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Am I being dehumanized? Development and validation of the experience of dehumanization measurement

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Abstract

Scholarly interest in the experience of dehumanization, the perception that one is being dehumanized, has increased significantly in recent years, yet the construct lacks a validated measurement. The purpose of this research is therefore to develop and validate a theoretically grounded experience of dehumanization measurement (EDHM) using item response theory. Evidence from five studies using data collected from participants in the United Kingdom ($N = 2082$) and Spain ($N = 1427$), shows that (a) a unidimensional structure replicates and fits well; (b) the measurement demonstrates high precision and reliability across a broad range of the latent trait; (c) the measurement demonstrates evidence for nomological and discriminant validity with constructs in the experience of dehumanization nomological network; (d) the measurement is invariant across gender and cultures; (e) the measurement demonstrates incremental validity in the prediction of important outcomes over and above conceptually overlapping constructs and prior measurements. Overall, our findings suggest the EDHM is a psychometrically sound measurement that can advance research relating to the experience of dehumanization.

KEYWORDS

dehumanization, experience of dehumanization, interpersonal conflict, item response theory, meta-dehumanization, scale development

BACKGROUND

Recognition of humanness in others is the foundation of civilized and moral society. Conversely, dehumanization is a force that threatens morality, equality and diversity within a society. Dehumanization describes the phenomenon of perceiving or treating individuals as if they are 'less human', making them unworthy of moral considerations (Haslam & Loughnan, 2014). From the time the Nazis viewed Slavs as 'subhuman' and 'inferior people' (Connelly, 1999) to contemporary examples when political leaders throughout Europe and the U.S. have treated asylum seekers as a means to an end and referred to them as 'animals' and 'garbage' (Amnesty International, 2021), dehumanization, whether blatant or subtle, remains pervasive. It also occurs in organizational and marketing settings when organizations treat their employees as mere 'tools' and 'cogs in the system' or when brands unintentionally use dehumanizing metaphors in advertising (Caesens et al., 2019; West, 2018). A large and growing literature detail the pervasiveness of dehumanization at the interpersonal and especially intergroup levels, its types, its targets, its distinctiveness from prejudice, and its association with immoral treatment of others, aggressive and hostile behaviours (Haslam & Loughnan, 2014).

Recently, scholars have started examining dehumanization from the perspective of victims, focusing on individual's experiences of being dehumanized (we term this the *experience of dehumanization*). People may experience the sense of being dehumanized in response to mistreatments that range across the spectrum from seemingly subtle and commonplace instances of indignities such as being rejected or disrespected to severe and unambiguous dehumanizing mistreatments such as being abused, sexually harassed or insulted wherein, for example, one is called 'child of an ape' or 'human trash' (Bastian & Haslam, 2011; Kteily & Landry, 2022; Moor et al., 2013). Previous research predominantly within inter-group settings has documented the experience of dehumanization as carrying adverse consequences for the targets, including severely threatening their well-being, identity, fuelling hostility toward them and elevating reciprocal hostile actions (Bastian & Haslam, 2011; Kteily et al., 2016). Despite the growing focus on studying dehumanization from the victim's perspective to date, no validated measurement of the experience of dehumanization at the interpersonal level has been developed, limiting interpretation, examination and theoretical understanding of the phenomenon.

In the present research, we, therefore, develop a psychometrically sound and cross-culturally invariant experience of dehumanization measurement (EDHM) that specifically assesses the individual's sense of being dehumanized. By grounding the measurement's items in the theoretical underpinnings of the dehumanization literature, developing and validating the measurement using contemporary psychometric techniques (i.e. item response theory; IRT) and multiple independent samples from the United Kingdom and Spain, this research provides a necessary and critical instrument scholars can apply to reliably advance research on the experience of dehumanization. In the following sections, we review the extant literature and provide a theoretical background on the phenomenon. We then follow contemporary stages of measurement development (MacKenzie et al., 2011) and present the development and validation of our new measurement.

Dehumanization

Scholars often conceptualize dehumanization as a social-cognitive process that alters the boundaries of community and personhood, whereby people transform the victims into entities who have diminished humanness or humanlike capacities, more similar to an animal or object than to a human (Haslam, 2006; Kelman, 1973; Schroeder & Epley, 2020). Dehumanization ranges from subtle to blatant. Subtle dehumanization manifests as an indirect, implicit and often unconscious tendency to overlook others' humanity (Haslam & Loughnan, 2014). Blatant dehumanization, in contrast, refers to explicit and unambiguous denial of others' humanity in which a person or group is psychologically equated to animals, parasites, or objects (Bruneau, Hameiri, et al., 2020). Cumulatively blatant and subtle dehumanization are associated with a wide range of detrimental outcomes including, but not limited to moral disengagement

(Bandura, 1999), increased prejudice and discrimination (Hodson & Costello, 2007; Pereira et al., 2009), support for aggressive actions (e.g. torture and retaliatory violence; Kteily et al., 2015), endorsement of harsher treatment and policies directed against out-groups (Bruneau, 2018; Kteily & Bruneau, 2017) and lower perspective-taking and empathy (Čehajić et al., 2009).

There are three prominent models of dehumanization: infrahumanization (Leyens et al., 2000), the dual model of humanness (Haslam, 2006), and mind perception (Waytz et al., 2010). The infrahumanization model builds on the human-animal distinction and postulates that dehumanization involves the denial of complex secondary emotions (e.g. hope, guilt, remorse; Leyens et al., 2000). The dual model of humanness proposed by Haslam (2006) views dehumanization as the denial of human characteristics to an individual or social group. The denial of 'uniquely human' characteristics (e.g. higher cognition, refinement, and civility) reflects the process of animalistic dehumanization. It draws upon the human-animal distinction and incorporates the perception that other people are seen as subtly or blatantly animal-like. The denial of 'human nature' (e.g. warmth, individuality and emotionality) incorporates the human-automata distinction and connotes mechanistic dehumanization, where others are seen as distant and separate, akin to inanimate objects.

From the third, mind perception perspective, to dehumanize a person is to dementalize them—to perceive them as lacking mental capacities (Epley & Waytz, 2010; Haslam, 2022; Waytz et al., 2010) for conscious experience (the capability of an agent to feel and sense) and intentional agency (the capacity to plan and act; Epley & Waytz, 2010; Gray et al., 2007). The dimensions of mind perception share a strong overlap with Haslam's (2006) dimensions of humanness: agency maps onto human uniqueness, and human nature maps onto experience (Haslam, 2022).

In summary, dehumanization is a complex and contested phenomenon concerning what it means to be 'human' (Haslam, 2022). But whether dehumanization is conceptualized in terms of the attributes that differentiate humans from non-human entities (Haslam, 2006), sophisticated mental states (Epley & Waytz, 2010; Waytz et al., 2010), or needs and motivations (Schroeder & Epley, 2020), the essential feature common to theoretical accounts of being human, is being someone whose thoughts and feelings matter. Therefore, dehumanization transforms humans into entities whose needs, relationships, intentions and emotions are of no concern (Lang, 2020).

The experience of dehumanization

Building on these dehumanization accounts and in line with previous studies (Bastian & Haslam, 2011; Demoulin, Maurage, & Stinglhamber, 2021; Demoulin, Nguyen, et al., 2021; Kteily et al., 2016), we conceptualize the experience of dehumanization as one's subjective perception of being seen and treated as less than fully human (i.e. being dehumanized) by another entity. The *entity* is not limited to a person or group; the perpetrator of dehumanization can also be a non-human agent such as an organization, political party, government system or policy. Since our focus is the interpersonal level, the definition reflects the individual rather than the group as the target of dehumanization ('others dehumanize *me'* rather than 'others dehumanize *my group'*). Subsequently, the sense of dehumanization occurs when individuals are targets of dehumanizing treatments, whether blatant or subtle (Bastian & Haslam, 2011; Kteily et al., 2016).

The experience of dehumanization goes beyond the idea that the dehumanized individuals feel merely disliked; it also entails the sense that they are demeaned in human status—they perceive that others view and treat them as less than fully human (Bruneau Hameiri, et al., 2020; Kteily & Bruneau, 2017). From the metaphysical view of personhood and the mind perception model, to be seen as lower in human status would imply being viewed as mindless, with very limited mental capacities for agency and experience (Dennett, 1988; Waytz & Schroeder, 2014). The infrahumanization model and Haslam's dual model suggest that experiencing dehumanization, specifically in its animalistic form in which one is denied uniquely human traits (i.e. agency), corresponds to being viewed as debased, demeaned or lowered and hence lacking human status (Bastian & Haslam, 2011; Haslam, 2006). Through dehumanizing treatments

and metaphors, dehumanized individuals may feel that others derogate them to an inferior status and subsequently perceive and treat them as 'inferior', 'bestial' or 'second class' (Schumann & Walton, 2021). On the contrary, experiencing dehumanization in the mechanistic form is equated with being viewed as a mere object or rigid automata incapable of feeling emotions and lacking interpersonal warmth (Haslam, 2006). As a result, dehumanized individuals believe they are seen as lacking traits of human nature (i.e. experience), and hence have a sense of being unimportant, insignificant, expendable and lacking emotionality (Bastian et al., 2012). As we discuss below, in the mind of the target of dehumanization, these two forms of dehumanization might co-occur and overlap — essentially highlighting the broad phenomenon of the perception that one is losing an equal standing with others as a human.

The experience of dehumanization entails the sense of loss of moral status. Individuals are attributed with moral virtue and worth and seen as deserving moral treatment by 'simply' being human (Bandura, 1999). But dehumanization creates moral disconnection (Bandura, 1999; Bastian et al., 2011; Opotow, 1990). When people are dehumanized, they are regarded as unworthy of moral concern which serves as justification for harmful actions, meaning that moral restraints on harmful actions are weakened (Castano & Giner-Sorolla, 2006; Gray et al., 2012; Waytz et al., 2010). From the victims' perspective, to be dehumanized means to be stripped of moral worth, excluded from the moral community and feel that others have no obligation to apply moral standards that are generally reserved for those they consider fully human (Kelman, 1973; Opotow, 1990).

For the victim, the experience of dehumanization also undermines the sense of personal identity. This is because dehumanization is related to the process of deindividuation (Kelman, 1973; Zimbardo, 1969), which is important to the current discussion as a deindividuated person is seen as having no personal identity (Haque & Waytz, 2012). As Kelman (1973, p. 48) argues, dehumanization involves the denial of identity—the perception that a person is 'an individual, independent and distinguishable from others, capable of making choices, and entitled to live his own life on the basis of his own goals and values'. The experience of dehumanization facilitates the sense that one is stripped of their identity, is seen as a mere number, indistinguishable from others, and loses all sense of individuality (Bastian & Haslam, 2011; Čehajić et al., 2009; Haque & Waytz, 2012). For the victims, this connotes a sense that others do not care about their feelings, thoughts, suffering and pain.

In sum, to feel less human is to experience the utmost devaluation and exclusion from the human status, moral domain, and fundamental shared superordinate identity of being human. It is a loss of standing as an equal member of the moral community or social group (Schumann & Walton, 2021) and a loss of a fundamental aspect of the self—that which distinguishes us from non-human agents (Haslam, 2006).

Determinants and consequences of the experience of dehumanization

Scholars have started identifying consequences and determinants of the experience of dehumanization. The experience of dehumanization has been found to impair one's well-being, increase behavioural inhibition, facilitate aggressive and deviant work behaviours (Caesens et al., 2017; Greitemeyer & McLatchie, 2011; Muhammad & Sarwar, 2021), and elicit negative emotions (e.g. sadness, anger, guilt), cognitive deconstruction and aversive self-awareness (Bastian & Haslam, 2011; Zhang et al., 2017). In extreme cases, it leads to peritraumatic responses (Moor et al., 2013). The experience of dehumanization also adversely affects relationships at interpersonal and intergroup levels and results in reciprocal dehumanization, and a wide range of hostile attitudes and behaviours directed at the offending person or out-group (Bastian & Haslam, 2010; Kteily & Bruneau, 2017).

Research on determinants of the experience of dehumanization has explored contextual and individual factors. Through a series of studies, Bastian and Haslam (2011) have revealed that commonplace and everyday maltreatments—even subtle and mild ones such as being disregarded, invalidated and humiliated—diminish one's sense of humanity, making the targets of such maltreatments feel dehumanized. Additional research on determinants of the experience of dehumanization has documented the role

of abusive supervision (Caesens et al., 2019) and sex-based objectification (Vaes et al., 2014). And whilst remaining considerably underexplored, one might sense being dehumanized as a consequence of individual determinants (e.g. social economic status; Sainz et al., 2021) and numerical individual identification (i.e. assigning numbers to identify individuals; Song et al., 2022).

