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Dehumanization in Medicine: Causes, Solutions, and Functions

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Abstract

Dehumanization is endemic in medical practice. This article discusses the psychology of dehumanization resulting from inherent features of medical settings, the doctor–patient relationship, and the deployment of routine clinical practices. First, we identify six major causes of dehumanization in medical settings (deindividuating practices, impaired patient agency, dissimilarity, mechanization, empathy reduction, and moral disengagement). Next, we propose six fixes for these problems (individuation, agency reorientation, promoting similarity, personification and humanizing procedures, empathic balance and physician selection, and moral engagement). Finally, we discuss when dehumanization in medical practice is potentially functional and when it is not. Appreciating the multiple psychological causes of dehumanization in hospitals allows for a deeper understanding of how to diminish detrimental instances of dehumanization in the medical environment.

Keywords

medicine, dehumanization, empathy, health, policy

A patient retorts to her physician, “I’m not a diabetic; I’m a person who also just happens to have diabetes.” A nurse sits with her back to her patient and types on a computer while asking, “On a scale of one to five, rate your pain?” An African American man comes to the emergency room with signs of a heart attack but is less likely than a white patient with the same symptoms to receive a medication that will break down blood clots.

The essential ethical ideals of the medical profession involve acting in a patient’s best interests, treating patients as ends in themselves, maximizing patient autonomy in informed treatment decisions, and distributing medical benefits fairly (Beauchamp & Childress, 2001). Whether as scientists, physicians, or patients ourselves, we know that these ideals are often and routinely unmet. One way this happens is when subtle forms of dehumanization enter hospital life. Specifically, caregivers may treat patients less like persons, and more like objects or nonhuman animals—situations that physicians themselves often satirize in books about hospital life (e.g., Jauhar, 2009; Shem, 1980, 1997). Yet empathy is good for clinical outcomes (see Haslam, 2007, for a review), and patient-centered care produces positive health outcomes (Laine & Davidoff, 1996; Stewart et al., 2000). Patients find being treated like objects or nonhuman animals to be aversive, and physicians devote much time addressing how to treat patients more humanely (e.g., Kleinman, 1980, 1988; Spiro, Peschel, McCrea Curnen, & St. James, 1996; White, 2011).

Why does dehumanization in medicine happen? Rather than pointing fingers at individuals, we suggest that the

primary causes for these outcomes result from structural and organizational features of hospital life, as well as from functional psychological demands intrinsic to the medical profession. They are the by-products of common and otherwise effective medical practices and institutional situations that facilitate the dehumanization of patients. Recent advances in the psychological and brain sciences, as well as our own speculation, allow us to explain what dehumanization is and suggest why it happens so often in modern medicine.

Assuming that not all dehumanization is necessary in medicine, this approach can suggest recommendations for improving clinical practices and patient care. We propose ways to humanize patient care through the incorporation of a number of simple, cheap, and effective organizational measures. The effects of these measures must then be studied experimentally in clinical settings as psychologists and physicians work together on the understudied but pervasive phenomenon of dehumanization in medicine.

What Is Dehumanization?

Psychology and neuroscience have identified predictable causes, consequences, and neural mechanisms underlying dehumanization (Brandt & Reyna, 2011; Epley, Waytz, &

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Cacioppo, 2007; L. T. Harris & Fiske, 2006; Haslam, 2006). The essence of dehumanization is the denial of a distinctively human mind to another person. People typically think about a mind in terms of two dimensions: *experience* (the capacity to feel pleasure and pain), and *agency* (the capacity to plan, intend, and exert choice; Gray, Gray, & Wegner, 2007). Dehumanization involves stripping either or both of these dimensions of mind from persons. Denial of experience typically manifests in treating others like cold, unfeeling, machines, whereas denial of agency typically manifests in treating others like uncivilized, irrational animals (Haslam, 2006).

Various lines of research operationalize dehumanization in different ways. One program of research assesses *infrahumanization*, a type of dehumanization involving the denial of secondary emotions (e.g., nostalgia, humiliation) to others (e.g., Leyens et al., 2003). Notably, these are precisely the emotions that require higher order mental capacities such as self-reflection or retrospection. A second program of research measures dehumanization in terms of the denial of uniquely human traits (that involve logic, reason, and civility) or traits typical to human nature (that involve emotion and interpersonal warmth; Haslam, 2006; Haslam, Bain, Douge, Lee, & Bastian, 2005). These traits similarly require mental capacities for agency and experience. Neuroscientific research has operationalized dehumanization in terms of deactivation of the medial prefrontal cortex (MPFC)—a region distinctively involved in mentalizing—when evaluating another person (L. T. Harris & Fiske, 2006). Although these different conceptualizations of dehumanization vary in their specifics, the central feature of all accounts of dehumanization is a diminished attribution and consideration of others' mental states.

