

## DEHUMANIZATION IN MEDICAL CONTEXTS: AN EXPANDING RESEARCH FIELD

DORA CAPOZZA  
ROSSELLA FALVO  
JESSICA BOIN  
DAIANA COLLEDANI  
UNIVERSITY OF PADOVA

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In this contribution, we review the studies which have investigated humanity attributions in medical contexts. They evidence patient inhumanization effects; healthcare professionals working in hospitals perceive patients as less characterized than physicians and nurses by the unique features of human species. It has also been found that the attribution of a lower human status to patients is associated with lower perceptions of stress and burnout. In addition, patient dehumanization may facilitate clinical problem solving. We support the position that patient dehumanization is a dysfunctional strategy to cope with stress; stress can be limited in other ways, for instance by taking appropriate organizational measures. Concerning clinical problem solving, physicians should find a balance between sharing patients' emotions and performing clinical tasks. Future research should investigate whether healthcare providers' dehumanizing perceptions affect patients' self-evaluations, patients' satisfaction with care, and their adherence to medical treatments.

Key words: Patient inhumanization; Patient dehumanization; Functional causes of patient dehumanization; Patient dehumanization and reduced stress; Patient dehumanization and clinical problem solving.

*Correspondence concerning this article should be addressed to Dora Capozza, Department FISPPA – Section of Applied Psychology, University of Padova, Via Venezia 14, 35131 PADOVA (PD), Italy. Email: dora.capozza@unipd.it*

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In medical contexts — hospitals, nursing or retirement homes — we sometimes observe behaviors which offend the patients' dignity, for instance: nurses using baby talk when speaking to elders (O'Connor & Rigby, 1996); nurses enacting various forms of aggressive behavior when interacting with mentally ill patients; healthcare professionals reserving a different treatment to patients belonging to their own or another racial/ethnic group. We believe that one cause of these degrading, aggressive, and discriminatory behaviors is the unconscious attribution of a lower human status to patients.

Dehumanization of persons and groups has become a burgeoning area of research in social psychology, as it appears from the many reviews on this subject (see Haslam & Loughnan, 2014; Haslam & Stratemeyer, 2016; Leyens, Demoulin, Vaes, Gaunt, & Paladino, 2007; Vaes, Leyens, Paladino, & Miranda, 2012). However, although research has investigated a wide array of issues, such as the factors contributing to dehumanization and its consequences and implications, little has been done in the area of medical interactions (see Leyens, 2014).

In the current contribution we will analyze the causes and functions of patient dehumanization, following Haque and Waytz' (2012) approach. We will then review recent research regarding patient dehumanization functions and the usefulness of suppressing empathy when solv-

ing clinical problems. We will finally evaluate whether outgroup dehumanization can be an influential factor when healthcare professionals reserve a differential treatment to ingroup and outgroup patients (see research on racial disparities in medicine; e.g., Penner et al., 2012, 2014). We start our analysis with a short review of the theoretical perspectives adopted and studies performed in the dehumanization research field.

#### INFRAHUMANIZATION AND DEHUMANIZATION OF PERSONS AND GROUPS

At the beginning of this century, Leyens and colleagues (2001) launched a research program to explore whether outgroup dehumanization can influence daily experience and behavior. To assess humanity attributions, this research group used secondary (e.g., pride and shame) and primary (e.g., joy and rage) emotions. The former, implying complex cognitive processes, are evaluated as uniquely human, while the latter, being more immediate, are evaluated as common to humans and animals (Demoulin et al., 2004). Leyens and colleagues (2007) consistently observed that people assign a greater number of secondary emotions to the ingroup than to the outgroup; conversely, the two groups are not differentiated on the non-uniquely human dimension. Leyens and colleagues named this bias *infrahumanization* because a lower human status is ascribed to the outgroup.

Infrahumanization is a robust effect which involves a large variety of cases: national and ethnic groups, stigmatized groups, gender groups. Infrahumanization is not only observed when emotions are at play. It is also observed when groups are compared in terms of uniquely human (e.g., morality, rationality) and non-uniquely human (e.g., impulsiveness, instinct) traits (see, e.g., Capozza, Trifiletti, Vezzali, & Favara, 2013; Costello & Hodson, 2010; Falvo, Capozza, Di Bernardo, & Pagani, 2015).

In a later theoretical approach, Haslam (2006; Haslam & Loughnan, 2014) proposed the distinction between human uniqueness and human nature, the latter including characteristics like warmth, curiosity, and emotional responsiveness. The denial of human uniqueness (e.g., refinement, moral sensibility, maturity) leads to *animalistic dehumanization*, while the denial of human nature leads to *mechanistic dehumanization* in which people and groups are perceived as inanimate objects. Research has confirmed this theoretical distinction. It has been noticed that groups can be assimilated to animals (see, e.g., Boccato, Capozza, Falvo, & Durante, 2008; Goff, Eberhardt, Williams, & Jackson, 2008; Kteily, Bruneau, Waytz, & Cotterill, 2015). Sometimes they are represented as objects or machines (see, e.g., Andrighetto, Baldissarri, Lattanzio, Loughnan, & Volpato, 2014; Loughnan, Haslam, & Kashima, 2009). Interestingly, in recent neuroimaging studies, Jack, Dawson, and Norr (2013) provided a neural basis for Haslam's distinction between animalistic and mechanistic dehumanization.

The negative consequences of infrahumanization and dehumanization have been widely investigated. It has been found that infrahumanization may be associated with avoidance responses (Capozza, Di Bernardo, Falvo, Vianello, & Calò, 2016), aggression (Greitemeyer & McLatchie, 2011; Kteily et al., 2015), and violence (Viki, Osgood, & Phillips, 2013). Infrahumanization may curb helping behaviors (Cuddy, Rock, & Norton, 2007) and may be used to justify harmful actions committed by the ingroup against the outgroup (Castano & Giner-Sorolla, 2006). In the USA, the implicit Black/ape association leads to the perception of Black juveniles

as older than White juveniles, thereby increasing the proclivity to use violence against young Black suspects (Goff, Jackson, Di Leone, Culotta, & DiTomasso, 2014). (For a recent review of studies regarding the negative consequences of dehumanization, see Haslam & Stratemeyer, 2016.)

