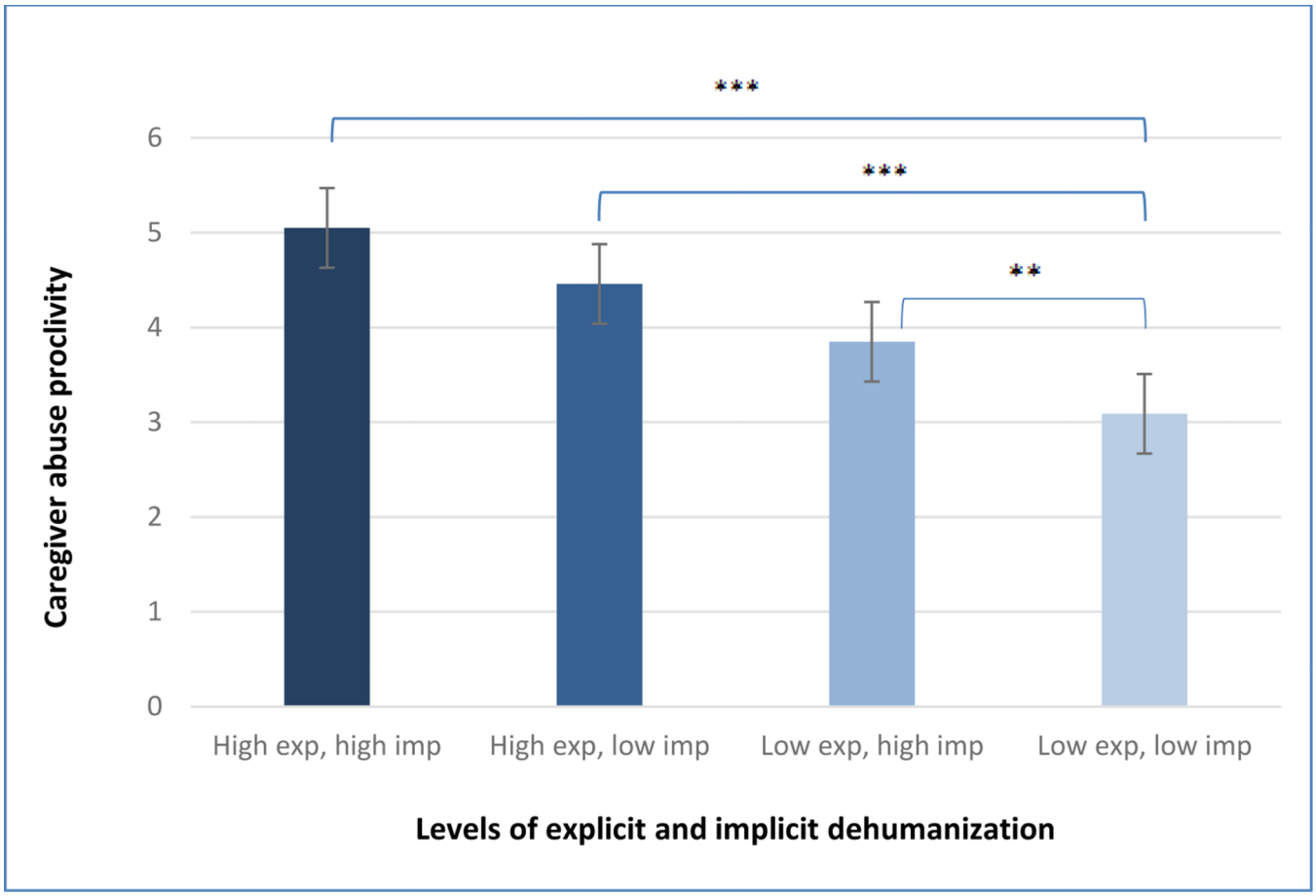

Figure 2.

Association between Levels of Explicit and Implicit Dehumanization and Elder Abuse Proclivity

*p<.05; **p<.01; ***p<.001

Table 1.

