



Social, psychological, and demographic characteristics of dehumanization toward immigrants

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This study extends the current body of work on dehumanization by evaluating the social, psychological, and demographic correlates of blatant disregard for immigrants. Participants ($n = 468$) were randomly assigned to read a scenario where 1) an immigrant or 2) an immigrant and their child were caught illegally crossing the southern border of the United States, and then rated how long they should spend in jail if convicted. Participants reported that they would sentence the immigrant to more jail time than the immigrant and child. Those who sent immigrants to jail for more time also viewed them as socially distant and less human, described immigration in impersonal terms, and endorsed other social harms unrelated to immigration (e.g., the death penalty for convicted murderers). Crucially, endorsed social harms accounted for explained variance beyond simply holding conservative views. We position these data within the current literature on dehumanization theory and immigration issues.

dehumanization | social harms | immigrants | immigration

How we judge others and make inferences about them is fundamentally a social process. We tend to perceive others positively if they talk like us (1, 2), behave like us (3, 4), and look like us (5). We perceive others negatively (e.g., they are discounted or judged harshly) if they are different from us (6). The degree to which people discount others can vary, however, from considering them to be an out-group (7) to subhuman (8, 9). Such perspectives can have behavioral consequences as well: An out-group might be ignored because they are different (10), whereas blatantly dehumanized individuals might be denied human rights, stripped of agency, or treated as less than human for their mere existence (11, 12). How we think and feel about those who are different is important and the way we communicate about dehumanized out-groups is critical to investigate, as blatant hatred of others remains ubiquitous and unrelenting.

The current paper seeks to understand the social, psychological, and demographic characteristics of individuals who dehumanize. We focus on people making dehumanization judgments about immigrants and how their descriptions of immigrants (or immigration issues in the United States) relate to their willingness to punish those who cross the Mexico–United States border. Our work is timely because dehumanization toward immigrants remains an unresolved issue for America (13). In 2019, the United States kept nearly 70,000 migrant children in holding facilities under inhumane conditions, which were also based on merciless detainment policies (14). More research is needed to understand whether dehumanization relates to other characteristics that might identify those who will treat immigrants as less than human, with the hope of preventing or curbing future atrocities.

To achieve this empirical goal, we complement and extend traditional dehumanization research by developing a social (e.g., past adverse childhood experiences that might indicate dehumanizing tendencies, endorsed social harms), psychological (e.g., how people talk about immigrants, immigration issues), and demographic profile (e.g., political orientation, gender, age) of those who deny the humanity of others.

Theoretical Underpinnings of Dehumanization

Dehumanization is the perspective that certain people should be denied uniquely human rights and specific out-groups are therefore denied the privileges, activities, or agency that are ordinarily ascribed to in-groups (8, 9, 15). Prior work (16) suggests that dehumanization has a long history, and is often expressed tacitly (e.g., discounting the emotions of another group) or explicitly through metaphors (e.g., calling immigrants animals). Explicit dehumanization is most common; for example, immigrants have been viewed as diseased organisms (e.g., parasites, leeches), objects or materials, and invaders (8, 17, 18). Jews were called parasites and bacilli by Adolf Hitler and other groups (19, 20). During World War II, Japanese people were likened to mosquitos needing to be exterminated (21). Such metaphors are powerful because they are common reference points for people to understand (22). However, their simplicity can lead to misunderstandings about groups (23).

Four Theories of Dehumanization. Research on dehumanization is vast and spans disciplines (24), with studies investigating how people dehumanize (18), representations of dehumanization in media (17), how dehumanization affects attitudes toward groups (15), and estimates of the groups that are likely to be dehumanized more than others (9). This evidence has been summarized as the four main theoretical perspectives on dehumanization (25), all of which generally suggest that aspects of

Significance

The existing literature on dehumanization often considers how people make dehumanization judgments and the groups that are dehumanized by others. For example, conservatives are more likely to dehumanize than liberals and immigrants tend to be treated as less than human versus Americans. It is often unclear, however, if dehumanization relates to social and psychological characteristics beyond demographic information. We observed that people who dehumanize immigrants feel less connected to them, describe immigrants in impersonal terms and from a position of power, and endorse social harms that should have little impact on their immigration views. We suggest a social, psychological, and demographic profile of dehumanization that might identify warning signs and prevent others from being treated as less than human.

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humanity are denied to groups of people. These theories are largely consistent with each other and complementary, but rely on different indicators to measure or infer dehumanization.

The first, called *infrahumanization theory*, is the idea of denying secondary emotions to an out-group (11). Secondary emotions such as nostalgia or humiliation, which are considered to be uniquely human characteristics, are withheld from out-groups in examples of infrahumanization but otherwise expressed to in-groups (26). This process is deliberate, purposeful, and represents a form of tacit dehumanization.

The second theory argues that dehumanization is represented by a *dual perspective of humanness* (8). In the first perspective, if people are denied human uniqueness, they are perceived as animals without “refinement, self-control, intelligence, and rationality” (25). This leads to explicit metaphors being communicated about dehumanized groups, such as Jews being called parasites and immigrants being called leeches. In the second perspective, if people are denied human nature, they are objectified and perceived as instruments in society. The dual perspective of humanness is unique because it proposes human-object and human-animal distinctions, and because it suggests that humanness is orthogonal on two dimensions (human uniqueness and human nature).

The third dehumanization theory, *dehumanized perception* (27), offers a cognitive perspective related to treating others as less than human. This theory suggests that dehumanization occurs when one person (or group) fails to acknowledge, consider, or account for another person’s (or group’s) mind. When the brain fails to activate in the presence of a target group, such neural activity is a marker of dehumanization. Evidence in support of this research tradition suggests that in-groups and out-groups are often judged on warmth and competence attributes, which can be identified by activity in the brain (28).

A final theory in dehumanization research, called the *mind perception framework*, considers how people perceive the cognition of others. According to prior work (29), people typically believe that others have agency and experience in their ability to think and feel. That is, most people have the belief that ordinary in- and out-groups can think, communicate, and perform complex cognitive tasks such as expressing emotions. Computers and animals, on the other hand, might struggle or not have the capacity for agency and experience (25). In the mind perception model, dehumanized groups are denied agency and experience because they are believed to not have the capacity for cognitive freedom, and are denied secondary psychological processes. Those who are dehumanized are therefore denied human uniqueness (8).

Together, the four theories focus on aspects of humanity, humanness, human nature, or human experiences that are denied when one group is perceived as “less than.” Such denials can be tacit (e.g., the denial of secondary emotions) or explicit (e.g., using language to blatantly disregard or deny the humanity of another group). Recent work suggests that dehumanizing tendencies, in accordance with prior theories, can be measured and applied to many potential out-groups. For example, prior work (12) measured blatant dehumanization with the ascent of man scale, which has participants rate groups (e.g., immigrants, Americans, Australians) as unevolved or fully evolved on a sliding scale. Evidence suggests that those who dehumanize immigrants and Mexicans tend to support more aggressive anti-immigration policies (e.g., they are more likely to sign an anti-immigration petition) and align with Republican politicians in the United States (e.g., from Carly Fiorina to Donald Trump). The ascent of man measure has been adopted widely and represents a primary way to measure how people rate the humanity of specific groups (e.g., immigrants) relative to others (e.g., Americans).

While blatant disregard for another group’s humanity is a pressing and persistent issue in the United States (13), it is not enough to suggest that dehumanization exists and particular groups tend to be dehumanized. We believe that it is important to understand the foundations of dehumanization and how it perpetuates at a social and psychological level. In the present research, we aim to characterize those who tend to dehumanize and to describe the worldviews of people who treat specific groups as less than human.

Predictors of Dehumanization

Prior work acknowledges several individual differences that often relate to dehumanization tendencies. Specific personality dimensions (e.g., narcissism) are associated with increased dehumanization (30), those of high power and status tend to dehumanize (31), and those displaying increased Dark Triad traits (e.g., psychopathy) tend to feel less connected and attuned to the mind of others (32, 33). As others suggest (25), people who hold stereotypically conservative and right-wing values tend to dehumanize more than those who hold stereotypically liberal and left-wing values, and these effects are cross-cultural (12, 34, 35).

Related evidence suggests that dehumanization represents one group asserting their dominance over another. Called the social dominance orientation (SDO), this tendency represents the degree to which people support out-group inequality (36). Those who dehumanize do not simply perceive others as threatening but enjoy asserting their power over certain out-groups and support efforts to separate the out-group from the in-group (e.g., through institutional policies and explicitly callous metaphors). Prior work outlined by Haslam and Loughnan (25) offers that SDO predicts dehumanization in many perceived out-groups and is cross-cultural as well (37–39), especially for those who dehumanize immigrants (40).

While existing research suggests characteristics of people who often dehumanize, there remain unanswered questions about other social and psychological correlates of treating groups as “less than.” Here, we complement existing research by exploring other theoretically relevant and underlying social, psychological, and demographic characteristics of dehumanizers.