The dehumanization concept is also crucial in theory of mind research (see Gray, Gray, & Wegner, 2007; Waytz & Schroeder, 2014; Waytz, Schroeder, & Epley, 2014). In an influential study, Gray et al. discovered that mind attributions are formulated according to two basic dimensions: one is *experience*, clustering capacities like feeling emotions (e.g., pain and pride) and having consciousness; the other is *agency*, including qualities like rationality and self-control. The concept of experience parallels that of human nature (Haslam, 2006); agency corresponds, in contrast, to human uniqueness, only including uniquely human properties (for a comparison between the two theories, see Li, Leidner, & Castano, 2014). In the “theory of mind” approach, dehumanization coincides with dementalization: individuals or groups are denied the capacities of feeling emotions and planning goal-directed actions (Waytz & Schroeder, 2014). Outgroup dementalization has been observed by using magnetic resonance imaging (fMRI): the brain areas necessary for inference of mental states resulted not activated when people reasoned about non-warm and non-competent groups, such as the homeless and drug addicts (Harris & Fiske, 2006).

The two mind dimensions are correlated with morality evaluations. Gray et al. (2007; see also Gray, Waytz, & Young, 2012) observed that people with agency capacities are perceived as moral agents, responsible for their actions, while people characterized by experience (emotional responsiveness) are perceived as moral patients, that is, individuals having the right of being treated morally. In medical contexts, if experience is denied to patients, their needs are overlooked with negative consequences for their health.

## DEHUMANIZATION IN MEDICAL CONTEXTS

### Functional and Nonfunctional Causes of Dehumanization

Haque and Waytz (2012) outlined nonfunctional and functional causes for patient dehumanization. As we will see, in the case of functional causes, dehumanization is used by healthcare professionals to facilitate patient care and clinical problem solving.

Nonfunctional causes of dehumanization in hospitals are: deindividuating practices, impaired patients’ agency, and perceived dissimilarities between caregivers and patients. Deindividuation (the patient is perceived as lost in a group and anonymized) derives from the fact that, in hospital wards, patients are dressed in a similar and impersonal way (they wear unisex tunics in some countries, and similar nightdresses or pajamas, in other countries, like Italy). This institutional practice, which leads to assimilation, inhibits the search for idiosyncratic traits, thus curbing the discovery of specific uniquely human or human nature traits in individual patients. In the context of theory of mind, deindividuation should lead to dementalization, namely to the perception of patients as less characterized by agency and experience than non-hospitalized people or healthcare professionals.

Another nonfunctional cause of dehumanization is impaired agency. In the hospital environment, patients are objectively incapacitated for different reasons: diseases or surgical operations at the locomotive system; neurological or mental disorders; debilitating oncological treat-

ments; respiratory and cardiovascular pathologies. Patients are more dependent on others than healthy people; some may have lost some mental capacities. The common attribute of lower autonomy may induce the perception that patients are less characterized than healthy people by uniquely human (agency) traits, such as self-control and the capacity to plan one's actions.

The third nonfunctional cause of dehumanization is the dissimilarity that healthcare professionals perceive between their category and that of patients. The two groups are seen as dissimilar because, compared to patients, healthcare professionals represent better the prototype of the human category, which includes the concept of a well-functioning entity. A further source of perceived dissimilarity is disparity in power: healthcare professionals (especially physicians) have control over patients' health and life. (For the relationship between similarity/dissimilarity perceptions and humanity attributions, see McDonald et al., 2015.)

As regards asymmetry in power, research has noted that, compared to lower-power individuals, higher-power individuals feel more distant from others, experience fewer socially engaging emotions (e.g., compassion), and have less interest in other people's mental states (Waytz & Schroeder, 2014, p. 261). Among physicians, these disengaging attitudes could be associated with the attribution of less mind to patients than to caregivers or healthy people (for a study showing the effects of power in medical settings, see Lammers & Stapel, 2011).

To the above nonfunctional causes, we add a further one, related to the perceptual processes involved in normal face encoding. Research has highlighted that human faces — but not objects and non-human faces (Tanaka & Gauthier, 1997) — are processed configurally, that is, integrating the individual components in a unified gestalt (Maurer, Le Grand, & Mondloch, 2002). Linking this finding to humanity attributions and using the lexical decision task, Hugenberg et al. (2016) observed that persons' inverted faces activated the humanity concept less than the corresponding upright faces. In addition, these authors found that inverted faces were perceived as less characterized by human traits — uniquely human and human nature traits — than upright faces (for the use of the face inversion technique in investigating configural processes, see Yin, 1969). We suggest that configural face processing can be a cause of patients' dehumanization. This may happen in some surgical procedures (e.g., eye surgery), where surgeons, during the intervention, perceive the patient's face inverted, thus missing the gestalt of human face.

Thus, dehumanization can occur for reasons different from caregivers' motivation to solve work problems. However, Haque and Waytz (2012) also identified functional causes of patient dehumanization. One is related to clinical problem solving: treating patients as mechanical systems and focusing on one body part, without considering the whole organism and patient's mental states, may favor diagnosis and pathological localization. Mechanization (objectification) may facilitate clinical problem solving.

Also reduced empathy may favor the solution of clinical problems. In some neuroscientific studies (see Cheng et al., 2007; Decety, Yang, & Cheng, 2010), physicians practicing acupuncture and non-physician controls were examined using fMRI. Inside the scanner, participants watched on a screen videos of needles inserted into a person's body. Brain areas involved in empathy for pain were more active in non-physicians than in physicians, who, in contrast, showed a stronger activation in brain areas involved in cognitive regulation of the emotional response. It is likely that physicians attenuate empathy for pain in order to have cognitive resources which may favor the performance of clinical tasks (Haque & Waytz, 2012). It is worth noting that reduced empathy and lower humanization are related phenomena as shown by research in the field of in-

tergroup relationships (see Capozza, Falvo, Favara, & Trifiletti, 2013; Capozza, Trifiletti, et al., 2013; Čehajić, Brown, & González, 2009).

Patient dehumanization may also allow physicians and nurses to attenuate the stress which derives from perceiving patients' physical and psychological pain. If less stressed, healthcare professionals can provide more effective care to patients. Dehumanization can finally serve the function of diminishing the feelings of guilt that arise from inflicting pain on others (see the moral disengagement construct; Bandura, 1999).

### Evidence for Patient Dehumanization and its Functional Causes

In the context of the new approaches to dehumanization (Haslam, 2006; Leyens et al., 2007; Waytz & Schroeder, 2014), only few researchers have investigated humanity attributions in medical settings. But, is it true that patients are assigned a lower human status by healthcare professionals?

