Interpersonal control, dehumanization, and violence: A self-determination theory perspective

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Abstract

Interpersonally controlling approaches are often used to keep individuals in line, ostensibly in order to create a safer, more civilized society. Ironically, emerging research findings indicate that when people feel controlled, they often respond by behaving in a less civilized, more antisocial manner (Gagné, 2003; Knee, Neighbors, & Vietor, 2001; Mask, Blanchard, Amiot, & Deshaies, 2005; McHoskey, 1999). The present research investigation explored whether a process of mechanistic dehumanization might help to explain the observed relation between interpersonal control and antisocial behavior, specifically with regard to tendencies toward violence. The results indicated that a significant relation between interpersonal control and tendencies toward interpersonal violence was partially mediated by perceived mechanistic dehumanization.

Historically, in the wake of interpersonal violence, the restriction of individual freedoms has often followed. This pattern can be observed at various levels of analysis. A recent example at the level of national policy includes the passage of the controversial USA PATRIOT Act by the US Government in October, 2001, following the September 11th, 2001 terrorist attacks. Since that time, the Act has been widely criticized for weakening government protection of civil liberties. Prior research has demonstrated that surveillance by an authority figure(s) in itself tends to be experienced as controlling (Lepper & Greene, 1975). Towns and cities routinely institute curfews, along with various other restrictions of freedom, following violent

riots. At the person-level, parents, teachers, and various other authority figures very typically respond to violent behavior by exercising more control and taking away the rights of others to choose. Certainly, these measures of increased control and restricted freedom are effective toward achieving some desired ends, at least temporarily,

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and have much intuitive appeal. However, emerging research on self-determination theory suggests that these controlling strategies may also have unintended and ironic consequences. Studies on interpersonal control indicate that when people feel that their autonomy has been thwarted, they often respond by behaving in an even less civilized and more antisocial manner (Duriez, Vansteenkiste, Soenens, & De Witte, 2007; Gagné, 2003; Kernis, 1982; Knee et al., 2001; Mask et al., 2005; McHoskey, 1999). The present research investigation explored whether the observed relation between interpersonal control and antisocial tendencies might be at least partially explained by a process of dehumanization. We review here the extant evidence for this model, including previous research indicating that dehumanization is also predictive of antisocial behavior (Chalk & Jonassohn, 1990; Goff, Eberhardt, Williams, & Jackson, 2008; Haslam, 2006; Kelman, 1976; McAlister, Bandura, & Owen, 2005). We also present new data linking the experience of being controlled with mechanistic dehumanization; that is, feeling less human, and viewing humans as more machine-like.

Defining autonomy versus interpersonal control

Self-determination theory (SDT) posits that all human beings share a basic and universal psychological need for autonomy (Deci & Ryan, 1985a, 2000, 2002, 2008). In this framework, autonomy is defined as a subjective experience, characterized by feeling free and by endorsing one's actions. In particular, the experience of autonomy is characterized by feeling free of interpersonal coercion. In accord with SDT, when people feel more autonomous, they experience greater psychological and physical well-being, they are happier and healthier. However, to the degree that satisfaction of the need for autonomy is thwarted, research findings indicate that people suffer both psychological and physically.

The psychological need for autonomy is thwarted, namely, by forces related to interpersonal control—the attempts by other people to pressure, manipulate, or otherwise influence one's will. These forces not only include overt tactics, such as the use of tangible rewards and punishments used to control people, but also more subtle forms of control, such as the use of contingent regard. People are contingently regarding in so far as their love and affection are given or withdrawn contingently on another person's behavior. Controlling language can also be used to subtly pressure people, and includes words such as, *should*, *must*, and *have to* (i.e., telling someone, "you *should* really work harder"). Finally, yet another form of control identified by self-determination theory involves pressure that comes from within a person. That is, when people pressure themselves in such a way that they do not feel as though they are freely or entirely endorsing their actions. From a self-determination theory perspective, these internal forms of pressure result from a process of incompletely internalizing (or introjecting) controlling forces that originate outside a person, and thus can ultimately be traced back to interpersonal control.

