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We document a tendency to *demean* others' needs: believing that psychological needs—those requiring mental capacity, and hence more uniquely human (e.g., need for meaning and autonomy)—are relatively less important to others compared with physical needs—those shared with other biological agents, and hence more animalistic (e.g., need for food and sleep). Because valuing psychological needs requires a sophisticated humanlike mind, agents presumed to have relatively weaker mental capacities should also be presumed to value psychological needs less compared with biological needs. Supporting this, our studies found that people demeaned the needs of nonhuman animals (e.g., chimpanzees) and historically dehumanized groups (e.g., drug addicts) more than the needs of close friends or oneself (Studies 1 and 3). Because mental capacities are more readily recognized through introspection than by external observation, people also demean peers' needs more than their own, inferring that one's own behavior is guided more strongly by psychological needs than identical behavior in others (Study 4). Two additional experiments suggest that demeaning could be a systematic error (Studies 5 and 6), as charity donors and students underestimated the importance of homeless people's psychological (vs. physical) needs compared with self-reports and choices from homeless people. Underestimating the importance of others' psychological needs could impair the ability to help others. These experiments indicate that demeaning is a unique facet of dehumanization reflecting a reliable, consequential, and potentially mistaken understanding of others' minds.

Keywords: dehumanization, hierarchy of needs, mind perception, motivation, social cognition

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After a group of homeless people in Portland, Oregon created a tent-village coined "Dignity Village" with the self-professed goal of "restoring dignity to the homeless," city officials decided to fund additional homeless villages. Their stated goal was not just to provide housing but also emotional support through counseling services and programs to foster social connections. This funding initiative generated considerable controversy. In one Reddit thread entitled, "Why Portland attracts so many homeless people," an online user commented, "Obviously they're handling [homeless people] the wrong way . . . why should we throw parties and pay for them to 'regain dignity' when they just need housing?" Another user concurred: "Portland's now the city of 'protecting the feelings of homeless people'—as if their feelings really matter." These quotes illustrate a concern among some Portland residents that the new programs focus too much on homeless people's psychological needs (e.g., dignity) and not enough on their basic physical needs (e.g., food and housing).

We suggest that this anecdote reflects a more basic tendency in social judgment to diminish the presumed importance of psychological needs in some people compared with their physical needs—a tendency that we refer to as *demeaning*. Hints of this tendency come not only from Reddit threads but also from academic writing. Abraham Maslow, one of psychology's great humanists, proposed a theory of motivation suggesting that needs operate in a hierarchical fashion whereby basic physical needs are of primary importance while psychological needs (e.g., for meaning, purpose, and self-esteem) are only of secondary importance after physical needs have been met. In his seminal paper proposing this hierarchy of needs, Maslow writes, "In certain people, the level of aspiration may be permanently deadened or lowered . . . so that the person who has experienced life at a very low-level,

i.e., chronic unemployment, may continue to be satisfied for the rest of his life if only he can get enough food" (Maslow, 1943, p. 386). This statement suggests a general presumption that psychological needs are relatively less important or foundational than physical needs, thereby minimizing the importance of people's psychological motives. Because a sophisticated humanlike mind is required for an agent to be motivated by psychological needs, whereas any agent with a body—including nonhuman animals—can be motivated by physical needs, demeaning another person represents a form of dehumanization. We therefore predict that people will be particularly likely to demean individuals who are presumed to have weaker mental capacities, including members of typically dehumanized groups (such as homeless people or drug addicts), thereby evaluating them as having needs more similar to nonhuman animals than to typical human beings or to oneself.

Demeaning Others' Needs

Our prediction that people demean others' needs in varying degrees stems from differences in how people assess others' physical versus psychological characteristics. A person's physical needs stem from bodily states and are therefore readily observable from an outside perspective. A person who eats is recognized as needing food. A person who sleeps is recognized as needing rest. Any agent with a body is easily recognized as needing to satisfy their physical needs. In contrast, a person's psychological needs stem from the presence of a sophisticated mind, the presence of which cannot be observed directly but instead is only experienced through introspection or inferred through mind perception processes (Epley & Waytz, 2010) such as egocentric projection (O'Brien & Ellsworth, 2012; Van Boven & Loewenstein, 2003), stereotype application (Fiske, Cuddy, & Glick, 2007; Haslam, 2006), behavioral deduction (Gilbert & Malone, 1995; Kelley, 1972), and verbal communication (Schroeder & Epley, 2015, 2016; Schroeder, Kardas, & Epley, 2017). Recognizing the importance of physical needs in others requires only recognizing another's body but recognizing the importance of psychological needs requires recognizing the presence of a humanlike mind.

Although the presence of another's mind must be inferred, one's own mind is directly (if imperfectly) experienced (Nisbett & Wilson, 1977). This asymmetry in the direct experience of one's own mind and the need to infer the presence of others' minds can create a systematic tendency to infer that others' mental capacities are simply weaker than one's own capacities (see Waytz, Schroeder, & Epley, 2014 for a review). We suggest these same processes can also lead people to demean others' needs.

If demeaning stems from an asymmetry in the accessibility of others' psychological versus physical needs, then demeaning should be moderated by intergroup stereotypes derived from observable behavior (Fiske, Cuddy, Glick, & Xu, 2002). Some groups are defined by actions that are closely related to physical needs (e.g., homeless people seeking food or shelter), whereas other groups are defined by actions that are more closely related to psychological needs (e.g., lawyers seeking justice, charity donors seeking meaning and purpose). The groups whose defining behavioral characteristics are more closely related to physical needs

should be demeaned more than those whose behavioral characteristics are more closely related to psychological needs.

Demeaning Is Dehumanizing

We suggest that demeaning others' needs is one manifestation of a broader tendency to dehumanize others. Psychologists define *dehumanization* as representing another person as having diminished humanlike capacities, more similar to an animal or an object than to a fully developed human being (Epley & Waytz, 2010). Although scholars have used varying definitions of dehumanization, the central capacities that people typically report as unique to human beings involve mental functioning, especially capacities related to thinking (e.g., cognition, rationality, self-control) or feeling (e.g., secondary emotions, emotional experience, interpersonal warmth; Epley, Waytz, & Cacioppo, 2007; Gray, Gray, & Wegner, 2007; Harris & Fiske, 2009; Haslam, 2006; Haslam, Loughnan, & Holland, 2013; Leyens et al., 2000; Rai, Valdesolo, & Graham, 2017; Waytz, Schroeder, & Epley, 2014). Others can therefore be dehumanized when people presume in those others a diminished capacity to think, more like an animal, or a diminished capacity to feel, more like an object or machine (Haslam, 2006, see also Harris & Fiske, 2009; Haslam & Bain, 2007; Haslam, Bain, Douge, Lee, & Bastian, 2005; Haslam & Loughnan, 2014; Kteily, Bruneau, Waytz, & Cotterill, 2015).

Based on these prior findings, we propose that dehumanizing others' mental traits and capacities will also be reflected in demeaning their needs and motivations. Because psychological needs are more closely connected to the human-like mental capacities of thinking and feeling whereas physical needs are more closely associated with bodily states shared with other nonhuman animals, demeaning could reflect a form of dehumanization. Our hypotheses enrich existing research on dehumanization because they examine the causal inferences people make about others' behavior (i.e., assessments of motives), whereas existing research has focused primarily on trait-based inferences about mental capacities (for a review of the primary models of dehumanization, see Haslam & Loughnan, 2014). This is potentially important because some research suggests that causal reasoning about others is the most fundamental goal of judgment and decision-making (Hastie & Pennington, 2000; Malle, 1999, 2004, 2006, 2008; Pennington & Hastie, 1993). When interpreting others' behavior, people tend not to first list others' traits but rather to list explanations for their behavior focused on intentions, motives, and goals (Malle, 2006).

We believe it is valuable to examine dehumanization of others' needs and motivations because these evaluations are more likely to guide people's behavior toward others, and their spontaneous interpretations of others' behavior. For instance, a person who believes that homeless people have relatively unimportant psychological needs—caring little about self-esteem, autonomy, or meaning and purpose—will be unlikely to treat them with esteem, grant them independence, or offer them assistance in finding meaning and purpose in life. Instead, this person would try to help the homeless merely by satisfying basic physical needs. Likewise, an executive who believes that her employees care little about psychological needs will be unlikely to provide opportunities for meaning and purpose, thereby creating an impoverished work environment that is not as satisfying as it could be.

Demeaning Others' Needs Compared With One's Own

Our hypotheses suggest that demeaning will emerge in comparisons between one's own needs and others' needs, at least to the extent that people tend to believe that they have more sophisticated mental capacities than others do. Because people experience their own mental states but not others' mental states, we expect that people will generally presume that their psychological needs are more important to them than others' psychological needs are to others. We do not expect a consistent difference in the presumed importance of physical needs, however, given that physical needs are relatively easier to observe in others compared with psychological needs. This means that people will generally consider their own psychological and physical needs to be of similar importance, but will presume that physical needs are generally more important to others than are others' psychological needs.

This proposed self/other difference in presumed importance of psychological needs fits with a broader set of findings in which others seem to have weaker mental experiences than oneself. For example, people tend to underestimate the intensity of others' affective experiences (Jordan et al., 2011; Nordgren, Banas, & MacDonald, 2011; Nordgren, Morris-McDonnell, & Loewenstein, 2011; Van Boven & Loewenstein, 2003). These results are not simply a social desirability bias because people attribute fewer positive *and* negative mental capacities to others compared with themselves. In one study, Haslam and colleagues (2005) identified a set of mental capacities that people considered to be essential features of human nature, including positively valenced traits such as *curious*, *sympathetic*, and *imaginative* as well as negatively valenced traits like *jealous* and *nervous.* People thought they possessed both the positive *and* negative traits more than their peers did. Finally, people tend to believe that others are less motivated by intrinsic incentives and more by extrinsic incentives, than themselves (Heath, 1999). For instance, people tend to believe that learning new things and doing challenging work (intrinsic incentives) are less important to others than to themselves, but that earning money (extrinsic incentive) is more important to others. To the extent that intrinsic incentives are more closely aligned with psychological motivations than extrinsic incentives, this finding suggests that people may believe that psychological needs are less important to others than to themselves.

Overview of Hypotheses

We hypothesize that people demean others' needs by diminishing others' psychological needs in comparison with others' physical needs (H1) because psychological needs require introspection to experience and are not easily observed (unlike physical needs which can be directly observed; H2). This further suggests that agents seen as having weaker mental capacities (e.g., historically dehumanized group members, nonhuman animals) will be demeaned more than agents seen as having stronger mental capacities (e.g., the self, close friends; H3). Moreover, even a peer's needs will be demeaned compared with one's own needs, because people have greater access into their own psychological needs (which are experienced introspectively) than into others' psychological needs (which are indirectly inferred; H4). Finally, if demeaning occurs primarily from a lack of insight into others' psychological needs, then demeaning could represent a social judgment error. Specifically, people will demean an individual's

needs more than that individual would demean his or her own needs (H5). We believe demeaning has important practical consequences because it can guide decisions about how to satisfy others' needs in daily life, hampering the ability to satisfy others' needs to the extent demeaning is mistaken (H6).

Overview of Methodology

We measure demeaning by creating a scale based on Maslow's (1943) need framework. Maslow proposed five levels of needs in order of how fundamental he presumed them to be for human survival: physiological (ostensibly most fundamental, according to the theory), safety, belonging, self-esteem, and self-actualization (ostensibly least fundamental). Empirical evidence has not supported Maslow's hypotheses, instead indicating that people actually satisfy their needs in parallel rather than in his proposed hierarchical fashion (Sumerlin & Norman, 1992; Tay & Diener, 2011; Wahba & Bridwell, 1976). Even the most destitute individuals care not just about food and shelter but also care about self-esteem and purpose in their lives. Yet Maslow's theory continues to be one of the most popular theories of motivation among both academic and lay audiences (currently cited by 24,256 other papers on Google Scholar). We suggest that Maslow's theory remains popular because it fits with people's intuitive beliefs about others' needs.

Despite its lack of empirical support, Maslow's framework is useful for testing our hypotheses because it provides an intuitive categorization of needs: from purely physical needs (lowest-level), to mixed needs including both physical and psychological components (middle-level: safety and belonging), to purely psychological needs (high-level: self-esteem and self-actualization). We created a 15-item Needs Scale, shown in the Appendix, containing three example needs intended to measure each of Maslow's five need types (physiological, safety, belonging, self-esteem, and self-actualization; see Table 1). Preregistered pilot data confirmed that laypeople believe that lower-level needs are more physical and higher-level needs are more psychological (see Supplemental Study S1 in the online supplemental materials for details). In all experiments, we report results for the aggregated three need levels (low-level, middle-level, and high-level). To measure differences in how much people value needs for themselves and others, we operationalize *need* as the perceived importance of a particular goal to the target being evaluated. This allows participants to rate each of the needs as equally important, rather than forcing them to choose between needs (as rank ordering would). However, we compare the rating method with the ranking method in Studies 5 and 6 to test the robustness of our results.

Because the Needs Scale is novel, we examine the scale's reliability and validity using multiple methods. To assess internal consistency, we compute Cronbach's alpha for the need-level factors in each study. To analyze the scale's psychometric properties, we report exploratory factor analyses for each study using the scale (see Part 3 in the Online Supplemental Materials). We designed the scale items to have high face validity. To examine convergent validity, we compare the Needs Scale to other previously validated scales measuring related psychological constructs, including a measure of intrinsic and extrinsic incentive importance (Heath, 1999) and the most commonly used survey measure of dehumanization (Haslam et al., 2005). Finally, to examine content

Table 1
Categorization of Needs

Example need (representing each item in the Needs Scale)	Need category based on Maslow's (1943) theory	Need level (low, middle, or high)
Eating food (i.e., avoiding hunger)	Physiological	Low-level (Physical)
Drinking (i.e., avoiding thirst)	Physiological	Low-level (Physical)
Sleeping (i.e., avoiding exhaustion)	Physiological	Low-level (Physical)
Feeling safe	Safety	Middle-level (Physical and Psychological)
Having routine in life	Safety	Middle-level (Physical and Psychological)
Having predictability in life	Safety	Middle-level (Physical and Psychological)
Feeling loved	Belonging	Middle-level (Physical and Psychological)
Feeling like one belongs	Belonging	Middle-level (Physical and Psychological)
Getting affection from others	Belonging	Middle-level (Physical and Psychological)
Feeling respected by others	Self-esteem	High-level (Psychological)
Feeling adequate self-esteem	Self-esteem	High-level (Psychological)
Achieving personal and professional goals	Self-esteem	High-level (Psychological)
Living with meaning and purpose in life	Self-actualization	High-level (Psychological)
Feeling independent, being able to make choices freely	Self-actualization	High-level (Psychological)
Realizing potential in life	Self-actualization	High-level (Psychological)

validity, we test assessments of the needs of highly humanized agents (e.g., the self, close friends), subhuman agents (e.g., historically dehumanized groups like homeless people, nonhuman animals like chimpanzees), and superhuman agents (e.g., God).

We report how we determined our sample size, all data exclusions, all manipulations, and all measures in each study. The data files, surveys, and preregistrations can be found on the Open Science Foundation at https://osf.io/y2t49/. All studies were approved by the Institutional Review Board at the University of Chicago (IRB14-0338) and at the University of California, Berkeley (2019-06–12256).

Studies 1a and 1b: Demeaning is Dehumanizing

Studies 1a and 1b examine people's inferences about the psychological (and physical) needs of different groups, including five historically dehumanized groups. We asked participants to assess the needs of groups rated in previous research to be low on both competence and warmth (homeless people and drug addicts), low on only competence (children and elderly people), or low on only warmth (lawyers; Fiske et al., 2002). We compared assessments of these groups' needs with assessments of the needs of two nondehumanized groups: the self (presumably most humanized; Bastian & Haslam, 2010) and one's closest friend, whose psychological needs we expected would be relatively well-known to participants. On the opposing end of the spectrum, we compared assessments of these groups' needs with assessments of a chimpanzee's needs. We predicted (and preregistered) that there would be a larger difference in assessments of the target groups' psychological needs than their physical needs. Specifically, we predicted that participants would demean the most dehumanized groups (homeless people and drug addicts) to the same extent as they do chimpanzees, that nondehumanized groups would be perceived to have the strongest psychological needs (self and friends), and that the perceived needs of mixed-stereotype groups (elderly people, children, lawyers) would fall in between perceptions of the dehumanized and nondehumanized groups' needs. We did not predict systematic differences in assessments of physical needs between groups.