Social Predictors of Dehumanization. We measured four social variables to consider how prior life experiences and perceptions about policy might predict dehumanization toward immigrants. First, prior evidence suggests that perceived social distance is a significant predictor of prejudice toward out-groups. For example, Sinclair and colleagues (41) observed a negative relationship between compassionate love and prejudice for immigrants mediated by the degree to which people report the self and immigrants as being socially close and connected. Therefore, we evaluate the social closeness people feel toward immigrants in predicting their level of dehumanization. Second, we assess whether adverse childhood life experiences relate to dehumanization tendencies. People who experience sexual assault, absent parenting, or other potential childhood trauma tend to feel less socially connected to others and have worse health outcomes than people who do not experience adverse childhood experiences (42, 43). In an exploratory analysis, we evaluate whether people who experienced a trauma or feel that they have been marginalized during childhood tend to dehumanize more than those with favorable childhood experiences.

Third, people who dehumanize often want to assert their power over certain out-groups whom they believe might infringe on the rights, privileges, and lifestyle of their in-group (36, 44). This can lead to increased perceptions of being vulnerable to attack or takeover by others (e.g., immigrants who might threaten the job security of Americans). We therefore measure the degree to which people feel vulnerable in society, to investigate whether greater perceived vulnerability is associated

with higher rates of dehumanization. Finally, we measure support for harmful social and societal actions. Consistent with the assumption that people who feel more vulnerable in society are more likely to dehumanize an out-group such as immigrants, those who endorse more harms in society (e.g., immigration raids, the death penalty) should be more likely to dehumanize immigrants as well.

Psychological Predictors of Dehumanization. A second goal of this investigation is to evaluate the psychology of dehumanizers through language patterns. Words provide important clues about psychological dynamics and experiences. For example, field studies and experiments suggest that word patterns indicate psychological well-being (45), social status (46, 47), and personality (48). Words are behavioral traces of our psychology, which can lead to inferences about how people are thinking and feeling about a specific group.

In general, there are two main categories of words: content words (e.g., nouns) and function words (e.g., pronouns, articles) (49). Content words describe what people are talking about and can help to identify themes within a piece of text (50), while function words indicate a person's speaking style (how they communicate). For example, people who deceive often want to distance themselves from their false act, which is reflected through a reduced self-focus (51). People who lie about their attitudes toward friends or views on abortion tend to use fewer "I" words (e.g., *I, me, my*) than people who tell the truth (52). Both content and style matter to indicate psychological processes, and we use multiple approaches to understand what dehumanizers are talking about and how they are communicating when soliciting their thoughts on immigrants and immigration.

Consistent with the theoretical perspectives outlined by Haslam and Loughnan (25), we expect three language dimensions to reflect those who tend to dehumanize immigrants: impersonal pronouns, power words, and emotion terms. Impersonal pronouns are references to people or objects when the speaker attempts to establish social and psychological distance (49). Referencing immigrants or immigration through terms such as *it, other, or whoever* distances the speaker from the out-group. We expect dehumanizers to use a greater rate of impersonal pronouns compared with nondehumanizers.

We also expect dehumanizers to establish power over immigrants in their language style, a pattern consistent with the SDO (36). Words such as *above, judge, overpower, and punish* increase the degree of difference between two groups (e.g., an in-group and an out-group: Americans and immigrants, respectively). Those who believe that immigrants are less evolved or less than human should therefore describe immigration issues in the United States from a position of power and dominance. Finally, we assess the rate of emotion (e.g., words such as *hate, disgust, or friendly*) as people describe their views on immigration (53). Social justice research suggests that emotion relates to how people feel toward asylum seekers and immigration support (54). Therefore, we evaluate the overall rate of emotion, plus positive and negative emotion as separate dimensions, in participant communication patterns about immigration.

Demographic Predictors of Dehumanization. Survey and experimental research offer several individual differences that describe people who tend to severely dehumanize against immigrants (25): those who lean conservative and are less educated (15). We recruited a host of demographic information, described below, to reveal the intrapersonal correlates of dehumanization toward immigrants.

Together, we connected social, psychological, and demographic measures to blatant dehumanization in two ways. First, we considered the amount of time that participants would

sentence an immigrant to jail if they were caught trying to cross the southern border of the United States illegally. We assess whether people who would sentence immigrants to more jail time also view them as less human and less evolved and hold more negative worldviews toward immigration. Second, we use the ascent of man scale because it is a validated measure of how people rate the evolved nature of out-groups (9).

We also explored whether participants would make different dehumanization judgments based on who crossed the southern border of the United States: 1) an immigrant or 2) an immigrant and their child. It is reasonable to expect that participants will be more likely to dehumanize and make harsher judgments about an immigrant alone versus an immigrant and their child, since recent data suggest that most people believe that current American immigration policies with children (e.g., family separation) are unacceptable (55).

Method

Participants and Power. We recruited participants from Prolific, a web-based survey platform for research studies. We attempted to recruit an even number of participants from the two major political parties in the United States (e.g., Democratic Party and Republican Party) and also conducted an a priori power analysis to ensure that we had enough participants in this study. Prior work suggests that differences in dehumanization rates between Americans and immigrants represent a small to medium effect (9). That is, blatant dehumanization between Americans and Mexican immigrants was the third-highest rating on the ascent of man measure relative to other out-groups (9) (study 1, Cohen's $d = 0.38$). We used this effect size to power our current study at 90% ($\alpha = 0.05$, two-tailed), which required a minimum of 294 participants (147 per condition) to detect a dehumanization effect related to social, psychological, and demographic variables.

We oversampled recruitment (500 participants) to ensure that we had a fair chance of obtaining a highly powered, equal number of Democrats and Republicans. Two individuals were excluded after providing nonsensical responses, however, and 30 participants were removed due to short responses (≤ 15 words) in our writing task (see below). The latter exclusion criterion reduced the influence of short responses overstating the prevalence of word categories. Participants in our sample (final $n = 468$) were paid \$2.50 in this between-subjects experiment. Our study was reviewed and approved by the Decision Research Institutional Review Board (IORG0009857) for ethical research practices and informed consent was given. The data are publicly available at the Open Science Framework at <https://osf.io/7zfx2/>.

Procedure. Participants entered the Qualtrics survey interface, consented to participate, and were told that they would make judgments about a scenario. Each scenario depicted an immigrant (or an immigrant and their child, depending on the condition) trying to enter the United States illegally by crossing the southern border.

Participants randomly assigned to the *immigrant alone* condition read the following text:

An immigrant has been caught trying to enter the United States illegally by crossing the southern border. Based on circumstances of this particular incident, the immigrant may be subject to punishment in the form of a jail sentencing.

Other participants randomly assigned to the *immigrant and child* condition read the following text:

An immigrant and their child have been caught trying to enter the United States illegally by crossing the southern border. Based on circumstances of this particular incident, they may be subject to punishment in the form of a jail sentencing.

Next, participants were asked: "If convicted, how much time should the [immigrant/immigrant and child] spend in jail?" Ratings on this measure, which served as one of our primary dependent variables, included 1) none, 2) days, 3) weeks, 4) months, 5) years, and 6) life in jail, and participants selected one radio button. If participants selected any amount of jail time, a display logic then prompted participants to indicate the number of days, weeks, months, or years the immigrant or immigrant and child should spend in jail. That is, if participants selected days, they were then asked "How many days?" If they selected weeks, they were then asked, "How many

weeks?" and the process continued for the other time markers. Participant answers were then converted to a common metric, days. Upon inspection of the duration measures in days, we observed that they were unreliable and highly skewed even after natural log transformation. Therefore, they were dropped from the analysis.

Following the manipulation and jail-sentencing measure, participants were asked to write about their thoughts and feelings related to the sentencing judgment. We limited participant responses to 400 characters, which ensured a relatively consistent amount of writing across conditions.

The exact writing prompt stated:

Now, tell us what you are thinking and feeling about the judgment you made. You can discuss why you believe this punishment should be granted, how you feel about immigration, your thoughts on immigrants, U.S. policies about separating children from their parents until their immigration case can be adjudicated, requiring asylum seekers to first try for asylum in another country, or other related topics that may come to mind. Please be specific and detailed.

Finally, participants answered questions from our social, psychological, and demographic categories, which are described in detail below.

Measures.

Social measures. We used five measures to evaluate how jail sentencing might relate to how close people feel to immigrants, how they view immigrants as evolved (or primitive) people, adverse childhood experiences that might affect their worldview, a measure of perceived personal vulnerability, and views on social issues that might predict feelings toward immigrants and immigration.

Inclusion of other in the self. We used the inclusion of other in the self (IOS) measure (56) to evaluate closeness toward immigrants. This measure has been validated across many studies to understand the degree of social distance people perceive between the self and a group (57).