Interpersonal control, antisocial behavior, and violence

Research linking the experience of interpersonal control to antisocial behavior and violence has begun to accumulate in a variety of forms. We begin by reviewing this evidence.

An early study, conducted by Kernis (1982), investigated the influence of three motivational orientations (autonomy, control, and impersonal) on the type of anger expression and degree of subsequent aggressiveness following a self-esteem threat. The autonomy orientation is characterized by seeing one's behavior as freely chosen, whereas the control orientation is characterized by seeing one's actions as controlled by external contingencies, such as rewards and punishments. The impersonal orientation is the extent to which a person believes that attaining desired outcomes is beyond his or her control

and that achievement is largely a matter of luck or fate. The results indicated that those who scored higher in autonomy orientation (felt more free) behaved less aggressively in the lab, while higher scores on both the control and impersonal orientation scales were related to more self-derogation (i.e., self-directed aggression). A later study by Knee and colleagues (2001) demonstrated that control motivation orientation also predicted feeling more driving anger as a result of other drivers' actions, and was associated with more aggressive driving and more traffic citations. A follow-up study by Neighbors, Vietor, and Knee (2002) monitored 111 participants' experiences driving throughout a 10-day period. Again, control orientation was related to more anger and aggression while driving.

In a related line of research on prosocial versus antisocial behaviors, Gagné (2003) found that an autonomy orientation strongly predicted prosocial activities both in general, across different contexts (Study 1), and, specifically, at work (Study 2). Also, autonomy support from parents and managers were each marginally significant predictors of prosocial behavior. Gagné ran several meditational models demonstrating that satisfaction of the psychological need for autonomy partially mediated the relation between autonomy orientation and prosocial behavior, and fully mediated the relation between autonomy support and prosocial behavior, in both studies. Mask and colleagues (2005) also investigated the relation between trait-level autonomy and prosocial behaviors. A measure of trait-level autonomy, or self-determination, predicted more prosocial behavior (e.g., helping others) and less moral disengagement, less interpersonal harm (e.g., being verbally aggressive), and less aggressive driving-related behaviors (e.g., driving drunk).

The experience of being controlled can also be operationalized by assessing the nature of one's goals or aspirations, as extrinsic goals (e.g., financial success) are understood to be more controlled, while intrinsic goals (e.g., building community) are understood to be more autonomous. In line with this, McHoskey (1999) found that a control orientation and extrinsic (controlled) goals were significantly related to having greater Machiavellianism, defined as one's willingness to manipulate others, while autonomy orientation and intrinsic (autonomous) goals were significantly related to Machiavellianism in the inverse direction. Further, McHoskey found that autonomy orientation was negatively related to nihilism, while control orientation was positively related to self-estrangement and antisocial behaviors (such as cheating in an exam, plagiarism, stealing, vandalism, getting drunk several nights a week, promiscuity, and being arrested for driving while intoxicated). Recently, Duriez and colleagues (2007) followed up on this work, examining the relation between extrinsic (controlled) and intrinsic (autonomous) goals, right-wing authoritarianism, social dominance, and racial prejudice. The authors found that an emphasis on extrinsic goals was positively related to prejudice across two studies, and that social dominance partially mediated the relation. The partial mediation found in these studies, however, leaves open the potential for future research to identify other important process variables, such as dehumanization.

Dehumanization, antisocial behavior, and violence

Dehumanization is a psychological construct which has been very broadly defined as the denial of humanness to others, the negative consequences of which have been well documented empirically. These consequences include various forms of antisocial behavior, especially violence directed toward those dehumanized. Although an exhaustive review of this literature is beyond the scope of the present article (for a recent, more comprehensive review, see Haslam, 2006), we highlight here some of the most robust and compelling findings.