Existing measurements and dimensionality

Although the victim's perspective of dehumanization has attracted scholarly attention, the psychometric aspects of the experience of dehumanization have not been explored systematically. The measurements currently employed in the literature to assess the experience of dehumanization are constructed ad hoc (Bastian & Haslam, 2011; Demoulin, Nguyen, et al., 2021; Fontesse et al., 2020), with insufficient evidence of their psychometric properties. Indeed, beyond the limited assessment of their factorial composition and reliability as measured by Cronbach's a, these measurements lack rigorous and systematic psychometric examination of construct validity. Employing a standardized measurement such as the one proposed here is preferable because its reliability and validity are established, and its use allows for cross-study comparisons.

One factor limiting the standardization of the experience of dehumanization measurement is mixed evidence for the dimensionality of the dehumanization construct. Building on the conceptualization of dehumanization and previous empirical studies, we view the experience of dehumanization as a unidimensional construct. Whilst some studies support the bi-dimensional operationalization of the experience of dehumanization based on Haslam's model (Bastian & Haslam, 2011), other studies commonly form a unidimensional measurement because of the limited empirical distinction between the two dimensions (Demoulin, Nguyen, et al., 2021; Fontesse et al., 2020). The failure to distinguish subcomponents of dehumanization has been documented in previous studies, especially those focused on an interpersonal context (Bastian et al., 2012; Riva et al., 2016). It is possible that in the context of interpersonal relationships, both dimensions may be simultaneously implicated (Bastian, Jetten, et al., 2013) and 'overlap more strongly in targets' experience than in perpetrators' view' (Demoulin, Nguyen, et al., 2021, p. 213). Therefore, whilst the two dimensions of humanness may behave independently in individuals' perceptions of others, particularly in the inter-group context, they may also co-occur and work jointly in facilitating how people experience being dehumanized by others.

STUDY 1

The current study sought to (1) generate a set of items that constitute the experience of dehumanization, (2) assess the dimensionality of the EDHM, (3) select items with psychometrically strong properties, and (4) validate the emerged EDHM model. To accomplish this, we used a combination of exploratory factor analysis (EFA), item response analysis (i.e. IRT) and confirmatory factor analysis (CFA).

Study 1a

Participants

Based on the definition of the experience of dehumanization, we generated a list of items by conducting a thorough literature review, qualitative survey and interviews (Hinkin, 1998). We conducted a qualitative survey using Prolific in the United Kingdom ($n = 27$; $M_{age} = 38.68$; 68% female; 32% male) and in-depth semi-structured interviews with 14 adults in the United Kingdom and Spain ($M_{age} = 26$; 50% female, 50% male) using a snowball sampling. The snowball sampling started with a small convenience sample of individuals known by the researchers. Members of this convenience sample then referred to other

participants as we proceeded. We chose a diverse (in terms of gender, ethnicity and age) set of initial respondents, which ensured overall sample diversity (Kirchherr & Charles, 2018).

Materials and procedure

During the interviews, the interviewer asked participants to describe incidents when they felt they were dehumanized, why they thought they were dehumanized, and how they felt during and after the incident(s). All but one participant described incidents when they felt they were dehumanized. Although the incidents described by the participants were different, similar experiences of dehumanization (e.g. 'others see me as if I'm insignificant', 'others have treated me as if I'm inferior') were repeated by multiple participants. The interviews were, therefore, concluded when no new data relevant to the item generation was observed. During the qualitative survey, participants were presented with a random description of a mistreatment adopted from Bastian and Haslam (2011). We then asked participants to write in detail about a similar incident that might have happened to them and describe how they felt and how they thought the perpetrators viewed them during the described incident(s).

Data analysis

The interview transcripts and qualitative survey answers were thematically analysed using NVivo software, applying a hybrid approach to thematic analysis (Fereday & Muir-Cochrane, 2006). This method involved developing codes based on existing theoretical knowledge (deductive codes) and data-driven codes (inductive). Following the thematic analysis steps delineated in Braun and Clarke (2006), themes relating to the experience of dehumanization were categorized based on codes. See Appendix S1 for the themes and example items.

Results

We generated a total of 53 items through the combined process of literature review and the results from the qualitative studies. Examples of items extracted from the interviews and qualitative survey included 'Others have reduced me to a stereotype' and 'I think others don't take my feelings into consideration'. For each item, we developed English and Spanish versions and ensured the items have equivalent meanings in both cultural contexts. An expert in cross-cultural research in social psychology and fluent in Spanish and English validated the items on accuracy of the translation and expressions. Next, seven experts in psychology assessed the 53 items on clarity, representativeness, accuracy and relevance with respect to the experience of dehumanization. Following their feedback, we removed 11 items, resulting in a final list of 42 items (see Appendix S1).

Study 1b

Participants

A total of 761 adults in the United Kingdom agreed to participate in the online study on Prolific. We removed 51 respondents because they failed at least one of the attention checks ('Please choose strongly disagree').[1] The final sample consisted of 710 participants (M_{age} = 39.02; 66.9% female, 32.11% male). A sample of 707 adults in Spain was recruited using Prolific. We removed 56 respondents who failed at

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[1] We used the same attention check format across all of the studies.

least one of the attention checks, resulting in the final sample of 651 participants (M_{age} = 26; 54.0% male, 45.8% female). Full demographic data across all studies is available in Appendix S1. We planned to split each sample in two, hence we sought enough participants to have at least 250 in each sub-sample based on previous recommendations for EFA, IRT and CFA (Edwards, 2009). We used the same sample size rationale in Study 2.

Materials and procedure

Participants were invited to complete an online study. Following previous scale developments (Sheldon et al., 2001), the procedure involved presenting participants with an event description. Participants were randomly presented with one of 50 vignettes taken from Bastian and Haslam (2011). The vignettes range in severity and capture commonplace mistreatments that undermine a victim's sense of their own humanity (Bastian & Haslam, 2011). For the Spanish version of the survey, the vignettes were translated into Spanish. Participants were asked to vividly imagine themselves in the situation and write about how the situation would make them feel. Next, they responded to 42 EDHM items on a 5-point response format (1 = strongly disagree, 5 = strongly agree), followed by demographic questions.

Results

Data, code and materials for all studies can be accessed at https://osf.io/dxaew/. We report all manipulations, measurements and exclusions in these studies. See Appendix S1 for software and R packages used in the analysis. The studies were not preregistered.

We split the samples into two sub-samples containing 60% (exploratory part) and 40% (holdout part) of the participants, respectively. For the United Kingdom sample, the exploratory sub-sample contained 426 participants with the remaining 284 participants forming a holdout sub-sample. The Spanish exploratory sub-sample consisted of 390 participants and the holdout sub-sample comprised the remaining 261 participants. We used the exploratory sub-samples to find a plausible model through EFA and select items with strong psychometric properties using IRT. The holdout sub-samples were, then, used for CFA to validate the final model found in the exploratory phase.

Data suitability

The Kaiser–Meyer–Olkin (KMO) measure of sample adequacy confirmed data appropriateness for factor analysis (United Kingdom: KMO = .98; Spain: KMO = .96).

Assessment of the factorial structure

We analysed the dimensionality of the measurement using Horn's (1965) parallel analysis, an inspection of differences in the magnitude of eigenvalues between factors and exploratory bi-factor analysis (see Reise et al., 2010). We performed the parallel analysis following recommendations by Garrido et al. (2013). In both the United Kingdom and Spanish samples, the results of the parallel analysis suggested the extraction of two underlying factors. In contrast, the substantial ratios of the first to second eigenvalues supported unidimensionality. Specifically, in the United Kingdom sample, the ratio was 25.94/2.84 and it was 23.92/3.11 in the Spanish sample.

We then estimated unidimensional and bi-factorial models using the weighted least squares means and variance adjusted (WLSMV) method. We used bi-geomin orthogonal rotation for the bi-factorial model (Reise et al., 2010). The item loadings for the models can be found in Appendix S1. Supporting the unidimensional model in the United Kingdom and Spanish samples, the item loadings of the general factor from the bi-factorial model were not appreciably different from their corresponding loadings from the unidimensional model (Reise et al., 2007). Furthermore, the explained common variance (ECV) in

both samples demonstrated that item responses were sufficiently explained by the general factor (United Kingdom: ECV = .88; Spain: ECV = .85). Cumulatively, these results indicate that the unidimensional model is appropriate in both the United Kingdom and Spanish context.

IRT analysis

After confirming unidimensionality, we used the graded response model (GRM; Samejima, 1969) estimated with maximum marginal likelihood to select and validate our items. The GRM is based on the logistic function that specifies, given the level of the latent trait (θ; in our case, the experience of dehumanization) being measured, the probability of a person endorsing a response in category k or higher (see Edwards, 2009). The GRM yields two item types of parameter estimates: the α-parameter and item thresholds parameter (b). The α-parameter (discrimination parameter) indexes the strength of the relationships between each item and θ and denotes the ability of the item to discriminate between individuals located at different points along θ. The threshold parameter, b, represents the level of the latent trait at which the probability passes 50% that the person endorses a response in category k or higher.

These IRT parameters allow the analysis to generate item information curves (IICs) and test information function (TIF). An IIC illustrates how much information an item offers for discriminating between individuals across the levels of θ, with higher curves indicating higher levels of precision and less measurement error (i.e. more reliability). The TIF indicates the total amount of information that the measurement provides across different levels of θ and shows where it is most and least precise. The more information a measurement provides at a level of the latent trait, the higher the measurement's precision and reliability and the smaller the measurement error.

Our goal was to retain a set of common items that exhibit strong psychometric properties in both groups. To accomplish this, we estimated the GRM and carried out the iterative process of item removal simultaneously for both the United Kingdom and Spanish samples (Armenta et al., 2017). We prioritized the IRT results as our main item selection criteria, thereby selecting locally independent items that offer the highest levels of discriminating information across the reasonably broad range of the latent trait. Thus, in each iteration, items were excluded in both groups when they did not meet the criteria for at least one group, and we estimated a new GRM within each group every time we reduced the number of items. To identify local dependence (LD) amongst items we employed Jackknife Slope Index (JSI) and used the mean of the JSI values plus twice the standard deviation as a guiding cut-off (Edwards et al., 2018). The iterative process resulted in the exclusion of 32 items. Table 1 demonstrates the final 10 items for both English and Spanish versions of the EDHM.

We performed two additional tests for LD on the final 10 items. We examined the standardized local dependency χ^2 statistic (Chen & Thissen, 1997), with χ^2 values greater than 10 indicative of significant LD. We also inspected the residual correlation matrix produced by a single factor CFA, where the residual correlations greater than $|.2|$ are considered indicative of possible LD (Reeve et al., 2007). Supporting local independence, across both groups, none of the LD χ^2 statistics was greater than 10 and none of the residual correlations exceeded .2.

The 10-item unidimensional GRM had a good fit based on a limited-information statistic, C_2 (see Cai & Monroe, 2014), and conventional model fit evaluation criteria (see below) in the United Kingdom, $C_2(35) = 97.78$, CFI = .99, TLI = .99, RMSEA = .07, SRMSR = .04 and Spanish, $C_2(35) = 51.74$, CFI = 1.00, TLI = 1.00, RMSEA = .04, SRMSR = .03, samples. We then tested the item fit under the GRM by computing the S-χ^2 statistics (Orlando & Thissen, 2000) for each item and RMSEA as a measure of magnitude of item misfit (see Table 1). In the United Kingdom sample, each item had a nonsignificant S-χ^2 value, thereby indicating that all items fit under the GRM. In the Spanish sample, all items except one (item 4) demonstrated a non-significant S-χ^2 value. However, RMSEA for this item was .03, indicating a low deviation from the GRM. Together the results of the global model fit and item fit for both samples indicate that the GRM is an appropriate IRT model that reasonably well predicts the responses of all items.