In Study 1a, participants rated the needs for each group separately, using a between-participants design to remove explicit comparisons to the self and to isolate perceptions of each group's needs. This design has the added benefit of asking one group about their own needs. In Study 1b, we tested perceptions of the same seven groups directly compared with the self in a within-participants design, allowing us to simplify our analyses and test the robustness of Study 1a's results.

To examine how much our measure of demeaning corresponds with prior measures of dehumanization, participants in Study 1a also evaluated each group on a widely used measure of dehumanization that assesses two aspects of humanity: uniquely human and human nature traits (Bastian & Haslam, 2010). Uniquely human traits are those intuitively presumed to distinguish humans from other animal species, measuring traits primarily related to a person's capacity for thinking, whereas human nature traits are those intuitively presumed to distinguish humans from objects, measuring traits primarily related to capacities for feeling (Haslam, 2006; Haslam et al., 2005). We tested whether these traits predicted evaluations of psychological needs, expecting that uniquely human traits would most strongly predict psychological needs because these are traits that appear to separate humans from other animal species.

Study 1a Method

We preregistered our hypotheses and analysis plan on AsPredicted (http://aspredicted.org/blind.php?x=2na57t).

Participants. Because we did not know what effect size to expect, we predetermined a sample size of at least 100 participants in each of eight conditions to detect a medium-sized effect. More people than anticipated completed the survey, with 925 adults ($M_{age} = 34.69$, $SD = 10.90$, 53.9% male) on Amazon Mechanical Turk participating in exchange for $0.35.

Procedure. The study used an 8 (target: you, closest friend, lawyer, elderly person, child, homeless person, drug addict, chimpanzee) × 3 (need levels: low, middle, high) mixed-model design with the first factor manipulated between-participants and the second factor manipulated within participants. Each participant completed the Needs Scale and Dehumanization Scale in counterbalanced order for one of the eight targets (randomly assigned).

Participants reported their demographics (age and gender) at the end of the survey.

Materials. In Study 1a, the Likert response scale for the Needs Scale ranged from 1 (*not at all important*) to 7 (*extremely important*). The Dehumanization Scale consists of 12 items, six measuring uniquely human traits (e.g., "[The target] is superficial, with no depth" and "[The target] is relatively mindless like an object") and six measuring human nature traits (e.g., "[The target] is emotional, responsive, and warm" (reverse-coded) and "[The target] is mechanical and cold, like a robot"). Participants reported "the degree to which they agree about the following statements" on a response scale ranged from 1 (*not at all*) to 7 (*very much*).

Study 1a Results

Scale reliability. Across the eight targets, items in each of the three need levels showed adequate reliability, $\alpha s > .86$. The three need levels also correlated positively with each other, $rs > .309$, $ps < .001$. As reported in Part 3 of the Online Supplemental Materials, an exploratory factor analysis (Principle Components Analysis with pro-max rotation to allow the factors to correlate) indicated that the scale items all loaded as expected onto the three hypothesized factors (Table S1 in the online supplemental materials).

Demeaning needs. An 8 (target group) × 3 (need level) mixed-model ANOVA on perceived need importance revealed effects of target group, $F(7, 917) = 71.93$, $p < .001$, $\eta_p^2 = 0.35$, and need level, $F(2, 1834) = 749.70$, $p < .001$, $\eta_p^2 = 0.45$, qualified by our predicted interaction, $F(14, 1834) = 55.79$, $p < .001$, $\eta_p^2 = 0.30$.

As can be seen in Figure 1 (top panel), participants presumed that target groups varied the most in the importance of their high-level (psychological) needs, $F(7, 917) = 86.25$, $p < .001$, compared with middle- or low-level (physical) needs, $Fs = 46.03$

and 63.24, $ps < .001$, respectively. Because we had the clearest predictions about the high-level needs of each group (see prereg-istered predictions), we report analyses of these ratings first.

As predicted, high-level (psychological) needs were perceived to be least important for chimpanzees ($M = 3.11$, $SD = 1.45$) and drug addicts ($M = 2.82$, $SD = 1.31$) compared with all other groups ($Ms > 3.99$), Bonferroni-corrected $ps < .001$, followed by the high-level needs of homeless people ($M = 3.99$, $SD = 1.55$), which were perceived to be less important than for the remaining five groups, Bonferroni-corrected $ps < .001$. Next, high-level needs were perceived to be relatively more important for the mixed-stereotype groups (elderly people and children, $Ms = 4.93$ & 4.23, respectively, $SDs = 1.20$ & 1.47, respectively). Finally, high-level needs were perceived to be most important for the self, friend, and lawyer ($Ms > 5.41$) than for all other target groups, Bonferroni-corrected $ps < .001$.

The significant difference in low-level (physical) needs reflected participants' perceptions that low-level needs were least important for drug addicts ($M = 4.04$, $SD = 1.44$) compared with all other target groups ($Ms > 5.79$), Bonferroni-corrected $ps < .001$. This unexpected result suggests that drug addicts are presumed to find only one need important—likely satisfying their drug addiction—at the expense of all other psychological and physical needs. Low-level needs were perceived to be the next least important for lawyers ($M = 5.79$, $SD = 1.11$), significantly less important than for the self, friend, homeless people, children, and elderly ($Ms > 6.12$), Bonferroni-corrected $ps < .001$. Low-level needs were perceived to be most important for chimpanzees ($M = 6.68$, $SD = 0.61$), significantly more important than for all groups except for the self and homeless person, Bonferroni-corrected $ps < .022$.
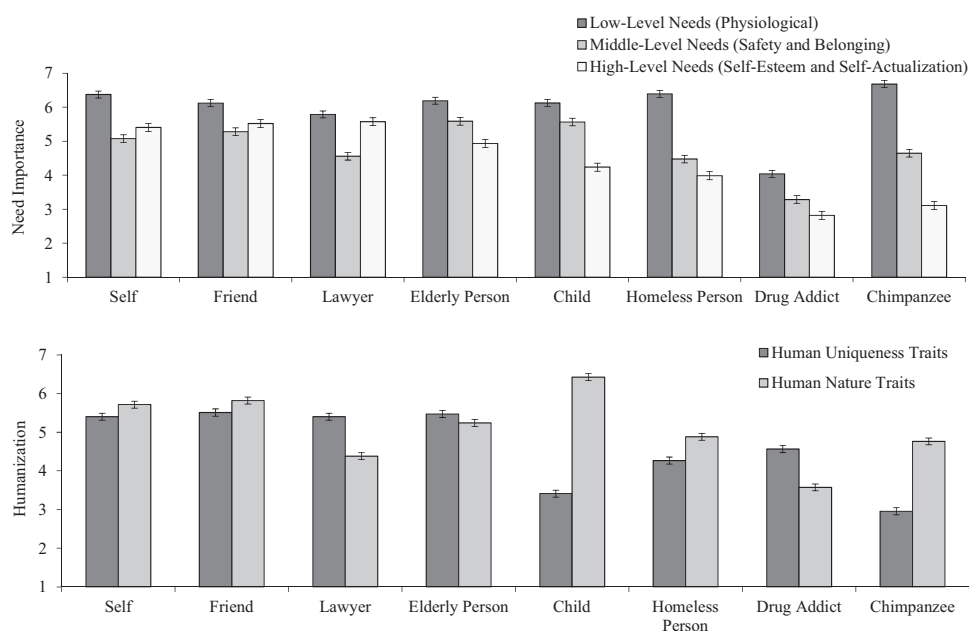
Figure 1. The perceived importance of low-level, middle-level, and high-level needs (top panel) and human uniqueness and human nature traits (bottom panel) for different groups in Study 1a. Error bars represent ±1 *SEM*.

Finally, middle-level (safety and belonging) needs were perceived to be least important for drug addicts ($M = 3.29$, $SD = 1.44$) than for all other groups ($Ms > 4.48$), Bonferroni-corrected $ps < .001$. Middle-level needs were also perceived to be relatively unimportant for lawyers ($M = 4.57$, $SD = 0.82$), chimpanzees ($M = 4.65$, $SD = 1.16$), and homeless people ($M = 4.48$, $SD = 1.47$; ratings for each of these groups did not differ significantly from each other, but differed significantly from all other groups). Last, middle-level needs were perceived to be most important for the self, friend, elderly people, and children ($Ms > 5.01$); ratings for these groups did not differ significantly from each other but differed significantly from all other groups, Bonferroni-corrected $ps < .001$.

Dehumanization. We conducted an 8 (target group) × 2 (humanization trait: uniquely human vs. human nature) mixed-model ANOVA on perceived humanness. This analysis yielded effects of target group, $F(7, 917) = 72.19$, $p < .001$, $\eta_p^2 = 0.36$, and humanization trait, $F(1, 917) = 220.95$, $p < .001$, $\eta_p^2 = 0.19$, qualified by an interaction, $F(7, 917) = 231.26$, $p < .001$, $\eta_p^2 = 0.64$. This interaction indicates that target groups were perceived to vary more on uniquely human traits, $F(7, 917) = 121.55$, $p < .001$, than on human nature traits, $F(7, 917) = 102.50$, $p < .001$. Chimpanzees were perceived to be less uniquely human ($M = 2.95$, $SD = 1.16$) than all other groups ($Ms > 3.41$), Bonferroni-corrected $ps < .001$, supporting the theoretical assertion that human uniqueness measures capacities related to thinking that separate humans from nonhuman animals. Human nature is presumed to measure capacities related to feeling that separate humans from objects (but does not separate humans from nonhuman animals). Consistent with this, drug addicts ($M = 3.57$, $SD = 0.53$) and lawyers ($M = 4.38$, $SD = 0.88$) were rated as lower in human nature traits than chimpanzees ($M = 4.76$, $SD = 0.89$), Bonferroni-corrected $ps < .001$.

To better understand the relationship between the Needs Scale and the dehumanization scale, we conducted linear regressions predicting each need level using the uniquely human and human nature indices (αs = .82 & .69, respectively) as predictors, controlling for target condition with dummy coded variables (0 or 1) for each target, keeping self as the baseline condition, and controlling for participant age and gender (results are not meaningfully affected if we remove these control variables). Human nature traits predicted all three levels of need importance, βs = 0.42, 0.27, & 0.15, $ps < .001$, for low, middle, and high-level needs, respectively, although it was most strongly related to ratings of low-level needs. Uniquely human traits only predicted high-level need importance, $\beta = 0.26$, $p < .001$; uniquely human traits were actually *negatively* associated with ratings of low-level need importance, $\beta = -0.12$, $p = .002$, and marginally positively associated ratings of with middle-level need importance, $\beta = 0.14$, $p = .083$. These results indicate that only high-level need importance was predicted by both ratings of human nature and uniquely human traits, suggesting that demeaning others' psychological needs represents at least one facet of dehumanization.

Study 1a Discussion

It may seem obvious that people demean the psychological needs of chimpanzees, believing they have little interest in self-esteem or self-actualization compared with oneself. However, Study 1a indicated that people similarly demean the psychological needs of two *human* groups: drug addicts and homeless people. In contrast, we did not observe differences in perceived need importance for physical needs (except for drug addicts), indicating that the dehumanizing process of demeaning is relatively unique to psychological needs.

Two other interesting findings emerged. First, drug addicts' needs were rated qualitatively and quantitatively differently from all other groups, believing that both psychological *and* physical needs were less important to them compared with other groups. This could suggest that perceptions of others' needs are more myopic than perceptions of their own needs, with others motivated by one or two needs whereas the self is motivated by a wider variety of needs. In general, Study 1a suggests that people believe others have trade-offs between the relative strength of their various needs (as Maslow's hierarchy suggests) but that they themselves do not.

Second, participants did not demean lawyers' psychological needs. This could suggest that demeaning is more closely related to perceptions of others' cognitive capacities than to their emotional or interpersonal capacities. Lawyers are perceived to be relatively competent but also relatively cold (Fiske et al., 2002). Because people believe lawyers are mentally competent they may therefore believe they care about pursuing psychological needs. Another possibility is that a lawyer's pursuit of psychological needs may be more apparent due to their jobs' defining features (such as seeking justice).

To test the robustness of Study 1a's results, we conducted a conceptual replication using a within-participants design in Study 1b. Because people perceived their own needs to be most important across all levels in Study 1a, we used the self as a comparison point for assessments of different target groups' needs in Study 1b. We used the same target groups from Study 1a (homeless person, drug addict, chimpanzee, child, elderly person, lawyer, friend), expecting that the presumed importance of each groups' psychological needs would vary more than that of their physical needs, with participants most likely to demean dehumanized groups' psychological needs.

Study 1b Method

We preregistered our hypotheses and analysis plan for this study on AsPredicted (http://aspredicted.org/blind.php?x=vt4yy2).

Participants. Because we were unsure of what effect size to estimate in this within-participant design, and because a large sample is relatively easy to obtain online, we decided to double our per-condition sample size from Study 1a and therefore recruited 200 participants. In total, 202 adults ($M_{age} = 32.30$, $SD = 9.87$, 53.0% male) on Amazon Mechanical Turk consented to take the survey in exchange for $0.40.

Procedure. The study utilized a 7 (target groups: homeless person, drug addict, chimpanzee, child, elderly person, lawyer, closest friend) × 3 (need levels: low, middle, high) within-participants design. Each participant completed the Needs Scale for all seven targets in randomized order. Because this survey was

significantly longer than Study 1a, we did not include the humanization scale. Participants reported their demographics (age and gender) at the end of the survey.

Materials. We altered the response scale in the Needs Scale to include an explicit comparison between the self and each target, such that it ranged from −3 (*Much more important to [target]*) to 3 (*Much more important to me*) with 0 labeled as *Equally important to me and [target]*. In the actual survey, the term *target* was replaced with the name of the group being evaluated (e.g., *a typical homeless person*). Participants completed the Needs Scale (item order randomized) separately for each target (target order randomized).

Study 1b Results

Scale reliability. Across the seven targets, items in each of the three need levels showed high reliability, $\alpha s > .91$. The need levels positively correlated with each other, $rs > .443$, $ps < .001$. As reported in Part 3 of the Online Supplemental Materials, an exploratory factor analysis indicated that the scale items loaded as expected onto the three hypothesized factors (Table S4) except for the item "feeling respected by others," which loaded more highly onto the middle-level needs (loading = .812) than onto the high-level needs (loading < .300). To be consistent with our other experiments, we still included this item with the high-level needs. An exploratory analysis that moved "feeling respected" to the middle-level need factor did not meaningfully change the results reported below.

Demeaning needs. A 7 (target group) × 3 (need level) repeated-measures ANOVA on the perceived importance of one's own needs compared with the needs of the target groups revealed a significant effect of target group, $F(6, 1206) = 34.31$, $p < .001$, $\eta_p^2 = 0.15$, and need level, $F(2, 402) = 75.48$, $p < .001$, $\eta_p^2 = 0.27$, qualified by our predicted interaction, $F(12, 2412) = 40.73$, $p < .001$, $\eta_p^2 = 0.17$.

As can be seen in Figure 2, the belief that one's own needs are more important to oneself than to the target groups was more pronounced for the high-level (psychological) needs, $F(6, 1206) = 55.90$, $p < .001$, $\eta_p^2 = 0.22$, compared with the middle- or low-level (physical) needs, $Fs = 32.84$ and 14.08, $ps < .001$, $\eta_p^2 = 0.14$ and 0.07, respectively. Because we had the clearest predic-

tions about evaluations of high-level needs (see preregistered predictions), we report analyses of these needs first.

As expected, participants believed their own high-level (psychological) needs were more important than the high-level needs of all target groups ($Ms > 0.33$), one-sample $ts > 5.73$, $ps < .001$, except for lawyers ($M = 0.02$, $SD = 0.96$), one-sample $t < 1$. Participants even believed that their own high-level needs were more important to them than they were for their closest friend ($M = 0.33$, $SD = 0.83$), one-sample $t(201) = 5.73$, $p < .001$. The largest self/other difference in perceived high-level need was for chimpanzees ($M = 1.52$, $SD = 1.28$), indicating that people perceived high-level needs to be least important for chimpanzees compared with all other groups, Bonferroni-corrected $ps < .001$. Participants further believed the high-level needs of drug addicts ($M = 0.89$, $SD = 1.28$) and children ($M = 0.89$, $SD = 1.05$) were more like chimpanzees' high-level needs (M differences = 0.63) than like their own high-level needs, followed by evaluations of a homeless person's high-level needs ($M = 0.54$, $SD = 1.16$). The high-level needs for all other groups (friend, elderly person, lawyer) were perceived to be more like the high-level needs for the self than for a chimpanzee. Overall, these results are consistent with the results from Study 1a.