Goff and colleagues (2008) found evidence that White participants implicitly associated Blacks and apes (i.e., animalistic dehumanization), and this association in turn was related to increased endorsement of violence against Black suspects in a criminal justice context. In a

follow-up, archival study the authors found that news articles written about Blacks convicted of capital crimes were more likely to contain ape-relevant language than news articles written about White convicts. Further, in the archival data, those who were portrayed as more apelike in these articles were more likely to be executed by the state than those who were not. These findings reported by Goff and colleagues, taken together with Duriez and colleagues' (2007) findings that having more controlled goals was related to greater racial prejudice, are consistent with the assertion that dehumanization may play a role in linking interpersonal control with racial prejudice and endorsed violence against Blacks.

Following the September 11th, 2001 terrorist attacks on the United States, McAlister et al., (2005) interviewed 1,499 participants in order to explore the tendency for people to support the use of violent military force in retaliation. Endorsement of military force increased significantly following the terrorist attacks, and the results suggest that one important mediator of endorsing military force involved dehumanizing the enemy (e.g., "terrorists do not deserve to be treated like human beings", and "enemy rulers and their followers are no better than animals"), as dehumanization increased significantly from pre- to post-September 11th.

Yet another example of dehumanization being related to violence concerns the use of dehumanization in connection with genocidal conflicts (Chalk & Jonassohn, 1990; Haslam, 2006; Kelman, 1976). Historical accounts reveal that the perpetrators of genocidal violence have often espoused ideologies that likened the victims to vermin and various other "lower" life forms. This form of dehumanization was documented in cases that include the Jews during the Holocaust, Bosnians during the Balkan wars, and Tutsis during the genocide in Rwanda. A number of authors have argued that the process of dehumanization may make it possible for humans to inflict greater harm on others by virtue of allowing them to exclude a group or individual from moral consideration, also known as moral disengagement (Bandura, 2002; Bandura, Barbaranelli, Caprara,

& Pastorelli, 1996; Bandura, Underwood, & Fromson, 1975; Kelman, 1976; Opotow, 1990).

Castano and Giner-Sorolla (2006) explored this relation across three experiments; specifically, the tendency for people to infrahumanize (an implicit form of dehumanization) an out-group in response to interpersonal violence. That is, when participants were told that their in-group (humans, British, White Americans) had perpetuated mass killing of an out-group (aliens, Australian Aborigines, and Native Americans), they responded by infrahumanizing the out-group more, but only if they also perceived a collective responsibility for their in-group's actions. The authors theorized that the process of infrahumanization, in this case, was a strategy for people to escape collective guilt and reestablish psychological equanimity.

Interpersonal control and dehumanization

Haslam (2006) recently reviewed the broad literature on dehumanization, and developed a new model, differentiating between two forms of dehumanization: *animalistic* and *mechanistic*. Animalistic dehumanization involves denying uniquely human attributes to others, representing them as animal-like, whereas mechanistic dehumanization involves denying human nature to others, representing them as objects or automata. The present investigation focused on mechanistic dehumanization, specifically with regard to what Montague and Matson (1983) referred to as "technological dehumanization" or "the reduction of humans to machines" (p. 8). Montague and Matson posited that this form of dehumanization is a cultural consequence of postmodern society's pursuit of industrialization, robotic efficiency, and regularity, and a number of theorists have since expressed concern over the potential consequences of technological dehumanization, per se (Beckers & Schmidt, 2001; Nissenbaum & Walker, 1998). In designing the present investigation, we hypothesized that the experience of being controlled may lead people to feel less human themselves, and as a consequence see both themselves and other human beings as

objects or machines, as opposed to autonomous, living organisms. To the extent that animals are understood to be autonomous, we specifically hypothesized that interpersonal control may lead to mechanistic, as opposed to animalistic, dehumanization.