In our study, participants judged how close they felt to seven groups or objects: 1) immigrants, 2) US citizens, 3) friends, 4) family, 5) firearms, 6) your favorite sports team, and 7) your car. Closeness was assessed through five images of 1) separate or 5) almost completely overlapping circles. Low scores on this measure suggest that participants feel distant from a particular group or object compared with high scores. Closeness to immigrants was below the midpoint ($M = 2.28$, $SD = 1.16$; $Q1 = 1.00$, median [Mdn] = 2.00, $Q3 = 3.00$).

Ascent of man. Prior work suggests that people who dehumanize often rate "others" as less evolved on an evolutionary scale. For example, people blatantly dehumanize and rate Arabs and Muslims as less human than other groups such as Americans or Europeans (9). We use the ascent of man (AOM) scale as a measure of blatant dehumanization, where participants moved a slider to reflect the less evolved (1 to 7) or fully evolved (8) nature of seven groups: 1) Arabs, 2) Russians, 3) Muslims, 4) Australians, 5) immigrants, 6) Americans, and 7) Swedes. Low scores on this measure suggest more blatant dehumanization compared with high scores. On average, participants did not rate immigrants as fully evolved ($M = 7.01$, $SD = 1.67$; $Q1 = 7.00$, $Mdn = 8.00$, $Q3 = 8.00$).

Adverse childhood experiences. People who have traumatic experiences during their childhood (e.g., sexual assault, dysfunction in a household) tend to have worse health outcomes and hold negative worldviews about others (58). Our study included 10 items from the adverse childhood experiences (ACE) scale, which measures responses to questions such as, "Did you often feel that no one in your family loved you or thought you were important or special?" or "Did a household member go to prison?" We then evaluated how such responses related to feelings toward immigrants. Participants provided binary responses to the 10 ACE items (yes = 1, no = 0; Cronbach's $\alpha = 0.77$) and the items were summed within participant ($M = 1.96$, $SD = 2.21$; $Q1 = 0.00$, $Mdn = 1.00$, $Q3 = 3.00$).

Vulnerability index. A fourth social measure consisted of six items that indicated the degree to which participants viewed themselves as vulnerable in society. Prior work suggests that when people feel like they are underrepresented, vulnerable, or infringed upon, they often ascribe higher risk to their social world and believe they are more susceptible to harm (59).

The six items were: 1) "I often feel discriminated against," 2) "My whole world feels like it is falling apart," 3) "People like me aren't benefiting from the growth of the economy," 4) "I have very little control over the risks to my health," 5) "Would you rate your personal health as excellent, good, fair, or poor?," and 6) "How would you rate the quality of medical care that is available to you and your family?" Note, the first four questions were measured on a scale from 1) strongly disagree to 4) strongly agree. The final two questions were measured on a scale from 1) poor to 4) excellent and

reverse-scored. The six items were averaged ($M = 2.02$, $SD = 0.53$; $Q1 = 1.67$, $Mdn = 2.00$, $Q3 = 2.33$) to create a vulnerability index (Cronbach's $\alpha = 0.75$).

Harms index. Finally, we measured participant views on three social harms. Measuring support for three social policies that inflict harm on others might relate to how people perceive the current state of immigration in the United States or immigrants in general. Three items, described below, were summed to form a composite measure called the *harms index* (Cronbach's $\alpha = 0.75$). These items were also evaluated separately to isolate the specific social harms that associate with dehumanization.

The first question considered gun ownership control: "What do you think is more important—to protect the right of Americans to own guns, OR to control gun ownership?" with two radio buttons: 1) control gun ownership, and 2) protect the right of Americans to own guns. The second question asked, "Do you approve or disapprove of the current immigration raids that are being carried out across the country by federal immigration enforcement agents?" with two radio buttons: 1) disapprove, and 2) approve. The final question asked, "Do you strongly favor, favor, oppose, or strongly oppose the death penalty for persons convicted of murder?" with originally four radio buttons from 1) strongly favor to 4) strongly oppose. We collapsed the four levels of the third question into two levels (e.g., oppose and favor) and reverse-scored the responses to form the index ($M = 1.40$, $SD = 1.21$; $Q1 = 0.00$, $Mdn = 1.00$, $Q3 = 3.00$). High scores on the index represent greater acceptance of guns, immigration raids, and the death penalty.

Psychological measures. We evaluated psychological characteristics of our participants through language patterns and used two automated text analysis tools to measure how people speak when they dehumanize. The first tool, linguistic inquiry and word count (LIWC), relies on an internal dictionary of social (e.g., words related to friends), psychological (e.g., words related to cognitive processes, emotion), and part-of-speech categories (e.g., pronouns) to evaluate word frequencies (60). LIWC counts words as a percent of the total word count. For example, the phrase "I value the lives of immigrants" contains six words and increments the following categories: first-person singular pronouns (e.g., *I*; 16.67% of the total word count), articles (e.g., *the*; 16.67%), and emotion words (e.g., *value*; 16.67%). Each participant's writing style was quantified with LIWC and all language dimensions were drawn from the standard LIWC2015 dictionary (60).

Impersonal pronouns. We evaluated how people described immigration and immigrants through the inclusion of impersonal pronouns. Prior work suggests that pronouns can serve as immediacy markers (46, 49, 52) and can indicate how close people feel to a group or event. Pronouns indicate how people are thinking and feeling about the self or others in a social world. Impersonal pronouns (e.g., *it*, *who*) capture the rate that people describe "others" in detached terms ($M = 4.97\%$, $SD = 3.47\%$; $Q1 = 2.63\%$, $Mdn = 4.55\%$, $Q3 = 7.14\%$).

Power words. Prior work suggests that an imbalance in power can facilitate dehumanization as people assert their dominance toward and distance from groups unlike their own (31, 36, 61). To assess the relationship between power and dehumanization through language, we measured the overall rate of power words (e.g., *opposite*, *pitiful*, *victim*, *weak*) ($M = 4.15\%$, $SD = 3.18\%$; $Q1 = 1.97\%$, $Mdn = 3.70\%$, $Q3 = 5.63\%$). We expect that those who dehumanize and sentence immigrants to more jail time tend to also assert their distance from immigrants through more power words as well.

Emotion terms. When people delegitimize another group out of fear or contempt, they often experience heightened emotions and arousal (8). For example, arousing, violent video games facilitate dehumanization more than neutral video games such as Tetris (62). We therefore evaluated the overall rate of emotion in each participant's writing through the affect category in LIWC (e.g., words such as *hate*, *disgust*, *love*) to measure if this psychological effect also appears in language patterns. This language dimension helped to consider how participant responses to jail sentencing might be associated with more emotional storytelling and heightened arousal overall ($M = 4.67\%$, $SD = 3.26\%$; $Q1 = 2.60\%$, $Mdn = 4.46\%$, $Q3 = 6.45\%$). We also evaluated the language data by valence, including the overall rate of positive ($M = 1.90\%$, $SD = 2.08\%$; $Q1 = 0.00\%$, $Mdn = 1.49\%$, $Q3 = 3.12\%$) and negative emotion ($M = 2.74\%$, $SD = 2.62\%$; $Q1 = 0.00\%$, $Mdn = 2.30\%$, $Q3 = 4.22\%$).

Note that while we selected these language features based on theory and support from empirical evidence, we provide a correlation matrix of all LIWC2015 dimensions and three key outcome variables (jail time scale, IOS, AOM) in *SI Appendix, Table S1*.

The second tool, the meaning extraction helper (MEH) (63), relies on principal-component analysis (PCA) to discover themes or topics within a corpus of text (all of our participant writing). MEH removes function words (e.g., articles, prepositions, pronouns) and low-base-rate words to capture content words (e.g., nouns, verbs). For this study, a content word was

retained if it appeared in at least 5% of the texts. MEH then calculates if a word is present (coded as 1) or absent (coded as 0) from a text, which facilitated the PCA. After varimax rotation, components were retained if loadings were greater than or equal to the absolute value of 0.20 (50, 52, 64).

Without specifying a fixed number of components, the PCA process extracted 24 components. Item loadings for these components were relatively weak and simple themes were difficult to parse. Therefore, we decided to specify a fixed number of components to extract ($n = 5$) and these data were suitable for PCA using natural language [Kaiser–Meyer–Olkin measure of sampling adequacy = 0.518, Bartlett's test of sphericity = $\chi^2(1,378) = 3,323.56, P < 0.001$]. In total, 53 unigrams were extracted in this process and the five components accounted for 20.01% of the variance, which is consistent with other evaluations as well (50, 52, 65). After PCA, components were saved as regression scores to use in future statistical tests.