TABLE 1 IRT parameters and item fit for the English and Spanish versions of the EDHM (Study 1b).

| Item | a | Thresholds' parameters | | | | Item fit | | |
		b_1	b_2	b_3	b_4	S-χ^2 (df)	p	RMSEA
English version								
1. [Others] treat me as if I were an object	2.84	−0.53	0.17	0.64	1.67	56.83 (56)	.444	.01
2. [Others] only see my physical appearance, like they don't care about who I'm inside	1.92	−1.12	−0.20	0.42	1.77	46.66 (70)	.986	.00
3. It seems to me that [others] fail to see who I'm as a person	2.79	−1.28	−0.48	−0.05	1.12	46.13 (57)	.848	.00
4. I think [others] don't care about my basic needs	2.80	−0.92	−0.15	0.38	1.49	51.29 (54)	.580	.00
5. I feel like [others] think I have no feelings, like I can't experience them	2.59	−0.82	−0.10	0.40	1.46	69.61 (61)	.210	.02
6. I feel like I'm treated as a second class	3.20	−0.78	−0.11	0.24	1.12	52.94 (54)	.515	.00
7. [Others] see me as insignificant	3.08	−0.92	−0.28	0.18	1.06	66.09 (57)	.192	.02
8. [Others] make me feel like I don't have the same rights as them	3.51	−0.65	−0.03	0.41	1.36	39.34 (51)	.883	.00
9. [Others] treat me like I don't have a personality of my own	2.79	−0.68	0.13	0.57	1.65	41.73 (55)	.906	.00
10. It seems to me that [others] don't take my feelings seriously	2.81	−1.26	−0.62	−0.20	0.88	40.19 (60)	.977	.00
Spanish version								
1. [Los otros] me tratan como si fuera un objeto	2.39	−0.48	0.21	0.71	1.63	73.36 (66)	.250	.02
2. [Los otros] solo ven mi apariencia física, como si no les importara quién soy por dentro	1.70	−0.91	−0.04	0.68	1.77	79.52 (78)	.431	.01
3. Me parece que [los otros] no ven quién soy como persona	2.27	−1.32	−0.58	−0.11	1.00	57.60 (62)	.635	.00
4. Creo que a [los demás] no les importan mis necesidades básicas	2.26	−1.02	−0.23	0.35	1.46	87.35 (66)	.040	.03
5. Siento que [los demás] piensan que no tengo sentimientos, como si no pudiera experimentarlos	1.99	−0.79	−0.17	0.29	1.39	59.83 (76)	.914	.00
6. Siento que me tratan como si fuera alguien de segunda clase	3.12	−0.81	−0.23	0.24	1.09	49.86 (57)	.738	.00
7. [Los otros] me ven como insignificante	3.29	−0.79	−0.15	0.27	1.06	68.78 (57)	.136	.02
8. [Los otros] me hacen sentir que no tengo los mismos derechos que ellos	2.90	−0.63	−0.12	0.35	1.26	52.61 (62)	.797	.00
9. [Los otros] me tratan como si no tuviera personalidad propia	2.44	−0.67	0.02	0.61	1.60	79.13 (63)	.083	.03
10. Me parece que [los otros] no se toman en serio mis sentimientos	2.89	−1.23	−0.74	−0.17	0.73	46.04 (51)	.671	.00

Note: a = discrimination parameter. The EDHM items have five response options and hence each item has four thresholds ($k-1$). *Others* and *los otros* (*los demás*) can be changed for a specific dehumanization perpetrator. In Study 5a we used 'my colleague' and in Study 5b we used 'this person'.

We then examined the item parameter estimates. As shown in Table 1, *a*-parameters for items were very high for both versions of the EDHM (*a*'s > 1.69; Baker, 2001). All items strongly relate to the latent construct and demonstrate a very good ability to discriminate between individuals who have different levels of the experience of dehumanization. Item threshold parameters were quite evenly spread across a broad trait range, meaning that the item categories provide reasonably good differentiation in measuring the experience of dehumanization.

Figure 1 demonstrates the IICs for the final 10 items. Items have high information curves meaning that they offer a large amount of useful information for discriminating between individuals across
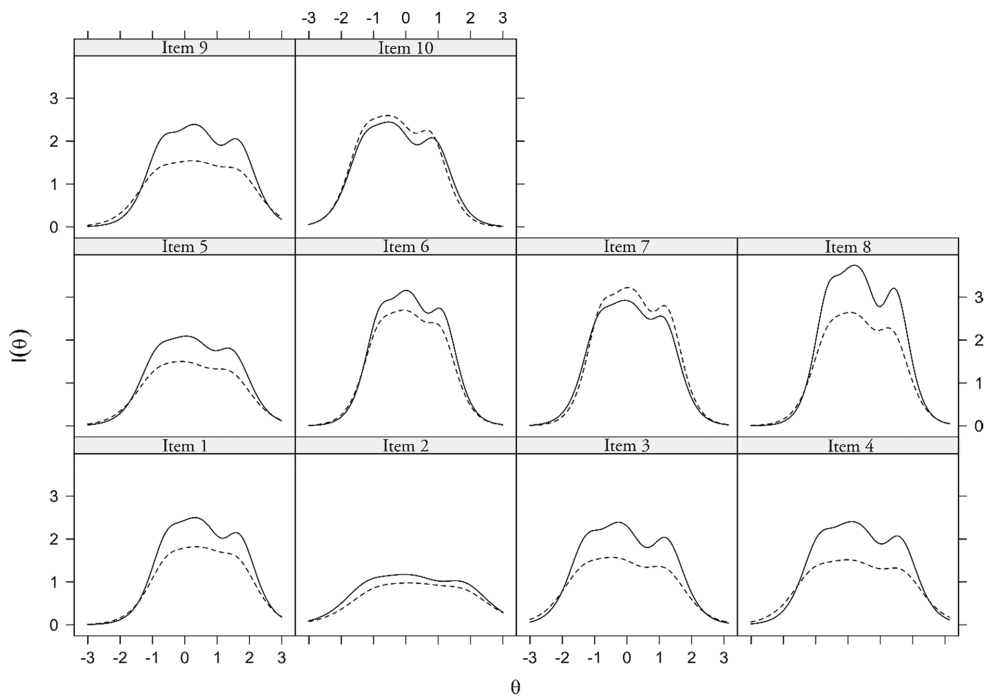
FIGURE 1   Item information curves for the English (solid lines) and Spanish (dashed lines) versions of the EDHM (Study 1b).

different levels of the experience of dehumanization. Therefore, in both versions of the EDHM, items provide good precision in measuring the level of a person's sense of being dehumanized.

Figure 2 depicts the TIFs of the EDHM. The TIFs show that in the United Kingdom and Spanish samples, within the trait range of approximately −2 logit (2 SD below the mean trait) to +2.5 logit (2.5 SD above the mean trait), the amount of test information was equal to or greater than 4 (which has a standard error of estimate equal to or less than 0.50). This indicates that both versions of the EDHM were sufficiently informative and precise for almost all of the broad range of the latent trait. TIF is directly related to reliability as illustrated in Figure 2. The reliability estimation for both versions of the EDHM exceeded .80 along the latent continuum range from approximately −2 to 2.5. Overall, the measurement is precise and reliable for measuring the experience of dehumanization from below average ($-2 < \theta < -1$) to well above average ($\theta > +2$) levels.

Differential item functioning

In the IRT, differential item functioning (DIF) is the equivalent to measurement invariance in the structural equation modelling literature (Edwards, 2009). In testing for DIF, we utilized two approaches: (1) the IRT likelihood ratio test (LRT) using the significance-based two-stage approach (Meade & Wright, 2012), and (2) the iterative hybrid ordinal logistic regression (OLR) approach (Crane et al., 2006). We also calculated differential test functioning (DTF) to determine the magnitude of any DIF effects on the validity of the total EDHM score.

To determine the practical significance of DIF we used the indices of effect sizes. For the LRT, we calculated the expected score standardized difference (ESSD) and expected test score standardized difference (ETSSD), and considered DIF and DTF practically significant if ESSD and ETSSD >0.2 (Meade, 2010). For the OLR approach, we used a change of .035 or greater in the McFadden pseudo-R^2 as an indicator of a meaningful DIF effect size (Jodoin & Gierl, 2001).
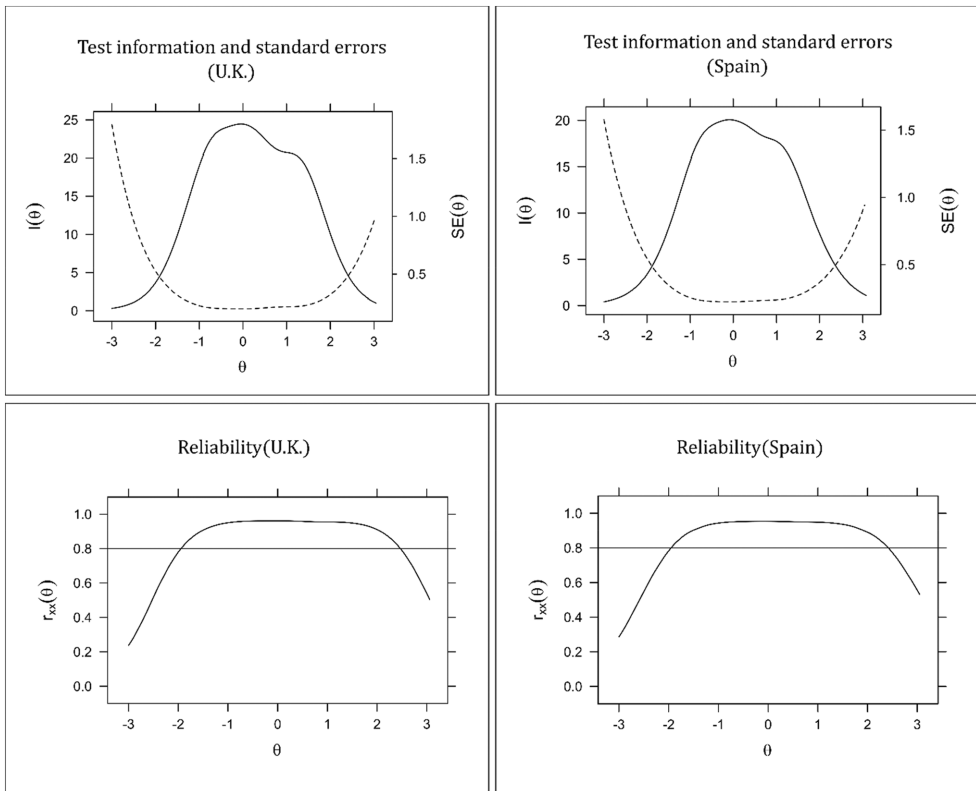
FIGURE 2 Test information functions and reliabilities of the EDHM in the United Kingdom and Spanish samples (Study 1b).

We performed DIF analyses on the exploratory sub-samples across gender (male vs. female) and cultures (United Kingdom vs. Spain). The OLR method indicated that all items functioned similarly across gender and cultures. In the United Kingdom sample, the LRT flagged Items 8 and 9 for negligible DIF across gender (Item 8: UIDS = 0.14, ESSD = 0.05; Item 9: UIDS = 0.05, ESSD = −0.004). The total effect of these items on DTF was negligible (UETSDS = 0.16, ETSSD = 0.01). In the Spanish sample, Item 9 exhibited small DIF across gender (UIDS = 0.23, ESSD = −0.22), but it had a negligible effect on DTF (UETSDS = 0.06, ETSSD = −0.002).

For DIF across cultures, the LRT flagged two items. Item 5 had negligible DIF (UIDS = 0.06, ESSD = 0.04), and Item 2 had practically significant DIF with a small effect (UIDS = 0.18, ESSD = −0.21). The total effect of the two items on DTF between cultures was practically negligible (UETSDS = 0.15, ETSSD = −0.01). Cumulatively, the findings are supportive of the measurement invariance of the EDHM.

Confirmatory factor analysis

We estimated a CFA on the hold-out sub-samples using the WLSMV method. Recognizing that a single conclusive test for the significance of the model does not exist, we evaluated the model fit by means of a combination of the following indices (Bagozzi & Yi, 2012)—comparative fit index (CFI ≥ .90 or >.95), Tucker–Lewis's index (TLI ≥ .90 or >.95), root mean square error of approximation (RMSEA ≤ .08 or ≤.10), and the standardized root mean squared residual (SRMR ≤ .08).

The unidimensional model with 10 items fitted data well in the United Kingdom, $\chi^2(35) = 75.94$, CFI = .99, TLI = .99, RMSEA = .06, SRMR = .03 and in Spanish, $\chi^2(35) = 61.94$, CFI = 1.00, TLI = .99, RMSEA = .05, SRMR = .03, samples. Likewise, as shown in Table 2, model fit was good based on C_2

statistics. Furthermore, all factor loadings were substantial (λ's ≥ .50) and significant (Bagozzi & Yi, 2012). Supporting strong levels of reliability and convergent validity, the values for construct reliability (CR) and average variance extracted (AVE) were well above .70 and .50, respectively (MacKenzie et al., 2011).

STUDY 2

The objective of this study was to confirm the factorial structure of the EDHM and its stability with a CFA using new independent samples in the United Kingdom and Spain.

Method

Participants

The samples comprised 261 adults in the United Kingdom and 250 adults in Spain recruited through Prolific. In the United Kingdom sample, 13 participants failed an attention check and were removed, resulting in the final sample of 248 participants (M_{age} = 34.41; 66.53% female, 32.26% male). In the Spanish sample, we removed 11 participants who failed an attention check, resulting in the final sample of 239 (M_{age} = 29.65, 46.03% female, 53.14% male).