Although, to the best of our knowledge, this hypothesis had not been previously tested, several lines of research and theory offer converging indirect support. deCharms (1968), for example, wrote of experiencing oneself as an *origin* or *pawn* in the context of personal causation, and posited that when one feels controlled, coerced, or manipulated by another person, they come to feel more pawn-like, and effectively less human. The concept of autonomy as understood in self-determination theory is derived to a large measure from deCharms' work on personal causation, and the *pawn* metaphor has been used to characterize feeling controlled since (Ryan & Grolnick, 1986). Kelman (1976) posited that dehumanization involves denying a person "identity"—the perception of the person "as an individual, independent and distinguishable from others, *capable of making choices*" (p. 301, italics added), thus recognizing a possible conceptual connection between autonomy and dehumanization.

Empirical research has already linked the experience of self-determination to the human capacity for empathy, which is one aspect used to define humanness. Mask and colleagues (2005) found that greater self-determination was related to more empathy. Further, in this study, empathy mediated the relation between self-determination and helpfulness, interpersonal harm, and aggressive driving-related behaviors. A second form of indirect support linking interpersonal control to dehumanization concerns the experience of *vitality*, or life force. Subjective vitality is defined as the state of feeling alive and alert, and is considered an aspect of eudaimonic well-being (Ryan & Deci, 2001). The experience of being controlled has been negatively related to vitality at both the state level and trait level in numerous studies (Moller, Deci, & Ryan, 2006; Nix, Ryan, Manly, & Deci, 1999; Ryan & Deci, 2008; Ryan & Frederick, 1997).

In the present investigation, we principally sought to directly test the hypothesis that interpersonal control is positively related to dehumanization, specifically mechanistic dehumanization. We also sought to replicate and extend previous research findings linking interpersonal control and dehumanization to a tendency toward violence, and extend that research by including a range and variety of previously underexplored indicators to operationalize this tendency.

Method

Participants

Some 235 (194 female) adults completed the web questionnaire. Data was collected on-line during a five-month period using a web survey method (February 2005 through June 2005). Participants were recruited from several sites which host links to social psychology web research, including: http://www.socialpsychology.org, http://www.yahoo.com, http://genpsylab-wexlist.unizh.ch, http://psych.hanover.edu/research/exponnet.html. All participation was voluntary and no form of extrinsic compensation was provided. The mean age for participants was 25.08 years (range: 18–62). The ethnic make-up was as follows: 76.2% White, 4.3% Asian or Pacific Islander, 3% Black, 10.6% Hispanic, 5.1% Other. The highest level of education attained by participants in the sample ranged from some high school education to the highest levels of graduate education: 1.7% some high school, 7.2% high school diploma, 44.3% some college, 11.5% associates degree, 14.0% bachelors degree, 6.4% some graduate school, 7.2% master's degree, 7.7% held a PhD, MD, or JD.

Procedure

Each measure was presented on a separate webpage in the order described below. The order with regard to scale presentation was not counterbalanced. Instructions specific to each scale were presented at the top of each page.

Measures

General Causality Orientation Scale (GCOS)
This is an individual difference measure of people's relatively enduring motivational orientations and was developed for use with individuals who are at least 17 years of age. Subjects answered three questions for each of 17 vignettes regarding how likely they were to interpret events in certain ways (Deci & Ryan, 1985b). The three questions corresponded to autonomy, control, and impersonal causality orientations. A 5-point scale was used for each question (1 = very unlikely, 5 = very likely). The autonomy orientation assesses the extent to which a person is oriented toward aspects of the environment that stimulate autonomous motivation, are optimally challenging, and provide informational feedback. The control orientation assesses the extent to which a person is oriented toward being controlled by rewards, deadlines, structures, ego-involvements, and the directives of others. The impersonal orientation assesses the extent to which a person believes that attaining desired outcomes is beyond his or her control and that achievement is largely a matter of luck or fate. An example of a vignette from the GCOS is: "You are a plant supervisor and have been charged with the task of allotting coffee breaks to three workers who cannot all break at once." Participants were asked to rate how likely they would be to respond in each of the following ways: (a) "Telling the three workers the situation and having them work with you on the schedule"; (b) "Find out from someone in authority what to do or do what was done in the past"; or (c) "Simply assigning times that each can break to avoid any problems." Likelihood ratings to each hypothetical response correspond to different motivational orientations (in this case, autonomy orientation, control orientation, and impersonal orientation, respectively). The internal reliability of each subscale was acceptably high: Cronbach's alpha levels of .86 (autonomy orientation), .77 (control orientation), and .84 (impersonal orientation).