Given that the consideration of others' mental states is essential to empathy (Batson, 2009), some forms of dehumanization—in which people are treated as mechanistic entities (Haslam, 2006)—can also be equated with diminished empathy (see Halpern & Weinstein, 2004). In virtually all cases, dehumanization allows people to experience fewer moral concerns for their actions toward dehumanized others, and can justify acts that would otherwise be considered harmful (Bandura, 2002; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Bandura, Underwood, & Fromson, 1975).

Why Does Dehumanization Arise and Persist in Medicine?

Dehumanization in medicine does not necessarily result from malicious intent on the part of caretakers. Rather, unconscious, unintentional dehumanization of patients can occur as a by-product of the way humans' evolved minds interact with present widespread social practices and functional requirements in hospitals. In this article, we explore six possible causes of dehumanization in medicine, three of which have little inherent functionality (deindividuating practices, impaired patient agency, and dissimilarity) and three of which may stem from their inherent functionality in the medical environment for

problem solving (mechanization, empathy reduction, and moral disengagement). We will describe these causes and offer solutions for each cause. Finally, we will discuss the functionality and nonfunctionality of these causes.

Nonfunctional causes of dehumanization

Deindividuating practices. We first turn to nonfunctional causes of dehumanization. One major factor presumed to cause dehumanization is *deindividuation* (Kelman, 1976; Zimbardo, 1969) whereby an individual becomes immersed in a group or otherwise anonymized. Deindividuation causes dehumanization in two ways: through deindividuation of the person being perceived (the dehumanized), or through deindividuation of the perceiver (the dehumanizer). Deindividuation can lead people (i.e., perceivers) toward antisocial behavior (Zimbardo, 1969) such as interpersonal aggression (Prentice-Dunn & Rogers, 1980) through diminishing feelings of personal responsibility for these actions (Bandura et al., 1975). Similarly, deindividuation of the target being perceived licenses antisocial behavior toward this target (Jenni & Loewenstein, 1997; Turner, Layton, & Simons, 1975) because the target becomes less identifiable. As Kelman (1976) states, dehumanization involves denying a person "identity"—a perception of the person "as an individual, independent and distinguishable from others, capable of making choices" (p. 301). Although direct evidence linking deindividuation to dehumanization is scarce, deindividuation can foster circumstances for dehumanization.

Both deindividuation processes are endemic to the medical environment. The deindividuation of caregivers leads them to dehumanize, and the deindividuation of patients leads them to become dehumanized. Just as soldiers' matching uniforms in battle diminish feelings of personal culpability for action, caregivers in hospitals become anonymized amid a sea of white coats, which subtly diffuses their individual responsibility toward patients. Patients, meanwhile, can become subsumed into the mass of barely dressed entities seeking help, appearing as faceless bodies rather than individual agents requiring empathy. Such deindividuation may be amplified for members of racial or ethnic minorities because people often view such groups as outgroups, rendering them lower in perceived heterogeneity (Anthony, Copper, & Mullen, 1992; Ostrom & Sedikides, 1992). When doctors see patients as generic, hyper-deindividuated members of minority, this can produce disparities in care such as reduced use of thrombolysis for myocardial infarctions among racial minorities (Green et al., 2007; White, 2011). In addition, when doctors make decisions about groups of patients versus individual patients, they spend less time assessing problems and order fewer additional tests (Redelmeier & Tversky, 1990), again pointing to detrimental effects of patient deindividuation.

Impaired patient agency. A second cause of dehumanization is the perception of patients as impaired in agency. This cause

of dehumanization arises simply because settings such as hospitals are teeming with people whose capacities to plan, intend, and act (to be agents) are in fact impaired. In this way, patients' loss of agency is an intrinsic by-product of the circumstances that in the first instance most often necessitate visiting a hospital. Being incapacitated because of traumatic injury; infection; drug use; chronic pain; or other cardiac, respiratory, renal, endocrine, oncologic, vascular, immunological, or neurological malady by necessity produces a diminution in a patient's ability to plan, intend, or act. Thus, even if patients in fact lack these capacities, focusing on these inabilities may increase animalistic dehumanization (Haslam, 2006).

Dissimilarity. A related cause of dehumanization is physician–patient dissimilarity, which manifests in three primary ways. First is through dissimilarity in illness—patients, by their very nature of being ill, become less similar to one's prototypical concept of *human*. Second is the labeling of the patient as an illness, rather than as a person who has a particular illness. Third is through power asymmetries common to the physician–patient dyad.

Illness makes people simply appear less similar to the average, well-functioning human. Research has demonstrated that to the extent that a nonhuman entity resembles a human in appearance, form, or behavior, people humanize it; to the extent that a person does not resemble a human, people dehumanize that person (Epley et al., 2007). A significant body of research demonstrates that people are more likely to dehumanize others who appear different from them, such as extreme outgroup members (L. T. Harris & Fiske, 2006; Leyens et al., 2003) or the mentally ill (Martinez, Piff, Mendoza-Denton, & Hinshaw, 2011). Given that illnesses often alter appearance, behavior, and basic human functioning, patients are likely to be dehumanized.