The effect of target group on the self/other difference in ratings of low-level (physical) needs was primarily driven by a larger self/other difference for drug addicts ($M = 0.47$, $SD = 1.05$), indicating that people perceived the low-level needs of drug addicts to be relatively less important than the low-level needs of all other groups ($Ms < 0.29$), Bonferroni-corrected $ps < .001$. This is consistent with Study 1a.

Finally, examining the effect of target group on the self/other difference in ratings of middle-level (safety and belonging) needs, participants reported the largest self/other difference in the middle-level needs of drug addicts ($M = 0.61$, $SD = 1.19$) and chimpanzees ($M = 0.78$, $SD = 1.19$), compared with all other groups ($Ms < 0.24$), Bonferroni-corrected $ps < .001$. In fact, participants believed their own middle-level needs were directionally less important than the middle-level needs of elderly people ($M = -0.05$, $SD = 0.92$), one-sample $t < 1$, and significantly less important than the middle-level needs of children ($M = -0.20$, $SD = 1.20$), one-sample $t(201) < -2.33$, $p = .021$.
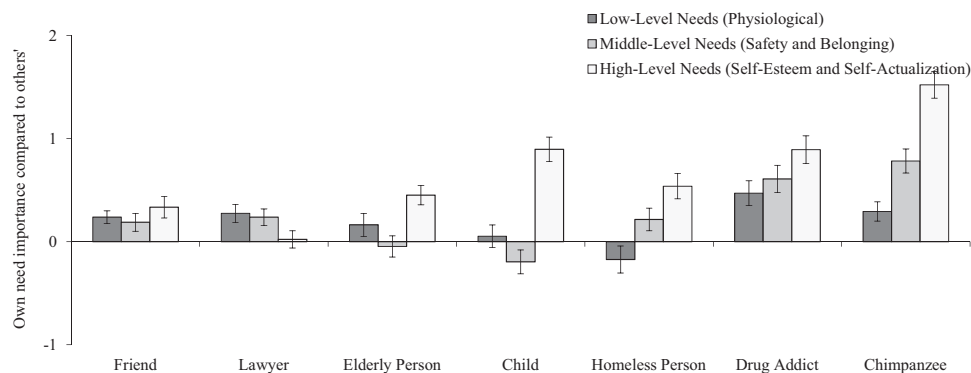
Figure 2. Participants' perceived importance of low-level, middle-level, and high-level needs for themselves compared with different groups in Study 1b. Higher numbers on the scale mean that people rated their own needs as relatively more important than others' needs. Error bars represent ±1 *SEM*.

Study 1b Discussion

Study 1b conceptually replicates Study 1a using a different measure in which people judged other groups' needs directly compared with their own needs. People demeaned others' needs, believing that psychological needs—but not physical needs—were more important to them than to all other groups except for lawyers. Demeaning was more pronounced for dehumanized groups (children, homeless people, and drug addicts), with people evaluating the importance of psychological needs in these groups to be more similar to chimpanzees' psychological needs than to their own psychological needs. Again suggesting a myopic perspective of others' needs, physical needs were presumed to be less important for drug addicts than for the self, perhaps suggesting that people presume drug addicts are consumed with their need for drugs to the exclusion of even other physical needs.

One other finding of note emerged in Studies 1a and 1b. Participants believed that middle-level needs of safety and belonging were more important to children and the elderly than to themselves. Participants also believed that physical needs were more important to homeless people than to themselves. Indeed, each of these groups may be particularly characterized by a certain type of need—children by safety, elderly by belonging, and the homeless by food and shelter. These results demonstrate that people do not always believe any given need is more important to them than it is to others. Instead, the results are consistent with a myopic evaluation of others' needs, whereby others are primarily seen to be motivated by a narrower set of needs than the self.

Study 1c: Sub-Human, Human, and Super-Human

Studies 1a and 1b compared people's beliefs about their own need importance to a nonhuman animal's (i.e., a chimpanzee's), confirming that demeaning is dehumanizing. Evaluations of physical needs varied less, suggesting that those needs are recognized in any agent with a living body. Study 1c provides a more stringent test of this mechanism by examining evaluations of an agent that some people may perceive to have only a mind and no body: God (Gray et al., 2007). Our theorizing predicts that evaluations of God's needs will be superhumanized, with psychological needs being perceived as more important than physical needs, thereby showing the inverse pattern observed in evaluations nonhuman animals. We predicted that people would perceive their own physical needs to be more similar to a chimpanzee's needs than to God's needs (because both participants and chimpanzees have physical bodies), but their own psychological needs to be more similar to God's needs than to a chimpanzee's needs (because people think of their mental capacities as more like God's than like a chimpanzee's).

Method

We preregistered our hypotheses and analysis plan on AsPredicted (http://aspredicted.org/blind.php?x=c92uz6).

Participants. We predetermined the same sample size as Study 1b (i.e., 200 participants). In total, 201 adults ($M_{age} = 32.30$, $SD = 9.87$, 53.0% male) on Amazon Mechanical Turk consented to take the survey in exchange for $0.40.

Procedure and materials. The study utilized a 3 (target: chimpanzee, self, God) $\times$ 3 (need levels: low, middle, high)

within-participants design. Each participant completed the Needs Scale for all three targets in randomized order. Participants reported their demographics (age and gender) at the end of the survey. We used the Needs Scale described in Study 1a for each target. At the end of the study, participants rated their attitudes toward God using the Belief in God Scale (Preston & Epley, 2005; six items measured on 11-point Likert response scales: "How confident are you that God exists?"; "How important is God to you on a daily basis?"; "How important is God to you in general?"; "To what extent do you feel you have a personal relationship with God?"; "Compared with my peers, my faith in God is . . . much weaker . . . much stronger"). Participants also reported their religious affiliation (options: Protestant, Roman Catholic, Mormon, Jewish, Muslim, Other, or No Religion) and demographics (age, gender, ethnicity).

Results

Scale reliability. Items in each of the need levels showed high reliability across the targets, $as > .89$. The three need levels also correlated positively with each other, $rs > .48$, $ps < .001$. As reported in Part 3 of the Online Supplemental Materials, an exploratory factor analysis indicated that not all scale items loaded as expected; "feeling safe" did not load adequately onto any of the three factors (loading $< .330$), and the belonging needs loaded onto the high-level needs instead of the middle-level needs (Table S5 in the online supplemental materials). For consistency, we kept the scale factors the same as in prior studies. A robustness analysis that included the belonging needs in the high-level need factor did not meaningfully change the results reported below.

Demeaning and enhancing needs. A 3 (target: chimpanzee, self, God) $\times$ 3 (need level: low, middle, high) mixed-model ANOVA on ratings of perceived need importance yielded significant main effects of target, $F(2, 800) = 204.81$, $p < .001$, $\eta_p^2 = 0.51$, and need level, $F(2, 800) = 119.65$, $p < .001$, $\eta_p^2 = 0.37$, qualified by the predicted target by need level interaction, $F(4, 800) = 268.47$, $p < .001$, $\eta_p^2 = 0.57$.

As can be seen in Figure 3, the effect of need level varied across targets, $Fs(2, 400) > 68.08$, $ps < .001$, $\eta_p^2 > 0.25$. Consistent with Study 1a, chimpanzees were demeaned, with their low-level needs presumed to be most important ($M = 6.30$, $SD = 1.25$), middle-level needs as less important ($M = 4.30$, $SD = 1.38$), and high-
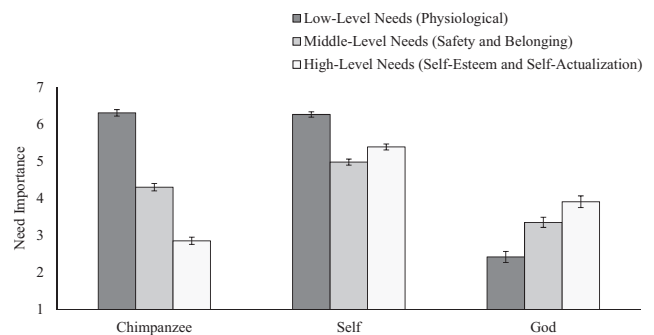

Figure 3. The perceived importance of low-level, middle-level, and high-level needs for a chimpanzee, the self, and God in Study 1c. Error bars represent ± 1 *SEM*.

level needs presumed to be least important ($M = 2.85$, $SD = 1.39$), paired $ts(200) > 14.94$, $ps < .001$, $ds > 1.05$. Participants' perceptions of God's needs showed precisely the opposite pattern. God's high-level needs were perceived to be most important ($M = 3.90$, $SD = 2.24$), followed by middle-level needs ($M = 3.35$, $SD = 1.93$), with low-level needs perceived to be least important ($M = 2.42$, $SD = 2.10$), paired $ts(200) < -6.87$, $ps < .001$, $ds > 0.26$. As predicted, chimpanzees were perceived to be subhuman whereas God was perceived to be superhuman.

People reported that both low-level and high-level needs were relatively important, with their low-level needs being more similar to a chimpanzee's and their high-level needs more similar to God's. They rated their own low-level needs ($M = 6.25$, $SD = 1.04$) to be as important as a chimpanzee's low-level needs, paired $t(200) = 0.68$, $p = .496$, and more important than God's low-level needs, paired $t(200) = 22.08$, $p < .001$, $d = 2.31$. They also rated high-level needs as being more important for themselves ($M = 5.38$, $SD = 1.14$) than for God or for a chimpanzee, $ps < .001$, but closer in importance to God's high-level needs, paired $t(200) = -9.12$, $p < .001$, $d = -0.83$, than to a chimpanzee's high-level needs, paired $t(200) = -20.75$, $p < .001$, $d = -1.99$.

Exploratory analyses. Participants' belief in God ($\alpha = .98$) predicted ratings of God's need importance in a regression analysis that controlled for the level of need (dummy-coded variables for low-level, middle-level, and high-level needs), $b = 0.205$, $p < .001$. However, a subsequent regression analysis that included the interaction between each need level and belief in God found no evidence that belief in God moderated the effect of need level on perceived need importance, $bs < -0.06$, $ps > .328$, suggesting that belief in God affects perceptions of all needs similarly. Religious affiliation yielded no significant main effects or interactions.

Discussion

Experiment 1c indicates that chimpanzees are demeaned (with psychological needs being perceived as less important than physical needs) whereas God is disembodied (with psychological needs being seen as more important than physical needs). People's beliefs about their own needs fall between these extremes, such that people believe that their own physical needs are relatively important (more like an animal's physical needs than like God's physical needs), but that their own psychological needs are also important (more like God's psychological needs than like an animal's psychological needs). It is worth noting, however, that God was perceived to have weaker needs overall than either the self or chimpanzees, an effect that presumably arises because nonbelievers do not expect a nonexistent agent to have any needs while believers expect an omnipotent being to be relatively capable of satisfying whatever needs might arise. Experiment 1c therefore identifies how perceptions of an agent's needs vary with perceptions of the agent's body and mind.

Study 2: Peers' Needs

We propose that the importance of psychological needs are easier to recognize in oneself than in others, suggesting that demeaning should emerge even in cases where there are no obvious stereotypes or status differences between groups. Study 1b provides initial support for this possibility because participants

reported that their own psychological needs were more important for them than for their closest friend, even though this gap was predictably smaller than for more dehumanized targets. Study 2 tested this hypothesis more directly by asking students to evaluate their own needs and their classmates' needs.

We also continued examining how our Needs Scale corresponds to scales measuring related constructs in Study 2 by comparing the Needs Scale to a previously used measure intrinsic versus extrinsic incentives (Incentives Scale; Heath, 1999). Intrinsic incentives, such as accomplishing something worthwhile or learning new things, may be more closely associated with psychological motivations than extrinsic incentives, such as working for money, which can be used to satisfy a wide array of needs including both psychological and physical needs.

Heath (1999) argued that people exhibit an "extrinsic incentives bias" in which they believe that others are generally more motivated by extrinsic incentives, but less motivated by intrinsic incentives, than themselves. We believe, however, that this extrinsic incentives bias is better conceptualized as an example of demeaning others' psychological needs. If so, then self/other differences should be larger in evaluations of intrinsic motivations than of extrinsic motivations, consistent with the larger self/other differences observed in Studies 1a, 1b, and 1c for psychological needs than for physical needs. Heath's original results might therefore be better described as an intrinsic incentives bias because the presumed difference between oneself and others should be larger for intrinsic incentives.

Method

Participants. We precommitted to running all MBA students in three sections of a management class at the University of Chicago's Booth School of Business who consented to take an online survey as part of the class. Three hundred eighty-eight MBA students ($M_{age} = 28.93$, $SD = 2.57$, 59.4% male) completed the survey.

Procedure. Participants completed a battery of scales unrelated to the current experiment, in which the Needs Scale and the Incentives Scale were completed last. For the Needs Scale, participants read, "Compared with the average Chicago Booth MBA student, how important is each of the following needs to you? Select a number on the scale below to indicate your response ($-3 = $ *much less important to me*; $3 = $ *much more important to me*)." Participants then rated the relative importance of each of the 15 needs in randomized order.

For the Incentives Scale, participants read, "The following list contains a number of different incentives that might be found in an organization." We asked participants, "Compared with the average Chicago Booth MBA student, how important is each of the following incentives to you? Select a number on the scale below to indicate your response ($-3 = $ *much less important to me*; $3 = $ *much more important to me*)." Participants rated the relative importance of each of eight incentives in a randomized order.

Materials. We used the same Needs Scale described in Study 1b. The Incentives Scale consists of eight items taken directly from Heath (1999), four items measuring perceived importance of intrinsic incentives (doing something that feels good, developing skills and abilities, accomplishing something worthwhile, and learning new things) and four items measuring perceived impor-

tance of extrinsic incentives (amount of pay, having job security, quality of fringe benefits, and amount of praise from supervisor).

Results

Scale reliability. Items measuring low-level need importance showed lower reliability ($\alpha = .45$) compared with items measuring the middle and high-level need importance ($\alpha s = .68$ & $.75$, respectively), which could reflect larger differences in socioeconomic status in this sample that might affect evaluations of low-level needs. The three need levels correlated positively with each other, $rs > .143$, $ps < .005$. As reported in Part 3 of the Online Supplemental Materials, an exploratory factor analysis indicated that not all scale items loaded as expected; the low-level needs did not load into the hypothesized factor, "feeling safe" did not load onto any of the three factors, and the belonging needs loaded onto the high-level needs instead of the middle-level needs (Table S6 in the online supplemental materials). For consistency, we kept the scale factors the same as in prior studies in the analyses reported below. A robustness analysis that included the belonging needs in the high-level need factor did not meaningfully alter any results. We further report consistent results for each item individually in Part 2 of the online supplemental materials (Figure S2 in the online supplemental materials).

Demeaning needs. A repeated-measures ANOVA on the perceived importance of one's own needs compared with the needs of an average classmate across the three need levels (high, middle, low) revealed the predicted effect of need level, $F(2, 387) = 42.42$, $p < .001$, $\eta_p^2 = .099$.

As can be seen in Figure 4 (right panel), the self/other difference in need importance was significantly larger for the high-level (psychological) needs than the middle-level needs, paired $t(387) = 8.83$, $p < .001$, $d = 0.80$, or the low-level (physical) needs, paired $t(387) = 7.02$, $p < .001$, $d = 0.47$. Middle- and low-level needs did not differ significantly, paired $t(387) = 1.09$, $p = .279$, $d = 0.06$. We also observed an unexpected marginally significant interaction with class section, $F(2, 385) = 2.32$, $p = .064$, $\eta_p^2 = .011$, such that the effect was smaller for one of the three section. However, controlling for class section as a covariate does not meaningfully alter our primary analyses.

Intrinsic incentives bias. Participants also reported that both intrinsic incentives ($\alpha = .93$; $M = 1.10$, $SD = 0.96$) and extrinsic incentives ($\alpha = .91$; $M = 0.21$, $SD = 0.92$) were more important to them than to an average classmate, one-sample $ts(387) = 22.44$ & 4.57, $ps < .001$, respectively, but this difference was significantly larger for intrinsic incentives, paired $t(387) = 14.87$, $p < .001$, $d = 0.95$ (see Figure 4, left panel).

We again observed an unexpected main effect of class section such that one section reported that all incentives were more important to them than the other two sections, $F(2, 385) = 44.30$, $p < .001$, $\eta_p^2 = .187$; qualified by an unexpected interaction between class section and incentive type such that one section showed a larger self/other difference for intrinsic than extrinsic incentive importance compared with the other sections, $F_{\text{interaction}}(2, 385) = 6.57$, $p = .002$, $\eta_p^2 = .033$.