Self-Determination Scale (SDS) The SDS was designed to assess individual differences in the extent to which people tend to function in a self-determined way (Sheldon, 1995; Sheldon, Ryan, & Reis, 1996). It is thus considered a relatively enduring aspect of people's personalities which reflects: (1) being more aware of their feelings and their sense of self; and (2) feeling a sense of choice with respect to their behavior. The SDS is a 10-item scale, with two 5-item subscales. The first subscale is awareness of oneself, and the second is perceived choice in one's actions. Each items consists of two statements, and participants are asked to rate the degree to which one statement is more true of them on a 7-point scale (1 = only statement A is true of me; 7 = only statement B is true of me). For example, "A. I always feel like I choose the things I do; B. I sometimes feel that it's not really me choosing the things I do" (Perceived Choice); and "A. My emotions sometimes seem alien to me; B. My emotions always seem to belong to me" (Awareness). The internal reliability of each subscale was acceptably high; Cronbach's alpha levels were .73 (Awareness) and .77 (Perceived Choice).

Autonomy psychological need satisfaction
The autonomy subscale from the Basic Psychological Need Satisfaction (BPNS) scale was used to assess the degree to which participants experienced satisfaction of the basic psychological need for autonomy in their lives (Baard, Deci, & Ryan, 2004; La Guardia, Ryan, Couchman, & Deci, 2000). The self-report measure consists of seven items (e.g., "I feel free to be who I am") rated on a 7-point scale (1 = not at all; 7 = very much). The internal reliability was acceptably high; Cronbach's alpha was .73.

Composite interpersonal control A composite measure of interpersonal control was created by standardizing the five subscales related to this core concept (GCOS–Autonomy Orientation; GCOS–Control Orientation; SDS–Awareness; SDS–Perceived Choice; BPNS–Autonomy), reverse scoring when appropriate, and summing the resulting scores. This composite measure broadly represents the extent to which one feels they have been controlled by other people in their life.

Mechanistic dehumanization   Aron and colleagues (Aron, Aron, & Smollan, 1992; Aron, Melinat, Aron, Vallone, & Bator, 1997) developed the Inclusion of Other in Self (IOS) measure to assess closeness between two individuals by asking about the degree to which individuals feel that another person, initially a romantic partner, is a part of their conceptualization of self. The measure has since been widely adapted to measure individuals' experiences of closeness with peers, parents, family members, organizations, and groups (e.g., Deci, La Guardia, Moller, Scheiner, & Ryan, 2006). The IOS consists of seven pairs of circles labeled *Self* and *Other*, that overlap to various degrees, creating a 7-point, interval scale. Participants select the pair that best describes their relationship. For our purpose of measuring dehumanization, participants selected circles representing the degree of overlap between "human beings" and "machines" (collective mechanistic dehumanization; 1 item) and between "me" and "machines" (individual mechanistic dehumanization; 1 item). The correlation between responses on these two items was $r = .41$, $p < .001$, a moderate size correlation indicating that although collective and individual forms of mechanistic dehumanization share significant overlap, they are nonetheless conceptually distinguishable as well. Given that no hypotheses were postulated with regard to distinguishing these two forms of mechanistic dehumanization, the two items were also z-scored and combined to create a composite indicator of overall mechanistic dehumanization.