Second, the effect of perceived dissimilarity on dehumanization is exacerbated when patients are labeled as their illnesses (see, e.g., Shem, 1980, 1997). Labeling a person as a “schizophrenic” rather than as “a person with schizophrenia,” for example, increases dehumanization because such labeling implies that the person has become the disease (Hall, 2002; Sass, 2007). Such labeling encourages perceptions of the patient as the disease itself rather than as a fundamentally human entity stricken by the disease.

Finally, dissimilarity in power between doctor and patient can have additional, specific effects on dehumanization. The doctor–patient relationship is typically a relationship between superior and subordinate. Patients visit physicians because of illness; illness is inherently a state in which one has lost some power and control over their lives (Kleinman, 1980, 1988). The control and power afforded to doctors in this relationship constitute a major determinant of dehumanization—mastery—which can then facilitate dehumanization of patients (Lammers & Gast, 2010; Lammers & Stapel, 2011). Because the desire for mastery leads people to attribute mental states to other agents, humanizing them to predict and understand their

actions (Dennett, 1987; Epley et al., 2007), once mastery is attained, the need to consider others' minds diminishes. The experience of power leads people to treat people as a means to an end rather than as ends in themselves (Gruenfeld, Inesi, Magee, & Galinsky, 2008). Experiencing power can also increase dehumanization directly (Lammers & Stapel, 2011). In one study, participants in a hypothetical medical context experienced either a high-power role (senior surgeon) or a low-power role (junior surgeon or nurse) and then decided treatment for and evaluated an ostensible patient. Participants in the senior surgeon role chose a more physically painful treatment option and described the patient in more dehumanized terms (e.g., cold, lacking in depth and sensitivity) than did participants in the low-power role. This study shows how power can facilitate dehumanization in the medical context. Given that power asymmetries are inherent between doctor and patient, dehumanization may emerge simply from the nature of this relationship.

Functional causes of dehumanization

Mechanization. Dehumanization in medicine also stems from factors intrinsic to the functional demands of the medical profession. One example is the diagnostic and therapeutic necessity of mechanization, thinking of patients as mechanical systems made up of interacting parts. Treatment of people as mechanical systems often results in a particular form of dehumanization—*objectification*—in which others are viewed as being incapable of emotional responsiveness or interpersonal warmth (Haslam, 2006).¹ Decomposing people into their parts can be useful in diagnosis and pathological localization because humans happen to be made up of parts that both interact and can operate separately (Kumar, Abbas, Fausto, & Aster, 2009). Some minimal level of dehumanization thus exists in clinical contexts because mechanization benefits these tasks. As a result, caretakers commonly refer to patients in depersonalized terms, using acronyms, the body part being operated on, or the name of their disease (Jauhar, 2009; Shem, 1980, 1997).

Mechanization also occurs because decomposing people and their symptoms into physiological systems and subsystems (from organ systems to organs to tissues to cells to molecules) is necessary for problem solving. Connecting pathophysiology to findings and symptoms often occurs at a level of abstraction that disregards patients' mental states. Medical problem solving often necessarily entails focusing on less than the whole human organism, disregarding a person's inner mental life. With all the measuring, palpating, listening for abnormal body sounds, percussing, injecting, and imaging of innards, doctors may treat patients like objects rather than a complete person with rich, subjective experiences.

A similar focus applies to medical treatments. Mechanization is apparent in any surgical or interventional setting: Puncturing the body's envelope requires a focused and transient reduction of a person to their less-than-well-functioning parts.

Pharmacological treatments require translating subjective symptoms and responses into the actions of cellular receptors, molecular agonists and antagonists, and biochemical feedback loops. Even personalized treatment in psychotherapy is no exception, as psychotherapeutic treatments must inevitably explain some subjective phenomena in terms of more abstract, impersonal principles in the service of therapeutic outcomes (Beitman & Good, 2006).

Empathy reduction. Failing to consider the patient as a fully social entity and treating them as mechanical systems with component parts likely is necessary for higher level medical problem solving. Recent research on the brain functioning of medical professionals sheds light on these matters. Specifically, two experiments have examined the neuroscientific basis of pain empathy in physicians versus nonphysicians (Cheng et al., 2007; Decety, Yang, & Cheng, 2010). Physicians who practice acupuncture (as well as matched nonphysician controls) underwent functional magnetic resonance imaging (fMRI) while watching videos of needles being inserted into another person's body parts, as well as videos of the same areas being touched by a cotton bud (Cheng et al., 2007). Physicians showed significantly less activation in brain areas involved in empathy for pain (anterior cingulate cortex, anterior insular cortex, periaqueductal gray) than did nonphysicians. In addition, physicians showed significantly greater activation in areas involved in executive control, self-regulation, and theory of mind (medial and dorsolateral prefrontal cortices and the temporoparietal junction). These findings suggest less empathy and greater cognitive regulation of an emotional response among the physicians.