Demographic measures. We recruited several classes of demographic information from participants. On average, participants were 35.52 y old ($SD = 12.63$ y; $Q1 = 26.00$ y, $Mdn = 33.00$ y, $Q3 = 42.00$ y), mostly white (83.1%), female (53.4%; male: 45.5%; other: 1.1%), and split evenly among Democrats (46.2%) and Republicans (44.4%), and the majority had at least some college education (86.5%). We also asked participants on a seven-point scale (1: extremely liberal; 7: extremely conservative) about their political views ($M = 3.75, SD = 1.94; Q1 = 2.00, Mdn = 4.00, Q3 = 6.00$). We used the demographic variables to evaluate how jail sentencing is associated with individual differences that might matter in dehumanization judgments.

Results

Analytic Approach. Our initial analysis explored whether people would sentence an immigrant, versus immigrant and child, crossing the southern US border to different amounts of jail time. Recall that this measure was a scale with the following points: 1) no jail time, 2) days, 3) weeks, 4) months, 5) years, and 6) life in prison. We henceforth call this the *jail time scale* measure.

Our second analysis evaluated bivariate relationships between jail time and the social, psychological, and demographic variables. Third, we evaluated how such variables associate with the endorsement of social harms and blatant dehumanization as represented by the AOM scale. Finally, we assessed how endorsing social harms might compare with identifying as a conservative. We did not use regressions to predict dehumanization because such models would suffer from collinearity issues. Simple correlations allowed us to assert the relative strength and direction of dehumanization indicators.

Manipulation. Our manipulation affected jail-sentencing judgments. Participants sentenced an immigrant and child to less time on the jail time scale ($M = 2.11, SD = 1.19$) than an immigrant alone ($M = 2.66, SD = 1.40$) [Welch's $t(458.22) = 4.58, P < 0.001$, Cohen's $d = 0.42$]. The evidence is consistent with averaging models of information integration (66) whereby, if the child has a less negative valence than the illegal adult, the adult–child pair would appear less negative. Alternatively, there may simply be an aversion to sentencing a child to jail.

Bivariate Relationships. A bivariate correlation matrix of all primary variables from each higher-order category (e.g., social, psychological, and demographic variables) can be found in Table 1. Exact significance values are provided in the text.

Social variables. People ascribed more jail time to immigrants if they felt less connected to them ($r = -0.243, P < 0.001$), viewed immigrants as less evolved ($r = -0.438, P < 0.001$), and endorsed more social harms relating to guns, the death penalty, and harsh raids on immigrants ($r = 0.511, P < 0.001$). Point-biserial correlations between each harms index item and the jail time scale revealed that protecting one's right to own guns ($r = 0.391, P < 0.001$), support for the death penalty ($r = 0.336, P < 0.001$), and support for raids on immigrants ($r = 0.527, P < 0.001$) were significantly related.

People who experienced more childhood traumas ($r = -0.125, P = 0.007$) and perceived more personal vulnerability in society ascribed less jail time to immigrants ($r = -0.115, P = 0.013$).

Psychological variables. Consistent with the SDO perspective, people who would send immigrants to jail for more time also describe immigration and immigrants from a position of power ($r = 0.142, P = 0.002$). Impersonal references (e.g., *it, who*) positively associated with the jail time scale measure as well ($r = 0.132, P = 0.004$).

In our analysis of linguistic themes, four extracted components from the PCA data were significantly related to the amount of immigrant jail sentencing. Table 2 describes words in each component.

The evidence suggests that immigrants are sentenced to less jail time if the writer believes they are crossing for a *better life* (component 2; words in italics represent items for each component). Component 3 suggests that people would sentence immigrants to jail for less time if they were *seeking asylum* but more time if border crossing is described in terms of *breaking the law*. Finally, descriptions of illegality (component 4) and punishment (component 5), such as *punishing* immigrants for *entering the country illegally*, tend to associate with sending immigrants to jail for longer amounts of time. These results suggest that people who dehumanize immigrants and sentence them to harsh jail time tend to represent them as illegals who need to be punished. Those who sentence immigrants to less (or no) jail time tend to believe that immigrants are in search of a better life. These results are also consistent with findings by Garinther and colleagues (67), who showed that people with antiimmigrant views cared mostly about the security threats they might pose, whereas those who were hospitable toward immigrants were relatively more interested in who they were as persons, their background, reasons for fleeing their homelands, and other characteristics about their humanity.

Demographic variables. Consistent with prior dehumanization research, people who hold conservative views would send immigrants to jail for more time ($r = 0.464, P < 0.001$). A nominal measure of political affiliation (e.g., self-identifying as a Democrat, Republican, or other) was significantly related to the jail time scale measure as well [$F(2, 465) = 45.32, P < 0.001$]. Republicans ($M = 2.97, SE = 0.09$) would sentence immigrants to more jail time than Democrats ($M = 1.84, SE = 0.08; P < 0.001$, Bonferroni-corrected against the Republican group) and those in the “other” political affiliation category ($M = 2.36, SE = 0.18; P = 0.009$, Bonferroni-corrected against the Republican group). Democrats would sentence immigrants to less jail time than those in the “other” category as well ($P = 0.028$, Bonferroni-corrected).

Older people would sentence an immigrant to more jail time ($r = 0.130, P = 0.005$). Males would sentence immigrants to more jail time than females [$F(2, 465) = 6.04, P = 0.003; P = 0.008$, Bonferroni-corrected]. Note that out of space considerations, we did not include education level in Table 1, though this variable was unassociated with jail time ($r = -0.004, P = 0.928$). Ethnicity was marginally associated with the jail time scale [$F(4, 463) = 2.26, P = 0.062$].

Associations with Social Harm Endorsement.

Social variables. People who endorse social harms (e.g., the death penalty for convicted murderers, guns, and raids on immigrants) tend to view immigrants as socially distant ($r = -0.312, P < 0.001$) and less evolved ($r = -0.354, P < 0.001$). The harms index item most strongly associated with the inclusion of other in the self measure was support for immigration raids ($r = -0.337, P < 0.001$), followed by supporting gun ownership rights ($r = -0.237, P < 0.001$) and the death penalty ($r = -0.192, P < 0.001$).

The degree to which people feel personally vulnerable in society was negatively associated with the harms index ($r = -0.184$,

Table 1. Bivariate correlation matrix of key variables

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 Jail time scale	–																			
2 IOS scale	–0.243**	–																		
3 AOM scale	–0.438**	0.266**	–																	
4 ACE scale	–0.125**	–0.019	0.092*	–																
5 Vulnerability	–0.115*	0.076	0.030	0.325**	–															
6 Harms index	0.511**	–0.312**	–0.354**	–0.083	–0.184**	–														
7 Protect rights to own guns	0.391**	–0.237**	–0.274**	–0.046	–0.161**	0.839**	–													
8 Immigration raids	0.527**	–0.337**	–0.299**	–0.043	–0.147**	0.841**	0.615**	–												
9 Death penalty	0.336**	–0.192**	–0.295**	–0.114*	–0.142**	0.772**	0.441**	0.449**	–											
10 Impersonal pronouns	0.132**	0.039	–0.091*	–0.028	–0.092*	–0.028	–0.019	–0.020	–0.029	–										
11 Emotion words	0.039	0.171**	0.034	–0.010	0.032	–0.122**	–0.102*	–0.095*	–0.102*	0.055	–									
12 Positive emotion words	–0.065	0.154**	0.138**	0.025	–0.003	–0.091*	–0.055	–0.108*	–0.062	–0.026	0.582**	–								
13 Negative emotion words	0.096*	0.096*	–0.061	–0.026	0.047	–0.080	–0.086	–0.030	–0.081	0.080	0.770**	–0.064	–							
14 Power words	0.142**	–0.007	–0.021	0.031	–0.004	0.113*	0.121**	0.118*	0.040	–0.059	0.276**	0.004	0.344**	–						
15 C1: Detainment	–0.039	0.001	0.089	0.078	–0.022	–0.021	–0.027	–0.023	–0.003	–0.032	0.033	–0.010	0.044	0.320**	–					
16 C2: Border crossing	–0.217**	0.082	0.120**	–0.045	–0.010	–0.262**	–0.188**	–0.264**	–0.192**	0.059	0.275**	0.287**	0.115*	0.009	0.000	–				
17 C3: Seeking asylum	–0.290**	0.105*	0.126**	0.026	0.009	–0.296**	–0.254**	–0.295**	–0.177**	–0.021	–0.082	0.132**	–0.205**	–0.294**	0.000	0.000	–			
18 C4: Illegality	0.171**	–0.099*	–0.027	–0.061	–0.144**	0.156**	0.101*	0.212**	0.070	0.001	–0.083	–0.033	–0.072	–0.110*	0.000	0.000	0.000	–		
19 C5: Punishment	0.189**	–0.015	–0.038	0.002	0.004	0.018	0.061	0.057	–0.075	0.155**	0.189**	0.071	0.174**	0.186**	0.000	0.000	0.000	0.000	–	
20 Age	0.130**	–0.155**	–0.053	0.028	–0.057	0.235**	0.176**	0.235**	0.165**	–0.082	–0.074	0.003	–0.095*	0.061	0.048	–0.158**	–0.037	0.017	–0.011	–
21 Conservatism	0.464**	–0.312**	–0.260**	–0.148**	–0.229**	0.758**	0.678**	0.698**	0.484**	–0.025	–0.107*	–0.040	–0.103*	0.053	–0.012	–0.228**	–0.277**	0.212**	–0.004	0.279**

For the jail time scale, participants selected immigrants to spend no time in jail, days, weeks, months, years, or life in prison. Conservatism: political views on a scale from 1) extremely liberal to 7) extremely conservative. The harms index includes three measures, including support for the right to own guns, immigration raids, and the death penalty. Impersonal pronouns, power words, and emotion terms were quantified with Linguistic Inquiry and Word Count. C1 to C5: components from the PCA. Correlations between components are zero due to varimax rotation. The last column was removed for redundancy reasons and space considerations. ** $P < 0.01$, * $P < 0.05$.