To test whether the low-level physical needs would be more closely related to extrinsic incentives, and the high-level psychological needs to intrinsic incentives, we ran three linear regression models using low-level, middle-level, and high-level need impor-

tance as the dependent variable in each model, and intrinsic and extrinsic incentive importance as independent variables.[1] Only extrinsic incentive importance, $\beta = 0.14$, $p = .032$, but not intrinsic incentive importance, $\beta = 0.02$, $p = .792$, predicted low-level need importance. Similarly, only extrinsic incentive importance, $\beta = 0.48$, $p < .001$, but not intrinsic incentive importance, $\beta = 0.07$, $p = .189$, predicted middle-level need importance. However, high-level need importance was predicted by both intrinsic incentive importance, $\beta = 0.59$, $p < .001$, and to a lesser extent extrinsic incentive importance, $\beta = 0.16$, $p = .001$. That only the high-level psychological needs correlated with intrinsic incentive importance supports our hypothesis that inferences about intrinsic incentives are more closely related to psychological needs than to physical needs.

Discussion

Study 2's results suggest that people demean the psychological needs of other people even in their own immediate peer group, consistent with our hypothesis that the importance of psychological needs are more easily recognized in oneself than in others. Similarly, participants reported that intrinsic incentives were especially more important to them than to others, a result that we believe comes from intrinsic incentives satisfying psychological needs. We observed consistently smaller self/other differences in evaluations of physical needs and of extrinsic incentives. This latter effect suggests that the extrinsic incentives bias documented by Heath may be better conceptualized as a broader instance of demeaning others' needs, and that it may also be better described as the *intrinsic* incentives bias.

We note, however, that one of the findings in this study—that extrinsic needs seem slightly more important to the self than to others—is inconsistent with Heath's (1999) finding that people believe extrinsic incentives are *less* important to them than to others. To further test the robustness of our results, we aggregated the data from the five consecutive prior years of surveys given to similar samples of students, all of whom completed the Incentives scale as part of their management class (but who did not complete the Needs scale, as these classes predated this research project). An analysis of these 1,402 participants ($M_{\text{age}} = 29.33$, $SD = 3.39$, 64.9% male) replicated our results: Individuals believed intrinsic incentives were more important to them than to others ($M = 1.42$, $SD = 0.90$), one-sample $t(1401) = 59.13$, $p < .001$. These participants also believed that extrinsic incentives were more important to them than to others ($M = 0.31$, $SD = 0.96$), one-sample $t(1401) = 12.22$, $p < .001$, but this result on extrinsic incentives was significantly smaller than on intrinsic incentives, paired $t(1401) = -40.18$, $p < .001$, $d = 1.19$. That perceptions of incentive importance were similar in both samples suggests that our smaller sample of 388 participants in the current study is representative of the larger population from which it is drawn.

Study 3: Closest Friend

We believe that people demean others' needs at least partly because they lack direct access to others' mental experience that

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[1] These analyses also include respondents' age, gender (0 = male; 1 = female), and dummy-coded variables (0 or 1) to control for the class. Analyses do not meaningfully change removing the controls.
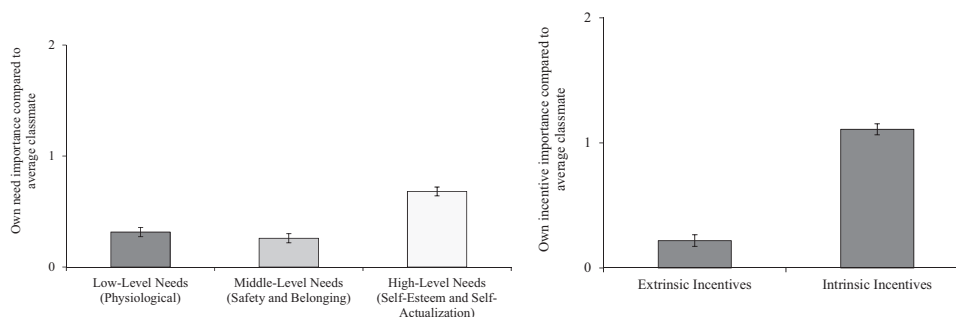
Figure 4. Participants' perceived importance of low-level, middle-level, and high-level needs (right panel) and of extrinsic and intrinsic incentives (left panel) for themselves compared with an average classmate in Study 2, controlling for class section. Higher numbers on the scale mean that people rated their own needs as relatively more important than an average classmate. Error bars represent ± 1 *SEM*.

would reveal the importance of their psychological needs. Whereas people evaluate themselves from an *inside* perspective focused on their intentions, beliefs, and emotional states, people evaluate others from an *outside* perspective focused on their behavior from which mental experiences must be inferred rather than directly experienced (Buehler, Griffin, & Ross, 1994; Epley & Dunning, 2000; Koehler & Poon, 2006). This mechanism suggests an important moderator: If people are granted more access to others' mental experiences, such as with their friends through direct conversations, then they should be less likely to demean others' psychological needs. Indeed, Studies 1a and 1b suggest people are less likely to demean the needs of their friends compared with other groups.

We tested two different hypotheses in Study 3 to better understand why people are less likely to demean their friends' needs, yet do demean their peers' needs (in Study 2). First, a friend is a specific individual, whereas an average peer is an undifferentiated amalgamation of many individuals who may be evaluated differently(e.g., Critcher & Dunning, 2013). Second, a friend shares what's on his or her mind with the perceiver through conversation, but an average peer does not. To differentiate whether beliefs about psychological needs are affected by individuation, or by greater access into mental experience, we compared how people perceived the needs of their friends, an average peer, and an individuated peer. We expected that people would demean an individuated peer more than a friend because friendship involves an exchange of opinions and preferences (i.e., access into another person's mind) but individuation does not.

Finally, Study 3 tested another possible explanation for demeaning: self-enhancement. People tend to rate themselves more positively compared with others in a variety of domains (Dunning, 1995; Dunning, Meyerowitz, & Holzberg, 1989; Krueger, 1998; Sedikides & Strube, 1995). Although the varied results across Studies 1 and 2 are hard to explain with a simple positivity bias account, and the psychological processes that give rise to self-enhancing beliefs are much more complicated than simply believing positive things about oneself (Chambers & Windschitl, 2004), people may nevertheless believe that psychological needs implicate additional positive traits, such as intelligence. If so, then people's inferences about their own and others' intelligence could account for demeaning. We test this in Study 3 by asking some

participants to also report their beliefs about their own and others' intelligence.

Method

Participants. We precommitted to running all MBA students in two class sections at the University of Chicago who consented to take an online survey as part of the course. A total of 305 students ($M_{age} = 28.60$, $SD = 2.50$, 66.9% male) completed the survey.

Procedure. The experiment utilized a 3 (need levels: low, middle, high) $\times$ 3 (target: average peer, individuated peer, friend) mixed-model design with the first factor manipulated within-participants and the second factor manipulated between participants. Participants completed a battery of scales, in which the Needs scale and the Incentives scale were completed first. For the Needs Scale, we randomly assigned participants to either compare themselves to "the average Chicago Booth MBA student" (average peer condition), "the Chicago Booth MBA student who answered this question just before you did" (individuated peer condition), or "your closest friend at Chicago Booth" (friend condition). All participants then reported "how important is each of the following needs to you?" for low, middle, and high need levels on a scale from -3 (*Much less important to me*) to 3 (*Much more important to me*).

For the Incentives scale, participants read, "the following list contains a number of different incentives that might be found in an organization." We asked participants, "Compared with the average Chicago Booth MBA student [the student who answered this question just before you did/ your closest friend], how important is each of the following incentives to you?" on the same response scale from -3 (*Much less important to me*) to 3 (*Much more important to me*).

Finally, in one class only ($n = 119$), participants also reported "how intelligent do you think you are, compared with the average Chicago Booth MBA student [the student who answered this question just before you did/your closest friend]?" on a scale from -3 (*Much less intelligent*) to 3 (*Much more intelligent*).

Results

Scale reliability. Across the three targets, items measuring low-level need importance again showed lower reliability ($\alpha = .49$) compared with items measuring the middle and high-level need importance ($\alpha s = .60$ & $.77$, respectively). The three need levels correlated positively with each other, $rs > .154$, $ps < .007$. As reported in Part 3 of the Online Supplemental Materials, an exploratory factor analysis indicated that several scale items did not load as expected: "sleeping" and "feeling safe" did not load onto any of the three factors, and the belonging needs loaded onto the high-level needs instead of the middle-level needs (Table S7 in the online supplemental materials). For consistency, we kept the scale factors the same as in prior studies in the analyses reported below. A robustness analysis that included the belonging needs in the high-level need factor did not meaningfully change any of the results. We further report consistent results for each item individually in Part 2 of the online supplemental materials (Figure S3).

Demeaning needs. A 3 (need level: low, middle, and high) $\times$ 3 (target: average peer, individuated peer, friend) mixed-model ANOVA on the perceived importance of one's own needs compared with the targets' needs revealed a main effect of target, $F(2, 604) = 10.40$, $p < .001$, $\eta_p^2 = 0.06$, and need level, $F(2, 302) = 46.58$, $p < .001$, $\eta_p^2 = 0.13$, qualified by our predicted interaction, $F(4, 604) = 10.54$, $p < .001$, $\eta_p^2 = 0.07$.

As can be seen in Figure 5 (top panel), the largest self-other difference in the perceived importance of needs occurred for the high-level psychological needs, $F(2, 302) = 27.20$, $p < .001$, with significantly smaller self/other differences for middle-level, $F(2, 302) = 1.51$, $p = .223$, and low-level physical needs, $F(2, 302) = 4.42$, $p = .013$.

As expected, participants perceived high-level needs to be more important for friends (more similar to the self; $M = 0.28$, $SD = 0.60$), than for average peers ($M = 0.78$, $SD = 0.69$), $t(302) = 5.63$, $p < .001$, $d = 0.77$, or for individuated peers ($M = 1.01$, $SD = 0.87$), $t(302) = 6.63$, $p < .001$, $d = 0.98$. Participants also inferred that high-level needs were more important for average peers than for individuated peers, $t(302) = 2.10$, $p = .037$, $d = 0.24$. There was no statistically significant difference between targets in perceived middle-level need importance, $ts < 1.67$, $ps > .095$. Participants also perceived low-level needs to be more important to friends (more similar to the self; $M = 0.22$, $SD = 0.77$), than for individuated peers ($M = 0.59$, $SD = 0.99$), $t(302) = 2.89$, $p = .004$, $d = 0.42$, but not for average peers ($M = 0.28$, $SD = 0.70$), $t(302) = 0.54$, $p = .592$, $d = 0.08$. Consistent with Studies 1a–2, participants demeaned others' psychological needs, but this effect was significantly smaller for close friends than for average or individuated peers.

Intrinsic incentives bias. A 2 (incentive type: extrinsic vs. intrinsic) $\times$ 3 (target: average peer, individuated peer, friend) mixed-model ANOVA on the perceived importance of incentives for oneself compared with the target revealed main effects of incentive type, $F(1, 302) = 142.63$, $p < .001$, $\eta_p^2 = 0.32$, and target, $F(2, 302) = 13.94$, $p < .001$, $\eta_p^2 = 0.08$, qualified by our predicted interaction, $F(2, 302) = 8.21$, $p < .001$, $\eta_p^2 = 0.05$. The main effect for incentive type indicates, as in Study 2, that the self/other difference was again larger for intrinsic incentives ($M = 0.72$, $SD = 0.79$) than for extrinsic incentives ($M = 0.03$, $SD = 0.70$).

As can be seen in the middle panel of Figure 5, the perceived importance of intrinsic incentives varied significantly, $F(2, 302) = 20.60$, $p < .001$, whereas the importance of extrinsic incentives did not, $F(2, 302) = 0.69$, $p = .502$. Participants perceived that intrinsic incentives were more important for friends ($M = 0.39$, $SD = 0.71$) than for average peers ($M = 0.87$, $SD = 0.74$), $t(302) = 5.05$, $p < .001$, $d = 0.66$, or for individuated peers ($M = 1.06$, $SD = 0.79$), $t(302) = 5.66$, $p < .001$, $d = 0.89$. The perceived importance of intrinsic incentives did not vary between average and individuated peers, $t(302) = 1.60$, $p = .112$, $d = 0.18$. The perceived importance of extrinsic incentives did not vary across targets, $ts < 1.17$, $ps > .242$.

Consistent with the regression results reported in Study 2, extrinsic incentive importance predicted the perceived importance of low-level needs, $\beta = 0.13$, $p = .024$, middle-level needs, $\beta = 0.38$, $p < .001$, and high-level needs, $\beta = 0.25$, $p < .001$. Unlike Study 2's results, intrinsic incentive importance also predicted perceived need importance for low-level needs, $\beta = 0.17$, $p = .004$, middle-level needs, $\beta = 0.16$, $p = .007$, and high-level needs, $\beta = 0.60$, $p < .001$. However, we note that the effect of intrinsic incentive importance on perceived need importance was approximately three times larger for high-level needs compared with middle-level or low-level needs, consistent with Study 2.

Perceived intelligence. Perceived intelligence did not vary significantly across target condition, $F(2, 116) = 1.71$, $p = .186$ (see Figure 5, bottom panel), although participants believed they were marginally more intelligent than an average peer ($M = 0.34$, $SD = 1.11$), one-sample $t(40) = 1.97$, $p = .056$, and more than an individuated peer ($M = 0.44$, $SD = 0.72$), one-sample $t(38) = 3.79$, $p < .001$, but not a friend ($M = 0.05$, $SD = 1.00$), one-sample $t(38) = 0.32$. When we added intelligence into the linear regression models reported above, intelligence did not predict perceived self/other differences in need importance for any of the three need levels, $\beta s < 0.06$.

Discussion

Individuals were less likely to demean the psychological needs of a close friend than either an average or individuated peer. Although there are many differences between friends and lesser-known peers, this result suggests that exposure to another's mental experience could moderate the tendency to demean others' psychological needs. Furthermore, variance in the positive trait of intelligence was not related to the perceived importance of psychological needs, or of any other need level, suggesting that a positivity bias alone is not guiding evaluations of others' motivations. We address positivity bias further in Studies 5 and 6.

Study 4: Inside Versus Outside Perspective

We predicted that that people perceive psychological needs to be more important to themselves than to others because one's own pursuit of psychological needs is experienced directly from an inside perspective (and hence are more easily recognized) whereas others' pursuits are observed from an outside perceptive (and hence less easily recognized). This suggests that even when people observe others engaging in exactly the same activities as they do (eating, working, relaxing, and so on) they might infer that others are pursuing physical needs relatively more than they are them-
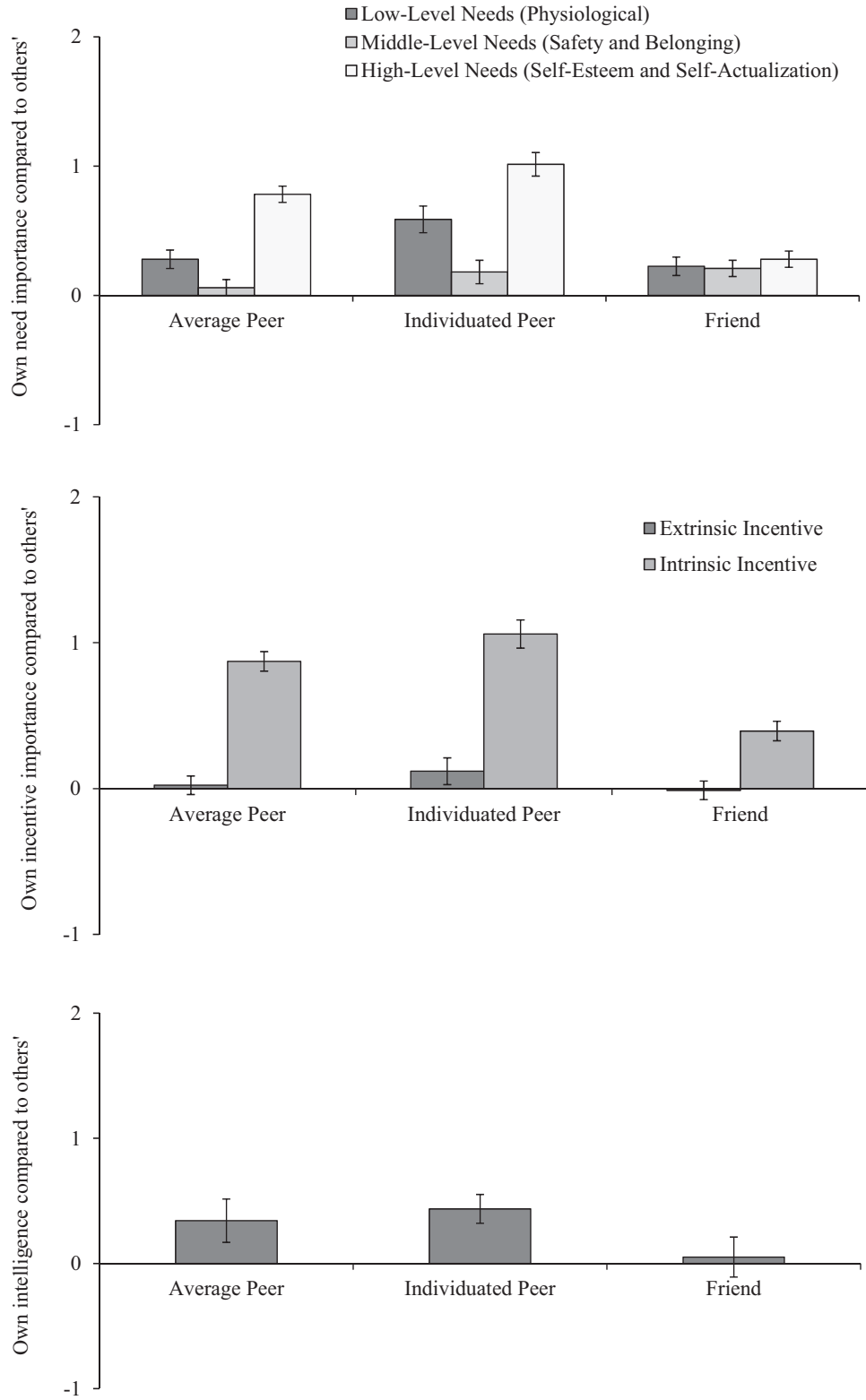
Figure 5. Participants' perceived importance of low-level, middle-level, and high-level needs (top panel), of extrinsic and intrinsic incentives (middle panel), and of intelligence (bottom panel) for themselves compared with an average peer, an individuated peer, and a friend in Study 3. Higher numbers on the scale mean that people rated their own needs as relatively more important than the target's needs. Error bars represent ±1 *SEM*.

selves, because people cannot directly observe others' mental activity and hence cannot as easily recognize others' pursuit of psychological needs. Study 4 tests whether people believe that others pursue identical activities to satisfy lower-level needs than the self (i.e., to satisfy physical needs), and if so, whether this can help to explain demeaning.