Materials and procedure

The procedure was identical to Study 1b. Participants responded to 10 EDHM items followed by demographic questions.

Results

A CFA of the unidimensional model with 10 items offered results similar to those of the previous analysis. The model had a good fit in the United Kingdom, $\chi^2(35)$ = 72.37, CFI = .99, TLI = .99, RMSEA = .07, SRMR = .03 and in Spanish, $\chi^2(35)$ = 62.49, CFI = .99, TLI = .99, RMSEA = .06, SRMR = .03, samples. In both cultures, the model had a good fit based on C_2; factor loadings, CR and AVE indicated good reliability and convergent validity for the EDHM (see Table 2).

An overview of the performance of both the United Kingdom and Spanish versions of the final 10-item EDHM across previous, current, and future studies is reported in Table 2. In both versions of the EDHM, the factor loadings were always moderate to high, and the AVE and CR values were always above their critical criteria. These results confirm the internal consistency reliability, convergent validity and consistently acceptable model fit of the proposed unidimensional model of the experience of dehumanization.

We formally tested for DIF and DTF across gender and culture in Studies 2, 3 and 4, and almost all were equivalent (see Appendix S1). Across these studies, the OLR approach did not flag any items for DIF. The LRT, on the contrary, flagged items for DIF in several instances, but this was mostly negligible and, in a few cases, small. Importantly, the combined effect of DIF items on DTF between groups was negligible and practically insignificant, providing further support for the measurement invariance of the EDHM.

STUDY 3

The aim of this study was to provide evidence for construct validity—the extent to which a measurement assesses the construct it is deemed to measure (MacKenzie et al., 2011). We aimed to establish construct validity by (1) demonstrating that the experience of dehumanization is related to theoretically relevant constructs (nomological validity), (2) demonstrating that the experience of dehumanization

TABLE 2 Performance of the EDHM across studies.

	Study 1b		Study 2		Study 3		Study 4		Study 5a	Study 5b
	United Kingdom	Spain	United Kingdom	Spain	United Kingdom	Spain	United Kingdom	Spain	United Kingdom	United Kingdom
λ	$n = 284$	$n = 261$	$n = 248$	$n = 239$	$n = 332$	$n = 269$	$n = 302$	$n = 268$	$n = 283$	$n = 207$
EDHM 1	.81	.82	.85	.85	.81	.80	.79	.73	.81	.68
EDHM 2	.71	.73	.70	.65	.66	.67	.54	.48	.66	.57
EDHM 3	.83	.78	.79	.75	.79	.78	.76	.64	.80	.72
EDHM 4	.85	.77	.84	.78	.81	.78	.75	.73	.80	.81
EDHM 5	.78	.82	.81	.70	.75	.74	.72	.64	.72	.73
EDHM 6	.82	.85	.90	.83	.84	.85	.80	.83	.83	.72
EDHM 7	.89	.88	.83	.80	.80	.86	.71	.81	.81	.79
EDHM 8	.83	.86	.87	.85	.82	.79	.83	.82	.79	.75
EDHM 9	.78	.75	.83	.82	.85	.77	.74	.64	.77	.73
EDHM 10	.86	.87	.86	.85	.86	.87	.81	.79	.81	.78
Model fit statistics (χ^2)										
χ^2 ($df = 35$)	75.94	61.94	72.37	62.49	88.76	96.53	127.50	99.56	82.53	95.49
CFI	.99	1.00	.99	.99	.99	.99	.98	.98	.99	.97
TLI	.99	.99	.99	.99	.99	.98	.97	.97	.99	.96
RMSEA	.06	.05	.07	.06	.07	.08	.09	.08	.07	.09
SRMR	.03	.03	.03	.03	.03	.03	.04	.05	.03	.05
Model fit statistics (C_2)										
C_2 ($df = 35$)	57.36	57.05	68.16	59.80	80.69	78.50	85.84	100.46	60.63	78.85
CFI	1.00	1.00	.99	.99	.99	.99	.99	.98	.99	.97
TLI	.99	.99	.99	.99	.99	.99	.98	.97	.99	.97
RMSEA	.05	.05	.06	.06	.06	.07	.07	.08	.05	.08
SRMSR	.03	.03	.04	.04	.04	.05	.05	.05	.04	.06
Reliability and convergent validity										

(Continues)

TABLE 2 (Continued)

	Study 1b		Study 2		Study 3		Study 4		Study 5a	Study 5b
	United Kingdom	Spain	United Kingdom	Spain	United Kingdom	Spain	United Kingdom	Spain	United Kingdom	United Kingdom
λ	*n* = 284	*n* = 261	*n* = 248	*n* = 239	*n* = 332	*n* = 269	*n* = 302	*n* = 268	*n* = 283	*n* = 207
CR	.95	.95	.96	.94	.95	.94	.93	.91	.94	.92
AVE	.67	.66	.69	.63	.64	.63	.56	.52	.61	.53

Note. For Study 1b, results are based on the hold-out samples. All standardized factor loadings are significant at $p < .001$.

Abbreviations: AVE, average variance extracted; CR, construct reliability; λ, standardized factor loadings.

is conceptually distinct from other related theoretical constructs (discriminant validity), (3) examining associations between the experience of dehumanization and theoretically relevant outcomes (predictive validity), and (4) demonstrating that our measurement provides explanatory power in the prediction of important outcomes over and above closely related constructs (incremental validity).

To achieve these objectives, we explored the relationships with constructs in the experience of dehumanization nomological network that have demonstrated theoretical and or empirical evidence of connections with perceived dehumanization: self-esteem, fear of negative evaluations, negative affect, emotional hostility, meta-prejudice and self-dehumanization. At its core, the experience of dehumanization questions individuals' ultimate value of being human and may serve as a cue of low relational evaluation and indicate the possibility of social exclusion. The experience of dehumanization should, therefore, positively converge with fear of negative evaluation and negatively converge with self-esteem. Empirical research supports the former relationship, with studies demonstrating that the sense of being dehumanized is associated with lower self-esteem (Demoulin, Nguyen, et al., 2021; Fontesse et al., 2020). Since the experience of dehumanization connotes a sense of social disapproval, adverse judgments and reduces self-esteem and well-being (Demoulin, Nguyen, et al., 2021), we anticipated that it would be positively related to fear of negative evaluations.

We explored the relationship between the experience of dehumanization and negative affect. Prior research has documented being dehumanized as relating to negative emotional consequences (Chevallereau, Maurage, et al., 2021; Zhang et al., 2017). In line with these findings, we anticipated that the experience of dehumanization would be positively related to the experience of negative affect. We also expected a positive relationship between the experience of dehumanization and emotional hostility. This is because in the context of intergroup conflicts (Kteily et al., 2016; Kteily & Bruneau, 2017) and at the interpersonal level (Bastian & Haslam, 2010, 2011), the sense of being dehumanized is associated with a range of aggressive reactions such as hostility and endorsement of punitive measures.

We formally tested discriminant validity by examining the relationships between the experience of dehumanization and two theoretically relevant constructs: meta-prejudice and self-dehumanization. Unlike meta-prejudice, which focuses on the overall evaluation of being *disliked* (Kteily & Bruneau, 2017), the experience of dehumanization involves the sense of extreme devaluation and exclusion from the superordinate identity of 'human'. Additionally, as documented by Kteily et al. (2016) at the intergroup level, feeling dehumanized by the out-group and meta-prejudice are strong, yet independent predictors of endorsement of hostile behaviours. We therefore anticipated that endorsement of meta-prejudice would be related to endorsement of the experience of dehumanization, but argue that the experience of dehumanization goes beyond mere negativity in meta-perception. We also anticipated that the experience of dehumanization is related yet distinct to self-dehumanization which consists of seeing *oneself* as less than human (see Bastian & Crimston, 2014). The experience of dehumanization is distinct from self-dehumanization because the target of dehumanization might not agree with the dehumanizing view, nor apply it in their self-concept, whereas self-dehumanization corresponds to the temporal or permanent incorporation of the dehumanizing view into the self-concept (Fontesse et al., 2021).

Method

Participants

In Study 3 and Study 4, because we did not know what effect size to expect, we predetermined a sample size of at least 250 participants to (1) ensure accurate parameter estimations during a CFA for the EDHM and (2) to determine a medium-sized effect.

A sample of 361 adults in the United Kingdom agreed to participate in the online study on Prolific. We removed 29 participants because they failed at least one of the attention checks. The final sample was 332 participants (M_{age} = 29.56; 58.43% female, 39.76% male). In Spain, we recruited 309 adults to participate in the study through Prolific. Forty participants were removed because they failed at least one

of the attention checks, leaving the final sample of 269 (M_{age} = 28.63; 53.53% female, 43.49% male). The sensitivity analysis (a = .05, β = .80) showed that the United Kingdom sample was sensitive to the effects of r = .16, whereas the Spanish sample was sensitive to the effects of r = .17.

Materials and procedure

Experience of dehumanization
The 10-item EDHM exhibited strong psychometric properties in both samples (see Table 2). Across this and subsequent studies, we obtained IRT measurement scores for the EDHM using the expected posteriori (EAP; Bock & Mislevy, 1982) estimates for the level of the experience of dehumanization. We used these IRT measurement scores for all analyses reported.

Fear of negative evaluations
In the United Kingdom sample, we assessed fear of negative evaluations using Leary's (1983) scale with a 5-point response format (1 = strongly disagree, 5 = strongly agree). We only used 8 straight-scored items. An example item is 'I am afraid that others will not approve of me'. In the Spanish sample, we used a translated version of this measurement by Gallego Pitarch et al. (2007). The measurement demonstrated good reliability (United Kingdom: ω = .95; Spain: ω = .92).

TABLE 3 Descriptive statistics, bivariate correlations and HTMT ratios (Study 3).

Construct	1 [95% CI]	2	3	4	5	6	7	8
United Kingdom								
1. EDHM	—	.56	.11	.31	.23	.51	.19	.50
2. Meta-prejudice	.53** [.44, .61]	—	.09	.24	.26	.40	.19	.35
3. Self-dehumanization	−.02 [−.13, .09]	.03	—	.25	.47	.12	.12	.10
4. Fear of negative evaluations	.30** [.19, .40]	.22**	−.18**	—	.60	.40	.11	.22
5. Self-esteem	−.21** [−.32, −.11]	−.24**	.41**	−.57**	—	.27	.15	.15
6. Negative affect	.46** [.38, .55]	.37**	−.01	.37**	−.25**	—	.32	.69
7. Positive affect	−.05 [−.18, .08]	−.12*	.04	−.03	.09	−.04	—	.24
8. Emotional hostility	.42** [.33, .51]	.31**	.07	.19**	−.12*	.59**	.01	—
M	3.08 (0)	42.29	5.82	3.69	3.29	2.76	1.86	3.37
SD	0.95 (0.97)	26.73	0.73	0.93	0.82	0.95	0.72	1.42
Spain								
1. EDHM	—	.66	.18	.31	.33	.39	.25	.42
2. Meta-prejudice	.61** [.51, .69]	—	.12	.25	.22	.33	.20	.27
3. Self-dehumanization	−.05 [−.17, .08]	−.02	—	.25	.46	.18	.14	.21
4. Fear of negative evaluations	.30** [.17, .41]	.24**	−.14*	—	.59	.34	.14	.21
5. Self-esteem	−.33** [−.43, −.21]	−.21**	.35**	−.52**	—	.26	.23	.13
6. Negative affect	.36** [.24, .47]	.30**	−.06	.33**	−.23**	—	.28	.56
7. Positive affect	−.21** [−.34, −.08]	−.18**	.06	−.10	.18**	−.21**	—	.15
8. Emotional hostility	.37** [.24, .48]	.23**	.10	.20**	−.10	.49**	−.08	—
M	3.03 (0)	49.14	5.74	3.45	3.36	2.87	1.94	2.79
SD	0.97 (0.97)	28.92	0.73	0.93	0.85	0.85	0.87	1.18

Note: Correlations are reported below the diagonal; HTMT values are above the diagonal. Results are based on 5000 bootstrap samples. [95% CI] = 95% confidence interval of correlation coefficient. For the EDHM, M and SD based on the extracted IRT measurement scores are reported in parentheses. *p < .05; **p < .01.

Abbreviation: EDHM, experience of dehumanization measurement.

Self-esteem

In the United Kingdom sample, we measured participants' self-esteem using Rosenberg's (1965) self-esteem scale with a 5-point response format (1 = strongly disagree, 5 = strongly agree). An example item is 'On the whole, I am satisfied with myself'. In the Spanish sample, we used a translated measurement by Martín-Albo et al. (2007). The reliability was good (United Kingdom: ω = .92; Spain: ω = .91).