$P < 0.001$). Point–biserial correlations between the vulnerability index and harms index items, such as endorsing gun ownership ($r = -0.161$, $P < 0.001$), support for the death penalty ($r = -0.142$, $P = 0.002$), and support for raids on immigrants ($r = -0.147$, $P = 0.001$), were all negative and statistically significant.

Psychological variables. People who endorse more social harms tend to write with less positive affect ($r = -0.091$, $P = 0.048$), more power ($r = 0.113$, $P = 0.014$), and describe the actions of immigrants in terms of illegality ($r = 0.156$, $P < 0.001$). As expected, people who describe border crossing as seeking asylum tend to endorse fewer social harms ($r = -0.296$, $P < 0.001$).

Demographic variables. Social harms were positively associated with conservatism ($r = 0.758$, $P < 0.001$) and age ($r = 0.235$, $P < 0.001$). All items of the harms index were positively associated with age (r s > 0.165 , P s < 0.001) and conservatism (r s > 0.484 , P s < 0.001). The nominal measure of political affiliation was significantly related to the harms index [$F(2, 465) = 254.27$, $P < 0.001$]. Republicans ($M = 2.34$, $SE = 0.06$) endorsed more social harms than Democrats ($M = 0.50$, $SE = 0.06$) and those in the “other” category ($M = 1.34$, $SE = 0.13$). Note that all Bonferroni-corrected multiple comparisons were statistically significant ($P < 0.001$).

The harms index was also significantly associated with ethnicity [$F(4, 463) = 5.34$, $P < 0.001$]. Bonferroni-corrected adjustments revealed that African Americans ($M = 0.83$, $SE = 0.22$) and Asians ($M = 0.69$, $SE = 0.22$) endorsed significantly fewer social harms than those identifying as white (P s < 0.032). Other multiple-comparison tests were not significant. These data are reasonable since people of these ethnicities have experienced substantially more marginalization and dehumanization in the United States compared with those who are white (9). Plausibly, they would not endorse social harms, in general, to happen to other marginalized groups. Finally, education level was marginally associated with less endorsement of social harms ($r = -0.086$, $P = 0.063$), and males endorsed more social harms than females [$F(2, 465) = 4.07$, $P = 0.018$; $P = 0.046$, Bonferroni-corrected].

Excluding immigration raids. It is important to note that our harms index included an item related to immigration and immigration

raids. To evaluate the robustness of the prior relationships without that item, we created a revised harms index consisting of endorsement for gun ownership and support for the death penalty only. We then reran the correlations and, indeed, all relationships were largely maintained. This implies that the results are indicating a broader social problem related to a proportion of Americans who wish to punish out-group members who they believe are generally bad, “less than,” or threatening.

Associations with Blatant Dehumanization.

Social variables. People who view immigrants as less than fully evolved (they dehumanize) tend to report fewer adverse childhood experiences ($r = 0.092$, $P = 0.047$). People who believe immigrants are less evolved also endorse more social harms in general ($r = -0.354$, $P < 0.001$). At the item level, people who view immigrants as less than fully evolved also endorse the right to own guns ($r = -0.274$, $P < 0.001$), immigration raids ($r = -0.299$, $P < 0.001$), and the death penalty ($r = -0.295$, $P < 0.001$).

Psychological variables. People who dehumanize immigrants tend to describe them impersonally ($r = -0.091$, $P = 0.05$) and with less positive affect ($r = 0.138$, $P = 0.003$). Those who see immigrants as less than fully evolved are less likely to describe them as asylum seekers ($r = 0.126$, $P = 0.006$) and less as persons crossing the border for a better life ($r = 0.120$, $P = 0.01$).

Demographic variables. People who dehumanize immigrants tend to hold conservative views ($r = -0.260$, $P < 0.001$). The nominal measure of political affiliation was significantly related to dehumanization as well [$F(2, 465) = 13.82$, $P < 0.001$]. Republicans ($M = 6.60$, $SE = 0.11$) rated immigrants as less evolved than Democrats ($M = 7.43$, $SE = 0.11$; $P < 0.001$, Bonferroni-corrected). No other relationships were statistically significant between political affiliation and dehumanization (P s > 0.135). Dehumanization was related to gender [$F(2, 465) = 3.17$, $P = 0.043$], with males rating immigrants as less evolved than females ($P = 0.036$, Bonferroni-corrected). However, dehumanization was unrelated to ethnicity [$F(4, 463) = 0.97$, $P = 0.423$] and age ($r = -0.053$, $P = 0.251$).

Table 2. PCA results

Component									
1		2		3		4		5	
Detainment process		Reasons for border crossing		Seeking asylum over law breaking		Illegality of border crossing		Punishment	
$\lambda = 2.36, 4.45\%$ variance		$\lambda = 2.14, 4.04\%$ variance		$\lambda = 2.10, 3.96\%$ variance		$\lambda = 2.02, 3.81\%$ variance		$\lambda = 1.99, 3.76\%$ variance	
Word	Loading	Word	Loading	Word	Loading	Word	Loading	Word	Loading
Child	0.828	Better	0.742	Asylum	0.608	Cross	0.624	Enter	0.398
Parent	0.822	Life	0.723	Seek	0.530	Illegally	0.615	USA	0.335
Separate	0.738	Live	0.391	Process	0.301	Border	0.577	Harsh	0.268
Consequence	0.244	People	0.303	Allow	0.279	Month	0.398	Punish	0.235
Policy	0.226	Border	0.234	Give	0.261	Crime	0.270	America	0.229
		Cross	0.231	Country	0.257	Enter	0.261	Day	-0.253
		Illegal	-0.217	Family	0.257	Country	0.247	Deport	-0.265
		Immigration	-0.224	Punishment	-0.281	Consequence	0.245	Spend	-0.427
		Allow	-0.224	Law	-0.512	Sentence	0.239	Time	-0.543
		Legal	-0.298	Break	-0.518			Jail	-0.596

Items are arranged in descending order. The top 10 items based on factor-loading magnitude are displayed.

Following these tests, we observed that nearly two-thirds of participants rated immigrants as fully evolved (292/468; 62.4%). We therefore compared dehumanizers (e.g., those who rated immigrants as less than fully evolved) with nondehumanizers (e.g., those who rated immigrants as fully evolved) across the measures from Table 1.

Dehumanizers would send immigrants to jail for more time [Welch's $t(324.85) = 7.68, P < 0.001, \text{Cohen's } d = 0.75$], endorse more social harms [Welch's $t(391.99) = 6.98, P < 0.001, \text{Cohen's } d = 0.66$], and view immigrants as more socially distant than nondehumanizers [$t(466) = 3.53, P < 0.001, \text{Cohen's } d = 0.33$]. Finally, dehumanizers also view immigrants who cross the southern border as those who are breaking the law (component 3; [$t(466) = 2.05, P = 0.041, \text{Cohen's } d = 0.19$]) and believe less that immigrants are crossing the border in search of a better life compared with nondehumanizers (component 2; [Welch's $t(419.72) = 3.65, P < 0.001, \text{Cohen's } d = 0.34$]). On average, dehumanizers ($M = 37.45, SD = 13.00$) tend to be 3 y older than nondehumanizers in our sample ($M = 34.36, SD = 12.28$) [$t(466) = 2.58, P = 0.010, \text{Cohen's } d = 0.24$].

Alternative Explanations. One potential critique of the prior evidence is that the findings might reflect general conservatism, as other work suggests that people who lean conservative tend to dehumanize more than people of other political orientations (12). To demonstrate that these data reflect important social, psychological, and demographic characteristics beyond political affiliation, we performed several analyses.

First, we observed that ratings of conservatism and the harms index were highly correlated ($r = 0.758, P < 0.001$). This suggests that participants who self-report as more conservative also endorse more social harms. Next, we estimated whether political views and endorsing specific social harms are meaningful, independent contributors of jail-sentencing severity. If the social harms composite variable is a unique predictor of dehumanization, a model with the harms index and political affiliation should account for significantly more explained variance than a model with political affiliation alone.