Method

We preregistered our hypotheses and analysis plan for the study on AsPredicted (http://aspredicted.org/blind.php?x=vt32dd).

Participants. We planned to collect 200 students from a public west coast school to have sufficient statistical power to detect a small effect size. In total, 206 people participated (M_{age} = 22.31, SD = 5.41, 26.7% male, 69.4% female, 2.9% other gender) in exchange for entry into a lottery that contained four $50 Amazon gift cards (approximately a 1/50 chance of winning).

Procedure. Participants first completed the Needs Scale for themselves and for an identified other person in the study (i.e., "the person who answered this survey just before you did") in counterbalanced order (1 = *not at all important*; 7 = *extremely important*).

To measure our proposed mechanism, we then examined the extent to which participants reported that they and "the person who answered this survey just before you did" (in counterbalanced order) engaged in six common activities (i.e., eating breakfast, working, traveling, spending time with family and friends, relaxing, and getting a university degree) to satisfy their physical or psychological needs. The first five activities were the most commonly mentioned in a pretest for satisfying each of Maslow's five need levels (see Study S2 in the online supplemental materials); we later added "getting a university degree" because we believed it would be particularly relevant to our university sample (note that we preregistered including five activities but added "getting a university degree" before running the actual experiment).

For each activity, two research assistants who were blind to our hypotheses generated two psychological needs and two physical needs that could conceivably be satisfied by engaging in each activity. For instance, one question asked participants to "please consider the activity of 'relaxing.'" Participants read, "Relaxing can satisfy both physical and psychological needs. For example, relaxing can: - Mitigate physical pain or stress (physical need) - Improve your sleep and physical health (physical need) - Reduce your mental stress (psychological need) - Make you feel happy (psychological need)." All six activity descriptions can be found in the Online Supplemental Materials. After each activity description, participants responded to the following question: "Please tell us whether you choose to [spend time with family and friends] more because it satisfies physical or psychological needs. (Even though it may be difficult, try to determine which of these needs drives you more in your choice to [spend time with family and friends])." Participants then reported their response on a scale ranging from 1 (*significantly more to satisfy physical [vs. psychological] needs*) to 6 (*significantly more to satisfy psychological [vs. physical] needs*).

Results

Scale reliability. Items in each of the need levels showed adequate reliability for both evaluations of the self and of another person, αs > .79. The three need levels correlated positively with each other, rs > .174, ps < .012. As reported in Part 3 of the Online Supplemental Materials, an exploratory factor analysis indicated that not all scale items loaded as expected; "feeling safe" did not load onto any of the three factors, the safety and belonging needs loaded onto two separate factors, and "feeling respected" loaded more highly onto the belonging needs than the high-level needs (Table S8 in the online supplemental materials). For consistency, we kept the scale factors the same as in prior studies in the analyses reported below. A robustness analysis that removed "feeling safe" from analysis and added "feeling respected" to the middle-level need factor did not meaningfully change the results reported below.

Demeaning needs. A 3 (need level: low, middle, and high) × 2 (target: self vs. other) repeated-measures ANOVA on the perceived importance of one's own needs compared with another's needs revealed main effects of target, $F(1, 410)$ = 12.07, p < .001, η_p^2 = 0.06, and need level, $F(2, 410)$ = 311.71, p < .001, η_p^2 = 0.60, qualified by our predicted interaction, $F(2, 410)$ = 29.08, p < .001, η_p^2 = 0.12.

As shown in Figure 6, a significant self-other difference in the perceived need importance emerged only for the high-level (psychological) needs, paired $t(205)$ = 7.09, p < .001, d = 0.53, such that participants perceived high-level needs to be more important for themselves (M = 5.79, SD = 0.84) than for another person (M = 5.32, SD = 0.94). We observed nonsignificant self/other differences for the middle-level needs, paired $t(205)$ = −0.21, p = .830 (M_{self} = 5.29, SD = 0.90; M_{other} = 5.31, SD = 0.72), and low-level (physical) needs, paired $t(205)$ = −1.05, p = .293 (M_{self} = 6.58, SD = 0.75; M_{other} = 6.63, SD = 0.76).

Explanations for activities. As hypothesized, participants also rated themselves as being relatively more likely to engage in
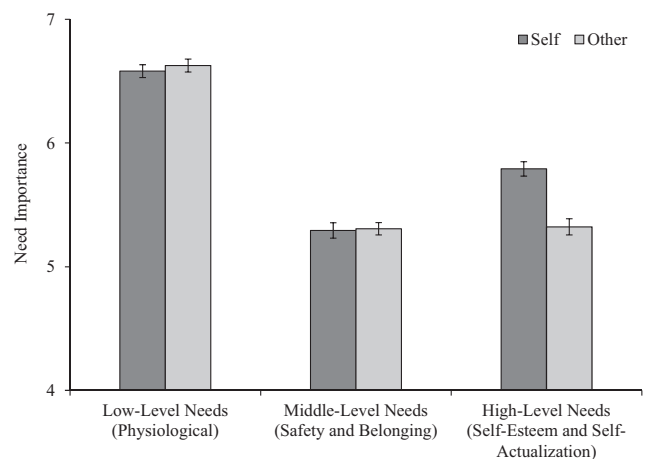
Figure 6. Participants' perceived importance of low-level, middle-level, and high-level needs for themselves (Self condition) compared with "the person who answered this survey just before you did" (Other condition) in Study 4. Error bars represent ±1 *SEM*.

the six activities to satisfy psychological needs ($M = 4.00$, $SD = 0.60$) than others ($M = 3.62$, $SD = 0.56$), paired $t(205) = 7.90$, $p < .001$, $d = 0.65$. Although we preregistered aggregating the six activity ratings for analysis, the reliability of the items was low for both the self ($\alpha = .24$) and for others ($\alpha = .21$). We therefore additionally tested the effect of target separately for each activity: Participants rated themselves as engaging in each activity more to satisfy psychological needs than do others, paired $ts > 2.15$, $ps < .032$, $ds > 0.19$, except for "eating breakfast," which shows no self/other difference, paired $t(205) = 1.02$, $p = .307$ ($M_{\text{self}} = 2.22$, $SD = 1.21$; $M_{\text{other}} = 2.12$, $SD = 1.17$).

We tested whether the belief that satisfying psychological needs is a more important motivator for oneself than for others mediates the belief that higher-level psychological needs are more important to the self than to others (i.e., demeaning). In a 5,000 sample bootstrap within-subjects mediation model (using MEMORE in SPSS; Montoya & Hayes, 2017), the indirect effect of self/other differences in motivation on demeaning across targets was statistically significant (0.16, 95% CI [0.08, 0.24]). Including the motivation for engaging in activities significantly reduced the direct effect of target on need importance (from $b = 0.47$, $SE = 0.07$, to $b = 0.31$, $SE = 0.07$), $ps < .001$.[2]

Discussion

These results support our theory that one reason why people demean others' needs compared with one's own may be because it is more difficult to observe others actually pursuing psychological needs. Even when evaluating the very same actions, participants were more likely to indicate that they were satisfying psychological needs than others were. These beliefs about the motives underlying action then mediated their tendency to demean others' needs relative to oneself.

Study 4 provides additional evidence that demeaning may not simply be systematic tendency in judgment (a bias), but that it may also be an error in judgment when compared against people's own reported needs. Participants inferred different motivations underlying others' behavior than others reported for themselves, assuming that participants are interpreting their own behavior more accurately than others are. However, the actual motivations underlying these behaviors is difficult, if not impossible, to objectively identify. Assessing the accuracy about others' motives could be better ascertained by evaluating cases where motivations lead directly to different choices. For instance, a person trying to satisfy a physical need of hunger might choose food if it was offered, whereas a person trying to satisfy a psychological need of relational connection might choose conversation with another person if it was offered. Because psychological needs are more difficult to recognize in others than in oneself, our theory predicts that people may systematically underestimate the importance of psychological needs in others. We tested this directly in Studies 5 and 6 by comparing the inferences that one group of individuals (charity donors in Study 5, university students in Study 6) make about the importance of physical and psychological needs among homeless people against the actual reported needs of homeless people.

Study 5: Donors and Recipients' Needs

We partnered with a charity helping low-income community members and asked charity donors and recipients to report their own needs and to predict the needs of the other group. We expected that charity donors would demean the needs of recipients as observed in prior experiments, and that this would reflect miscalibration when compared against the charity recipients' own reported need importance. Study 5 also asked charity recipients to judge the needs of charity donors. Because donors are engaging in behavior that reflects their desire to satisfy high-level needs (e.g., for meaning), we suspected that charity recipients might not demean the needs of donors. Instead, we expected that recipients' judgments would be relatively calibrated when compared against the actual reports of charity donors.

Misunderstanding others' needs matters because it potentially affects how one person treats another (Heath, 1999). If a charity donor believes that a recipient cares primarily about basic needs of food and clothing when a recipient actually cares about maintaining meaningful employment, then the donor may not provide what a recipient actually needs. We assessed this potential consequence by conducting Study 5 during the charity's annual "Holiday Giveaway," during which donors give specific gifts to recipients. We expected that donors' beliefs about recipients' needs would inform the type of gifts they purchased. In particular, donors who believed that physical needs were more important to recipients (e.g., need for food) would be more likely to give gifts to satisfy these needs (e.g., cans of food), whereas donors who believed that psychological needs were more important to recipients would be more likely to give gifts that could also serve to satisfy psychological needs (e.g., cash for discretionary spending, gas cards to maintain autonomy). Further, we predicted that donors are more likely to give gifts to satisfy physical needs (e.g., food to ease hunger) but recipients are more likely to prefer gifts to satisfy psychological needs (e.g., gas cards to maintain autonomy). Because social norms or convenience may dictate donors' actual gifts, we also asked donors to guess the ideal gift for recipients, within the same price range of what donors tended to actually spend.

Method

Participants. Research assistants recruited as many donors and recipients as possible to take a survey in the span of one day while attending a "Christmas Giveaway" event. The charity was Respond Now, which provides immediate assistance to people living in poverty and unemployment. In total, 39 donors and 100 recipients (age and gender unknown) consented to complete their respective surveys. Degrees of freedom vary in the analyses because not all participants completed all survey items. For instance, 36 donors and 75 recipients completed the primary ratings of their own and others' needs, a 92% and 75% response rate, respectively.

Procedure and materials. Two research assistants attended the "Christmas Giveaway" and handed out separate surveys to charity donors and recipients. We made four changes to the Needs Scale from prior studies. First, we shortened the introduction and simplified the language to make the survey easier to read. Second, we selected one item from each of the three need levels that correlated highest with other items in that level based on prior

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[2] We additionally tested whether each activity item separately mediated the effect; significant indirect effects emerged for the activities of working, traveling, and pursuing a university degree but not for eating breakfast, relaxing, or spending time with family and friends.

studies to make the scale shorter. Third, we changed the response scale from a 1–7 scale to a 1–10 scale to make the scale more intuitive. We also adjusted the scale end points to range from *somewhat important* to *most important*, because pilot testing indicated participants believed all of the needs were relatively important. Finally, we asked participants to rank the three needs in order from most to least important in addition to rating them on the 10-point scale.

The charity recipients' survey started with the following introduction: "All people have things that they need in life. Some things are very important. For example, it is important for all people to breathe oxygen. Some things are not as important. For example, it may seem important to some people to have fun. But it may not seem as important to others." The survey then asked recipients to rate the importance of three needs for themselves and for a charity donor. When responding for themselves, charity recipients read: "How important do you think the three things on the list below are for YOU personally?" The three needs were: "Living with a full sense of meaning and purpose in life" (high-level psychological need), "Eating food (i.e., avoiding hunger)" (low-level physical need), "Feeling loved" (middle-level need), in this order. The response scale ranged from 1 (*somewhat important*) to 10 (*most important*) with 4 labeled as *very important* and 7 labeled as *extremely important*. When evaluating charity donors' needs, charity recipients read: "How important do you think these three things on the list below are for the typical [charity name redacted] donor (someone who gives money, gifts, or time to [charity name redacted])?" After rating these three needs for themselves and for donors, recipients also ranked the needs: "Please rank the three things from most to least important for you [a typical [name redacted] donor]" (where 1 = *most important*, 2 = *medium importance*, 3 = *least important*). Recipients therefore rated and ranked the three needs both for themselves and for a typical charity donor in counterbalanced order.

On the back page of the recipient survey, we asked participants to report what they received during this year's holiday drive (in a text box), how much they needed the gift they received (on a 1–10 scale), how happy it made them to receive the gift (on a 1–10 scale), and what their "ideal gift" would be within a $10-$40 price range that would "truly improve your life" (text box).

The charity donors' survey started with the same first page as the recipients' survey, asking donors to rate and rank the three needs for themselves and a typical charity recipient in counterbalanced order. At the bequest of Respond Now, we defined a typical recipient as a "client (someone who receives services from Respond Now)." On the back page of the donor survey, we asked seven questions to understand donors' beliefs about recipients' preferred gifts, donors' actual gifts, and how and why donors chose the gifts they did. Donors reported how well they thought they knew what the clients need (1–10 scale), what they gave the client (open-ended), how much they spent in total (in dollars), how they decided what to give (open-ended), how much they thought the client needed the gift (1–10 scale), how happy they thought the gift made the client feel (1–10), and what the recipient's "ideal gift" would be (text box).

Results

We first tested for a three-way interaction in a 2 (participant: donor vs. recipient) $\times$ 2 (target of evaluations: self vs. other) $\times$ 3 (needs: low-level, middle-level, high-level) mixed-model ANOVA on rated need importance. The predicted three-way interaction emerged, $F(2, 218) = 14.30$, $p < .001$, $\eta_p^2 = 0.12$, indicating that donors believed their high-level needs were more important for themselves than for the recipients, whereas recipients believed their high-level needs were just as important for them as for the donors (see Figure 7).[3] We decompose the interaction below.

Donors' perceptions. We next tested our primary hypothesis that donors demean recipients' needs. A 2 (target: self vs. recipient) $\times$ 3 (need level: low, middle, high) repeated-measures ANOVA on perceived need importance revealed significant main effects of target, $F(1, 35) = 6.24$, $p = .017$, $\eta_p^2 = 0.15$, and need level, $F(2, 35) = 4.83$, $p = .011$, $\eta_p^2 = 0.12$, qualified by the predicted interaction, $F(2, 35) = 12.62$, $p < .001$, $\eta_p^2 = 0.27$.