Self-dehumanization

Following Kouchaki et al. (2018), we measured self-dehumanization with 10 items (e.g. 'How capable are you of experiencing emotion?') adopted from Kozak et al. (2006) and rated on a 7-point response format (1 = not at all capable, 7 = extremely capable). Responses were coded such that higher scores indicated low self-dehumanization. The reliability was acceptable (United Kingdom: ω = .83; Spain: ω = .75).

Emotional hostility

Hostile emotions (e.g. anger, hatred) toward the perpetrator(s) of the actions described in the scenario were assessed using a measurement adopted from Kteily et al. (2016) rated on a 6-point response format anchored at 1 (not at all) and 6 (very much so). We removed two reverse-coded items to ensure good levels of reliability. The three-item measurement demonstrated good reliability (United Kingdom: ω = .84; Spain: ω = .83).

Meta-prejudice

We measured meta-prejudice using four items (e.g. 'Others don't like me much') adopted from Bruneau, Hameiri, et al. (2020). Participants reported their agreement with the statements on scales anchored at 0 ('completely disagree') and 100 ('completely agree'). The reliability was good (United Kingdom: ω = .93; Spain: ω = .92).

Positive and negative affect

The affect was measured using the 20-item positive and negative affect schedule (PANAS; Watson et al., 1988). For the Spanish sample, we used a Spanish version of PANAS by Baptista et al. (2020). Participants indicated the extent to which they were experiencing each emotion (e.g. 'interested', 'upset') in relation to the vignette using a 5-point response (1 = very slightly, 5 = extremely). Good levels of reliability were evident for the positive affect (United Kingdom: ω = .88; Spain: ω = .93) and negative affect (United Kingdom: ω = .90; Spain: ω = .87) sub-scales.

Measurements for self-dehumanization, meta-prejudice, and emotional hostility were originally in English; the Spanish versions of these measurements went through the translation and back translation procedure (Brislin, 1970). The procedure was similar to Studies 1b and 2. After reading a randomly assigned vignette, participants responded to a questionnaire with measurements presented in random order. We then collected participants' demographic information.

Results

Nomological validity

Bivariate correlations amongst all study variables for the United Kingdom and Spanish samples can be found in Table 3. We followed Gignac and Szodorai (2016) in evaluating the magnitude of correlations. In both the United Kingdom and Spanish samples, the EDHM exhibited significant, medium-to-large correlations with the constructs predicted to relate to it (United Kingdom: $-.21 \leq r \leq .53$, p's < .001; Spain: $-.33 \leq r \leq .61$, p's < .001). These correlations were all in the predicted directions. In both samples, the correlation between the experience of dehumanization and self-dehumanization was non-significant

TABLE 4 Results of hierarchical multiple regression analysis (Study 3).

Criterion/ step	Predictor	United Kingdom					Spain				
		B	B [95% CI]	β	R^2	ΔR^2	B	B [95% CI]	β	R^2	ΔR^2
Negative affect											
Step 1					.06	.06**				.02	.02*
	Age	−0.01	[−0.02, 0.00]	−.15**			−0.01	[−0.01, 0.00]	−.06		
	Gender	0.30	[0.11, 0.50]	.17**			0.21	[0.04 0.39]	.14*		
Step 2					.18	.13**				.11	.08**
	Age	−0.01	[−0.02, 0.00]	−.15**			0.00	[−0.01, 0.01]	−.03		
	Gender	0.30	[0.12, 0.47]	.17**			0.19	[0.02, 0.36]	.12*		
	Meta-prejudice	0.01	[0.01, 0.02]	.36**			0.01	[0.00, 0.01]	.29**		
Step 3					.26	.08**				.15	.05**
	Age	−0.01	[−0.02, 0.00]	−.15**			0.00	[−0.01, 0.01]	−.03		
	Gender	0.21	[0.04, 0.37]	.11*			0.17	[0.01, 0.33]	.11		
	Meta-prejudice	0.01	[0.00, 0.01]	.18**			0.00	[0.00, 0.01]	.12		
	EDHM	0.33	[0.21, 0.43]	.33**			0.25	[0.12, 0.38]	.28**		
Emotional hostility											
Step 1					.01	.01				.00	.00
	Age	−0.01	[−0.03, 0.00]	−.09			−0.01	[−0.02, 0.01]	−.05		
	Gender	−0.01	[−0.34, 0.30]	−.01			0.03	[−0.22, 0.29]	.01		
Step 2					.09	.09**				.05	.05**
	Age	−0.01	[−0.03, 0.00]	−.09			0.00	[−0.02, 0.01]	−.03		
	Gender	−0.02	[−0.33, 0.29]	−.01			0.00	[−0.24, 0.26]	.00		
	Meta-prejudice	0.02	[0.01, 0.02]	.29**			0.01	[0.00, 0.01]	.23**		
Step 3					.19	.09**				.14	.08**
	Age	−0.01	[−0.02, 0.00]	−.08			0.00	[−0.02, 0.01]	−.03		
	Gender	−0.17	[−0.47, 0.12]	−.06			−0.03	[−0.26, 0.22]	−.01		
	Meta-prejudice	0.01	[0.00, 0.01]	.10			0.00	[−0.01, 0.01]	.00		
	EDHM	0.54	[0.35, 0.72]	.37**			0.45	[0.27, 0.62]	.37**		
Self-Esteem											
Step 1					.08	.08**				.09	.09**
	Age	0.02	[0.01, 0.03]	.27**			0.02	[0.01, 0.03]	.27**		
	Gender	−0.07	[−0.25, 0.10]	−.05			−0.18	[−0.34, 0.00]	−.12*		
Step 2					.13	.05**				.12	.04**
	Age	0.02	[0.01, 0.03]	.27**			0.02	[0.01, 0.03]	.25**		
	Gender	−0.07	[−0.24, 0.10]	−.04			−0.16	[−0.33, 0.02]	−.11		
	Meta-prejudice	−0.01	[−0.01, 0.00]	−.23**			−0.01	[−0.01, 0.00]	−.19**		
Step 3					.14	.01				.18	.06**
	Age	0.02	[0.01, 0.03]	.27**			0.02	[0.01, 0.03]	.25**		
	Gender	−0.04	[−0.21, 0.13]	−.03			−0.14	[−0.30, 0.02]	−.09		
	Meta-prejudice	−0.01	[−0.01, 0.00]	−.17**			0.00	[0.00, 0.00]	−.01		
	EDHM	−0.09	[−0.19, 0.02]	−.11			−0.26	[−0.39, −0.13]	−.30**		

(Continues)

TABLE 4 (Continued)

Criterion/step	Predictor	United Kingdom					Spain				
		B	*B* [95% CI]	β	R^2	ΔR^2	*B*	*B* [95% CI]	β	R^2	ΔR^2
Fear of negative evaluations											
Step 1					.13	.13**				.11	.11**
	Age	−0.02	[−0.03, −0.01]	−.27**			−0.02	[−0.03, −0.01]	−.23**		
	Gender	0.38	[0.20, 0.58]	.22**			0.37	[0.20, 0.55]	.23**		
Step 2					.18	.05**				.15	.05**
	Age	−0.02	[−0.03, −0.01]	−.27**			−0.02	[−0.03, −0.01]	−.21**		
	Gender	0.38	[0.20, 0.57]	.21**			0.35	[0.18, 0.53]	.21**		
	Meta-prejudice	0.01	[0.00, 0.01]	.22**			0.01	[0.00, 0.01]	.21**		
Step 3					.21	.03**				.18	.03**
	Age	−0.02	[−0.03, −0.01]	−.27**			−0.02	[−0.03, −0.01]	−.21**		
	Gender	0.33	[0.15, 0.52]	.18**			0.34	[0.16, 0.51]	.20**		
	Meta-prejudice	0.00	[0.00, 0.01]	.11			0.00	[0.00, 0.01]	.08		
	EDHM	0.19	[0.06, 0.32]	.20**			0.21	[0.06, 0.36]	.21**		

Note: *B* [95% CI] = 95% confidence interval of unstandardized coefficient. Results are based on 5000 bootstrap samples. *$p < .05$; **$p < .01$.

Abbreviation: EDHM, experience of dehumanization measurement.

(United Kingdom: $r = -.02$, $p = .332$, [−.13, .09]; Spain: $r = −.05$, $p = .422$, [−.17, .08]). Cumulatively, the results support construct validity as the scores on the EDHM demonstrate expected relationships with theoretically relevant constructs.

Discriminant validity

To assess discriminant validity, we used the Heterotrait–Monotrait (HTMT) technique (Henseler et al., 2015). We utilized HTMT$_{.85}$ criterion for acceptable HTMT ratios for each pair of constructs as evidence of discriminant validity (Henseler et al., 2015). As shown in Table 3, all HTMT ratios between the EDHM and other constructs were well below the critical value of .85, confirming the discriminant validity of the EDHM in both samples.

Predictive and incremental validity

We performed hierarchical multiple regression to analyse the predictive and incremental validity of the EDHM by examining whether our measurement provides explanatory power beyond meta-prejudice in predicting fear of negative evaluations, self-esteem, negative affect, and emotional hostility. In Step 1, we entered gender and age as control variables. In Step 2, we entered meta-prejudice, followed by the experience of dehumanization in Step 3. Variance inflation factor (VIF) scores were smaller than 2.00, meaning that multicollinearity was not a serious concern. As indicated by the changes in R^2 values (see Table 4), in both groups, the experience of dehumanization was a significant predictor and accounted for additional variance over and above meta-prejudice for fear of negative evaluation (United Kingdom: $\Delta R^2 = .03$, $p = .001$; Spain: $\Delta R^2 = .03$, $p = .003$), emotional hostility (United Kingdom: $\Delta R^2 = .09$, $p < .001$; Spain: $\Delta R^2 = .08$, $p < .001$) and negative affect (United Kingdom: $\Delta R^2 = .08$, $p < .001$; Spain: $\Delta R^2 = .05$, $p < .001$). Whereas in the Spanish sample, the EDHM explained additional variance in self-esteem beyond meta-prejudice ($\Delta R^2 = .06$, $p < .001$), no significant changes in R^2 were observed in predicting self-esteem in the United Kingdom sample ($\Delta R^2 = .01$, $p = .09$). Taken together, these results provided evidence for the predictive and incremental validity of the EDHM.

STUDY 4

In this study, we continued establishing construct validity of the EDHM by (1) assessing the performance of the measurement using a different procedure, (2) extending the nomological network of distinct, yet related theoretical constructs, and (3) obtaining additional evidence to distinguish the experience of dehumanization from constructs that share conceptual overlap (Hinkin, 1998). In exploring the nomological network, we selected constructs that we reasoned would negatively or positively correlate with the experience of dehumanization based on theory and the extant literature. These included psychological needs, need to belong, sense of power, perceived regard, felt hurt, frustration, helplessness and prevention regulatory focus. To formally assess discriminant validity, we selected perceived objectification, perceived discrimination and perceived regard.

The experience of dehumanization shares a strong conceptual overlap with perceived objectification. Objectification is a form of dehumanization (Fiske, 2009) in which people are seen or treated as objects or instruments, instead of as human beings (Nussbaum, 1995). In this regard, objectification and dehumanization are closely related, yet they are two unique constructs (for a review see: Gervais, 2013). When people dehumanize a person, they do not necessarily objectify this person (they do not see them as an instrument only; Schroeder & Epley, 2020). Unlike perceived objectification, the experience of dehumanization goes beyond a specific focus on the object-like perception and underlines the sense of exclusion from human status, the moral domain, and fundamentally shared superordinate identity of being human. Consistent with this and previous studies (Chevallereau, Maurage, et al., 2021; Crone et al., 2021), we expected that perceived objectification would share an empirical overlap and positive relationship with the experience of dehumanization, but they are not identical constructs.

Likewise, we expected the experience of dehumanization to be closely related to perceived discrimination, yet distinct from it. Unlike the experience of dehumanization that focuses on the sense of being seen and treated within the superordinate concept of humanness, perceived discrimination is a subjective perception of unfair or unjust treatment based on personal characteristics (e.g. age, sex, race/ethnicity, sexual orientation and other characteristics; Williams et al., 1997). It also involves the perception of differential treatment of individuals by both individuals and social institutions. Further supporting our prediction is the strong conceptual overlap between dehumanization and discrimination. When people think of others as sub-human, they often treat them in a degrading, immoral, unfair or differential manner (Bruneau, Szekeres, et al., 2020; Kteily et al., 2015), but such treatment is the effect of dehumanization rather than the dehumanization itself.