In a study, carried out by Capozza, Visintin, Falvo, and Testoni (2015), oncological physicians and nurses evaluated their own professional group and that of oncological patients on uniquely human (e.g., rationality, intellectual abilities) and non-uniquely human (e.g., impulse, instinct) traits. The two sets of traits did not differ for valence, as showed in pilot studies (see Capozza, Trifiletti, et al., 2013). Findings evidenced infrahumanization effects: both physicians and nurses perceived the ingroup as more characterized by uniquely human traits than the outgroup. In addition, while the ingroup was perceived as more characterized by uniquely human than non-uniquely human traits, non-uniquely human traits prevailed in outgroup evaluation. Thus, patients were assigned a lower human status compared to nurses and physicians, and were perceived as closer to the attributes humans share with animals than to the distinctive features of the human species. In this study, authors also assessed human nature traits and found that both positive (e.g., warmth, curiosity) and negative (e.g., impatience) human nature characteristics were assigned to patients. Thus, oncological patients are perceived as less human than healthcare professionals. The attribution of human nature characteristics excludes a mechanistic form of dehumanization.

Findings relative to oncological patients were replicated in a study (Trifiletti, Di Bernardo, Falvo, & Capozza, 2014), in which patients, suffering from other diseases, were hospitalized in various wards, such as cardiology, hemodialysis, gynecology, and surgery (participants were nurses). Thus, the ascription of a lower human status to patients than healthcare professionals seems to be a general phenomenon, not limited to oncological patients.

The representation of sick persons as more characterized by non-uniquely than uniquely human traits, at the same time presenting some typical traits of human nature, also regards mental patients (see Capozza & Di Bernardo, 2016; participants were university students). An exception to this general pattern is represented by patients in a persistent vegetative state who are denied all kinds of human attributes: reasoning and morality; impulse and instinct; emotionality and relational capacities (Capozza & Di Bernardo, 2016; for the denial of mind to patients in a persistent vegetative state, see Gray, Knickman, & Wegner, 2011).

But, what are the reasons for ascribing patients a lower human status? As we mentioned, Haque and Waytz (2012) singled out some dehumanization functions, and consistent evidence

has been provided for the function of reducing caregivers' stress. In a study by Vaes and Muratore (2013), participants — healthcare professionals (nurses, physicians, psychologists, and assistants) working in oncological centers — were presented with a fictitious clinical case: a woman diagnosed with terminal stomach cancer. Participants were asked to infer the patient's emotional reactions to her condition. Findings showed that the more uniquely human emotions participants inferred, the higher their feelings of burnout were, especially in the case of workers with more frequent contact with patients. More interestingly, the expectation of non-uniquely human emotions was positively related to higher work engagement and perceived professional efficacy. The latter outcome indicates that patient dehumanization can lead healthcare professionals to feel more energetic and competent, with the consequence of providing better care to patients.

Similar results were reported in the above-mentioned study (Trifiletti et al., 2014) performed with nurses working in different wards of a hospital. Participants judged patients on uniquely human and non-uniquely human traits. Findings showed that the attribution of uniquely human traits to patients was related to higher levels of stress (self-reported), while the attribution of non-uniquely human traits was related to lower levels of stress. In addition, Trifiletti et al. noticed that these main effects were moderated by affective organizational commitment (e.g., Meyer & Maltin, 2010). Probably, nurses who are committed to the organization (hospital) are more involved in finding strategies which allow them to cope with stress and to provide efficient care to patients.

Another moderator of the relationship between patient dehumanization and lower self-reported stress is the individual capacity to read other people's mental states, measured using the RMET (Reading the Mind in the Eyes Test; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001; see also Vellante et al., 2013). This test includes 36 trials; in each trial the image of an actor's eyes is shown: participants are instructed to specify which of four emotional terms (e.g., panicked, incredulous, despondent, interested) best matches the actor's emotional states. Only one choice is correct. Higher scores indicate the capacity to read complex emotions and advanced mental states (Mitchell & Phillips, 2015). In a study (Falvo & Capozza, 2016), in which participants (nurses) worked in different wards of a hospital, the RMET was applied. Uniquely human and non-uniquely human traits were used to assess humanity attributions to patients. Findings showed that the ascription of non-uniquely human traits to patients was related to weaker burnout for participants with a lower capacity to read other people's mind; it was related to stronger burnout for participants with higher levels of this skill. Thus, the strategy of coping with stress by assigning patients a lower human status is used by caregivers who are less able to grasp other people's complex emotions and elaborate thoughts (for the use of dehumanization as a strategy to avoid the affective costs of helping, see Cameron, Harris, & Payne, 2016).

Thus, empirical data support the relationship between evaluation of patients as not fully human and weaker perceptions of stress. But, is patient dehumanization a truly adaptive way to cope with stress?

### Is Patient Dehumanization an Adaptive Way to Cope with Stress?

Research on racially discordant medical interactions (in which the physician is non-Black and patient is Black) has highlighted that physicians' implicit racial bias plays a more critical role than physicians' explicit bias in determining Black patients' reports of mistrust in physicians and

dissatisfaction with care (see Blair et al., 2013; Cooper et al., 2012; Penner et al., 2010). It has also been found that implicit attitudes and beliefs are manifested not in verbal but rather in non-verbal (e.g., interaction distance, eye contact) and paraverbal (e.g., speed and tone of speech) behaviors, which may convey rejection and prejudice to patients. For instance, in racially discordant medical interactions, physicians with higher implicit bias show more verbal dominance than physicians with lower implicit bias (i.e., they talk more than their patients). Verbal dominance is associated with implicit, but not explicit, racial bias (Hagiwara et al., 2013).

We may apply these findings to patient dehumanization. The attribution of a lower human status to patients is a largely unconscious effect, assessed through subtle measures. At an explicit level, healthcare providers probably think that patients are fully human beings. However, as is the case in racial bias in racially discordant medical interactions, implicit but not explicit beliefs affect patients' trust and satisfaction with care. Thus, the higher caregivers' dehumanizing perceptions are, the worse patient/caregiver communication should be, with negative effects on the extent to which patients follow medical recommendations. Using dehumanization to reduce stress may have beneficial effects on caregivers' well-being, but not on their relationships with patients and patients' physical and psychological well-being. As noted by Christoff (2014), patient dehumanization is a dysfunctional way of coping with stress; organizational measures should be taken, such as reduced workloads and stronger organizational support.