As can be seen in Figure 7, there was no effect of need level for donors' perceptions of their own needs, $F(2, 70) = 1.06$, $p = .353$, $\eta_p^2 = 0.03$, but there was a significant effect of need level for donors' predictions of recipients' needs, $F(2, 72) = 11.17$, $p < .001$, $\eta_p^2 = 0.24$. Donors reported that recipients' high-level psychological needs (for meaning and purpose) were significantly less important to them ($M = 6.81$, $SD = 2.96$) than recipients' middle-level needs (for love; $M = 8.11$, $SD = 2.37$), paired $t(36) = -3.61$, $p < .001$, $d = -0.48$, and also less important than recipients' low-level physical needs (for food; $M = 8.84$, $SD = 2.06$), paired $t(36) = -3.95$, $p < .001$, $d = -0.80$. Recipients' low-level needs were rated as marginally more important than their middle-level needs, paired $t(36) = 1.75$, $p = .088$, $d = 0.33$. In other words, donors believed that all three need levels were similarly important to themselves, but that satisfying physical needs were most important for the recipients and psychological needs were the least important. Consistent with the instances of demeaning reported in the preceding experiments, donors reported that low-level and middle-level needs were just as important to recipients as they were to themselves, paired ts < 1.02, but that high-level psychological needs were less important to recipients than to themselves, paired $t(35) = 4.50$, $p < .001$, $d = 1.52$. As in Studies 1 and 2, donors demeaned the psychological needs of a typically dehumanized group.

Donors' rankings of need importance showed the same pattern of results. As can be seen in Figure 8, donors ranked the high-level need (for meaning and purpose) as most important to them ($M = 1.58$, $SD = 0.76$), followed by the low-level need (for food; $M = 2.05$, $SD = 0.78$), and ranked the middle-level need as least important (for love; $M = 2.33$, $SD = 0.76$). In contrast, they ranked the low-level need as most important for recipients ($M = 1.40$, $SD = 0.74$), followed by the middle-level need ($M = 2.11$,

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[3] There was no main effect of participant, $F < 1$, but a main effect of target, $F(1, 218) = 9.79$, $p = .002$, $\eta_p^2 = 0.08$, a marginal main effect of need level, $F(2, 218) = 2.67$, $p = .072$, $\eta_p^2 = 0.02$, and two two-way interactions (between target and need level, $F(2, 218) = 10.84$, $p < .001$, $\eta_p^2 = 0.09$, and between participant and need level, $F(2, 218) = 4.33$, $p = .014$, $\eta_p^2 = 0.04$, but not between participant and target, $F(1, 404) = 0.86$, $p = .356$, $\eta_p^2 = 0.01$) emerged.
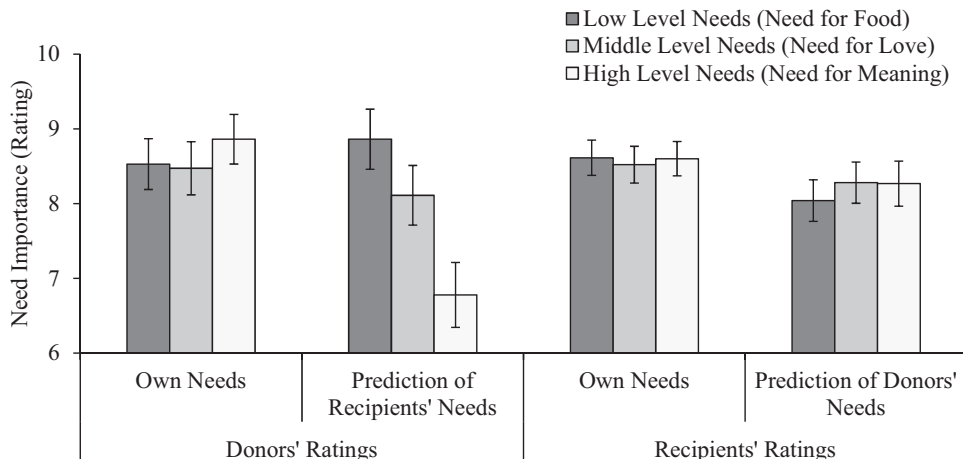
Figure 7. Charity donors' and recipients' ratings of low-level, middle-level, and high-level need importance and their predictions about the need importance for recipients and donors, respectively, in Study 5. Error bars represent ±1 *SEM*.

$SD = 0.68$), and ranked the high-level need as least important ($M = 2.43$, $SD = 0.74$).

Recipients' perceptions. As shown in Figures 7 and 8, recipients did not report needs consistent with the donors' expectations. Instead, they reported the same need importance as the donors reported for themselves.

As shown in Figure 7, despite having more statistical power with a larger sample of recipients, a 2 (target: self vs. donor) × 3 (need level: low, middle, high) repeated-measures ANOVA on perceived need importance showed no effect of need level or interaction, $Fs < 1$, and only a marginal effect of target, $F(1, 74) = 3.69$, $p = .058$, $\eta_p^2 = 0.05$, such that recipients believed all of their needs were marginally more important to them ($M = 8.42$, $SD = 2.01$) than were the same needs to donors ($M = 8.10$, $SD = 2.19$). These null effects are informative when compared qualitatively to donors' ratings. In contrast to donors' predictions, recipients actually valued all three need levels equally highly, just as the

donors did themselves. Furthermore, recipients perceived no difference between their own needs and donors' needs. The largest gap between expectations and reported reality in this study was therefore between donors' expectations of recipients' high-level needs.

Recipients' ranking of their needs showed a slightly different pattern (see Figure 8). Specifically, recipients ranked the high-level need as most important ($M = 1.68$, $SD = 0.83$), the low-level need as next most important ($M = 2.02$, $SD = 0.82$), and the middle-level need as least important ($M = 2.18$, $SD = 0.74$). More important, recipients ranked these three needs in the same order for themselves as for donors ($Ms = 1.63$, 1.90, & 2.35, $SDs = 0.74$, 0.82, & 0.75, respectively). Comparing these recipients' rankings against the donors' ranking, recipients correctly ranked the order of needs for donors, but donors incorrectly ranked the order of needs for recipients. Both groups actually reported that meaning was the most important need to
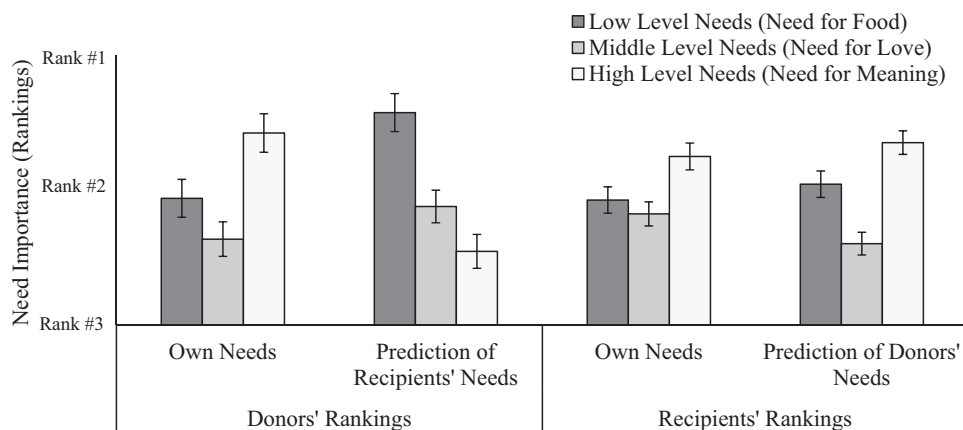

Figure 8. Charity donors' and recipients' rankings of low-level, middle-level, and high-level need importance and their predictions about the need importance for recipients and donors, respectively, in Study 5. A ranking of 1 is most important, ranking of 2 is medium importance, and ranking of 3 is least important. Error bars represent ±1 *SEM*.

them and love the least important, but the donors incorrectly believed that meaning was the *least* important need for recipients and food was the most important.

Donors' gifts. Overall, donors believed they knew what recipients needed relatively well ($M = 6.90$, $SD = 2.52$), believed recipients very much needed their gift ($M = 8.83$, $SD = 1.98$), and believed recipients would be very happy upon receiving the gift ($M = 9.00$, $SD = 1.33$), with all of these responses significantly above the midpoint of the scales (5), one-sample ts > 4.70. Although 36 donors responded to the aforementioned questions, only 19 of the 36 donors gave an actual gift (other donors reported volunteering their time to the charity). Of the 19 gifts, five were food (26.3%) and four were involved cash or a flexible gift card (21.1%). Other gifts included clothing and children's toys. No donor gave a gas card.

Interestingly, donors' beliefs about the ideal gift for recipients were different than what they actually gave to recipients. Of the 28 donors who answered this question, 16 believed the ideal gift would involve cash or cash-equivalent (57.1%), whereas only four believed the ideal gift would involve food (14.3%). Figure 9 shows the results restricted to only donors who completed both questions.[4]

We predicted that donors' gifts of food and cash would correspond with their perceptions about the importance of recipients' low-level and high-level needs, but the correlations between perceived need importance for each level, likelihood of actually giving food, likelihood of actually giving cash, perception of food as an ideal gift, and perception of cash as an ideal gift were statistically nonsignificant, rs < 0.37, ps $> .065$. Given that only 19 of the donors who completed our survey provided a gift, we do not know whether these correlations reflect a disconnect between inferred needs and the gifts donors provided, or simply reflect low statistical power to detect such relationships.

Recipients' gifts. As donors anticipated, recipients reported a high need for their gift ($M = 9.22$, $SD = 1.58$), and that the gift made them extremely happy ($M = 9.49$, $SD = 1.31$). Of the 50 recipients who wrote down an ideal gift, the majority reported their ideal gift was cash or cash-equivalent (68.0%), and only a small minority mentioned food as an ideal gift (14.0%). The most frequently mentioned ideal gift was a gas card (18.0%). Only 35 recipients actually knew what they had received at the time the survey was conducted, but none of the 35 received cash or a cash-equivalent and 80.0% received a gift involving food. Figure 9 shows the results restricted to only recipients who completed both questions.[5]

To test whether recipients' self-reported needs informed their ideal gift, we examined correlations between recipients' rated and ranked need for each level with their likelihood of mentioning cash or food in their ideal gift. Recipients who ranked meaning as more important were more likely to want cash, $r = -.38$, $p = .011$, and recipients who ranked food as less important were marginally more likely to want cash, $r = 0.30$, $p = .055$, suggesting that cash is perceived to fulfill high-level needs relatively more than low-level needs (presumably because its use is left to the recipient's discretion). All other correlations were nonsignificant, rs < 0.19, ps $> .190$.

Discussion

Overall, the results of Study 5 suggest that demeaning is a dehumanizing bias in judgment that misrepresents others' actual reported needs. In this study, charity donors believed that charity recipients prioritized basic physical needs more than psychological needs. Charity recipients, however, reported that their psychological needs were actually more important to them than their physical needs, reporting needs that matched those reported by the donors themselves. Homeless people have fewer means for satisfying their needs than those providing help, but they do not report having fundamentally different needs.

Our primary measure of accuracy in judgment was the calibration between the presumed importance of different needs and the self-reported importance of them. It could be, at least theoretically speaking, that people's self-reports of their own motives and needs are actually less accurate in predicting people's behavior than are outside observers' predictions. However, recipients' reports of their ideal gifts aligned with their stated need importance, at least suggesting that the gifts that recipients would choose are better predicted by their own self-reported need importance than by the donor's prediction.

Whether mistaken expectations about another person's needs could lead to mistaken behavior toward them is less clear from the results of Study 5. Although we found no explicit relationship between donors' gifts and their perceptions of recipients' needs, suggesting that other factors may determine which gifts donors buy, we also had little statistical power to detect such a relationship in the current sample. Donors were more likely to give a gift that would satisfy a physical need than a gift that could satisfy a psychological need. Specifically, 33% of donors in this sample reported giving food (and 77% of recipients reported receiving food) but only 20% of donors reported giving cash or cash-equivalents (and 0% of recipients reported receiving cash). However, 82% of recipients preferred unrestricted cash or a cash-equivalent. As such, the gifts donors gave were quite different from the gifts recipients wanted, perhaps in part because of donors' misunderstanding of recipients' needs. To continue examining how assessments of an individual's needs affects behavior toward that individual, Study 6 asked university students to predict homeless people's preferences for assistance programs and compared those against homeless people's actual preferences.

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[4] Restricting the sample to only donors who completed both questions ($n = 15$), a 2 (cash vs. food) $\times$ 2 (actual vs. ideal) repeated-measures ANOVA revealed only a significant interaction, $F(1, 14) = 7.88$, $p = .014$, $\eta_p^2 = 0.36$, such that donors gave the same proportion of actual gifts of cash ($M = 20.0\%$) and food ($M = 33.3\%$), paired $t(14) < 1$, but were more likely to believe that cash was an ideal gift ($M = 60.0\%$) than was food (13.3%), paired $t(14) = 2.43$, $p = .029$. This analysis is statistically underpowered and should be interpreted with caution.

[5] A 2 (cash vs. food) $\times$ 2 (actual vs. ideal) repeated-measures ANOVA on the set of recipients who responded to both questions ($n = 22$) revealed a significant interaction, $F(1, 21) = 77.00$, $p < .001$, $\eta_p^2 = 0.79$, with no main effects, Fs < 1. Recipients wanted cash ($M = 82\%$, $SD = 40\%$) much more than food ($M = 9\%$, $SD = 29\%$), paired $t(21) = 6.20$, $p < .001$, $d = 2.09$, but reported receiving cash ($M = 0\%$, $SD = 0\%$) much less often than food ($M = 77\%$, $SD = 43\%$), paired $t(21) = -8.45$, $p < .001$, $d = -2.53$. This analysis is statistically underpowered and should be interpreted with caution.
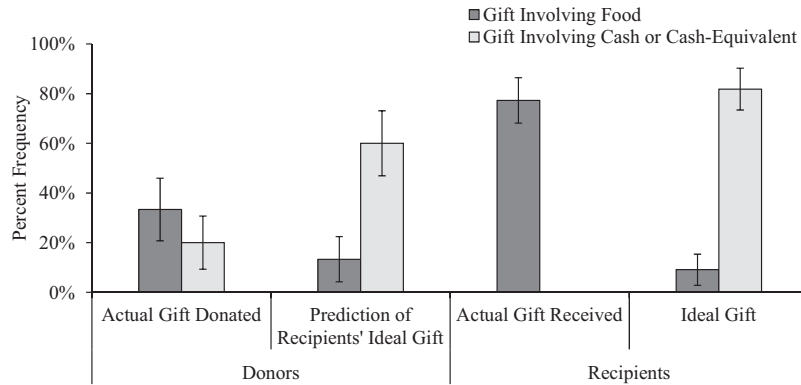
Figure 9. Percent frequency with which charity donors and recipients mentioned food versus cash or cash-equivalent in the gifts they actually donated or received, and in the gifts they believed would be ideal for recipients or reported as ideal, respectively, in Study 5. Error bars represent ±1 *SEM*.

Study 6: Choosing Food or Wellness?

Study 6 provides another test of whether demeaning could represent an error in social judgment. We partnered with an organization that provides homeless assistance programs to examine how students perceived the needs of homeless people compared with homeless people's self-reports of their own needs. To find a more objective measure of actual need importance, we measured people's choices by asking students to predict homeless people's preferences for funding one of two assistance programs: a meal program designed to satisfy homeless people's physical needs (e.g., satisfying hunger) or a wellness program designed to satisfy homeless people's psychological needs (e.g., augmenting self-esteem). We expected that students would demean homeless people's needs, leading them to underestimate the extent to which homeless people would prefer a program addressing their psychological (compared with physical) needs.

Method

We preregistered our hypotheses and analysis plan for the study on AsPredicted (http://aspredicted.org/blind.php?x=cc6zr6).

Participants. Based on prior effect sizes, we predetermined that research assistants would recruit at least 100 college student participants from various locations around a public university campus and at least 100 homeless people from various locations surrounding the same campus (e.g., shelters, free clinics, street). In total, 101 homeless people (M_{age} = 52.82, SD = 13.13; years homeless M = 8.69, SD = 9.10; 33.6% male) and 107 students (M_{age} = 20.89, SD = 3.13, 33.6% male) agreed to complete the survey in exchange for $3 each. Degrees of freedom vary as a result of missing data (not all participants completed all survey items).