This finding raised further questions about the nature of physicians' empathy. Perceiving pain in others typically involves two steps. First, people engage in emotional sharing of another person's pain and then cognitively reappraise this emotion (Decety, 2011; Fan & Han, 2008; Han, Fan, & Mao, 2008). Do physicians automatically feel empathy for the pain of others, but then quickly suppress it? Or is the cognitive suppression of empathy even deeper and more automatic? Is it possible that the physicians no longer even experience the regular first stage of empathy for pain? A follow-up study addressed these questions by examining the brain's event-related potentials (ERPs) to assess the stage of information processing at which physicians' emotional regulation occurs (Decety et al., 2010). When viewing the painful needle sticking, physicians did not even show the early response associated with emotional sharing in empathy. The physicians had apparently become so successful at empathy regulation that they did not have an empathic response requiring cognitive reappraisal.

Physicians' decreased empathy for pain has multiple causes that likely stem from medical training itself. For example, medical training encourages the regulation of negative emotional responses for the purposes of efficient problem solving. Specifically, by dampening pain empathy, one also dampens feelings of unpleasantness that arise from perceiving others'

pain. This process frees up cognitive resources for clinical problem solving because empathy and cognitive problem solving can constitute an inherent trade-off. Emerging research suggests that the neural networks involved in social cognition and nonsocial problem solving are anti-correlated (increases in one network necessitate decreases in the other; Fox et al., 2005; Whitfield-Gabrieli et al., 2009). In addition to neuroscientific evidence, behavioral and psychological evidence also suggest that there seems to be something intrinsic to the problem-solving demands of complex clinical tasks that diminishes empathy and increases dehumanization. The problem-solving benefit of dehumanization may be especially important when the pressure to deliver efficient and effective care is high. Humanizing patients can increase stress, and medical caregivers use dehumanization spontaneously as a method to cope with stress (Di Bernardo, Visintin, Dazzi, & Capozza, 2011).

The cognitive problem-solving benefits of dehumanization in clinical environments explain an otherwise paradoxical finding. During medical school, students report being the most empathic during the first 2 years of school, but report empathy declines as soon as significant patient contact occurs in the 3rd year of training, persisting for the final clinical year of school (Hojat et al., 2009). A systematic review of 18 longitudinal and cross-sectional studies on changes in empathy over time in medical students and residents demonstrated that empathy decreases as education and training increases, especially as training becomes clinical and requires more direct patient interaction (Neumann et al., 2011). This reduction of empathy likely directly contributes to increased dehumanization.

Moral disengagement. Countless medical procedures, such as administering foul-tasting medicine, proctology examinations, or open-heart surgery, necessarily involve inflicting pain. Thus, dehumanization likely also results from physicians' need to suspend themselves temporarily from their role in committing harm, a process related to empathy reduction. This sort of moral disengagement, "the disengagement of moral self-sanctions from inhumane conduct" (Bandura, 1999, p. 193), often serves either to justify past or prospective harm. Physicians consistently find themselves in both contexts, and the need to minimize the guilt of inflicting pain (even pain necessary for treatment) likely increases dehumanization. Dehumanization that involves viewing others as incapable of fully experiencing joy, pain, and desire makes it easier to hurt them without causing feelings of personal distress. Research has shown that people deliver more electric shock to others when those others are first dehumanized (Bandura et al., 1975) and that they dehumanize victims of violence perpetrated by one's ingroup as a means to justify violence (Castano & Giner-Sorolla, 2006). In a study of the criminal execution process, prison guards, inmate support staff members, and the actual executioners reported their attitudes regarding inmates and the execution process. The executioners (those directly involved in the killing of inmates) reported the most dehumanization

toward inmates, suggesting a need to justify harm through this form of moral disengagement (Osofsky, Bandura, & Zimbardo, 2005). Although physicians' daily procedures are far less cruel than execution, they likely could not operate effectively without minimizing the discomfort that accompanies inflicting pain on others.

Diminishing Dehumanization in Medicine

Knowing what causes dehumanization in clinical contexts suggests predictions on how to thwart its routine, psychological deployment. Here we review six strategies for medical practice: individuation, agency reorientation, promoting similarity, personification and humanizing procedures, empathic balance and physician selection, and moral engagement. Each strategy is intended to diminish dehumanization specifically resulting from one of the causes reviewed above, but some of these strategies will also apply to more than one cause.