Healthcare providers' dehumanizing perceptions may also induce negative self-evaluations in patients. Bastian and Haslam (2011), working with students, found that subtle denials of uniquely human characteristics by others are related to negative self-evaluations (aversive self-awareness) and feelings of shame and guilt. In medical contexts, patients' negative self-evaluations, resulting from the denial of uniquely human traits, could be associated with a *low commitment* in following medical prescriptions. Future research should investigate the link between denial of human uniqueness by healthcare providers, patients' self-evaluation, and patients' commitment in following the planned care. As regards the subtle denial of human nature characteristics by others (mechanistic dehumanization) — that we did not observe in our studies —, it is associated with numbing and diminished clarity of thought, that is, with a cognitive impairment which should make patients *less capable* of following medical recommendations.

Thus, patient dehumanization may be a dysfunctional strategy to cope with stress. We now turn to the patient dehumanization function of favoring diagnosis and pathological localization (Haque & Waytz, 2012).

### Does Patient Dehumanization Favor Clinical Problem Solving?

As mentioned above, Jack, Dawson, and Norr (2013) provided a neural basis for Haslam's (2006) distinction between animalistic and mechanistic dehumanization (using functional magnetic resonance). In one study (Study 1), participants (volunteers recruited from a U.S. University and the surrounding area) were presented with sets of stimuli, which consisted of a static image combined with an audio voiceover narration. The participants' task was to indicate for each stimulus if the image made them feel good or bad (a 4-step scale was used). In the uniquely human condition, single or multiple individuals were shown, and narrations emphasized the uniquely human characteristics (e.g., rationality, culture) of the people portrayed. In the human

nature condition, single persons, multiple persons, and social interactions were shown, and narrations emphasized their human nature (e.g., warmth, depth of character). In the animalistic dehumanization, persons and interactions were featured as instinctive and irrational. Finally, in the fourth condition (mechanistic dehumanization), targets were described as rigid, cold, and impersonal. However, in this condition, three out of the nine stimuli were diagrams representing: a biological depiction of the human heart, a neuroscientific depiction of the human brain activity, and a psychological depiction of an attentional phenomenon. During the presentation of these stimuli, the voiceover elaborated a scientific analysis of the human nature.

Findings showed that the two humanizing conditions strongly activated the default mode network (DMN) and deactivated the task positive network (TPN). The former is a set of cortical regions, which are activated when people reason about others' mental states; the TPN, in contrast, is a set of regions which are activated when people think about mechanical, nonsocial processes. It has been shown that the two networks tend to be negatively correlated, that is, social reasoning tasks activate the DMN and deactivate the TPN, while mechanical (nonsocial) reasoning tasks activate the TPN and deactivate the DMN (see Jack, Dawson, Begany, et al., 2013). Thus, when physicians assign their patients a fully human status and try to capture their thoughts and feelings, they can hardly develop diagnoses or plan treatments. But, is mechanistic dehumanization actually useful in medical problem solving?

In the mechanistic dehumanizing condition (Jack, Dawson, & Norr, 2013), findings were different, according to the type of stimuli used: people described as rigid and cold (objectified), or scientific depictions of human physical or psychological functioning. Objectified individuals deactivated both the social reasoning and the mechanical reasoning brain areas; in contrast, scientific depictions deactivated the social reasoning areas and activated those of mechanical reasoning.

From these data two inferences can be drawn for medical interactions. First, patients' objectification — the fact of perceiving patients as mechanical entities, devoid of warmth and emotional responsiveness — does not help in clinical problem solving. Second, when physicians are involved in examining the reports of a CAT (Computerized Axial Tomography) scan or in performing a laser or surgical procedure, they cannot think about patients' mental states; these clinical tasks, in fact, activate the mechanical reasoning areas and deactivate those of social reasoning. Physicians could follow a strategy to maintain a good communication with patients who, during the above-mentioned interventions, may have the perception of being dehumanized. They could warn patients that, when physicians are involved in solving complex medical problems, they — necessarily, but temporarily — have to turn their attention from the patients to the problem to be solved.

Interestingly, persons and interactions in the animalistic condition, described as instinctive and irrational, activated both the areas of social reasoning — except for the medial parietal cortex, which was only activated by the humanizing conditions — and the areas of mechanical reasoning. This finding probably means that, when animalistic dehumanization prevails, healthcare professionals both assign patients some limited psychological mental states and are able to perform non-complex medical tasks.

Future research should replicate Jack, Dawson, and Norr's (2013) findings, because of their relevance for medical contexts. On the whole, they evidence that healthcare professionals cannot be, at the same time, involved in complex medical problem solving and empathetic with patients, despite the fact that physicians' empathetic (humanizing) attitudes have beneficial effects on patients' outcomes in clinical practice.

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## The Impact of Empathy in Medical Settings

Empathy includes distinguishable facets, which are: the capacity to become aroused by others' emotions; the awareness of others' emotional states; the motivation to care for others' well-being; and, finally, the capacity to imagine what another person is thinking and feeling (Decety & Fotopoulou, 2015; Decety & Svetlova, 2012). Regarding humanity perceptions, as we noted, research has consistently shown that empathy is associated with outgroup humanization (see Capozza, Falvo, et al., 2013; Capozza, Trifiletti, et al., 2013; Čehajić et al., 2009) and, actually, imagining what a person is thinking and feeling may capture his/her uniquely human mental states. From the point of view of the target of empathy, feeling that others are empathetic may lead to the feeling they are assigning us a fully human status.

We analyze now the association between patients' awareness of physicians' empathy and several positive outcomes for patients' health. Future studies should examine the role that the perception of being humanized plays in this association.

Research has shown that patient/physician empathetic communication is related to higher patient's satisfaction and greater adherence to treatments (see Gleichgerrcht & Decety, 2013). Working with diabetic patients, Hojat et al. (2011) discovered that patients showed better control of hemoglobin (A1c) when physicians displayed higher empathy scores. In a large-scale study, Rakel et al. (2009) observed that physicians' empathic concern was related to shorter illness duration (a common cold) and stronger immune system response. (For explanations of the beneficial effects of physicians' empathy, see Decety & Fotopoulou, 2015.)

Thus, clinician's empathy positively affects the patients' overall well-being and contributes to their healing. However, given the incompatibility between feeling empathy and solving complex medical problems, physicians have to strike a balance between these two mindsets. As suggested by Haque and Waytz (2012, p. 181), physicians could shift between empathy and problem solving according to the care context; they could, for instance, be empathetic in their surgery and dampen empathy during a medical intervention.