The first model regressed the jail time scale measure on the continuous political orientation measure (1: extremely liberal; 7: extremely conservative), which explained 21.4% of adjusted variance. Regressing the jail time scale on the continuous

political orientation measure and the harms index explained 27.2% of adjusted variance. This $R^2\Delta$ was statistically significant [$F(1, 465) = 38.21, P < 0.001$]. Therefore, after accounting for political views, the harms index contributes a meaningful amount of more variance to explain jail sentencing for immigrants. The $R^2\Delta$ was also significant when we replaced the jail time scale with the AOM measure [$F(1, 465) = 30.72, P < 0.001$].

Dehumanization that takes the form of ascribed jail time or the evolved nature of an out-group goes beyond conservatism and can be predicted by the endorsement of social harms. Political leaning can only account for a portion of how people feel toward immigrants. Our data propose that a constellation of perspectives—social, psychological, and demographic—can help to better understand how people perceive immigration in the United States.

Investigation of Anomalous Effects.

Adverse childhood experiences. In Table 1, the relationship between the jail time scale and adverse childhood experiences was negative and significant ($r = -0.125, P = 0.007$). Therefore, people who report having extreme, negative experiences in their childhood would send an immigrant to jail for less time. To inspect this relationship further, we correlated the jail time scale with all adverse childhood experience scale items.

Three of the 10 items were significantly associated with the jail time scale. If people believed that they were not loved or their family did not look out for each other, they would sentence an immigrant to less jail time ($r = -0.114, P = 0.014$). If participants had divorced parents, they would sentence an immigrant to less jail time ($r = -0.123, P = 0.008$). Finally, if a household member was mentally ill or attempted suicide, people would sentence an immigrant to less jail time ($r = -0.120, P = 0.009$). These patterns might represent a form of empathy on the part of those who had adverse childhood experiences, especially with family members. Prior work suggests that childhood and family traumas associate with an increased propensity for perspective taking and compassion in adulthood (68, 69). Since these contentions were theorized post hoc, we encourage more rigorous testing with experiments and field work.

Robustness of Key Findings. To demonstrate the robustness of our findings beyond simple correlations, Table 3 provides a summary of key results. Republicans and those identifying as conservative

tend to dehumanize and feel less socially connected to immigrants than Democrats and liberals. These effect sizes are quite large, especially for the jail time scale measure. Effect sizes between those who endorse and oppose various social harms were also substantial. For example, people who support the protection of American rights to own guns would sentence immigrants to more jail time than those who want to control gun ownership. Such individuals also view immigrants as more socially distant and consider them to be less evolved than people who want to control gun ownership. A similar pattern emerged when comparing those who support and oppose the death penalty as well.

These trends reinforce our thesis that dehumanization exists beyond individual differences and demographics but at the policy level as well. We observed that a substantial number of Americans can be classified as dehumanizers. However, only relying on demographics and political identity to classify such individuals is problematic. Some people with dehumanizing tendencies will be overlooked or masked if only demographics are considered and not their views on policy. Our evidence suggests that dehumanization is prevalent and pervasive, emphasizing the need to consider it holistically as a construct with links to social, psychological, and demographic variables.

Discussion

At the onset of this paper, we aimed to identify those who dehumanize beyond demographic characteristics and those who use explicit metaphors for out-groups. The present study used a host of factors, namely the social, psychological, and demographic characteristics of dehumanizers, to identify those who make “less than” judgments toward immigrants. Crucially, our data replicate several effects observed in prior research (9, 12, 25, 70). For example, dehumanizers are often more conservative than non-dehumanizers. There are effects reported in this study that also extend the current work on dehumanization.

First, we observed several social characteristics that relate to one’s proclivity for dehumanization toward immigrants. People who experienced family trauma due to mental illness, divorce, and lack of being cared for tend to dehumanize less. We hypothesize that this might lead to empathy with immigrants who

show familial bonding as they make their way toward the United States and suffer trauma due to separation at the border and raids on the American side of the border. Childhood trauma stemming from sexual abuse or violence, on the other hand, does not appear to relate to dehumanization. This is a conjecture that merits further study.

Second, we observed that those who endorse social harms (e.g., the death penalty, protecting an American’s rights to own guns) tend to dehumanize. This connection is consistent with prior work that suggests dehumanization is partly associated with an ideology but also linked to perspectives on policy. We examined if endorsing social harms was a unique contributor toward jail-sentencing severity and, indeed, social harms endorsement explained variance beyond also holding conservative views. Therefore, dehumanization is a multifaceted construct that is linked to, but not fully explained by, political leaning. To identify those who might commit dehumanizing acts, people should ask about conservatism, political party, and social policies for a comprehensive view of the person and phenomenon.

Relatedly, this study is also unique by connecting the dehumanization of immigrants to verbal behavior. This study advances our understanding of how people discuss immigrant dehumanization beyond metaphors and the data offer a linguistic profile of those who dehumanize. Consistent with dehumanization theory such as the SDO (36), people who would sentence immigrants to jail for more time tend to describe immigration (or immigrants) negatively, in impersonal terms, and from a position of power. We believe these language data are crucial because they provide an opportunity to evaluate potentially large-scale and pervasive dehumanization that exists online through verbal behavior (e.g., alt-right chatrooms), instead of relying on self-report measures alone. Some companies use machine learning and natural language processing to curb dehumanization online (e.g., Twitter) (71), but their processes are opaque. We provide a valid social scientific approach with function and content words to potentially flag people who make less-than-human judgments about immigrants. We encourage future research to test how these dimensions apply to the dehumanization of other groups

Table 3. Key findings across demographic and harms index variables

	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>P</i>	Cohen’s <i>d</i>
	Democrats (<i>n</i> = 216)		Republicans (<i>n</i> = 208)				
Jail time scale	1.84	1.09	2.97	1.33	-9.56	<0.001	0.93
IOS scale	2.61	1.10	1.94	1.10	6.21	<0.001	0.61
AOM scale	7.43	1.27	6.60	1.91	5.23	<0.001	0.51
	Liberals (<i>n</i> = 227)		Conservatives (<i>n</i> = 205)				
Jail time scale	1.82	1.08	3.00	1.30	-10.14	<0.001	0.99
IOS scale	2.62	1.12	1.90	1.09	6.76	<0.001	0.65
AOM scale	7.40	1.29	6.61	1.91	4.97	<0.001	0.48
	Control gun ownership (<i>n</i> = 266)		Protect gun rights (<i>n</i> = 202)				
Jail time scale	1.94	1.12	2.99	1.36	-8.93	<0.001	0.84
IOS scale	2.52	1.11	1.97	1.14	5.27	<0.001	0.49
AOM scale	7.41	1.19	6.49	2.03	5.75	<0.001	0.55
	Disapprove immigration raids (<i>n</i> = 276)		Approve immigration raids (<i>n</i> = 192)				
Jail time scale	1.80	1.01	3.23	1.29	-12.84	<0.001	1.23
IOS scale	2.61	1.14	1.81	1.02	7.88	<0.001	0.74
AOM scale	7.42	1.21	6.41	2.02	6.21	<0.001	0.61
	Oppose death penalty (<i>n</i> = 208)		Favor death penalty (<i>n</i> = 260)				
Jail time scale	1.89	1.12	2.79	1.36	-7.87	<0.001	0.72
IOS scale	2.53	1.13	2.08	1.14	4.23	<0.001	0.40
AOM scale	7.56	1.07	6.57	1.91	7.06	<0.001	0.64

The top two panels are demographic measures; the bottom three panels are harms index items. A nominal liberal versus conservative distinction was based on the conservatism scale (liberal coded as 1 to 3 and conservative coded as 5 to 7; midpoint values [4] were excluded). For the jail time scale, participants selected immigrants to spend 1) no time in jail, days, weeks, months, years, or 6) life in prison, and were averaged across participants.

and how well these dimensions can predict dehumanization in the wild.

Taken together, our evidence suggests that dehumanization is linked to views on policy, how people talk about “less than” out-groups, adverse childhood experiences, and perceived vulnerability in society. To properly identify dehumanizers, we encourage researchers and practitioners to use self-report, behavioral, and policy-based measures to understand the characteristics of those who treat others as less than human.

Theoretical and Methodological Contributions. There are several theoretical and methodological contributions worth noting about our research. First, our results complement and extend dehumanization theory by offering support for the SDO framework through language patterns. People who dehumanize tend to distance themselves from a “less than” out-group by asserting power. These findings therefore suggest that verbal output is related to dehumanization beyond explicit and callous metaphors. We believe this is an important consideration for researchers who might try to identify dehumanization issues that are manifest online and represented by text data.