Materials. We told participants that the study had two parts. In Part 1, participants completed the shortened Needs Scale described in Study 5. They first reported how important the following "things are for you personally" on a scale ranging from 1 (*somewhat important*) to 10 (*most important*): "Satisfying hunger" (low-level physical need), "Feeling respected" (middle-level need), and "Having meaning and purpose in life" (high-level psychological need). Participants then ranked the importance of the three needs

for themselves (1 = *most important*, 2 = *medium importance*, and 3 = *least important*). They then predicted the importance of these same needs to a typical group member from the other group on the same scale (i.e., "How important do you think each thing is for a typical UC Berkeley student / typical homeless person"?) and also ranked the needs of a typical group member. Finally, participants reported demographic information (age, gender, race, and years homeless if they were homeless).

In Part 2, participants viewed two flyers that each described one program that a local organization (called the Berkeley Food and Housing Program) was considering offering at the time of this study. We consulted with the organization about how to describe these programs. One program was described as a "Wellness program" that catered to participants' psychological needs. Its description indicated that it "offers free wellness services; is designed to serve participants' psychological needs; improves participants' mental wellbeing; offers activities that contribute to social, emotional, intellectual, communal, and spiritual health; offers participants an array of services to help them to deal with trauma, form deep social connections, gain confidence, empower themselves, develop self-esteem, and build hope, among other things." Example services included "individual counseling and/or spiritual care, open discussion circle with other members to foster community support, meditation and prayer groups, collaborative peer-coaching, and support groups." The other program was described as a "Meal program" that catered to participants' physical needs. Its description indicated it "offers a free weekday community meal; is designed to serve participants' physical, bodily needs; improves participants' physical wellbeing and offers a daily communal meal that satisfies their hunger; is a drop-in, cafeteria-style sit down meal served in a clean and welcoming venue." Example services included "a kitchen that emphasizes a healthy balanced meal; a typical meal might consist of baked chicken, rice, salad, fresh fruit, bread, homemade soup, and coffee, milk, and juice; vegetarian and vegan options; volunteers who help clean and serve food." We designed the flyers to contain parallel language and formatting where possible (see the Online Supplemental Materials for the text of both flyers).

We asked the homeless people to make two choices that we believed would reflect their needs: "Which of these programs

would you personally be more interested in attending?" and "If the Berkeley Food and Housing Program could fund only one of these programs, which one should they fund?" We asked the students to make predictions about the same two choices (e.g., "Which of these programs do you think a typical homeless person would be more interested in attending?"). We also asked both the homeless people and students to explain why they made the choice that they did (free response) and further asked homeless people whether they had "actually attended any programs like this."

Results

As hypothesized, a 2 (participant: student vs. homeless) $\times$ 2 (target of evaluations: self vs. other) $\times$ 3 (needs: low-level, middle-level, high-level) mixed-model ANOVA on rated need importance yielded a significant three-way interaction, $F(2, 404) = 40.10$, $p < .001$, $\eta_p^2 = 0.17$. Replicating the same pattern observed in Study 5, students believed that high-level needs were less important to homeless people than to themselves, but homeless people believed that high-level needs were similarly important to the students and to themselves (see Figure 10).[6] We decompose this interaction below.

Students' perceptions. A 2 (target: self vs. other) $\times$ 3 (need level: low, middle, high) repeated-measures ANOVA on perceived need importance revealed significant main effects of target, $F(1, 212) = 24.61$, $p < .001$, $\eta_p^2 = 0.19$, and need level, $F(2, 212) = 23.33$, $p < .001$, $\eta_p^2 = 0.18$, qualified by a predicted interaction indicating demeaning of homeless people's needs, $F(2, 212) = 50.71$, $p < .001$, $\eta_p^2 = 0.32$. As can be seen in Figure 10, there was only a small effect of need level for students' perceptions of their own needs, $F(2, 212) = 3.19$, $p = .043$, $\eta_p^2 = 0.03$, such that students rated high-level needs as more important to them ($M = 8.02$, $SD = 2.24$) than middle-level needs ($M = 7.32$, $SD = 2.31$), paired $t(106) = 3.02$, $p = .003$, $d = 0.31$, but of similar importance as low-level needs ($M = 7.65$, $SD = 2.37$), $ps > .238$. More important, there was a significantly stronger effect of need level for students' predictions about homeless people's needs, $F(2, 212) = 52.88$, $p < .001$, $\eta_p^2 = 0.33$. Students reported that homeless people's high-level needs ($M = 5.79$, $SD = 3.00$) and middle-level needs ($M = 5.88$, $SD = 2.80$) were significantly less important to them than their low-level needs ($M = 8.76$, $SD = 2.27$), paired $ts > 7.60$, $ps < .001$, $ds > 1.12$. Students did not predict any difference between homeless people's high-level and middle-level needs, paired $t = 0.36$. In other words, students believed that all three needs were similarly (highly) important to themselves but that high-level (psychological) needs were relatively less important to homeless people than low-level (physical) needs, thereby demeaning homeless people's needs. Consistent with the self/other differences reported in the preceding experiments, students reported that high-level and middle-level needs were less important to homeless people than to themselves, paired $ts > 5.14$, $ps < .001$, $ds > 0.56$. Unlike other studies, students also believed that low-level needs were more important to homeless people than to themselves, paired $t(106) = 4.99$, $p < .001$, $d = 0.48$.

Students' rankings of need importance showed the same pattern of results, ranking the high-level need as most important ($M = 1.82$, $SD = 0.79$), followed by the low-level need ($M = 1.87$, $SD = 0.91$), and ranking the middle-level need as least important

($M = 2.29$, $SD = 0.66$). In contrast, students ranked the low-level need to be of highest average importance for homeless people ($M = 1.28$, $SD = 0.61$), followed by the middle-level need ($M = 2.25$, $SD = 0.66$), with the high-level psychological need ranked as least important ($M = 2.48$, $SD = 0.62$). Indeed, 41.1% of students ranked the high-level need of meaning as most important for themselves, but only 6.6% ranked it as most important to homeless people (see Figure 11).

Homeless people's perceptions. As shown in Figures 10 and 11, homeless people again did not report the needs that students expected but instead reported needs similar to the students.

A 2 (target: self vs. other) $\times$ 3 (need level: low, middle, high) repeated-measures ANOVA on perceived need importance yielded no effect of target, $F(1, 192) = 0.01$, a significant effect of need level, $F(2, 192) = 18.70$, $p < .001$, $\eta_p^2 = 0.16$, qualified by an interaction, $F(2, 192) = 4.85$, $p = .009$, $\eta_p^2 = 0.05$. Homeless people perceived the high-level need for both themselves ($M = 8.23$, $SD = 2.64$) and for students ($M = 8.24$, $SD = 2.74$) as more important than the middle-level need ($M_{self} = 6.88$, $SD = 3.15$; $M_{student} = 7.45$, $SD = 2.88$), paired $ts > 3.72$, $ps < .001$, $ds > 0.28$, and as more important than the low-level need ($M_{self} = 7.29$, $SD = 2.93$; $M_{student} = 6.87$, $SD = 3.29$), paired $ts > 2.24$, $ps < .028$, $ds > 0.34$. The unexpected two-way interaction was due to homeless people perceiving no difference in the importance of the high-level need or low-level need between themselves and the students, paired $ts(97) = -0.04$ & -1.35, $ps > .179$, $ds < -0.13$, while also perceiving the middle-level needs to be of less importance to themselves than to the students, paired $t(98) = 2.01$, $p = .047$, $d = 0.19$.

Homeless people's rankings of needs showed a similar pattern (see Figure 11), with the low-level need being ranked as least important and the high-level need being ranked as most important.

Meal versus wellness program. Homeless people were almost equally divided in their choice to attend a meal or wellness program, with 52.11% preferring the wellness program and 47.9% preferring the meal program. Students predictions, however, were miscalibrated such that they expected a majority of homeless people to prefer the meal program (75.7%) to the wellness program (24.3%), $\chi^2(1, 203) = 16.68$, $p < .001$ (see Figure 12). Homeless people were again divided on which program to fund, with 55.8% selecting the meal program and 44.2% the wellness program. Students again, however, believed a majority would choose to fund the meal program (77.1% meal program, 22.9% wellness program), $\chi^2(1, 200) = 10.29$, $p = .001$.

Moreover, students' and homeless people's choices correlated with the difference between homeless people's perceived and reported high-level and low-level need importance such that the larger the difference, the more the wellness program was selected to attend, $r = .21$, $p = .003$ and to fund, $r = .18$, $p = .013$. The choices also correlated with the perceived and reported high-level need importance of homeless people ($r = .19$ and $.21$, $ps < .003$,

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[6] This analysis yielded a nonsignificant main effect of participant, $F < 1$, but significant main effects of target, $F(1, 404) = 10.32$, $p = .002$, $\eta_p^2 = 0.05$, and need level, $F(2, 404) = 12.88$, $p < .001$, $\eta_p^2 = 0.06$. It also yielded significant two-way interactions between participant and target, $F(1, 404) = 9.68$, $p = .002$, $\eta_p^2 = 0.05$, between target and need level, $F(2, 404) = 12.88$, $p < .001$, $\eta_p^2 = 0.06$, and between participant and need level, $F(2, 404) = 17.37$, $p < .001$, $\eta_p^2 = 0.08$.
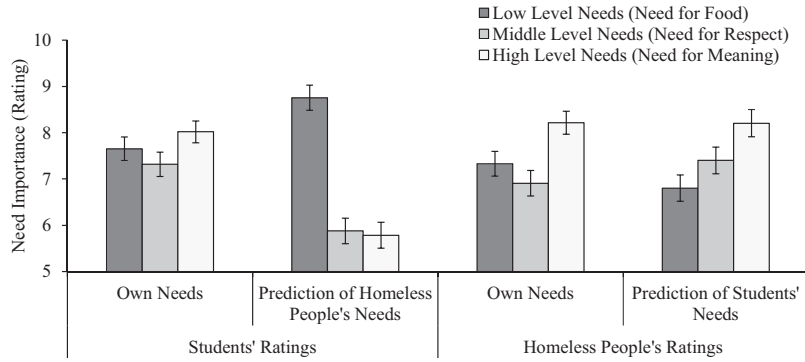
Figure 10. Students' and homeless people's ratings of low-level, middle-level, and high-level need importance and their predictions about the need importance for the opposing group, respectively, in Study 6. Error bars represent ±1 *SEM*.

respectively) but not with the low-level need importance (rs = −.10 and −.01, ps > .17).

We further explored whether assessments of homeless people's high-level and low-level needs mediated the effect of the participant (student or homeless person) on the actual or predicted choice of program. In a series of 10,000 bootstrap models (using SPSS Process macro; Hayes, 2012), perceived and reported high-level need importance mediated the effect of participant on the choice to fund (indirect effect = 0.27, *SE* = 0.16, 95% CI [0.01, 0.65]) but not the choice to attend (indirect effect = 0.18, *SE* = 0.15, 95% CI [−0.07, 0.53]). Low-level need importance did not mediate the effect of participant on choice to attend (indirect effect = 0.03, *SE* = 0.09, 95% CI [−0.16, 0.21]) or choice to fund (indirect effect = −0.06, *SE* = 0.09, 95% CI [−0.26, 0.12]), nor did the difference between high-level and low-level need importance (choice to attend: indirect effect = 0.22, *SE* = 0.19, 95% CI [−0.12, 0.62]; choice to fund: indirect effect = 0.20, *SE* = 0.18, 95% CI [−0.16, 0.56]).

Discussion

Study 6 provides more evidence that demeaning people's needs is not only a dehumanizing tendency in judgment, but also a mistake in judgment. College students rated homeless people's psychological needs (i.e., need for meaning) as relatively unimportant but homeless people ranked these needs as most important, replicating the main results from Study 5. Consistent with their reported needs, homeless people reported preferring to attend, and choosing to fund, a wellness program (that would satisfy their psychological needs) at a similar rate as a meal program (that would satisfy their physical needs), even though students predicted a strong preference for the meal program. As hypothesized, assessments of needs were correlated with students' and homeless people's choices between programs. These assessments further mediated the choice of which program to fund, although not which program to attend. Our preregistration did not specify whether assessments of high-level needs or low-level needs would be more
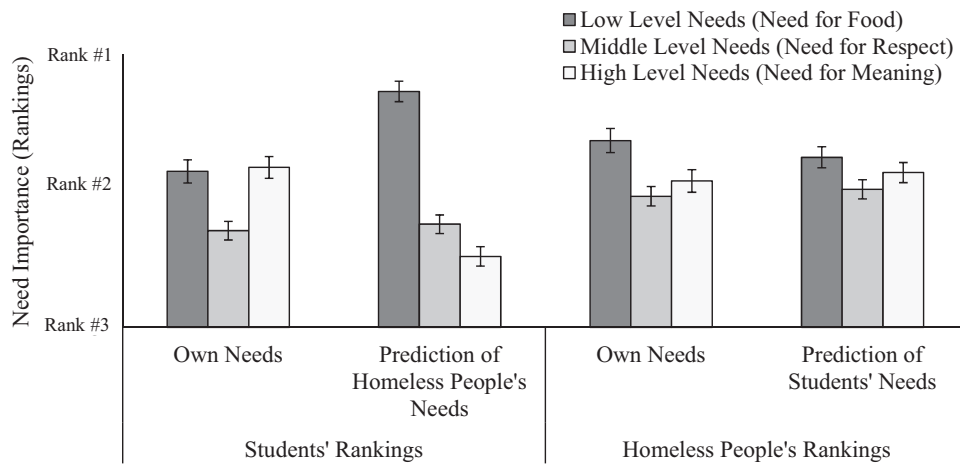

Figure 11. Students' and homeless people's rankings of low-level, middle-level, and high-level need importance and their predictions about the need importance for the opposing group, respectively, in Study 6. A ranking of 1 is most important, ranking of 2 is medium importance, and ranking of 3 is least important. Error bars represent ±1 *SEM*.
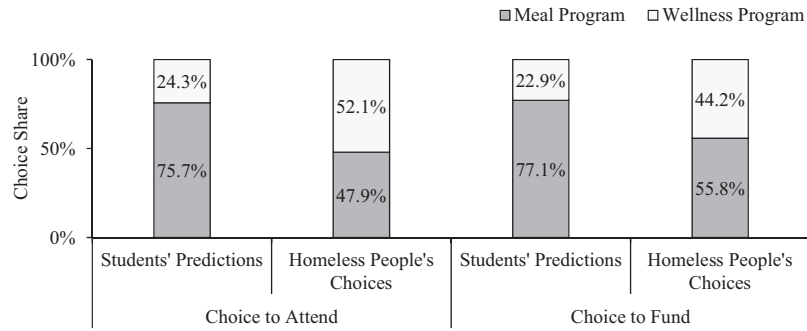
Figure 12. Students' predictions about homeless people's choices and homeless people's actual choices for attending and funding either a meal program (intended to satisfy homeless people's physical needs) or a wellness program (intended to satisfy homeless people's psychological needs) in Study 6.

strongly associated with choices. We therefore explored both possible relationships as well as the difference between assessed high-level needs and low-level needs but only found evidence that high-level need ratings were correlated with choices. These results suggest that students' tendency to demean homeless people's needs may lead them to undervalue programs that satisfy homeless people's psychological needs. Future work could test whether assessments of homeless people's needs more directly influence real funding decisions about programs designed to help them, rather than just predictions about homeless people's funding preferences.

Finally, just as the charity recipients in Study 5 did not demean the donors' needs, the homeless people in Study 6 also did not demean the students' needs. Instead, they enhanced students' psychological needs, believing them to be more important to the students than their physical needs. These results again suggest that demeaning is related to dehumanization.

General Discussion

Human behavior is guided by a complicated set of motivations ranging from physical needs, such as eating and sleeping, to psychological needs, such as maintaining meaning and purpose in life. Although participants across our experiments recognized that their own physical and psychological needs are similarly important to them, they did not consistently presume the same pattern of importance for others' needs. Instead, people across eight experiments tended to demean others' needs by minimizing the presumed importance of others' psychological needs compared with their physical needs.

This bias represents a new manifestation of dehumanization. Because psychological needs require the presence of a mind capable of thinking and feeling whereas physical needs are focused more on bodily states, demeaning the importance of another's psychological needs is consistent with treating another person as having relatively weaker—less uniquely human—mental capacities. Consistent with this hypothesis, demeaning correlated positively with other measures of dehumanization, and the psychological needs of commonly dehumanized groups like drug addicts and homeless people were evaluated as similar to those of chimpanzees.