It is worth noting that, although the capacity to feel empathy is dispositional, it may be learnt. It has been found, for instance, that student clinicians who received a perspective-taking training reported higher patient satisfaction compared to control students (Blatt, LeLacheur, Galinsky, Simmens, & Greenberg, 2010).

### OUTGROUP DEHUMANIZATION IN RACIALLY DISCORDANT MEDICAL INTERACTIONS

Statistics relating to the U.S. population indicate that Black physicians are under-represented in that society; therefore, a high percentage of Black Americans encounter non-Black physicians in medical care. Research has shown that, in these racially discordant medical interactions, patient/physician communication is less adequate than in racially concordant interactions (see the reviews by Dovidio, Eggly, Albrecht, Hagiwara, & Penner, 2016; Hagiwara & Dent, 2016; Penner et al., 2012, 2014). For instance, when encounters are racially discordant, physicians and patients spend less time exchanging information and planning treatment; furthermore, physicians provide patients with less health education. These disparities in communication may lead to lower satisfaction with care and weaker intentions to adhere to medical recommendations.

But, what are the reasons for racial disparities in patient/physician communication? One key factor is non-Black physicians' implicit attitudes toward the racial outgroup, which are strongly negative (Sabin, Nosek, Greenwald, & Rivara, 2009; van Ryn et al., 2015) and influence spontaneous behaviors. It has been found, for instance, that implicit — but not explicit — racial bias is correlated with physicians' verbal dominance in interactions, measured as the ratio between the amount of time physicians talk and the amount of time patients talk (Hagiwara et al., 2013). Probably, negative implicit stereotypes of Blacks (e.g., as lazy and unreliable) lead physicians to exert control during medical interactions.

We propose that not only implicit prejudice but also dehumanizing perceptions of Blacks play a role in the poor communication between non-Black physicians and Black patients. It has actually been observed that, in the U.S. society, Blacks are dehumanized in an animalistic way (see the implicit Black/ape association discovered by Goff et al., 2008, 2014). Future research should evaluate whether dehumanizing perceptions are a cause of the poor patient/physician communication in racially discordant medical interactions and, thus, of the lower satisfaction with care among Black patients.

#### CONCLUSION

Is patient dehumanization actually present in medical contexts? Consistent evidence indicates that healthcare professionals assign patients a lower human status: patients are perceived as less characterized than physicians and nurses by uniquely human traits, and are represented more in terms of features humans share with animals than in uniquely human terms (see Capozza et al., 2015; Trifiletti et al., 2014). Thus, healthcare providers associate illness with a lower capacity for rationality and self-control. There is no evidence of mechanistic dehumanization when medical professionals evaluate patients as a category, and not as individual cases.

But, why do healthcare providers dehumanize patients? In the present contribution, we particularly focused on the functional causes of dehumanization (for nonfunctional causes and the strategies allowing their control, see Haque & Waytz, 2012). Regarding the functional causes, research has consistently found that, among healthcare professionals, patient dehumanization may be associated with lower perceptions of stress and burnout (e.g., Trifiletti et al., 2014; Vaes & Muratore, 2013). Thus, patient dehumanization may have the function of reducing the stress and emotional exhaustion which derive from work overloads and the perception of physical and psychological pain in others, with beneficial effects for healthcare professionals' well-being and their performance at work. However, as we argued, patient dehumanization may impair patient/physician communication and lessen patients' satisfaction with care. Healthcare professionals' dehumanizing perceptions may also induce negative self-evaluations in patients, with the effect of patients' weaker determination in following medical prescriptions.

Future research should investigate the hypothesized relationship between healthcare professionals' dehumanizing perceptions, patients' satisfaction with care and adherence to treatments. From a practical point of view, healthcare providers should be made aware that they tend to dehumanize patients, and that they may do so to cope with job-related stress; institutions should design work conditions which limit burnout: they could, for instance, reduce work overloads and enhance employees' perception of organizational support (POS; for the negative relationship between POS and burnout, see Eisenberger & Stinglhamber, 2011).<sup>1</sup>

With reference to clinical problem solving, direct (see Cheng et al., 2007; Decety et al., 2010) and indirect (Jack, Dawson, & Norr, 2013) evidence show that it is favored by reduced empathy and by patient dehumanization. However, physician's empathy positively affects patients' well-being and healing (see Decety & Fotopoulou, 2015). Thus, physicians should be advised to create a balance between sharing patients' emotions and performing their clinical work (see Haque & Waytz, 2012). Furthermore, medical students should be trained to be empathetic, and medical schools should select those applicants who are able to understand patients' perspective (Haque & Waytz, 2012, p. 181; see also Haslam, 2007). (For the importance of relationships in medical contexts, see Migliorini, 2015.)

We, finally, proposed to introduce the construct of outgroup dehumanization in explaining racial disparities in racially discordant medical interactions (see, e.g., Dovidio et al., 2016; Hagiwara & Dent, 2016; Penner et al., 2014). It is possible, in fact, that also Black dehumanization (see Goff et al., 2008, 2014) influences healthcare providers' nonverbal and paraverbal behaviors and, thus, Black patients' trust and satisfaction with care. Future research should include patient dehumanization also in the study of ethnically discordant medical interactions, and racially/ethnically discordant medical interactions should be investigated in Europe due to the arrival of many migrants and refugees.

This contribution adds to earlier work (e.g., Christoff, 2014; Haque & Waytz, 2012; Leyens, 2014) in showing the key role patient dehumanization plays in medical interactions, and indicates the need to curb this bias, if we wish to favor patients' health and well-being.

#### NOTE

1. A task for future research is also to identify the categories of healthcare professionals who, more than others, use patient dehumanization to reduce job-related stress. The existing literature shows that the relationship between dehumanization and lower perceived stress involves, for instance, medical professionals who have more contact with oncological patients (Vaes & Muratore, 2013) and nurses with higher organizational commitment (Trifiletti et al., 2014).