Solutions to nonfunctional causes of dehumanization

Individuation. If deindividuation causes dehumanization, then individuation may decrease it. This can be done both by reversing medical practices that anonymize patients and physicians and by incorporating other practices that individuate and personalize doctors and patients. Individuation could decrease dehumanization through making patients more identifiable and through increasing feelings of personal responsibility among physicians. Of course, medical professionals typically must work in teams that require cohesion, but this cohesion need not diminish feelings of personal responsibility for caring for others.

Caregivers and patients are both deindividuated by wearing uniforms that index their distinct group membership, like captains versus cadets in the military or like soldiers in competing armies. White coat uniforms anonymize physicians, diminishing feelings of culpability for their actions. Rather than being subtly stripped of their individuality, caregivers could discard white coat uniforms in favor of their regular idiosyncratic yet professional clothing. In addition, divisive group-stereotypical hospital garb, such as homogeneous scrubs and gowns for physicians, could be provided in diverse colors and designs. Current dressing practices constitute sacred traditions, as in the "white coat ceremony" rite of passage for students in which that garb is first ritually donned and an ethical oath taken. The psychology of dehumanization suggests an irony: White coat traditions may serve to prevent medicine from being as humane as it could become.

Agency reorientation. To address the factor of impaired patient agency, medical environments can remind both doctors and patients of patient agency as a means of reorienting attention toward patients' capacity to plan and choose. Identifying and

recognizing patients' past or present professional lives is one possibility. However, even more specific tasks could be incorporated, such as giving patients responsibility for a plant or treating patients as active partners in clinical decision making. In an experiment in nursing homes, providing patients with these kinds of simple reminders of their agency predicted they would live significantly longer (Langer & Rodin, 1976). Physicians could also use these reminders to treat patients as capable of basic planning, decision making and choice, and agentic behavior.

Promoting similarity. Numerous methods of promoting doctor-patient similarity can diminish dissimilarity as a source of dehumanization. Promoting racial, ethnic, and gender diversity in physician populations to match patient demographics can establish a basic level of similarity. In 2009, the median physician salaries in the United States ranged from approximately \$198,000 (family medicine) to \$580,000 (orthopedic surgery; American Medical Group Association, 2009). In terms of ethnicity and race, African, Hispanic, Native, and Asian Americans were approximately 31% of the population as a whole in 2002, but only approximately 12% of the physician population (American Association of Medical Colleges, 2006). In terms of gender, women were only approximately 28% of all American physicians in 2006 (American Medical Association, 2008). In terms of class, physicians are among the highest earning professions and are significantly more wealthy than the average American. Establishing mere demographic similarity can diminish perceived intergroup boundaries—precisely the boundaries that enable dehumanization (L. T. Harris & Fiske, 2006; Leyens et al., 2003). Medical education and training should also incorporate practices that allow physicians to emphasize the common humanity they share with their patients, specifically their shared mortality; illness narratives; and vulnerability to disability, suffering, personal loss, and other forms of uncertainty (e.g., Bursztajn, Feinbloom, Hamm, & Brodsky, 1990; Kleinman, 1980). Finally, a more targeted strategy is for institutions to discourage labeling patients as their diseases and to instead emphasize the patient's humanity. These combined efforts can counteract the dehumanization resulting from the perception of patients as less prototypically human, labeling patients as illnesses, and asymmetries in power.

Solutions to functional causes of dehumanization

Personification and humanizing procedures. As noted, dehumanization in medicine can occur because of demands to think of patients as mechanical systems rather than as persons. This tendency can be diminished by altering the ways patients are identified in a more personifying manner. Personification is similar to individuation, but personification focuses on highlighting the personal characteristics that distinguish persons

from objects, whereas individuation focuses on distinguishing an individual from the mass of surrounding others.

In authoritarian social settings, people are often dehumanized by being primarily identified by a number. In the military, soldiers often wear dog tags that identify them in this way. Prison inmates and victims of concentration camps during World War II often had identification numbers tattooed onto their skin. When patients are identified for administrative purposes, rather than being referred to and identified primarily by their date of birth, Social Security number, or medical record number, physicians could use person-centric information to supplant numbered identifiers.

During hospital rounds, when physicians present and discuss patients for diagnosis and treatment, doctors and trainees could always begin by stating at least one informative sentence about the patient's personal history, such as including their name, hometown or city of birth, past or present job or profession (a reminder of agency), past or present hobbies, and past or present family life. This would require no extra work for medical teams, as such information is typically acquired already in the patient's social and family history. It is just that this information is soon ignored as care progresses. Personifying identification would serve to remind doctors of patients' human nature, thus inhibiting dehumanization.

During surgical procedures, an analogous ethical and practical rationale follows. Before a procedure starts, the patient's name and body part of concern is commonly announced. Simply adding a few sentences about the patient's life and the narrative of how they came to be on the operating table could dramatically humanize the event. This suggestion is especially important because although it is likely that the head surgeon has met with the patient in his or her office, the other members of the medical staff caring for the (often unconscious) patient will likely not have had any significant personal interactions with the patient, nor will they in the future.