Second, we observed that a validated measure of blatant dehumanization (the AOM scale) was linked to our measure of dehumanization toward immigrants (the jail time scale). We view this as a methodological contribution because ascribed jail time is a measure that could be used to identify dehumanizers in a nonresearch setting. The evidence in support of the AOM to indicate dehumanized out-groups is robust and we believe that it is an innovative and valuable measure. However, the degree to which people are familiar with rating others as less than human is worth considering. On the other hand, people are likely more familiar with ascribing punishments (e.g., parents who reprimand their children), including social harms, which were correlated with the AOM.

This evidence suggests that dehumanization may reside in people as a general characteristic of humanity, as it connects to a wide spectrum of hurtful behaviors (e.g., support for immigration raids, the death penalty). Perhaps dehumanization is a foundational characteristic of the pyramid of hate (72), which implicitly and explicitly supports the violent extremism at the tip of the pyramid. We encourage future research to explore this idea directly.

We acknowledge, however, that our jail time measure of dehumanization is qualitatively different from the AOM measure. A critical reader might suggest that it is not dehumanizing to sentence an immigrant to jail if they were caught breaking the law. Our counterargument to this claim offers that many immigrants crossing the southern border would not be committing serious or egregious acts of illegality if convicted but instead they are attempting to enter the United States with the hope of surviving (73). Therefore, such immigrants—in our opinion—deserve zero or at most minimal incarceration. Sentencing them to more than minimal jail time is ascribing disproportionate punishment, which we believe is dehumanizing by treating immigrants as “less than” and denying their humanity. Since our jail time measure was significantly correlated with the AOM measure as well, we feel comfortable calling jail time a form of blatant dehumanization against immigrants.

With this work, we hope that academics and nonacademics can become more aware of and sensitive to the various social, psychological, and demographic dimensions that perpetuate dehumanization. Research trying to understand the foundations of dehumanization is important, since related work finds that dehumanizers and those who seek violence against others believe that their hated out-groups are capable of feeling but deserve to suffer (74). Our work uniquely highlights the conditions and patterns associated with denying the humanity of others and, with interdisciplinary science, we hope to inform and curb such atrocities.

Limitations and Future Directions. Our research only considered dehumanization toward immigrants and therefore it is unclear how these results extend to the dehumanization of other out-groups and how these effects might be cross-cultural. We also do not know the causal nature of the relationships reported in this study. It is possible that the endorsement of social harms leads to dehumanization, but dehumanization might also lead to the endorsement of social harms. Therefore, experimental research should test the directionality of many effects in this study. We also did not measure if people in our study are immigrants or if they knew others who were affected by immigration raids in the United States. This should be considered in future work.

Although the effect sizes for some of our variables such as social harms and political identity were quite substantial (Table 3), the effect sizes for many other relationships ranged from small to medium. Future work should use preregistered, a priori powered studies to ensure that enough people are recruited to understand how social, psychological, and demographic characteristics associate with dehumanization. Including more behavioral measures of dehumanization beyond language is an important consideration for future work as well. We encourage replication studies to evaluate the robustness of our effects, especially those that involve relatively new measures for dehumanization research such as language patterns.

Conclusion

Dehumanization toward immigrants is a pressing and unrelenting issue across the globe. We measured social, psychological, and demographic variables associated with treating immigrants as less than human and the data suggest people dehumanize if they are conservative, older, endorse social harms, feel more socially distant from the out-group, and describe the issue in impersonal terms and from positions of power. We recommend using a constellation of predictors to understand how people dehumanize and the individuals who may dehumanize particular out-groups. This, in turn, can lead to the detection of warning signs and the prevention of abuses against people who are marginalized across the world and, more generally, the prevention of many forms of extreme violence.

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1. A. L. Gonzales, J. T. Hancock, J. W. Pennebaker, Language style matching as a predictor of social dynamics in small groups. *Communic. Res.* **37**, 3–19 (2010).
2. M. E. Ireland et al., Language style matching predicts relationship initiation and stability. *Psychol. Sci.* **22**, 39–44 (2011).
3. T. L. Chartrand, J. A. Bargh, The chameleon effect: The perception-behavior link and social interaction. *J. Pers. Soc. Psychol.* **76**, 893–910 (1999).
4. J. N. Bailenson, N. Yee, Digital chameleons: Automatic assimilation of nonverbal gestures in immersive virtual environments. *Psychol. Sci.* **16**, 814–819 (2005).
5. R. M. Montoya, R. S. Horton, J. Kirchner, Is actual similarity necessary for attraction? A meta-analysis of actual and perceived similarity. *J. Soc. Pers. Relat.* **25**, 889–922 (2008).

6. J. Jin, G. Pei, Q. Ma, Social discounting under risk. *Front. Psychol.* **8**, 392 (2017).
7. D. J. Packer, On being both with us and against us: A normative conflict model of dissent in social groups. *Pers. Soc. Psychol. Rev.* **12**, 50–72 (2008).
8. N. Haslam, Dehumanization: An integrative review. *Pers. Soc. Psychol. Rev.* **10**, 252–264 (2006).
9. N. Kteily, E. Bruneau, A. Waytz, S. Cotterill, The ascent of man: Theoretical and empirical evidence for blatant dehumanization. *J. Pers. Soc. Psychol.* **109**, 901–931 (2015).
10. N. Bos, N. S. Shami, J. S. Olson, A. Cheshin, N. Nan, “In-group/out-group effects in distributed teams: An experimental simulation” in *Proceedings of the 2004 ACM Conference on Computer Supported Cooperative Work*, (ACM, Chicago, IL, 2004), pp. 429–436.