#### REFERENCES

- Andrighetto, L., Baldissarri, C., Lattanzio, S., Loughnan, S., & Volpato, C. (2014). Humanitarian aid? Two forms of dehumanization and willingness to help after natural disasters. *British Journal of Social Psychology, 53*, 573-584. doi:10.1111/bjso.12066
- Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Personality and Social Psychology Review, 3*, 193-209. doi:10.1207/s15327957pspr0303\_3
- Baron-Cohen, S., Wheelwright, S., Hill, J., Raste, Y., & Plumb, I. (2001). The "Reading the Mind in the Eyes" test revised version: A study with normal adults, and adults with Asperger syndrome or high-functioning autism. *Journal of Child Psychology and Psychiatry, 42*, 241-251. doi:10.1111/1469-7610.00715
- Bastian, B., & Haslam, N. (2011). Experiencing dehumanization: Cognitive and emotional effects of everyday dehumanization. *Basic and Applied Social Psychology, 33*, 295-303. doi:10.1080/01973533.2011.614132
- Blair, I. V., Steiner, J. F., Fairclough, D. L., Hanratty, R., Price, D. W., Hirsh, H. K., . . . Havranek, E. P. (2013). Clinicians' implicit ethnic/racial bias and perceptions of care among Black and Latino patients. *The Annals of Family Medicine, 11*, 43-52. doi:10.1370/afm.1442

- Blatt, B., LeLacheur, S. F., Galinsky, A. D., Simmens, S. J., & Greenberg, L. (2010). Does perspective-taking increase patient satisfaction in medical encounters? *Academic Medicine*, *85*, 1445-1452. doi:10.1097/ACM.0b013e3181eae5ec
- Boccatto, G., Capozza, D., Falvo, R., & Durante, F. (2008). The missing link: Ingroup, outgroup and the human species. *Social Cognition*, *26*, 224-234. doi:10.1521/soco.2008.26.2.224
- Cameron, C. D., Harris, L. T., & Payne, B. K. (2016). The emotional cost of humanity: Anticipated exhaustion motivates dehumanization of stigmatized targets. *Social Psychological and Personality Science*, *7*, 105-112. doi:10.1177/1948550615604453
- Capozza, D., & Di Bernardo, G. A. (2016). [Humanity attributions to mental patients]. Unpublished raw data.
- Capozza, D., Di Bernardo, G. A., Falvo, R., Vianello, R., & Calò, L. (2016). Individuals with intellectual and developmental disabilities: Do educators assign them a fully human status? *Journal of Applied Social Psychology*, *46*, 497-509. doi:10.1111/jasp.12377
- Capozza, D., Falvo, R., Favara, I., & Trifiletti, E. (2013). The relationship between direct and indirect cross-group friendships and outgroup humanization: Emotional and cognitive mediators. *TPM – Testing, Psychometrics, Methodology in Applied Psychology*, *20*, 383-398. doi:10.4473/TPM20.4.6
- Capozza, D., Trifiletti, E., Vezzali, L., & Favara, I. (2013). Can intergroup contact improve humanity attributions? *International Journal of Psychology*, *48*, 527-541. doi:10.1080/00207594.2012.688132
- Capozza, D., Visintin, E. P., Falvo, R., & Testoni, I. (2015). Deumanizzazione del paziente oncologico nei contesti medici [Dehumanization of the oncological patient in medical contexts]. *Salute e Società*, *14*, 74-86. doi:10.3280/SES2015-002006
- Castano, E., & Giner-Sorolla, R. (2006). Not quite human: Infrahumanization in response to collective responsibility for intergroup killing. *Journal of Personality and Social Psychology*, *90*, 804-818. doi:10.1037/0022-3514.90.5.804
- Cheng, Y., Lin, C., Liu, H., Hsu, Y., Lim, K., Hung, D., & Decety, J. (2007). Expertise modulates the perception of pain in others. *Current Biology*, *17*, 1708-1713. doi:10.1016/j.cub.2007.09.020
- Christoff, K. (2014). Dehumanization in organizational settings: Some scientific and ethical considerations. *Frontiers in Human Neuroscience*, *8*, 1-5. doi:10.3389/fnhum.2014.00748
- Cooper, L. A., Roter, D. L., Carson, K. A., Beach, M. C., Sabin, J. A., Greenwald, A. G., & Inui, T. S. (2012). The associations of clinicians' implicit attitudes about race with medical visit communication and patient ratings of interpersonal care. *American Journal of Public Health*, *102*, 979-987. doi:10.2105/AJPH.2011.300558
- Costello, K., & Hodson, G. (2010). Exploring the roots of dehumanization: The role of animal-human similarity in promoting immigrant humanization. *Group Processes & Intergroup Relations*, *13*, 3-22. doi:10.1177/1368430209347725
- Cuddy, A. J., Rock, M. S., & Norton, M. I. (2007). Aid in the aftermath of Hurricane Katrina: Inferences of secondary emotions and intergroup helping. *Group Processes & Intergroup Relations*, *10*, 107-118. doi:10.1177/1368430207071344
- Čehajić, S., Brown, R., & González, R. (2009). What do I care? Perceived ingroup responsibility and dehumanization as predictors of empathy felt for the victim group. *Group Processes & Intergroup Relations*, *12*, 715-729. doi:10.1177/1368430209347727
- Decety, J., & Fotopoulou, A. (2015). Why empathy has a beneficial impact on others in medicine: Unifying theories. *Frontiers in Behavioral Neuroscience*, *8*, 1-11. doi:10.3389/fnbeh.2014.00457
- Decety, J., & Svetlova, M. (2012). Putting together phylogenetic and ontogenetic perspectives on empathy. *Developmental Cognitive Neuroscience*, *2*, 1-24. doi:10.1016/j.dcn.2011.05.003
- Decety, J., Yang, C. Y., & Cheng, Y. (2010). Physicians down-regulate their pain empathy response: An event-related brain potential study. *NeuroImage*, *50*, 1676-1682. doi:10.1016/j.neuroimage.2010.01.025
- Demoulin, S., Leyens, J.-Ph., Paladino, M. P., Rodríguez-Torres, R., Rodríguez-Peréz, A., & Dovidio, J. F. (2004). Dimensions of "uniquely" and "non-uniquely" human emotions. *Cognition and Emotion*, *18*, 71-96. doi:10.1080/02699930244000444
- Dovidio, J. F., Eggly, S., Albrecht, T. L., Hagiwara, N., & Penner, L. A. (2016). Racial biases in medicine and healthcare disparities. *TPM – Testing, Psychometrics, Methodology in Applied Psychology*, *23*, 489-510. doi:10.4473/TPM23.4.5
- Eisenberger, R., & Stinglhamber, F. (2011). *Perceived organizational support: Fostering enthusiastic and productive employees*. Washington, DC: American Psychological Association.