We also expected the experience of dehumanization to be related to, yet distinct from perceived regard. Perceived regard refers to 'the extent to which people believe that others value and accept them' (Gaucher et al., 2012, p. 1145). Individuals might assume that others regard them relatively negatively and are less accepting of them, but that does not necessarily mean they assume others are dehumanizing them or treating them in a dehumanizing manner. In this, unlike the experience of dehumanization, perceived regard focuses on a more general evaluation and does not capture the strength of the sense of being dehumanized.

We examined the relationship between the experience of dehumanization and fundamental psychological needs. Schroeder and Epley (2020) argue that demeaning the importance of others' psychological needs is a manifestation of dehumanization. People also feel dehumanized when they experience interpersonal situations in which their fundamental psychological needs are thwarted (Demoulin, Nguyen, et al., 2021). Based on these studies and the notion that being the target of negative social feedback often threatens fundamental psychological needs (Williams, 2009), we anticipated a negative relationship between the experience of dehumanization and psychological needs, including the need to belong. Similarly, we anticipated that the experience of dehumanization would be negatively related to a personal sense of power, defined as 'the perception of one's ability to influence another person or other people' (Anderson et al., 2012, p. 316). We based our argumentation on the notion that the targets of negative social feedback experience threats to their sense of power (e.g. Lee & Shrum, 2012).

Extending work on the emotional consequences of the experience of dehumanization (Chevallereau, Stinglhamber, et al., 2021; Zhang et al., 2017), we examined felt hurt, frustration and helplessness. Hurt feelings is a manifestation of social pain that is frequently experienced when people perceive and experience rejection or devaluation by someone (Leary et al., 1998). Hurt is elicited by others' aversive behaviour or actions that signal relational devaluation. As we have argued, being viewed or treated as less than a fully developed human may connote a sense of devaluation and the belief that others do not see one as having relational value. Therefore, we anticipated that felt hurt would be positively associated with the experience of dehumanization.

Frustration and helplessness are unpleasant emotions (Lazarus, 1991). Frustration tends to occur when people blame uncontrollable goal incongruent circumstances for the aversive situation (Roseman, 1991). According to Gelbrich (2010), frustration involves blame attribution to the uncontrollable circumstance, but not to the particular person. We predicted that the experience of dehumanization would be positively related to frustration because the person who feels dehumanized might attribute blame not only to the perpetrator (Kteily et al., 2016), but also to the situation itself. Similarly, we anticipated that endorsement of helplessness would be positively related to endorsement of the experience of dehumanization. Individuals often feel helpless when they are in averse situations because they see a low potential to cope with the situation (Gelbrich, 2010). Even common forms of mistreatment that signify dehumanization can be seen as aversive (Bastian & Haslam, 2011), and hence might encourage a sense of helplessness for the victim of the dehumanization. As such, when an individual feels that their humanity has been undermined, they might see the situation that led to this as irrevocable, with little to no possibility to alter it.

We also explored the relationship between the experience of dehumanization and regulatory focus. The regulatory theory postulates two motivational orientations operating within individuals: a promotion and a prevention focus (Higgins, 1997). Here, we concentrated on the prevention focus, which is concerned with security and can be understood as the motivation for safety and stability. The experience of dehumanization may make losses, and security and safety needs more salient. Supporting this, Molden et al. (2009) demonstrated that following aversive experiences, such as social rejection, individuals produce more prevention-focused responses. Therefore, we anticipated that endorsement of the experience of dehumanization would be positively related to the endorsement of a prevention focus.

Method

Participants

A sample of 332 adults from the United Kingdom agreed to participate in the online study hosted on Prolific. We removed 30 participants because they failed at least one of the attention checks. The final sample consisted of 302 participants (M_{age} = 32.65; 71.85% female, 27.48% male). In Spain, we recruited a sample of 294 adults using Prolific. We removed 25 respondents who failed at least one of the attention checks and one respondent who did not follow the instructions, resulting in the final sample of 268 participants (M_{age} = 25.75; 51. 49% female, 44.78% male). Based on sensitivity analysis (a = .05, β = .80), the United Kingdom and Spanish samples were sensitive to effects of r = .16 and r = .17, respectively.

Materials and procedure

Experience of dehumanization
The 10-item EDHM showed strong psychometric properties in both samples (see Table 2).

Perceived objectification at work
We focused on gender-neutral perceived objectification at work using a measurement by Crone et al. (2021). An example item is 'At work, my boss and/or my colleagues think more about what I can do for them than what they can do for me'. Responses were made on a 7-point response format (1 = strongly disagree; 7 = strongly agree). We merged two original dimensions because the HTMT ratio between dimensions

exceeded the $HTMT_{.85}$ criterion. The unidimensional measurement had good reliability (United Kingdom: $\omega = .93$; Spain: $\omega = .90$).

Discrimination

We measured the perception of discrimination by adopting Williams's et al. (1997) measurement. We removed items with a service context. We asked participants to respond to statements such as 'People act as if they are afraid of you' using a 5-point response format (1 = strongly disagree; 5 = strongly agree). The measurement had good reliability (United Kingdom: $\omega = .82$; Spain: $\omega = .79$).

Perceived regard

We used a 23-item measurement to assess people's perceived regard by others (Murray et al., 2000). Specifically, participants were presented with positive (e.g. kind, affectionate) and negative (e.g. lazy, controlling) adjective traits. We asked them to rate the extent to which the perpetrator(s) of the situation described perceived them on each trait using a 9-point scale (1 = not at all characteristic; 9 = completely characteristic). The measurement demonstrated good reliability (United Kingdom: $\omega = .85$; Spain: $\omega = .88$).

Importance of psychological needs

Participants completed a 12-item measurement assessing how important four potential psychological needs were for them (autonomy, competence, security, and relatedness; Sheldon et al., 2001). Participants responded to statements such as 'Free to do things my own way' using a 5-point response format (1 = not at all; 5 = very much). We aggregated the scale to compute a single index of the importance of psychological needs. The reliability was good (United Kingdom: $\omega = .89$; Spain: $\omega = .87$).

Need to belong

Participants' need to belong was measured using the 10-item Need to Belong Scale (Leary et al., 2013). Respondents indicated the degree to which each statement (e.g. 'I want other people to accept me') was true or characteristic of them on a 5-point scale (1 = not at all; 5 = extremely). The measurement had good reliability (United Kingdom: $\omega = .86$; Spain: $\omega = .81$).

Sense of power

Participants' level of psychological sense of power was assessed with the 8-item measure from Anderson et al. (2012). Participants indicated the extent to which they agreed with statements such as 'During this event, I thought I had a great deal of power' on a 7-point response format (1 = strongly disagree, 7 = strongly agree). The measurement had good reliability (United Kingdom: $\omega = .85$; Spain: $\omega = .83$).

Felt hurt

We measured the extent to which participants felt hurt or rejected by perpetrator(s) adopting a six-item scale from Murray et al. (2003). Participants reported their agreement with the statements such as 'Others don't understand me' on a 5-point response format (1 = strongly disagree; 5 = strongly agree). The measurement demonstrated good reliability (United Kingdom: $\omega = .84$; Spain: $\omega = .84$).

Helplessness

We measured helplessness using a four-item scale (Gelbrich, 2010). Participants responded to statements such as 'I felt helpless' on a 7-point response format (1 = strongly disagree; 7 = strongly agree). The measurement had good reliability (United Kingdom: $\omega = .92$; Spain: $\omega = .84$).

Frustration

Participants completed a three-item measurement of frustration (Gelbrich, 2010). Participants responded to statements such as 'I felt frustrated about the situation' on a 7-point response format (1 = strongly disagree, 7 = strongly agree). The measurement demonstrated acceptable reliability in the United Kingdom ($\omega = .79$) and in Spain ($\omega = .75$).

TABLE 5 Descriptive statistics, bivariate correlations, and HTMT ratios for the United Kingdom sample (Study 4).

	1 [95% CI]	2	3	4	5	6	7	8	9	10	11	12
1. EDHM	—	.66	.59	.26	.64	.29	.19	.26	.18	.43	.57	.37
2. Discrimination	.56** [.47, .64]	—	.60	.37	.61	.33	.13	.29	.21	.51	.48	.42
3. Perceived objectification	.53** [.44, .62]	.52**	—	.27	.54	.25	.11	.31	.15	.41	.50	.34
4. Perceived regard	−.24** [−.11, −.36]	−.26**	−.21**	—	.33	.44	.16	.24	.21	.42	.31	.27
5. Felt hurt	.56** [.46, .65]	.51**	.48**	−.28**	—	.42	.10	.26	.27	.55	.67	.46
6. Psychological needs	−.26** [−.37, −.14]	−.23**	−.22**	.32**	−.36**	—	.26	.19	.21	.55	.46	.25
7. Promotion focus	−.17** [−.29, −.05]	−.06	.00	.09	−.04	.19**	—	.44	.19	.08	.10	.20
8. Prevention focus	.20** [.07, .31]	.20**	.27**	−.01	.19**	−.10	.24**	—	.41	.21	.44	.17
9. Need to belong	.13* [.01, .25]	.10	.13*	−.04	.20**	−.15**	.12*	.30**	—	.24	.30	.17
10. Sense of power	−.38** [−.48, −.28]	−.35**	−.37**	.33**	−.46**	.48**	−.02	−.16**	−.18**	—	.68	.39
11. Helplessness	.52** [.41, .61]	.38**	.47**	−.26**	.59**	−.42**	−.04	.38**	.25**	−.60**	—	.54
12. Frustration	.31** [.20, .42]	.33**	.31**	−.23**	.37**	−.19**	.15**	.13*	.07	−.30**	.47**	—
M	3.25 (0)	2.80	4.06	4.56	3.41	2.74	6.42	5.66	3.14	2.86	4.74	5.98
SD	0.82 (0.96)	0.81	1.45	1.01	0.88	0.84	1.50	1.39	0.77	1.14	1.64	0.93

Note. Correlations are reported below the diagonal; HTMT values are reported above the diagonal. Results are based on 5000 bootstrap samples. [95% CI] = 95% confidence interval of correlation coefficient. For the EDHM, *M* and *SD* for the extracted IRT measurement scores are reported in parentheses. *p < .05; **p < .01.

Abbreviation: EDHM, experience of dehumanization measurement.

TABLE 6 Descriptive statistics, bivariate correlations, and HTMT ratios for the Spanish sample (Study 4).

	1 [95% CI]	2	3	4	5	6	7	8	9	10	11	12
1. EDHM	—	.68	.68	.28	.47	.28	.16	.21	.20	.40	.48	.34
2. Discrimination	.54** [.45, .64]	—	.57	.34	.52	.35	.12	.16	.23	.42	.52	.44
3. Perceived objectification	.60** [.52, .67]	.47**	—	.25	.47	.31	.13	.17	.14	.39	.45	.25
4. Perceived regard	−.17** [−.29, −.04]	−.19**	−.13*	—	.46	.50	.20	.19	.21	.41	.35	.32
5. Felt hurt	.40** [.27, .52]	.41**	.40**	−.36**	—	.38	.10	.12	.21	.45	.51	.39
6. Psychological needs	−.26** [−.37, −.15]	−.26**	−.26**	.26**	−.31**	—	.18	.18	.21	.66	.57	.36
7. Promotion focus	.04 [−.08, .16]	−.01	−.04	.03	−.06	.12	—	.46	.12	.17	.15	.21
8. Prevention focus	.14* [.01, .27]	.07	.11	−.06	−.02	−.12	.25**	—	.46	.21	.21	.26
9. Need to belong	.13* [.01, .25]	.14*	.06	−.08	.14*	−.11	.12	.44**	—	.22	.23	.52
10. Sense of power	−.37** [−.47, −.26]	−.27**	−.31**	.20**	−.37**	.55**	−.04	−.14*	−.13*	—	.57	.52
11. Helplessness	.41** [.30, .51]	.41**	.39**	−.21**	.42**	−.48**	.02	.17**	.17**	−.46**	—	.76
12. Frustration	.27** [.14, .39]	.31**	.19**	−.22**	.31**	−.28**	.11	.13*	.19**	−.37**	.58**	—
M	3.39 (0)	2.85	4.22	4.82	3.45	2.41	6.63	6.25	3.39	2.66	5.51	6.10
SD	0.85 (0.95)	0.77	1.29	1.18	0.88	0.80	1.42	1.35	0.71	1.09	1.25	0.91

Note. Correlations are reported below the diagonal; HTMT values are reported above the diagonal. Results are based on 5000 bootstrap samples. [95% CI] = 95% confidence interval of correlation coefficient. For the EDHM, M and SD for the extracted IRT measurement scores are reported in parentheses. $*p < .05$; $**p < .01$.

Abbreviation: EDHM, experience of dehumanization measurement.

TABLE 7 Results of hierarchical multiple regression analysis (Study 4).