11. O. S. Haque, A. Waytz, Dehumanization in medicine. *Perspect. Psychol. Sci.* **7**, 176–186 (2012).
12. N. Kteily, E. Bruneau, Backlash: The politics and real-world consequences of minority group dehumanization. *Pers. Soc. Psychol. Bull.* **43**, 87–104 (2017).
13. B. C. Ames, The dehumanization of immigrants and the rise of the extreme right (2019). <https://www.aicgs.org/publication/the-dehumanization-of-immigrants-and-the-rise-of-the-extreme-right/>. Accessed 7 November 2019.
14. C. Sherman, M. Mendoza, G. Burke, US held record number of migrant children in custody in 2019 (2019). <https://apnews.com/015702afdb4d4fbf85cf5070cd2c6824>. Accessed 14 November 2019.
15. S. M. Utych, How dehumanization influences attitudes toward immigrants. *Polit. Res. Q.* **71**, 440–452 (2018).
16. G. O'Brien, Indigestible food, conquering hordes, and waste materials: Metaphors of immigrants and the early immigration restriction debate in the United States. *Metaphor Symb.* **18**, 33–47 (2003).
17. A. Musolff, Dehumanizing metaphors in UK immigrant debates in press and online media. *J. Lang. Aggress. Conflict* **3**, 41–56 (2015).
18. V. M. Esses, S. Medianu, A. S. Lawson, Uncertainty, threat, and the role of the media in promoting the dehumanization of immigrants and refugees. *J. Soc. Issues* **69**, 518–536 (2013).
19. A. Musolff, What role do metaphors play in racial prejudice? The function of anti-semitic imagery in Hitler's Mein Kampf. *Patterns Prejudice* **41**, 21–43 (2007).
20. C. Tipler, J. B. Ruscher, Agency's role in dehumanization: Non-human metaphors of out-groups. *Soc. Personal. Psychol. Compass* **8**, 214–228 (2014).
21. P. Slovic, H. Lin, The caveman and the bomb in the digital age (2018). <http://www.decisionresearch.org/wp-content/uploads/2019/05/975.pdf>. Accessed 25 November 2019.
22. G. Lakoff, M. Johnson, *Metaphors We Live By* (University of Chicago Press, Chicago, IL, 1980).
23. A. Musolff, Metaphors: Sources for intercultural misunderstanding? *Int. J. Lang. Cult.* **1**, 42–59 (2014).
24. D. Livingstone Smith, *Less than Human: Why We Demean, Enslave, and Exterminate Others* (Griffin, Spokane Valley, WA, 2012).
25. N. Haslam, S. Loughnan, Dehumanization and infrahumanization. *Annu. Rev. Psychol.* **65**, 399–423 (2014).
26. J.-P. Leyens *et al.*, Emotional prejudice, essentialism, and nationalism the 2002 Tajfel lecture. *Eur. J. Soc. Psychol.* **33**, 703–717 (2003).
27. L. T. Harris, S. T. Fiske, Dehumanizing the lowest of the low: Neuroimaging responses to extreme out-groups. *Psychol. Sci.* **17**, 847–853 (2006).
28. L. T. Harris, S. T. Fiske, Dehumanized perception: A psychological means to facilitate atrocities, torture, and genocide? *Z. Psychol.* **219**, 175–181 (2011).
29. H. M. Gray, K. Gray, D. M. Wegner, Dimensions of mind perception. *Science* **315**, 619 (2007).
30. K. D. Locke, Aggression, narcissism, self-esteem, and the attribution of desirable and humanizing traits to self versus others. *J. Res. Pers.* **43**, 99–102 (2009).
31. J. Lammers, D. A. Stapel, Power increases dehumanization. *Group Process. Intergroup Relat.* **14**, 113–126 (2011).
32. K. Gray, A. C. Jenkins, A. S. Heberlein, D. M. Wegner, Distortions of mind perception in psychopathology. *Proc. Natl. Acad. Sci. U.S.A.* **108**, 477–479 (2011).
33. D. N. Jones, D. L. Paulhus, Duplicity among the Dark Triad: Three faces of deceit. *J. Pers. Soc. Psychol.* **113**, 329–342 (2017).
34. I. Maoz, C. McCauley, Threat, dehumanization, and support for retaliatory aggressive policies in asymmetric conflict. *J. Conflict Resolut.* **52**, 93–116 (2008).
35. D. DeLuca-McLean, E. Castano, Infra-humanization of ethnic minorities: The moderating role of ideology. *Basic Appl. Soc. Psychol.* **31**, 102–108 (2009).
36. F. Pratto, J. Sidanius, L. M. Stallworth, B. F. Malle, Social dominance orientation: A personality variable predicting social and political attitudes. *J. Pers. Soc. Psychol.* **67**, 741–763 (1994).
37. V. M. Esses, S. Veenvliet, G. Hodson, L. Mihic, Justice, morality, and the dehumanization of refugees. *Soc. Justice Res.* **21**, 4–25 (2008).
38. G. Hodson, K. Costello, Interpersonal disgust, ideological orientations, and dehumanization as predictors of intergroup attitudes. *Psychol. Sci.* **18**, 691–698 (2007).
39. L. E. Jackson, L. Gaertner, Mechanisms of moral disengagement and their differential use by right-wing authoritarianism and social dominance orientation in support of war. *Aggress. Behav.* **36**, 238–250 (2010).
40. L. Thomsen, E. G. T. Green, J. Sidanius, We will hunt them down: How social dominance orientation and right-wing authoritarianism fuel ethnic persecution of immigrants in fundamentally different ways. *J. Exp. Soc. Psychol.* **44**, 1455–1464 (2008).
41. L. Sinclair, B. Fehr, W. Wang, E. Regehr, The relation between compassionate love and prejudice: The mediating role of inclusion of out-group members in the self. *Soc. Psychol. Personal. Sci.* **7**, 176–183 (2016).
42. K. I. Batcho, A. M. Nave, M. L. DaRin, A retrospective survey of childhood experiences. *J. Happiness Stud.* **12**, 531–545 (2011).
43. W. Lu, K. T. Mueser, S. D. Rosenberg, M. K. Jankowski, Correlates of adverse childhood experiences among adults with severe mood disorders. *Psychiatr. Serv.* **59**, 1018–1026 (2008).
44. A. Chomsky, "They take our jobs!" in *And 20 Other Myths about Immigration* (Beacon Press, Boston, MA, 2007).
45. J. C. Eichstaedt *et al.*, Facebook language predicts depression in medical records. *Proc. Natl. Acad. Sci. U.S.A.* **115**, 11203–11208 (2018).
46. E. Kacewicz, J. W. Pennebaker, M. Davis, M. Jeon, A. C. Graesser, Pronoun use reflects standings in social hierarchies. *J. Lang. Soc. Psychol.* **33**, 125–143 (2014).
47. D. M. Markowitz, Academy Awards speeches reflect social status, cinematic roles, and winning expectations. *J. Lang. Soc. Psychol.* **37**, 376–387 (2018).
48. N. S. Holtzman *et al.*, Linguistic markers of grandiose narcissism: A LIWC analysis of 15 samples. *J. Lang. Soc. Psychol.* **38**, 773–786 (2019).
49. J. W. Pennebaker, *The Secret Life of Pronouns: What Our Words Say about Us* (Bloomsbury Press, London, UK, 2011).
50. K. G. Blackburn, G. Yilmaz, R. L. Boyd, Food for thought: Exploring how people think and talk about food online. *Appetite* **123**, 390–401 (2018).
51. M. L. Newman, J. W. Pennebaker, D. S. Berry, J. M. Richards, Lying words: Predicting deception from linguistic styles. *Pers. Soc. Psychol. Bull.* **29**, 665–675 (2003).
52. D. M. Markowitz, D. J. Griffin, When context matters: How false, truthful, and genre-related communication styles are revealed in language. *Psychol. Crime Law* **26**, 287–310 (2020).
53. G. D. Sherman, J. Haidt, Cuteness and disgust: The humanizing and dehumanizing effects of emotion. *Emot. Rev.* **3**, 245–251 (2011).
54. M. Verkuyten, Emotional reactions to and support for immigrant policies: Attributed responsibilities to categories of asylum seekers. *Soc. Justice Res.* **17**, 293–314 (2004).
55. S. Telhami, S. Rouse, Americans views on President Trump's immigration policies (2019). https://criticalissues.umd.edu/sites/criticalissues.umd.edu/files/umcip_questionnaire_april_2019.pdf. Accessed 15 November 2019.
56. A. Aron, E. N. Aron, D. Smollan, Inclusion of other in the self scale and the structure of interpersonal closeness. *J. Pers. Soc. Psychol.* **63**, 596–612 (1992).
57. S. Gächter, C. Starmer, F. Tufano, Measuring the closeness of relationships: A comprehensive evaluation of the "inclusion of the other in the self" scale. *PLoS One* **10**, e0129478 (2015).
58. V. J. Felitti *et al.*, Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *Am. J. Prev. Med.* **14**, 245–258 (1998).
59. T. A. Satterfield, C. K. Mertz, P. Slovic, Discrimination, vulnerability, and justice in the face of risk. *Risk Anal.* **24**, 115–129 (2004).
60. J. W. Pennebaker, R. J. Booth, R. L. Boyd, M. E. Francis, *Linguistic Inquiry and Word Count: LIWC2015* (Pennebaker Conglomerates, Austin, TX, 2015).
61. J. D. Gwinn, C. M. Judd, B. Park, Less power = less human? Effects of power differentials on dehumanization. *J. Exp. Soc. Psychol.* **49**, 464–470 (2013).
62. T. Greitemeyer, N. McLatchie, Denying humanness to others: A newly discovered mechanism by which violent video games increase aggressive behavior. *Psychol. Sci.* **22**, 659–665 (2011).
63. R. L. Boyd, MEH: Meaning Extraction Helper (Version 2.1.06, 2018) [Software]. <https://meh.ryanb.cc>. Accessed 8 April 2020.
64. R. L. Boyd, J. W. Pennebaker, "A way with words: Using language for psychological science in the modern era" in *Consumer Psychology in a Social Media World*, C. Dimofte, C. Haugtvedt, R. Yalch, Eds. (Routledge, New York, NY, 2015), pp. 222–236.
65. N. Millar, S. Hunston, Adjectives, communities, and taxonomies of evaluative meaning. *Funct. Lang.* **22**, 297–331 (2015).
66. N. H. Anderson, Averaging versus adding as a stimulus-combination rule in impression formation. *J. Exp. Psychol.* **70**, 394–400 (1965).
67. A. Garinther, M. Mayorga, D. Västfjäll, P. Slovic, Information spotlighting on Americans' decisions surrounding refugee resettlement policy. *J. Refug. Stud.*, 10.1093/jrs/fez068 (2019).
68. D. M. Greenberg, S. Baron-Cohen, N. Rosenberg, P. Fonagy, P. J. Rentfrow, Elevated empathy in adults following childhood trauma. *PLoS One* **13**, e0203886 (2018).
69. J. Zaki, *The War for Kindness: Building Empathy in a Fractured World* (Crown, New York, NY, 2019).
70. E. Bruneau, H. Szekeres, N. Kteily, L. R. Tropp, A. Kende, Beyond dislike: Blatant dehumanization predicts teacher discrimination. *Group Process. Intergroup Relat.*, 136843021984546 (2019).
71. V. Gadde, D. Harvey, Creating new policies together (2018). https://blog.twitter.com/en_us/topics/company/2018/creating-new-policies-together.html. Accessed 26 November 2019.
72. Anti-Defamation League, Pyramid of hate (2019). <https://www.adl.org/sites/default/files/documents/pyramid-of-hate.pdf>. Accessed 29 November 2019.
73. M. Jordan, The overlooked undocumented immigrants: From India, China, Brazil (2019). <https://www.nytimes.com/2019/12/01/us/undocumented-visa-overstays.html>. Accessed 2 December 2019.
74. T. S. Rai, P. Valdesolo, J. Graham, Dehumanization increases instrumental violence, but not moral violence. *Proc. Natl. Acad. Sci. U.S.A.* **114**, 8511–8516 (2017).