- Falvo, R., & Capozza, D. (2016). [The relationship between patient dehumanization and reduced burnout: The moderation effect of the capacity of reading the mind in the eyes]. Unpublished raw data.
- Falvo, R., Capozza, D., Di Bernardo, G. A., & Pagani, A. F. (2015). Can imagined contact favor the “humanization” of the homeless? *TPM – Testing, Psychometrics, Methodology in Applied Psychology*, 22, 22-23. doi:10.4473/TPM22.1.2
- Gleichgerricht, E., & Decety, J. (2013). Empathy in clinical practice: How individual dispositions, gender and experience moderate empathic concern, burnout and emotional distress in physicians. *PLoS One*, 8, e61526. doi:10.1371/journal.pone.0061526
- Goff, P. A., Eberhardt, J. L., Williams, M. J., & Jackson, M. C. (2008). Not yet human: Implicit knowledge, historical dehumanization, and contemporary consequences. *Journal of Personality and Social Psychology*, 94, 292-306. doi:10.1037/0022-3514.94.2.292
- Goff, P. A., Jackson, M. C., Di Leone, B. A. L., Culotta, C. M., & DiTomasso, N. A. (2014). The essence of innocence: Consequences of dehumanizing Black children. *Journal of Personality and Social Psychology*, 106, 526-545. doi:10.1037/a0035663
- Gray, H. M., Gray, K., & Wegner, D. M. (2007). Dimensions of mind perception. *Science*, 315, 619. doi:10.1126/science.1134475
- Gray, K., Knickman, T. A., & Wegner, D. M. (2011). More dead than dead: Perceptions of persons in the persistent vegetative state. *Cognition*, 121, 275-280. doi:10.1016/j.cognition.2011.06.014
- Gray, K., Waytz, A., & Young, L. (2012). The moral dyad: A fundamental template unifying moral judgment. *Psychological Inquiry*, 23, 206-215. doi:10.1080/1047840X.2012.686247
- Greitemeyer, T., & McLatchie, N. (2011). Denying humanness to others: A newly discovered mechanism by which violent video games increase aggressive behavior. *Psychological Science*, 22, 659-665. doi:10.1177/0956797611403320
- Hagiwara, N., & Dent, R. (2016). Patient-physician communication during racially discordant medical interactions: Limitations with the current coding systems. *TPM – Testing, Psychometrics, Methodology in Applied Psychology*, 23, 511-529. doi:10.4473/TPM23.4.6
- Hagiwara, N., Penner, L. A., Gonzalez, R., Eggly, S., Dovidio, J. F., Gaertner, S. L., . . . Albrecht, T. L. (2013). Racial attitudes, physician-patient talk time ratio, and adherence in racially discordant medical interactions. *Social Science & Medicine*, 87, 123-131. doi:10.1016/j.socscimed.2013.03.016
- Haque, O. S., & Waytz, A. (2012). Dehumanization in medicine: Causes, solutions, and functions. *Perspectives on Psychological Science*, 7, 176-186. doi:10.1177/1745691611429706
- Harris, L. T., & Fiske, S. T. (2006). Dehumanizing the lowest of the low: Neuroimaging responses to extreme outgroups. *Psychological Science*, 17, 847-853. doi:10.1111/j.1467-9280.2006.01793.x
- Haslam, N. (2006). Dehumanization: An integrative review. *Personality and Social Psychology Review*, 10, 252-264. doi:10.1207/s15327957pspr1003\_4
- Haslam, N. (2007). Humanising medical practice: The role of empathy. *Medical Journal of Australia*, 187(7), 381-382.
- Haslam, N., & Loughnan, S. (2014). Dehumanization and infrahumanization. *Annual Review of Psychology*, 65, 399-423. doi:10.1146/annurev-psych-010213-115045
- Haslam, N., & Stratemeyer, M. (2016). Recent research on dehumanization. *Current Opinion in Psychology*, 11, 25-29. doi:10.1016/j.copsyc.2016.03.009
- Hojat, M., Louis, D. Z., Markham, F. W., Wender, R., Rabinowitz, C., & Gonnella, J. S. (2011). Physicians' empathy and clinical outcomes for diabetic patients. *Academic Medicine*, 86, 359-364. doi:10.1097/ACM.0b013e3182086fe1
- Hugenberg, K., Young, S., Rydell, R. J., Almaraz, S., Stanko, K. A., See, P. E., & Wilson, J. P. (2016). The face of humanity: Configural face processing influences ascriptions of humanness. *Social Psychological and Personality Science*, 7, 167-175. doi:10.1177/1948550615609734
- Jack, A. I., Dawson, A. J., Begany, K. L., Leckie, R. L., Barry, K. P., Ciccio, A. H., & Snyder, A. Z. (2013). fMRI reveals reciprocal inhibition between social and physical cognitive domains. *NeuroImage*, 66, 385-401. doi:10.1016/j.neuroimage.2012.10.061
- Jack, A. I., Dawson, A. J., & Norr, M. E. (2013). Seeing human: Distinct and overlapping neural signatures associated with two forms of dehumanization. *NeuroImage*, 79, 313-328. doi:10.1016/j.neuroimage.2013.04.109
- Kteily, N., Bruneau, E., Waytz, A., & Cotterill, S. (2015). The ascent of man: Theoretical and empirical evidence for blatant dehumanization. *Journal of Personality and Social Psychology*, 109, 901-931. doi:10.1037/pspp0000048