Aggression   Trait-level aggression was assessed using Buss and Perry's (1992) 29-item Aggression Measure. The measure includes subscales assessing: Physical Aggression (9 items), Verbal Aggression (5 items), Anger (7 items), and Hostility (8 items) subscales. Statements (e.g., "Once in a while I can't control the urge to strike another person") are rated on a 7-point scale (1 = extremely uncharacteristic of me; 7 = extremely characteristic of me). The internal reliability of each subscale was acceptably high; Cronbach's alpha levels were .82 (Physical Aggression), .72 (Verbal Aggression), .85 (Anger), and .85 (Hostility).

Acceptance of violence   Trait-level acceptance of violence was assessed using the 14-item Maudsley Violence Questionnaire (MVQ; Walker, 2005). Statements (e.g., "I am totally against violence") are rated as either true or false. The internal reliability of this scale was acceptably high; Cronbach's alpha was .79.

Composite violence   A composite measure of aggression was created by standardizing the five subscales related to this core concept (AM–Physical Aggression; AM–Verbal Aggression; AM–Anger; AM–Hostility; and Acceptance of Violence), reverse scoring when appropriate, and summing the resulting scores. This composite measure broadly represents one's tendency toward the expression of interpersonal violence.

Results

A linear regression approach was used to analyze these data. The models run were organized by testing for evidence of the following relations: (1) interpersonal control predicting tendencies toward interpersonal violence; (2) interpersonal control predicting dehumanization; (3) dehumanization predicting tendencies toward interpersonal violence; (4) mediation; and (5) moderation.

Interpersonal control ↔ interpersonal violence

Interpersonal control was operationalized in five different ways (GCOS–Autonomy Orientation; GCOS–Control Orientation; SDS–Awareness; SDS–Perceived Choice; BPNS–autonomy), as well as with a composite measure of all five. Tendencies toward interpersonal violence were also operationalized in five different ways (AM–Physical Aggression; AM–Verbal Aggression; AM–Anger; AM–Hostility; and Acceptance of Violence), as well as a composite measure. The correlations between the measures of interpersonal control and tendencies toward interpersonal violence are summarized in Table 1. Consistently, trait-level measures of experienced control were positively correlated with tendencies toward interpersonal violence, while measures of

Table 1. Interpersonal control ↔ tendencies toward interpersonal violence

	Physical aggress.	Verbal aggress.	Anger	Hostility	Accept violence	Composite aggress.
GCOS						
Autonomous orientation	−.23**	−.01	−.17*	−.26**	−.26	−.25**
Controlled orientation	.34**	.33**	.21**	.34**	.30**	.41**
Impersonal orientation	.18**	.05	.23**	.48**	.10	.28**
SDS						
Perceived choice	−.19**	−.13	−.28**	−.44**	−.08	−.36**
Awareness	−.28**	−.14*	−.27**	−.54**	−.10	−.31**
BPNS						
Autonomy satisfaction	−.25**	−.14*	.29**	−.55**	−.15*	−.37**
Composite control	.41**	.24**	.33**	.53**	.30**	.49**

Note. Aggress. = Aggression; * $p < .05$; ** $p < .01$.

experienced autonomy were negatively correlated with tendencies toward interpersonal violence. This pattern of correlations remained significant when controlling for gender.

Interpersonal control ↔ mechanistic dehumanization

The correlations between measures of interpersonal control and dehumanization are summarized in Table 2. Consistently, trait-level measures of experienced control were positively correlated with the experience of dehumanization, while measures of experienced autonomy were negative correlated with the experience of dehumanization. This pattern of correlations remained significant when controlling for gender.

Mechanistic dehumanization ↔ interpersonal violence

The correlations between measures of mechanistic dehumanization and tendencies toward interpersonal violence are summarized in Table 3. A consistent pattern of significant positive correlations was found between dehumanization and indicators of a tendency toward interpersonal violence (physical aggression, anger, and hostility),

with the notable exception of verbal aggression. This pattern of correlations remained significant when controlling for gender.