Association of Caregivers' Implicit Dehumanization of Elders with Elder Abuse Proclivity

	Model 1: Basic Model	Model 2: Basic + Demographic	Model 3: Basic + Demographics+ Health	Model 4: Full Model
	OR (95% CI)			
Implicit dehumanization	1.24 (1.04–1.47) *	1.22 (1.02–1.46) *	1.25 (1.04–1.51) *	1.23 (1.02–1.50) *
Age	1.03 (0.87–1.24)	1.03 (0.87–1.24)	1.05 (0.87–1.26)	1.15 (0.95–1.40)
Female (ref: male)		1.36 (0.95–1.94)	1.26 (0.88–1.82)	1.26 (0.88–1.82)
Minority (ref: White)		1.67 (1.16–2.43) **	1.61 (1.10–2.35) *	1.61 (1.10–2.35) *
Income		1.00 (0.84–1.20)	0.96 (0.80–1.15)	0.95 (0.78–1.15)
Self-rated health			1.04 (0.86–1.25)	1.05 (0.86–1.27)
Care-recipients' functional limitation reported by caregivers			1.57 (1.31–1.89) ***	1.55 (1.28–1.88) ***
Caregiver burden				1.89 (1.54–2.32) ***

* p<.05;

** p<.01;

*** p<.001

Table 2.

Association of Caregivers Explicit Dehumanization of Elders with Elder Abuse Proclivity

	Model 1: Basic Model	Model 2: Basic + Demographic	Model 3: Basic + Demographics+ Health	Model 4: Full Model
	OR (95% CI)			
Explicit dehumanization	1.28 (1.08–1.51) **	1.28 (1.07–1.52) **	1.28 (1.07–1.53) **	1.26 (1.05–1.51) *
Age	1.06 (0.90–1.25)	1.04 (0.87–1.23)	1.05 (0.88–1.25)	1.14 (0.95–1.37)
Female (ref: male)		1.34 (0.95–1.89)	1.24 (0.87–1.77)	1.03 (0.71–1.49)
Minority (ref: White)		1.46 (1.02–2.09) *	1.39 (0.97–2.01)	1.35 (0.93–1.98)
Income		1.05 (0.88–1.25)	1.01 (0.84–1.20)	1.00 (0.84–1.20)
Self-rated health			1.03 (0.86–1.23)	1.03 (0.86–1.23)
Care-recipients' functional limitation			1.50 (1.07–1.53) ***	1.46 (1.21–1.76) ***
Caregiver burden				1.79 (1.47–2.17) ***

* p<.05;

** p<.01;

*** p<.001

Table 3.

Caregivers Implicit Dehumanization of Older Persons and Explicit Dehumanization of Older Persons Independently Predicted their Proclivity to Abuse Family Members

	B	SE	Wald	OR (95% CI)	Model Adjusted R^2
Step 1: Socio-demographics					
Age	0.04	0.09	0.21	1.04 (0.88–1.24)	0.02
Female sex (ref: male)	0.26	0.17	2.19	1.29 (0.92–1.82)	
Minority race (ref: White)	0.41	1.18	5.10	1.51 (1.06–2.15)	
Income	0.04	0.09	0.21	1.04 (0.88–1.23)	
Step 2: Health characteristics					
Self-rated health	0.05	0.01	0.30	1.05 (0.88–1.25)	0.07
Care-recipient's functional impairment	0.40	0.09	19.3	1.49 (1.25–1.78) ***	
Step 3: Stress and coping					
Caregiver burden	0.59	0.10	35.6	1.80(1.49–2.19)	0.15 ***
Step 4: Explicit dehumanization					
Explicit dehumanization	0.23	0.09	6.06	1.26(1.05–1.52) **	0.16 *
Step 5: Implicit dehumanization					
Implicit dehumanization	0.19	0.10	3.91	1.21 (1.01–1.48) *	0. 20 ***

* p<.05;

** p<.01;

*** p<.001