- Lammers, J., & Stapel, D. A. (2011). Power increases dehumanization. *Group Processes & Intergroup Relations, 14*, 113-126. doi:10.1177/1368430210370042
- Leyens, J.-Ph. (2014). Humanity forever in medical dehumanization. In P. G. Bain, J. Vaes, & J.-Ph. Leyens (Eds.), *Humanness and dehumanization* (pp. 167-185). New York, NY: Psychology Press.
- Leyens, J.-Ph., Demoulin, S., Vaes, J., Gaunt, R., & Paladino, M. P. (2007). Infra-humanization: The wall of group differences. *Social Issues and Policy Review, 1*, 139-172. doi:10.1111/j.1751-2409.2007.00006.x
- Leyens, J.-Ph., Rodríguez-Pérez, A., Rodríguez-Torres, R., Gaunt, R., Paladino, M. P., Vaes, J., & Demoulin, S. (2001). Psychological essentialism and the differential attribution of uniquely human emotions to ingroups and outgroups. *European Journal of Social Psychology, 31*, 395-411. doi:10.1002/ejsp.50
- Li, M., Leidner, B., & Castano, E. (2014). Toward a comprehensive taxonomy of dehumanization: Integrating two senses of humanness, mind perception theory, and stereotype content model. *TPM – Testing, Psychometrics, Methodology in Applied Psychology, 21*, 285-300. doi:10.4473/TPM21.3.4
- Loughnan, S., Haslam, N., & Kashima, Y. (2009). Understanding the relationship between attribute-based and metaphor-based dehumanization. *Group Processes & Intergroup Relations, 12*, 747-762. doi:10.1177/1368430209347726
- Maurer, D., Le Grand, R., & Mondloch, C. J. (2002). The many faces of configural processing. *Trends in Cognitive Sciences, 6*, 255-260. doi:10.1016/S1364-6613(02)01903-4
- McDonald, M., Porat, R., Yarkoney, A., Tagar, M. R., Kimel, S., Saguy, T., & Halperin, E. (2015). Intergroup emotional similarity reduces dehumanization and promotes conciliatory attitudes in prolonged conflict. *Group Processes & Intergroup Relations*, 1-13. Advance online publication. doi:10.1177/1368430215595107
- Meyer, J. P., & Maltin, E. R. (2010). Employee commitment and well-being: A critical review, theoretical framework and research agenda. *Journal of Vocational Behavior, 77*, 323-337. doi:10.1016/j.jvb.2010.04.007
- Migliorini, L. (2015). Fare posto alle relazioni nei compiti di cura con il malato oncologico: Tavola rotonda vivere il cancro [Making room for relations in the tasks of care with the cancer patient: A round table about living the cancer experience]. *Salute e Società, 14*, 115-126. doi:10.3280/SES2015-002009
- Mitchell, R. L., & Phillips, L. H. (2015). The overlapping relationship between emotion perception and theory of mind. *Neuropsychologia, 70*, 1-10. doi:10.1016/j.neuropsychologia.2015.02.018
- O'Connor, B. P., & Rigby, H. (1996). Perceptions of baby talk, frequency of receiving baby talk, and self-esteem among community and nursing home residents. *Psychology and Aging, 11*, 147-154. doi:10.1037/0882-7974.11.1.147
- Penner, L. A., Dovidio, J. F., West, T. V., Gaertner, S. L., Albrecht, T. L., Dailey, R. K., & Markova, T. (2010). Aversive racism and medical interactions with Black patients: A field study. *Journal of Experimental Social Psychology, 46*, 436-440. doi:10.1016/j.jesp.2009.11.004
- Penner, L. A., Eggly, S., Griggs, J. J., Underwood III, W., Orom, H., & Albrecht, T. L. (2012). Life-threatening disparities: Treatment of Black and White cancer patients. *Journal of Social Issues, 68*, 328-357. doi:10.1111/j.1540-4560.2012.01751.x
- Penner, L. A., Hagiwara, N., Eggly, S., Gaertner, S. L., Albrecht, T. L., & Dovidio, J. F. (2014). Racial healthcare disparities: A social psychological analysis. *European Review of Social Psychology, 24*, 70-122. doi:10.1080/10463283.2013.840973
- Rakel, D. P., Hoelt, T. J., Barrett, B. P., Chewing, B. A., Craig, B. M., & Niu, M. (2009). Practitioner empathy and the duration of the common cold. *Family Medicine, 41*(7), 494-501.
- Sabin, J. A., Nosek, B. A., Greenwald, A. G., & Rivara, F. P. (2009). Physicians' implicit and explicit attitudes about race by MD race, ethnicity, and gender. *Journal of Health Care for the Poor and Underserved, 20*, 896-913. doi:10.1353/hpu.0.0185
- Tanaka, J. W., & Gauthier, I. (1997). Expertise in object and face recognition. In R. L. Goldstone, D. L. Medin, & P. G. Schyns (Eds.), *Psychology of learning and motivation series, special volume: Perceptual mechanisms of learning* (Vol. 36, pp. 83-125). San Diego, CA: Academic Press. doi:10.1016/S0079-7421(08)60282-0
- Trifiletti, E., Di Bernardo, G. A., Falvo, R., & Capozza, D. (2014). Patients are not fully human: A nurse's coping response to stress. *Journal of Applied Social Psychology, 44*, 768-777. doi:10.1111/jasp.12267
- Vaes, J., Leyens, J.-Ph., Paladino, M. P., & Miranda, M. P. (2012). We are human, they are not: Driving forces behind outgroup dehumanisation and the humanisation of the ingroup. *European Review of Social Psychology, 23*, 64-106. doi:10.1080/10463283.2012.665250

- Vaes, J., & Muratore, M. (2013). Defensive dehumanization in the medical practice: A cross-sectional study from a health care worker's perspective. *British Journal of Social Psychology, 52*, 180-190. doi:10.1111/bjso.12008
- van Ryn, M., Hardeman, R., Phelan, S. M., Dovidio, J. F., Herrin, J., Burke, S. E., . . . Przeworski, J. M. (2015). Medical school experiences associated with change in implicit racial bias among 3547 students: A Medical Student CHANGES Study Report. *Journal of General Internal Medicine, 30*, 1748-1756. doi:10.1007/s11606-015-3447-7
- Vellante, M., Baron-Cohen, S., Melis, M., Marrone, M., Petretto, D. R., Masala, C., & Preti, A. (2013). The "Reading the Mind in the Eyes" test: Systematic review of psychometric properties and a validation study in Italy. *Cognitive Neuropsychiatry, 18*, 326-354. doi:10.1080/13546805.2012.721728
- Viki, G. T., Osgood, D., & Phillips, S. (2013). Dehumanization and self-reported proclivity to torture prisoners of war. *Journal of Experimental Social Psychology, 49*, 325-328. doi:10.1016/j.jesp.2012.11.006
- Waytz, A., & Schroeder, J. (2014). Overlooking others: Dehumanization by commission and omission. *TPM – Testing, Psychometrics, Methodology in Applied Psychology, 21*, 251-266. doi:10.4473/TPM21.3.2
- Waytz, A., Schroeder, J., & Epley, N. (2014). The lesser minds problem. In P. G. Bain, J. Vaes, & J.-Ph. Leyens (Eds.), *Humanness and dehumanization* (pp. 49-67). New York, NY: Psychology Press.
- Yin, R. K. (1969). Looking at upside-down faces. *Journal of Experimental Psychology, 81*, 141-145. doi:10.1037/h0027474