Mediation: Interpersonal control → mechanistic dehumanization → interpersonal violence

Next, we tested whether mechanistic dehumanization would mediate the relation between interpersonal control and tendencies toward interpersonal violence. Baron and Kenny (1986) presented four steps for establishing mediation. Step 1 involves showing that the independent variable (i.e., interpersonal control) is related to the outcome (i.e., a tendency toward interpersonal violence). This requirement was met; composite interpersonal control was significantly related to composite interpersonal violence, $\beta = .49$, $p < .001$. Step 2 involves showing that the independent variable is related to the mediator (i.e., mechanistic dehumanization). This requirement was met, composite interpersonal control was significantly related to composite mechanistic dehumanization, $\beta = .25$, $p < .001$. Step 3 requires that the mediator affect the outcome variable, controlling for the independent variable. This requirement was met; composite   mechanistic   dehumanization   was

Table 2. Interpersonal control ↔ mechanistic dehumanization

	Human–machine	Me–machine	Composite dehumanization
GCOS			
Autonomous orientation	−.09	−.05	−.08
Controlled orientation	.10	.29**	.23**
Impersonal orientation	.17**	.20**	.22**
SDS			
Perceived choice	−.29**	−.22**	−.31**
Awareness	−.25**	−.15*	−.23**
BPNS			
Autonomy satisfaction	−.38**	−.24**	−.37**
Composite control	.18**	.25**	.25**

Note: * $p < .05$; ** $p < .01$.

Table 3. Mechanistic dehumanization ↔ tendencies toward interpersonal violence

	Physical aggress.	Verbal aggress.	Anger	Hostility	Accept violence	Composite Aggress.
Human–machine	.21**	.03	.17*	.29**	.06	.20**
Me–machine	.22**	.12	.13*	.27**	.16*	.24**
Composite dehumanization	.25**	.09	.18*	.33**	.13*	.26**

Note: Aggress. = Aggression; * $p < .05$; ** $p < .01$.

significantly related to composite interpersonal violence, controlling for composite interpersonal control, $\beta = .17$, $p < .05$. The fourth and final step for establishing mediation looks at the relation between the initial predictor variable and the outcome, controlling for the mediator. If this effect drops to zero, there is full mediation, if it drops significantly (Sobel, 1982), there is partial mediation. The requirements for partial mediation were met. When composite mechanistic dehumanization was controlled for, the relation between composite interpersonal control and composite interpersonal violence dropped (from $\beta = .49$ to $\beta = .45$); a Sobel test confirmed that this drop was significant, Sobel's $z = 2.43$, $p = .01$. Each of the models required for establishing mediation remained significant when controlling for gender.

Moderation

Several regression models were run exploring the potential for direct relations discussed above to be moderated. In each case, the interaction and main effects were treated as continuous variables. First, composite interpersonal control, composite dehumanization, and the two-way interaction of these variables were regressed onto composite interpersonal violence as an outcome; the interaction was nonsignificant, $\beta = -.01$, $t(229) = -0.16$, $p = .87$. Next, regression models were run testing whether age or sex moderated the relations between either composite interpersonal control and composite interpersonal violence, or composite dehumanization and composite interpersonal violence; none of these interactions approached significance, all ts < 1.21.

General discussion

The results of the present investigation replicated and extended the evidence for two important conceptual patterns: (1) the relation between the experience of interpersonal control and a tendency toward interpersonal violence; and (2) the relation between experiencing interpersonal control and the experience of dehumanization. Further, it introduced evidence for an important new conceptual connection relating the experience of interpersonal control to the experience of dehumanization. The data suggest that trait-level experiences of interpersonal control were positively related to both interpersonal violence, and to the experience of mechanistic dehumanization, whereas feeling more autonomous was negatively related to these variables. Especially important were the findings linking the experience of interpersonal control to greater mechanistic dehumanization (and greater autonomy to feeling more human, and less machine), the first data of their kind. Further, the relation between interpersonal control and interpersonal violence was shown to be partially explained (or mediated) by mechanistic dehumanization, although the amount of variance accounted for was very small.