We believe that people demean others' psychological needs compared with one's own at least partly because psychological

needs are simply more difficult to recognize from an outside perspective. Psychological needs like self-esteem and meaning are internalized mental states with more ambiguous visible manifestations compared with physical needs that are readily observed in others' behavior. Others' needs are therefore assessed through a well-known process of induction from observable behavior, working backward from known behaviors to underlying motivations (Gilbert & Malone, 1995). Our experiments provide evidence consistent with this possibility. Participants were most likely to demean the needs of typically dehumanized groups such as homeless people, children, and drug addicts, whose needs they believed were similar to those of nonhuman animals (chimpanzees; Studies 1a, 1b, and 1c). Conversely, people were less likely to demean their own needs, or those whose psychological experiences they knew more directly (e.g., a close friend, Study 3). Participants were also less likely to demean members of groups whose behavior is more easily associated with psychological needs (e.g., lawyers, Study 1; charity donors, Study 5; students, Study 6).

Demeaning does not just occur, however, for evaluations of dehumanized groups. In our studies, people even subtly demeaned the psychological needs of their own peers (Studies 2–4), again suggesting that demeaning derives from others' psychological needs being less easily recognized than one's own. In Study 4, the very same behaviors (e.g., eating, working, and relaxing) were perceived to reflect the pursuit of psychological needs in a person's own behavior, but to reflect the pursuit of physical needs in others' behavior. In a particularly striking example of demeaning a peer's needs, we conducted one additional experiment sampling from the same charity recipient population as Study 5 ($N = 85$; see Study S3 in the online supplemental materials for a full report of all measures and analyses). In this supplemental study, homeless charity recipients rated and ranked the importance of their own needs, as well as of the typical recipient from this charity. Just like the donors, these charity recipients also demeaned the needs of other charity recipients, rating psychological needs as less important to the typical charity recipient ($M = 7.21$, $SD = 3.20$) than to themselves ($M = 7.92$, $SD = 2.76$), paired $t(84) = 2.35$, $p = .021$, $d = 0.26$. We observed no self/other difference in the presumed importance of middle-level or low-level physical needs, $ts < 1$. Even the homeless appear to demean the psychological needs of other homeless people.

At least by one measure, demeaning others' psychological needs seemed to reflect an inaccurate mistake. In Studies 5 and 6, charity donors and college students presumed psychological needs were more important to themselves than to homeless people. The reports of actual homeless people, however, indicated that the importance of their psychological needs was statistically indistinguishable from the importance of donors' and students' needs. A homeless person needs food and shelter, to be sure, but they also reported needing a sense of meaning and purpose in their lives just like almost everyone else.

Of course, considerably more research is needed to confirm the extent to which demeaning reflects a mistaken inference. Studies 5 and 6 measured people's reports of the importance of their own needs, and Study 6 measured nonincentivized choices. It is at least possible that other behavioral measures could suggest different levels of importance for physical and psychological needs than we observed. However, we believe that miscalibration is likely to be reliable given the mechanisms that guide interpersonal judgment where important psychological states are simply harder to recognize in others than physical states, and hence judgments of psychological states are likely to be inherently less accurate. Note that this systematic error would reflect a tendency to infer a more myopic set of needs in others than actually exists. A charity donor is correct to infer that a homeless person needs food, but they may be mistaken to infer that a homeless person does not have a wider set of psychological needs as well.

Considerably more research is also needed to hone the psychometric properties of the Needs Scale. Although the high-level psychological needs and the low-level physical needs consistently aligned in factor analyses as we had expected, the middle-level needs were more variable across experiments. In the Online Supplemental Materials, we suggest modifications to the Needs Scale that future researchers can explore, with the goal of refining this measure to enhance its construct validity.

Understanding Assessments of Needs

Our experiments provide a theoretical framework for better understanding how people perceive their own and others' needs, and hence their underlying motivations. Our current studies suggest some important moderators of demeaning based on the theoretical mechanisms that guide interpersonal judgment. First, although we observed subtle evidence for demeaning the psychological needs even of one's own peer group, demeaning is stronger when evaluating members of dehumanized groups who seem to lack psychological capacities of intellectual competence and interpersonal warmth based on our own and prior research (Fiske et al., 2007). More precisely, our experiments suggest a predictable range of demeaning from superhuman agents (e.g., God, whose needs are enhanced) to fully human agents (e.g., the self) to subhuman agents (e.g., chimpanzees, whose needs are most demeaned). Across this spectrum, the psychological needs of humanized groups (e.g., friends) are evaluated as more similar to the self's needs and the psychological needs of dehumanized groups (e.g., homeless people, drug addicts) are evaluated as more similar to animals' needs. The presumed importance of psychological needs for mixed-stereotype groups (e.g., children, elderly people) fall in the middle of this range. Based on our evidence, placement within this range is unlikely to be a result of only greater individ-

uation of certain groups or simple desirability biases. Instead, the observed pattern of evidence suggests that others' psychological needs are demeaned as a result of inferences made from others' behavior when otherwise lacking direct information about others' psychological experiences. For example, students in Study 3 were more likely to demean the needs of a person in their class with whose mind they were unfamiliar (a stranger in class) compared with someone with whose mental experience they were more familiar (a friend).

Second, we believe that some groups' needs are demeaned less than others' because their behavior is more clearly associated with the pursuit of psychological needs. Examples from the current studies include lawyers (who engage in mentally demanding work and may be seen as striving for justice), charity donors (who provide for others at a cost to themselves), and college students (who pursue purpose with a higher-education degree). In our studies, participants did not demean the psychological needs of the aforementioned groups compared with their own needs (even though the groups were not clearly individuated and would not necessarily be evaluated positively). In contrast, participants were more likely to demean groups characterized by behaviors associated with physiological needs like homeless people who are routinely observed begging for food.

Manifestations of Dehumanization

Our experimental results provide a theoretical advance by broadening the scientific understanding of dehumanization, and provide an empirical advance by offering a novel measurement tool for assessing the tendency to dehumanize others' motivations. There are currently four primary models of dehumanization: infrahumanization (Leyens et al., 2000, 2001, 2003, 2007; Paladino et al., 2002; Viki et al., 2006), stereotyping (Fiske et al., 2002, 2007; Harris & Fiske, 2006, 2011), the dual model of dehumanization (Bain, Vaes, Kashima, Haslam, & Guan, 2012; Haslam, 2006; Haslam et al., 2005; Park, Haslam, & Kashima, 2012), and mind perception (Gray et al., 2007; Waytz, Gray, Epley, & Wegner, 2010). Although these models differ in the exact metrics by which they define dehumanization, they are alike in conceptualizing dehumanization as the denial of mental traits or capacities to others. Specifically, the infrahumanization model measures amount of perceived secondary emotion, the stereotyping model measures perceptions of interpersonal warmth and intellectual competence, the dual model of dehumanization measures uniquely human and human nature traits, and the mind perception model measures agentic and experiential capacity.

These models therefore focus on evaluations of others' mental capacities or experiences, whereas we suggest that dehumanization may also arise in perceptions of others' motives. Conceptualizing dehumanization in terms of motives improves scientific understanding of dehumanization in at least four ways. For one, some scholars suggest that forming causal inferences about others based on their intentions and motives is more intuitive and automatic than forming trait-based impressions of them (Hastie & Pennington, 2000; Malle, 1999, 2004, 2006, 2008; Pennington & Hastie, 1993). When people are evaluating others' behavior, motive- or intention-based explanations of their behavior appear to come to mind more quickly and spontaneously than general traits or dispositions (Malle, 2006). If causal inference is the primary means

by which people make judgments and decisions (Hastie & Pennington, 2000; Pennington & Hastie, 1993), then inferences about another person's motives may be more common and therefore influential than secondary inferences about stable traits or dispositions. Indeed, it has been argued that personality models should be updated to include beliefs about needs (McAdams & Pals, 2006). Assessing inferences about the presumed importance of others' needs could therefore be a more ecologically valid way of conceptualizing dehumanization, and one that is more closely aligned with how dehumanization actually develops and influences behavior toward others.

Second, understanding how people demean others' needs adds theoretical clarity to some existing research findings, integrating what might otherwise seem to be disparate findings. For instance, in Study 2 we suggested that the Extrinsic Incentives Bias (Heath, 1999) reflects an example of demeaning others' needs, but that our proposed mechanism suggests a stronger self/other difference in perceptions of intrinsic motivations, as we observed. Similarly, we suggest that the "motive attribution asymmetry" (Waytz, Young, & Ginges, 2014), whereby partisans in conflict view their own side's actions as primarily motivated by love but the other side's actions as primarily motivated by hate, could also be a manifestation of demeaning to the extent that hate is perceived to be a more basic and animalistic motive than love. Future research will need to test whether these different effects all reflect a similar underlying mechanism and hence can be integrated into the same theoretical model, or if they reflect unique psychological processes.

Moreover, conceptualizing dehumanization in terms of motives elicits new research questions and predictions worth studying, and the Needs Scale provides a tool by which to study them. For example, in Study 1c, people enhanced the needs of a superhuman agent, God, by rating God's psychological needs as more important than physical needs. There may be other human groups or individuals that are seen as superhuman, such that they prioritize their psychological needs above biological needs (e.g., priests, scientists, Doctors without Borders, and so on). Assessing others' needs may also provide a new way to understand how people perceive controversial outgroups (e.g., those that seem dangerous but intelligent, like terrorists). Given our findings, seemingly innocuous beliefs about groups of people (like Maslow's belief that "in certain people, the level of aspiration is lowered") can now be recognized as demeaning. Casual instances of demeaning abound: the assessment of athletes as only focused on their bodies, the assessment of men as being driven primarily by sexual needs, and the assessment of migrants as constantly seeking shelter. Given the temporal nature of a person's needs, it is also possible that the extent to which someone is demeaned could depend on elements of their situation as well; a prisoner who has just left solitary confinement might be viewed as particularly animalistic compared with one who is well-fed.

Although we believe that demeaning yields novel insights into our understanding of dehumanization, we also examined convergence between assessments of needs and traits in our studies. There is a clear theoretical difference between perceptions of needs and traits, but these perceptions are likely to be highly correlated and difficult to differentiate from one another empirically. We used two methods to test for empirical alignment between our measure of demeaning and past measures of trait dehumanization. First, we tested people's perceptions of the needs of typically dehumanized groups. Second, we

also measured dehumanization using the dual model dehumanization scale (Haslam et al., 2005).

By comparing our measure of dehumanization with the duel model of dehumanization, we learned that assessments of psychological needs were more strongly predicted by assessments of uniquely human traits (those more closely aligned with cognitive capacities of rationality and thought) than by assessments of human nature traits (those more closely aligned with emotional experience). Similarly, Study 1 included two groups defined by different stereotype content: lawyers, who are perceived high in competence but low in warmth, and children, who are perceived as low in competence but high in warmth. Participants demeaned the psychological needs of children compared with one's own needs, but did not demean lawyers' needs. These finding suggests that the cognitive dimension of mind perception (e.g., agency and competence) may be more closely aligned with perceptions of psychological needs than the emotional dimension (e.g., experience and interpersonal warmth).

Implications of Demeaning

Misunderstanding others' needs may have important consequences for how people treat others. In Studies 5 and 6, we examined how assessments of others' needs affect how people choose to help others. Presumably many charitable donations are given to improve the recipient's life, but we observed a meaningful gap between recipients' preferred type of gift (i.e., cash or cash-equivalent) and type of gift donors actually give (i.e., food or clothing). Although this gap could derive in part from existing charitable giving norms or the relative ease of getting one type of gift rather than another (e.g., Kahneman & Miller, 1986; Steffel, Williams, & LeBoeuf, 2015), we suggest it might also derive from perceptions of others' needs. The belief that others have weaker psychological needs may result in a systematically different method of providing aid. This proposition aligns with recent data demonstrating that people prefer giving paternalistic aid toward others (e.g., selecting more paternalistic policies to guide others' behavior or choosing to donate preselected gifts instead of cash) but prefer receiving agentic aid for themselves (e.g., selecting more agentic policies to guide their own behavior or choosing to receive cash; Schroeder, Waytz, & Epley, 2017). This self/other difference in how people prefer to help is fully mediated by perceptions of one's own and others' mental capacities. That is, people believe they have more rationality and self-control than others, which is why paternalistic aid is perceived to be more effective for others than for oneself. Future work could more directly examine how assessments of needs can influence paternalistic behavior.

Misperceiving others' needs could also lead people to misincentivize others. This is especially important in managerial settings, where employers want to motivate their employees, but misincentivizing others could also arise in other domains such as parents wanting to motivate their children to study. Heath (1999) suggests that employers will provide too many extrinsic incentives to employees, but our findings suggest that people may instead provide *too few* intrinsic incentives. Maximizing motivation may therefore require fulfilling both physical and psychological needs, using a broader range of incentives that map more accurately to the broad range of needs that people are actually attempting to satisfy.

Both of these implications reflect a more basic consequence of demeaning: mispredicting others' reactions to incentives. Although our experiments examined a perceiver's ability to predict others'

self-reported need importance, future research is necessary to examine whether demeaning also leads to miscalibrated predictions about others' behavioral reactions to incentives. Our findings suggest that people might underestimate the motivating effect of high-level psychological incentives, such as esteem-enhancing rewards or creating a sense of meaning in one's work. Existing research suggests that seemingly small manipulations of meaning or purpose in otherwise trivial tasks can have a strong effect on worker motivation (Ariely, Kamenica, & Prelec, 2008), but this prior research did not measure expectations about the impact of meaning on motivation. Other research suggests that people may also overestimate the motivating power of self-interest, such as overestimating the impact that offering a financial incentive for donating blood would have on actual donation rates (Ratner & Miller, 2001). But this research did not identify the other motives guiding behavior that perceivers might be missing, so it remains to be seen whether those other factors might include psychological needs like relational connections or creating a sense of meaning or purpose. Future research could therefore compare the expected versus actual impact of different incentives on people's effort to assess whether demeaning leads people to underestimate the impact of psychological incentives on action.

Concluding Thought

The late Chicago journalist Studs Terkel (1974) spent three years interviewing Americans about their jobs in the early 1970s. Among the hundreds of interviews he published, a consistent theme emerged of people enjoying their work to the extent that it was meaningful and provided a sense of engagement, purpose, or social connection. Mike Lefevre, a steelworker, complained, "You can't take pride anymore [because] . . . you're mass-producing things and you never see the end result of it." To create a sense of impact, he admitted to occasionally denting steel he made. Carl Murray Bates, a stone mason, reported feeling pride from working in a centuries-old trade doing top-quality work that would leave a legacy by outlasting him. Elmer Ruiz, a gravedigger, described his job as "preparing people's final resting place," and noted that his job takes skill to make each grave look nice for the funeral. Summarizing his experience across all of the interviews, Terkel wrote, "I was constantly astonished by the extraordinary dreams of the ordinary people. No matter how bewildering the times, no matter how dissembling the official language, those we call ordinary are aware of a sense of personal worth—or more often a lack of it—in the work they do."

Our experimental results suggest that Terkel's reaction to learning about the sophisticated motives of his subjects could be common. Like the online commenters who described wasting resources on the feelings of homeless people at Dignity Village in Portland, Oregon, our participants in six experiments tended to assume that psychological needs were less important to others than they were to themselves. This tendency to demean others' needs seems to not only be dehumanizing, failing to attribute fundamental human motives to others, but also to be mistaken, underestimating the importance of psychological needs in others. Like other forms of dehumanization, demeaning others' needs can have negative consequences for targets even when acting with good intentions. Those who otherwise seem ordinary are likely, we believe, to have a richer and more sophisticated motivational life than most people presume.

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Appendix

Needs Scale

All living creatures have things that they need in life. Some are necessary for survival, others for happiness, and others for practical reasons. For example, all people and animals need to breathe oxygen. If you deprived a living creature of oxygen, he or she would die. Oxygen is therefore a fundamental need that is extremely important to all living creatures on the Earth.

But other needs are perhaps weaker, more important for some than others. For example, some people feel they need a lot of money and are very motivated to make more money, whereas money is less important for others and they are not very motivated to make more money.

Below is a list of things that some (or all) people or animals need. Some of these things on this list you may think are extremely important needs, whereas others are less important needs.

Consider [target]. How important do you think each thing on the list is for [target]?

1. Eating food (i.e., avoiding hunger)

2. Drinking (i.e., avoiding thirst)

3. Sleeping (i.e., avoiding exhaustion)

4. Feeling safe

5. Having routine in life

6. Having predictability in life

7. Feeling loved

8. Feeling like [the target] belong(s)

9. Getting affection from others

10. Feeling respected by others

11. Feeling adequate self-esteem

12. Achieving personal and professional goals

13. Living with a full sense of meaning and purpose in life

14. Feeling independent, being able to make choices freely

15. Realizing full potential in life

1	2	3	4	5	6	7
Not at all important			*Somewhat important*			*Very important*