Criterion/ step	Predictor	United Kingdom					Spain				
		B	B [95% CI]	β	R^2	ΔR^2	B	B [95% CI]	β	R^2	ΔR^2
Helplessness											
Step 1					.01	.01				.01	.01
	Age	−0.01	[−0.02, 0.01]	−.04			0.00	[−0.02, 0.02]	.00		
	Gender	0.24	[−0.16, 0.65]	.07			0.22	[−0.07, 0.51]	.10		
Step 2					.29	.29**				.23	.22**
	Age	0.00	[−0.01, 0.01]	.01			0.00	[−0.02, 0.02]	−.01		
	Gender	0.37	[0.02, 0.73]	.11*			0.20	[−0.06, 0.48]	.09		
	Objectification	0.44	[0.31, 0.58]	.38**			0.24	[0.12, 0.37]	.25**		
	Discrimination	0.49	[0.21, 0.76]	.24**			0.46	[0.23, 0.68]	.29**		
Step 3					.37	.07**				.24	.02*
	Age	0.00	[−0.01, 0.01]	−.01			0.00	[−0.02, 0.02]	−.01		
	Gender	0.21	[−0.13, 0.54]	.06			0.17	[−0.09, 0.45]	.08		
	Objectification	0.31	[0.18, 0.44]	.27**			0.16	[0.02, 0.30]	.17*		
	Discrimination	0.18	[−0.10, 0.45]	.09			0.36	[0.11, 0.59]	.22**		
	EDHM	0.61	[0.39, 0.84]	.35**			0.25	[0.03, 0.45]	.19*		
Felt hurt											
Step 1					.00	.00				.00	.00
	Age	0.00	[−0.01, 0.01]	−.01			−0.01	[−0.02, 0.01]	−.05		
	Gender	0.07	[−0.14, 0.30]	.04			0.00	[−0.19, 0.18]	−.00		
Step 2					.31	.31**				.22	.22**
	Age	0.00	[0.00, 0.01]	.05			−0.01	[−0.02, 0.01]	−.06		
	Gender	0.16	[−0.02, 0.34]	.09			−0.01	[−0.17, 0.15]	−.01		
	Objectification	0.17	[0.10, 0.24]	.28**			0.16	[0.07, 0.25]	.24**		
	Discrimination	0.40	[0.26, 0.54]	.37**			0.35	[0.17, 0.52]	.30**		
Step 3					.38	.06**				.23	.02*
	Age	0.00	[0.00, 0.01]	.03			−0.01	[−0.02, 0.01]	−.06		
	Gender	0.08	[−0.09, 0.25]	.04			−0.03	[−0.20, 0.14]	−.02		
	Objectification	0.11	[0.04, 0.18]	.18**			0.11	[0.00, 0.21]	.16*		
	Discrimination	0.25	[0.11, 0.40]	.23**			0.28	[0.09, 0.47]	.24**		
	EDHM	0.30	[0.16, 0.43]	.32**			0.16	[−0.02, 0.34]	.17*		
Frustration											
Step 1					.01	.01				.03	.03*
	Age	0.01	[0.00, 0.02]	.10			0.01	[−0.01, 0.02]	.06		
	Gender	0.13	[−0.12, 0.38]	.07			0.25	[0.06, 0.45]	.17**		
Step 2					.19	.17**				.14	.11**
	Age	0.01	[0.00, 0.02]	.14*			0.01	[−0.01, 0.02]	.04		
	Gender	0.20	[−0.03, 0.44]	.10			0.24	[0.07, 0.43]	.16**		
	Objectification	0.13	[0.06, 0.20]	.20*			0.05	[−0.04, 0.15]	.08		
	Discrimination	0.33	[0.19, 0.48]	.28*			0.32	[0.15, 0.48]	.29**		
Step 3					.19	.01				.15	.01*
	Age	0.01	[0.00, 0.02]	.14*			0.01	[−0.01, 0.02]	.05		

(Continues)

TABLE 7 (Continued)

Criterion/ step	Predictor	United Kingdom					Spain				
		B	*B* [95% CI]	*β*	R^2	ΔR^2	*B*	*B* [95% CI]	*β*	R^2	ΔR^2
	Gender	0.18	[−0.05, 0.41]	.09			0.22	[0.04, 0.42]	.15*		
	Objectification	0.11	[0.03, 0.19]	.17*			0.00	[−0.09, 0.09]	.00		
	Discrimination	0.28	[0.13, 0.44]	.24**			0.26	[0.07, 0.45]	.23**		
	EDHM	0.10	[−0.03, 0.24]	.10			0.15	[−0.02, 0.31]	.16*		
Sense of power											
Step 1					.04	.04**				.01	.01
	Age	0.01	[0.00, 0.02]	.13*			−0.01	[−0.03, 0.01]	−.07		
	Gender	−0.34	[−0.61, −0.07]	−.14*			−0.16	[−0.37, 0.06]	−.09		
Step 2					.22	.18**				.12	.11**
	Age	0.01	[0.00, 0.02]	.09			−0.01	[−0.04, 0.01]	−.07		
	Gender	−0.42	[−0.69, −0.17]	−.17**			−0.16	[−0.36, 0.05]	−.09		
	Objectification	−0.22	[−0.31, −0.12]	−.27**			−0.19	[−0.30, −0.09]	−.24**		
	Discrimination	−0.33	[−0.51, −0.14]	−.23**			−0.20	[−0.38, −0.01]	−.15*		
Step 3					.24	.02**				.18	.06**
	Age	0.01	[0.00, 0.02]	.10*			−0.01	[−0.03, 0.00]	−.07		
	Gender	−0.35	[−0.62, −0.11]	−.15**			−0.11	[−0.31, 0.09]	−.06		
	Objectification	−0.17	[−0.27, −0.07]	−.21**			−0.07	[−0.11, 0.05]	−.09		
	Discrimination	−0.21	[−0.42, 0.00]	−.14*			−0.05	[−0.25, 0.17]	−.03		
	EDHM	−0.24	[−0.40, −0.08]	−.20**			−0.36	[−0.55, −0.17]	−.33**		

Note: *B* [95% CI] = 95% confidence interval of unstandardized coefficient. Results are based on 5000 bootstrap samples. **p* < .05; ***p* < .01.
Abbreviation: EDHM, experience of dehumanization measurement.

Regulatory focus

We measured promotion and prevention focus with 18 items from Lockwood's et al. (2002) Regulatory Focus Scale. Participants responded to items such as 'I often think about the person I am afraid I might become in the future' using a 9-point response format (1 = not at all true to me; 9 = very true of me). We removed items with a school context. The reliability was good for the prevention focus sub-scale (United Kingdom: *ω* = .77; Spain: *ω* = .77) and for the promotion focus sub-scale (United Kingdom: *ω* = .89; Spain: *ω* = .86).

Whereas in the previous studies, we relied on scenarios, in Study 4, we employed a recall task. We asked participants to vividly recall and write about an experience in which they felt hurt or offended in some way by a work colleague (Schumann & Walton, 2021). Next, participants completed a questionnaire wherein measurements were presented in random order and then a demographic survey. All measurements were originally in English. We used the same procedure as in Study 3 to translate measurements into Spanish.

Results

Nomological validity

Bivariate correlations between the EDHM and other variables are presented in Tables 5 and 6 for the United Kingdom and Spanish samples, respectively. In both samples, the EDHM was strongly and significantly related to perceived discrimination, perceived work objectification, felt hurt, sense of power and helplessness with correlations ranging from −.38 to .56 in the United Kingdom sample (*p*'s < .001), and

from $-.37$ to $.60$ in the Spanish sample (p's $< .001$). The correlation with frustration was strong and significant in the United Kingdom sample ($r = .31$, $p < .001$, [.20, .42]), but only moderate in the Spanish sample ($r = .27$, $p < .001$, [.14, .39]). The EDHM exhibited small-to-medium correlations with perceived regard, psychological needs, need to belong and prevention regulatory focus (United Kingdom: $-.26 \leq r \leq .20$, p's $< .05$; Spain: $-.26 \leq r \leq .14$, p's $< .05$). All correlations were in the predicted directions. Cumulatively, the results were consistent with our predictions, providing additional evidence for the nomological validity of the EDHM.

Discriminant, predictive and incremental validity

Supporting the discriminant validity of our measurement, the HTMT ratios between the EDHM and all other constructs were well below .85 (see Tables 5 and 6).

We examined whether the EDHM adds variance to the prediction of helplessness, frustration, felt hurt, and sense of power over and above conceptually overlapping constructs (perceived objectification and discrimination). We performed hierarchical multiple regressions to test this. VIF scores were smaller than 2.00. As shown in Table 7, after controlling for demographic variables, perceived objectification, and discrimination, the EDHM added significant and unique variance to the prediction of helplessness (United Kingdom: $\Delta R^2 = .07$, $p < .001$; Spain: $\Delta R^2 = .02$, $p = .017$), felt hurt (United Kingdom: $\Delta R^2 = .06$, $p < .001$; Spain: $\Delta R^2 = .02$, $p = .03$) and sense of power (United Kingdom: $\Delta R^2 = .02$, $p = .004$; Spain: $\Delta R^2 = .06$, $p < .001$). The EDHM explained unique variance in predicting frustration in the Spanish sample ($\Delta R^2 = .01$, $p = .05$), but it did not add unique variance to the prediction of frustration in the United Kingdom sample ($\Delta R^2 = .01$, $p = .136$). Taken together, the results add further support for the construct validity of the EDHM and its unique power in predicting theoretically relevant outcomes.

STUDY 5a

The objectives of Study 5a were to (1) differentiate the experience of dehumanization from other dehumanization-related constructs, (2) establish incremental validity of the EDHM relative to the prior experience of dehumanization measurement (Bastian & Haslam, 2011), (3) replicate some of the findings from Study 4 using an independent sample, and (4) further extend the nomological network of distinct, yet related theoretical constructs. In extending the nomological network, we selected constructs that focus on evaluations and perceptions of the perpetrator. This included dehumanization, blame attribution and perception of the perpetrator's harmfulness and morality. We also included four self-conscious emotions—humiliation, guilt, embarrassment, and shame—to further validate the emotional consequences of the experience of dehumanization.

We expected the EDHM to be positively related to the existing experience of the dehumanization scale (labelled here as EDHS; Bastian & Haslam, 2011) because they share a common variance representing the experiencing dehumanization construct. Consistent with the dual model of humanness, the EDHS is a bi-dimensional measurement that assesses the feelings of being denied human uniqueness and human nature. We anticipated positive correlations between the EDHM and both dimensions of the EDHS, yet we also expected the measurements to be distinct, with no correlations of .80 or above as that would suggest the measurements are essentially redundant.

The experience of dehumanization shares conceptual overlap with meta-dehumanization, yet is also distinct. Meta-dehumanization builds on meta-perceptions, which are individuals' beliefs about what others think of them (Carlson et al., 2011). Therefore, meta-dehumanization describes the content of individual or group cognitions that focus on the extent to which another person or outgroup perceives them as less than fully human (Kteily et al., 2016). Following previous studies (Kteily et al., 2016; Kteily & Bruneau, 2017), we argue that believing others think of one as less than fully human is integral to the sense of being dehumanized. In this regard, when experiencing dehumanization, the target is also likely

to think the perpetrator perceives them as a lesser human. But since meta-dehumanization focuses on the meta-perception that others dehumanize the target (i.e. 'Others think of me as if I were an object'), it does not necessarily assess the actual experience and sense of being dehumanized (i.e. 'Others *treat* me as if I were an object'). And while meta-dehumanization can be a valid proxy in assessing the sense of being dehumanized, the specific focus on meta-perception does not fully qualify it as a reliable measure of the sense of being dehumanized. Based on the following rationales, we expected that our measurement and measurements of meta-dehumanization would likely share common variance and hence positively correlate, yet be empirically distinct.

We anticipated that the experience of dehumanization would be positively related to dehumanization of the perpetrator. Supporting this, at the intergroup level, previous research has found an association between meta-dehumanization and reciprocal out-group dehumanization, resulting in the desire for intergroup hostility (Castano & Giner-Sorolla, 2006; Kteily et al., 2016). At the interpersonal level, Bastian and Haslam (2010) report that when individuals are targets of aversive mistreatments (e.g. being ostracized), they view the perpetrators as less human. We also expected that endorsement of the experience of dehumanization would be positively related to the endorsement of blame toward the perpetrators of mistreatment. This is because blame is a negative affective response triggered by a norm-violating event (i.e. instances of subtle or blatant dehumanization), and which targets the violator (Gill & Cerce, 2021). Consistent with the notion that blame is greater when an agent is the cause of a negative outcome (Cushman, 2008), we argue that individuals who feel more dehumanized will greatly blame the perpetrator.