Additional attempts at personification involve simply increasing the visibility of patients' faces as a reminder of their humanity. Outside of medicine, masking or hooding people is a common tactic to induce dehumanization, such as in the extreme and intentional case of the Abu Ghraib prison in Iraq (Danner, 2004; Zimbardo, 2007). To combat dehumanization, draping procedures during operations could aim not only for efficiency and efficacy, but also to keep a patient's hands and face as visible as possible. Drapes in medical contexts are almost always opaque. They could easily be replaced by transparent materials so patients could be visualized and thus personified. These suggestions may prevent medical errors, improve attention to detail, and reduce bruising and rough handling. This is especially true when devices are used in treatments, as these machines and objects easily multiply psychological distance and so the magnitude of dehumanization from other sources.

Empathic balance and physician selection. Doctors often have to sacrifice empathy for cognitive objectivity, especially

when solving complex clinical problems (Cheng et al., 2007; Decety et al., 2010). In addition, suppressing empathy may in fact assist physicians with higher level diagnostic and therapeutic problem solving. However, it is conventional wisdom among physicians and patients alike that physician empathy benefits patients (e.g., Spiro et al., 1996) and empirical evidence supports this (see Haslam, 2007, for a review). One study showed that physicians who score high on a psychometrically validated measure of beliefs in one's ability for empathy (Jefferson Scale of Physician Empathy; Hojat et al., 2001, 2002) produce better clinical outcomes for patients with diabetes, even after controlling for physicians' and patients' gender and age and patients' health insurance status (Hojat et al., 2011). Other correlational data show that reduced physician empathy is associated with greater odds of self-perceived medical error (West, Huschka, & Novotny, 2006) and that patients who perceive their physicians to be more empathic tend to be more adherent to treatments (Mercer, Reilly, & Watt, 2002). The job of any physician is thus likely part empathic and part cognitive problem solving. One must combine these capacities when deciding a proper diagnosis, prognosis, and treatment.

One way to promote an effective balance between empathy and cognitive problem solving would be to reorient medical education and training away from blanket prescriptions for or against either empathy or cold cognitive objectivity. Both empathy and cognitive problem solving should be recognized as important in certain contexts but also equally detrimental in others. Physicians should understand the inherent psychological limitations and benefits of both approaches and learn how to shift among these mindsets amid different kinds of patient care. For instance, a surgeon may need to be more empathic in her or his outpatient office, but must dampen empathy in the operating room; a psychiatrist may need to heighten empathy in long-term therapeutic contexts, but must dampen empathy during acute crises. In effectively balancing empathy with cognitive problem-solving skills, the aim for a physician will be to cultivate the practical wisdom to find the golden mean in different situations that optimizes overall care.

Promoting the effective balance of empathy and more cognitive skills among physicians relies not only on situational factors, but also through selecting individuals capable of devoting cognitive skills and social skills to their profession. Greater consideration of interpersonal skills among medical school applicants can help to identify these individuals. One possibility for measuring interpersonal skills is for medical schools to administer a psychologically valid empathy assessment during the application process. As Haslam (2007) notes, "Psychometric measures of empathy have been shown to predict real-world empathic behaviour, and should therefore be able to identify applicants who are especially likely to interact empathically with patients" (p. 382). Given the number of psychometrically validated measures of empathy that exist, these measures could be administered with little cost and great potential benefit. A complementary solution is for medical

schools to incorporate structured interviews that focus on applicants' interpersonal skills. Eight U.S. medical schools currently use this kind of additional evaluation process, called a Multiple Mini-Interview (MMI; G. Harris, 2011). The MMI focuses on evaluating abilities for establishing trust, emotional responsiveness, effective collaboration in teams, measured thinking, and responsiveness to disagreement. Performance on the MMI also predicts scores on later licensing exams that test doctors' decision making, patient interactions, and cultural competency (G. Harris, 2011).

Moral engagement. Finally, an additional solution to the dehumanization that results from moral disengagement is simply to decrease psychological distance between doctors and patients. This can be done through alterations in dressing practices for patients, which not only personify them, but also make them appear psychologically closer and more worthy of moral concern. Almost universally, patients in hospitals are dressed in gowns and smocks that barely cover private parts and humiliate and degrade in other ways (such as being covered with little pink flowers). In the Stanford Prison Experiment, forcing people to wear humiliating and degrading clothing, including actual hospital smocks and gowns, led others to brutalize them (Haney, Banks, & Zimbardo, 1973). Clothing that simplifies physical examinations need not also humiliate people who are at their most vulnerable and also allow observers to morally disengage from them.