Limitations and future directions

The correlational nature of the data from this study represents an important limitation, specifically with regard to establishing causality. Future studies will need to investigate the relations explored here using experimental designs; specifically, manipulating the experience of control (or the provision of choice) in order to test whether being more controlled indeed *causes* people to feel less human, and in turn behave more violently. Another limitation of the present investigation was a reliance on self-report measures of the central concepts. Violent behavioral tendencies can also be assessed more directly in the lab; for example, by using the allocation of hot sauce (Lieberman, Solomon, Greenberg, & McGregor, 1999) or volume of noise-blast administered (Taylor, 1967). Additionally, given that mechanistic dehumanization was found to partially (as opposed to fully) mediate the relation between interpersonal control and tendencies toward interpersonal violence, and that only a small degree of variance was accounted for, this implies that the relation between interpersonal control and interpersonal violence is complex and that multiple psychological constructs, in addition to mechanistic dehumanization, may be required to offer a more complete account.

The process through which interpersonal control may lead to dehumanization and interpersonal violence could be a developmental process, not easily observed in a lab setting. For this reason, future studies should employ a longitudinal design to help establish the direction of the relations explored here. For example, by investigating how controlling parenting styles, such as contingent regard toward children, may lead to dehumanization and violence among adults. Such studies could also include indicators of overt violence, such as convictions for violent crimes among at-risk populations.

Yet another future direction for this line of research concerns relating the feeling of being more controlled by others to different forms of violence. Specifically, self-determination theory differentiates between controlled motivation that is entirely a function of external contingencies (e.g., tangible rewards or punishments), also referred to as external regulation, and controlled motivation that is derived from internal contingencies (e.g., pride or shame), also referred to as introjected regulation (Ryan & Connell, 1989). As people can feel pressured or controlled by forces internal or external to the self, the target of one's aggression may also vary. That is, aggression and violence may be focused inwardly against the self (e.g., suicide, and various forms of self-mutilation), and violence can, of course, be focused outwardly against others (e.g., murder, and various forms of assault). As such, we offer a speculative hypothesis that introjected forms of controlled motivation may be more strongly related to inwardly focused violence, whereas external forms of controlled motivation may be more strongly related to outwardly focused

violence. Future research is needed to test this hypothesis, as well as the possibility that distinct forms of dehumanization (e.g., me-machine vs. humans-machines) may play an important meditational role in understanding this predicted relation.

Finally, although this research study focused on mechanistic forms of dehumanization, future research is needed to investigate whether interpersonal control may also be related to more animalistic forms of dehumanization. Haslam (2006) posits that these two categories of dehumanization (animalistic and mechanistic) can be considered conceptually distinct; however, this does not rule out the possibility that they might share common antecedents. Interpersonal control may also be related to animalistic dehumanization. In particular, the concept of animalistic dehumanization may be more closely related to the experience of controlling others, as opposed to being controlled oneself, as animalistic dehumanization is understood to include an implicit vertical comparison and the belittling or degradation of the other(s). This follow-up hypothesis is yet another to be explored in the future.

Conclusion

In sum, the present investigation offers a very early indication of the potential role that dehumanization may play in terms of understanding the complex relation between the psychological experience of interpersonal control and the tendency toward violence. The preliminary evidence, however, indicates that authority figures at various levels (e.g., policy makers, managers, teachers, and parents) would do well to temper their tendency to respond to violence with measures that thwart people's psychological need for autonomy, as the ultimate consequence of these strategies may ironically be to induce even greater violence, as a function of dehumanization. We anticipate that further unraveling the complex dynamics between interpersonal control, dehumanization, and violence, at various levels of analysis, and in a wide range of contexts, will be an important and generative area for future research.

Acknowledgments

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