The psychological and moral distance created by technology in medical settings also facilitates moral disengagement and consequent dehumanization. It is easier to click a button to perform an execution, or to drop a bomb on a village using an aerial drone, than it is to harm others through direct contact. This is because the perceived immorality of action is greater when it involves physical contact between people than when some agent or object intervenes and prevents contact (Cushman, Young, & Hauser, 2006; Hauser, Cushman, Young, Jin, & Mikhail, 2007). In the same way, much of the attention and care that doctors automatically provide in face-to-face medical interactions diminishes when technology is introduced to diagnosis and treatment. Physicians daily process dozens of images, slides, graphs, and other abstract representations of real human suffering. In addition, many physicians—such as pathologists and radiologists—work in dark, isolated rooms without ever touching a patient or looking them in the eyes. Including an image of a patient's face with all medical records, pathology and lab reports, and radiological images not only personifies the patient, but also lessens the ability of medical technology to amplify dehumanization.

The Functionality and Nonfunctionality of Dehumanization in Medicine

Certain forms of dehumanization in medicine occur because they are, to some degree, a part of delivering effective and efficient health care. One recent study measured how much

individuals from a diverse sample of health care workers humanized a terminally ill patient in terms of how much emotion they attributed to the patient (Vaes & Muratore, 2011). The degree to which participants humanized the patient predicted increased disillusionment with work, greater exhaustion, and decreased feelings of professional efficacy and work engagement. This pattern was especially true for individuals who experienced significant direct contact with patients. These findings suggest that dehumanization may be necessary for medical workers to cope with the stressful demands of interacting with patients constantly. However, beyond some adaptive demands in clinical medicine, many practices that produce nonfunctional dehumanization of patients may be completely unnecessary and so may thwart effective care.

How can we delineate between functional and nonfunctional dehumanization? One way is to turn to the causes of dehumanization in medicine and to ask whether they are intrinsic to the psychological necessities of effective medical care (functional dehumanization) or whether they are a result of other social practices that just happen to produce dehumanization (nonfunctional dehumanization). Understanding the psychology of dehumanization can help inform what these functional demands are in different medical contexts and when dehumanization is nonfunctional and hinders patients' overall well-being.

Functional dehumanization

Based on the causes of dehumanization we have discussed, some may be necessary for effective medical care when the dehumanization is transient and matched to direct clinical demands. Of the causes we discussed, we argue that mechanization, empathy reduction, and moral disengagement all constitute forms of functional dehumanization.

The need to think of patients not just as holistic persons but as mechanistic systems originates because it is a necessity given the actual modular nature of the human organism. In addition, clinical problem solving requires decomposing persons and their symptoms into physiological systems and subsystems, such as treatments that involve targeting specific biochemical pathways or puncturing the body's envelope and focusing narrowly on the cause of pathology.

Empathy reduction also appears to benefit problem solving as physicians must regulate negative emotions when hearing about painful, traumatic experiences or inflicting transient pain on patients in procedures so as to free up information processing for the functional task at hand (e.g., cardiopulmonary resuscitation, psychotherapy, surgery). This may explain why medical caregivers spontaneously dehumanize in high-stress clinical environments (Di Bernardo et al., 2011) and why empathy declines in medical students as they move from basic science to clinical training (Hojat et al., 2009; Neumann et al., 2011).

Ideally, physicians could simultaneously maximize empathy and cognitive problem solving in every clinical encounter. However, given that people have a finite capacity to engage in

these processes simultaneously (Fox et al., 2005; Whitfield-Gabrieli et al., 2009), empathizing and cognitive problem solving in clinical medicine likely will remain as two different, competing—but ultimately complementary—approaches. The trade-off between these two brain systems in clinical encounters, therefore, will remain in some sense functional.

Related to the regulation of empathy for clinical problem-solving purposes is the more specific functionality of transient moral disengagement when physicians inflict pain on a patient. This pain could be inflicted on a patient during history taking (including psychologically painful questioning), physical examinations, biopsies, procedures, or surgeries. Nonetheless, if self-limited, the dehumanization that arises from this moral disengagement can be functional because it allows the physician to minimize personal discomfort and guilt that may arise from inflicting harm and to focus on the larger aim of treating pathology and, if possible, returning patients to health.

Mechanization, empathy reduction, and moral disengagement all have functional aspects. To some degree, all three will likely continue to be a tenacious part of clinical medicine because of the way humans must think about other human bodies when trying to heal them. However, more research is necessary to understand whether dehumanization is absolutely necessary for delivering care, or merely expected for delivering care. Some forms of ostensibly functional dehumanization (such as those that increase psychological distance between doctors and patients) may in fact be worth altering. For instance, one study that examined the effects of adding a photograph of the patient's face onto radiological CT scans by randomly assigning some radiologists to examine the scans accompanied by the patient's face and some radiologists to examine the scans without a face attached. The radiologists who assessed the scans with patient faces gave more accurate diagnoses and fostered improved patient outcomes (Turner & Hadas-Halpern, 2008). With this intervention, radiologists wrote longer reports, reported more details, considered each CT scan in a more unique fashion, and expressed more empathy to patients. These results suggest benefits for effective patient care by reducing dehumanization even for physicians and health care workers (e.g., radiologists, pathologists, technicians) that do not directly and consistently interact with patients.

Nonfunctional dehumanization

The other causes of dehumanization in medicine are largely nonfunctional. Deindividuating practices, perceptions of impaired patient agency, and dissimilarity likely have no or little functionality in medicine and are not necessary for delivering effective medical care. They are not intrinsic to the psychological necessities of effective medical care and result from other social practices that just happen to produce dehumanization.

Current dressing practices that facilitate deindividuation, for example, have little utility in medical contexts. Similarly,

the loss of agency that results from illness need not necessarily lead doctors to treat patients as lacking will, determination, and basic capacities to plan and choose. There is no theoretical rationale by which this conceptualization benefits patients. To the contrary, reminding patients of their agency can increase health and longevity (Langer & Rodin, 1976). Dissimilarities between patients and physicians are also rarely useful, and despite differences in status and expertise, there are well-known benefits to allowing patients involvement in their care (Greenfield, Kaplan, & Ware, 1985).

One final note of caution in discussing functionality is that it is also possible for forms of functional dehumanization to have negative effects. Outside of delimited contexts in which they are functional, mechanization, empathy reduction, and moral disengagement could have destructive consequences. Mechanization or suppressing empathy unnecessarily could produce feelings of alienation, misunderstanding, mistrust, and suspicion in patients and would likely invalidate any productive clinical offerings made possible by transient dehumanization. Moral disengagement can license future, unnecessary harm to patients or allow physicians to increase the chance that they will suggest unnecessary procedures for personal monetary reimbursement (e.g., Carreyrou & McGinty, 2011). The sources of functional dehumanization in clinical medicine should thus be viewed as similar to potent drugs that can have disastrous side effects when not used precisely as specified: They are dangerous but salutary resources that should be used with caution and only in small doses and specific contexts.

Future Directions

This article attempts to clarify causes of dehumanization of patients in medicine, ways in which to diminish it, and criteria for determining whether various causes are functional or non-functional in terms of maximizing long-term patient health. However, very little empirical research exists on the causes, functions, and effects of dehumanization in medicine. All postulated effects that we have discussed should be studied experimentally in real—or at least simulated—clinical settings, as psychologists and physicians work together. All alterations in practices should be considered in light of any trade-offs that they do create. This theoretically motivated analysis can therefore help to guide suggestions for crucial areas and questions for future research on causes, solutions, and functions of dehumanization in medicine.

First, there is a need for research that investigates directly whether the causes outlined here indeed produce greater dehumanization of patients. For example, asymmetries in power between doctor and patient are evident, yet no research has linked this power asymmetry directly to increased dehumanization. It will also be important to test experimentally whether specific practices produce unique kinds of dehumanization in medicine. For instance, does patient–physician dissimilarity produce an animalistic kind of dehumanization and not the

mechanistic form of dehumanization? Second, research can determine whether the fixes we suggested do in fact diminish dehumanization in clinical contexts, and whether they have functional benefits and positive interpersonal consequences for patient care.

Finally, and perhaps most critically, research needs to determine which of the factors that cause dehumanization are functional and which are not. By examining outcome measures such as accuracy in diagnosis, quality of documentation in doctors' medical notes, patient-reported satisfaction, and patient adherence to treatment can determine whether factors such as mechanization and moral disengagement do in fact improve care. Similarly, by assessing these outcomes, researchers can determine whether factors such as deindividuation and diagnostic labeling are indeed nonfunctional. Furthermore, research can determine the precise circumstances that optimize the effects of these factors. Factors such as moral disengagement are likely far less beneficial when applied outside of their functional context or for longer durations than necessary. This article, as well as the present empirical literature, focuses on the dehumanization of patients, but it is also important to understand whether physicians themselves are dehumanized (e.g., as we suggest, via deindividuation) and, if so, what effects this process has on physicians and patients. Finally, researchers can examine these factors across personal and social contexts to determine how the predicted effects of these factors vary across national cultures, individual differences, medical specializations, types of training programs and practice settings (surgical vs. inpatient vs. outpatient), and the type of health care practitioner involved (e.g., doctors vs. physician assistants or nurses or technicians). This article provides a novel framework for examining each of these important issues, with the hope and expectation that psychology and neuroscience can be used to inform and optimize medical practice.

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Note

1. This usage of objectification—treating a person as an unfeeling, mechanical object—differs from the usage of objectification in the psychology of gender, in which the term refers to treating a person as a means to the sexual ends of another (see Bartky, 1990; Fredrickson & Roberts, 1997).

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