The experience of dehumanization might make victims consider the perpetrator as harmful, relating to the attribution of a harmful underlying disposition (Piazza et al., 2014). Individuals tend to evaluate others as harmful as the result of norm-violation behaviours, both physical or emotional, or even these directed at harming one's soul (Schein & Gray, 2015). Therefore, we expected a positive relationship between the experience of dehumanization and the perception of the perpetrator as harmful. Furthermore, we argue that dehumanized individuals are likely to judge the perpetrator as not only harmful but also immoral. This is consistent with Schein and Gray (2018), who argue that perceived harm causes acts or agents to be judged as immoral. Additional support comes from previous research demonstrating that the formation of impressions of people's moral status is linked to the attribution of responsibility for good or bad behaviour (Piazza et al., 2014).

Finally, we explored the relationships between the experience of dehumanization and negative emotional consequences by focusing on self-conscious emotions—humiliation, guilt, shame, and embarrassment (Hartling & Luchetta, 1999; Tangney, 1999). Humiliation is associated with being unjustly degraded or ridiculed and connotes a strong sense of the demeaning and devaluation of one's identity (Hartling & Luchetta, 1999). Based on this strong conceptual overlap and previous qualitative studies linking the experience of dehumanization with humiliation (Hartling & Luchetta, 1999; Murray et al., 2022), we expected a positive relationship between the two constructs. Consistent with previous studies (Bastian & Haslam, 2011; Zhang et al., 2017), we expected a positive relationship between the experience of dehumanization and both shame and guilt. We also explored the relationship between the experience of dehumanization and embarrassment. Since embarrassment emerges as an emotional reaction to undesired social transgressions or predicaments that heighten perceived undesirable appraisal and connote the threat of unwanted evaluation (Krishna et al., 2019; Schlenker & Leary, 1982), we anticipated a positive relationship between the experience of dehumanization and embarrassment.

Method

Participants

Based on a power analysis the minimum sample required was 193 participants ($a = .05$, $\beta = .80$, $r = .20$). A sample of 300 adults from the United Kingdom agreed to participate in the online study

hosted on Prolific. After removing 16 participants who failed an attention check and one participant who did not complete the recall task, the final sample consisted of 283 participants (M_{age} = 39.09; 56.89% female, 40.28% male). Participants responded to the same recall task as in Study 4, and then completed a questionnaire wherein measurements were presented in random order, followed by a demographic survey. Based on the sensitivity analysis (a = .05, β = .80) the sample was sensitive to the effects of r = .17.

Materials and procedure

Experience of dehumanization
In this study, we adjusted the EDHM items to refer to a specific dehumanization perpetrator (e.g. '*My colleague* sees me as insignificant'). Again, the 10-item EDHM showed strong psychometric properties (see Table 2). We used the experience of dehumanization scale (EDHS; Bastian & Haslam, 2011), which assesses the denial of Human Uniqueness (5 items: 'The other person sees me as immature/unintelligent/unsophisticated/incompetent/is treating me as if I was child', ω = .88) and denial of Human Nature (5 items: 'The other person doesn't see me as an individual/sees me in a superficial way/is treating me as a means to an end/is treating me as if I were an object/sees me as having no feelings', ω = .83). The response options ranged from 1 (not at all) to 6 (very much so).

Other dehumanization
We measured the extent to which participants dehumanized the perpetrator using an 8-item measurement (1 = not at all, 7 = extremely so) by Bastian, Denson, and Haslam (2013). The measurement assesses the denial of Human Nature (4 items, e.g. 'I felt like this person was mechanical and cold, like a robot') and Human Uniqueness (4 items, e.g. 'I felt like this person lacked self-restraint, like an animal'). The HTMT ratio between the two dimensions exceeded the .85 threshold, and hence we merged them. The unidimensional measurement exhibited acceptable reliability (ω = .82).

Meta-dehumanization
We used two measurements to assess meta-dehumanization. The measurement of blatant meta-dehumanization (Kteily et al., 2016) consists of 5 items (e.g. 'The other person perceives me to be sub-human'; 1 = 'Strongly Agree', 7 = 'Strongly Disagree'). The measurement reliability was good (ω = .92). To assess subtle meta-dehumanization, participants responded to 8 items modified from the other dehumanization measurements (1 = not at all, 7 = extremely so) (Bastian et al., 2013). We changed the item stem to 'I felt like the other person saw me…' to capture meta-perceptions (Bastian & Haslam, 2010). We merged Human Nature and Human Uniqueness because the HTMT ratio between the dimensions exceeded the $HTMT_{.85}$ criterion. The unidimensional measurement had good reliability (ω = .80).

Morality judgments
We assessed participants' morality judgments of the perpetrator using three items from Bocian et al. (2021). Participants responded to statements such as 'This person acted morally' on a 7-point response format (1 = strongly disagree; 7 = strongly agree). Higher scores indicate greater perceptions of morality. The measurement had good reliability (ω = .93).

Harmfulness
We measured participants' perceptions of the perpetrator as harmful adopting the measurement from Khamitov et al. (2016). Participants responded to five adjectives (e.g. 'aggressive', 'hostile') on a 7-point response format (1 = strongly disagree, 7 = strongly agree). The measurement had good reliability (ω = .89).

TABLE 8　Descriptive statistics, bivariate correlations, and HTMT ratios (Study 5a).

	1 [95% CI]	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. EDHM	—	.62	.81	.57	.60	.56	.36	.43	.60	.53	.37	.48	—	—	—	—
2. EDHS (Human uniqueness)	.55** [.47, .62]	—	.59	.70	.62	.36	.10	.12	.44	.46	.32	.33	—	—	—	—
3. EDHS (Human nature)	.70** [.63, .76]	.50**	—	.58	.52	.54	.23	.38	.50	.53	.39	.40	—	—	—	—
4. Meta-dehumanization (Subtle)	.51** [.41, .60]	.60**	.48**	—	.66	.52	.12	.20	.53	.45	.34	.42	—	—	—	—
5. Meta-dehumanization (Blatant)	.56** [.47, .63]	.56**	.46**	.59**	—	.43	.20	.26	.42	.34	.22	.24	—	—	—	—
6. Dehumanization	.51** [.40, .61]	.32**	.46**	.41**	.40**	—	.38	.53	.72	.30	.19	.41	—	—	—	—
7. Blame attribution	.35** [.25, .45]	.08	.20**	.10	.19**	.33**	—	.59	.36	.08	.12	.20	—	—	—	—
8. Morality judgment	−.40** [−.50, −.29]	−.09	−.33**	−.17**	−.25**	−.46**	−.54**	—	.41	.16	.13	.33	—	—	—	—
9. Harmfulness	.55** [.46, .63]	.39**	.43**	.43**	.38**	.60**	.33**	−.37**	—	.33	.31	.37	—	—	—	—
10. Helplessness	.50** [.41, .58]	.41**	.47**	.39**	.32**	.27**	.07	−.15*	.31**	—	.59	.59	—	—	—	—
11. Felt hurt	.32** [.22, .42]	.27**	.32**	.27**	.19**	.15*	.00	−.08	.27**	.51**	—	.44	—	—	—	—
12. Sense of power	−.46** [−.55, −.37]	−.29**	−.34**	−.33**	−.22**	−.33**	−.17**	.29**	−.32**	−.53**	−.37**	—	—	—	—	—
13. Humiliation	.52** [.43, .61]	.41**	.45**	.36**	.38**	.27**	.10	−.19**	.30**	.62**	.35**	−.42**	—	—	—	—
14. Shame	.28** [.16, .38]	.36**	.23**	.34**	.29**	.01	−.15*	.05	.10	.47**	.30**	−.17**	.50**	—	—	—
15. Guilt	.07 [−.05, .19]	.32**	.11	.23**	.19**	−.08	−.35**	.25**	.02	.35**	.28**	−.05	.29**	.62**	—	—
16. Embarrassment	.31** [.20, .43]	.32**	.30**	.35**	.26**	.11	−.02	−.06	.19**	.52**	.26**	−.24**	.66**	.66**	.44**	—
M	3.61 (0)	3.56	3.78	4.30	2.91	5.00	4.24	2.04	5.26	4.69	3.19	2.67	67.80	38.67	21.95	57.45
SD	0.83 (0.96)	1.34	1.19	1.06	1.51	1.07	0.85	1.11	1.24	1.69	0.84	1.11	30.37	35.65	27.67	33.91

Note. Correlations are reported below the diagonal; HTMT values are reported above the diagonal. Results are based on 5000 bootstrap samples. [95% CI] = 95% confidence interval of correlation coefficient. For the EDHM, M and SD for the extracted IRT measurement scores are reported in parentheses. *$p < .05$; **$p < .01$.

Abbreviations: EDHM, experience of dehumanization measurement; EDHS, experience of dehumanization scale.

TABLE 9 Results of hierarchical multiple regression analysis (Study 5a).

Predictor	Criterion variables							
	Dehumanization	Blame attribution	Morality judgments	Harmfulness	Helplessness	Felt hurt	Humiliation	Sense of power
Step 1 (demographics)								
Age	.01	.07	−.05	.17**	−.08	.01	.01	.00
Gender	.09	.00	−.01	.05	.09	.13*	.17**	.00
R²	.01	.01	.00	.03	.02	.02	.03	.00
Step 2								
Age	.06	.10	−.08	.23**	−.04	.03	.06	−.03
Gender	.05	−.02	.02	.01	.06	.11	.13*	.02
M-DH (Blatant)	.24**	.21**	−.25**	.22**	.14*	.04	.25**	−.04
M-DH (Subtle)	.26**	−.01	−.05	.32**	.32**	.27**	.22**	−.33**
R² (ΔR²)	.21 (.20**)	.05 (.04**)	.08 (.08**)	.25 (.22**)	.19 (.17**)	.10 (.09**)	.20 (.17**)	.12 (.12**)
Step 3								
Age	.02	.07	−.02	.23**	−.06	.02	.06	−.01
Gender	.06	−.02	.02	.03	.09	.13*	.15**	.00
M-DH (Blatant)	.16*	.18*	−.20**	.11	−.02	−.07	.10	.06
M-DH (Subtle)	.18*	−.03	−.03	.20**	.14*	.14	.06	−.22**
EDHS (HU)	−.04	−.07	.17*	.15*	.18*	.14	.21**	−.10
EDHS (HN)	.31**	.16*	−.32**	.18**	.35**	.23**	.26**	−.23**
R² (ΔR²)	.27 (.07**)	.06 (.02)	.15 (.07**)	.30 (.05**)	.31 (.12**)	.16 (.06**)	.29 (.09**)	.17 (.05**)
Step 4								
Age	−.02	.02	.03	.18**	−.09	.01	.03	.04
Gender	.04	.05	.04	.01	.07	.12*	.13**	.03
M-DH (Blatant)	.09	.09	−.11	.04	−.08	−.10	.04	.15*
M-DH (Subtle)	.17*	−.06	.00	.18**	.12	.13	.04	−.20**
EDHS (HU)	−.09	−.15	.25**	.08	.13	.11	.15*	−.02
EDHS (HN)	.17*	−.05	−.13	.01	.21**	.16*	.12	−.03

(Continues)

TABLE 9 (Continued)

Predictor	Criterion variables							
	Dehumanization	Blame attribution	Morality judgments	Harmfulness	Helplessness	Felt hurt	Humiliation	Sense of power
EDHM	.30**	.44**	−.40**	.37**	.28**	.14	.30**	−.43**
ΔR^2	.04**	.08**	.07**	.06**	.03**	.01	.04**	.08**
Total R^2	.31	.14	.22	.36	.34	.17	.32	.25

Note. Standardized betas are from each step of the regression sequence. Unstandardized coeffects with 95% confidence intervals reported in Appendix S1. *$p < .05$; **$p < .01$.

Abbreviations: EDHM, experience of dehumanization measurement; EDHS, experience of dehumanization scale; HN, human nature; HU, human uniqueness; M-DH, meta-dehumanization.

Self-conscious emotions

We asked participants to indicate the extent to which they felt humiliated, ashamed, embarrassed, and guilty (0 = Not at all; 100 = Extremely).

Blame

We assessed the extent to which participants blamed the perpetrator using a 3-item measurement from Hershcovis and Barling (2010). An example item is 'My colleague is to blame for this'. The reliability was good (ω = .93).

We used similar measurements to assess the sense of power (ω = .87), helplessness (ω = .93) and felt hurt (ω = .82) as in Study 4. The procedure in this study was identical to that followed in Study 4.

Results

Nomological validity and discriminant validity

Bivariate correlation and HTMT ratios between the EDHM and other variables are presented in Table 8. As expected, the EDHM correlated strongly and positively with both dimensions of the EDHS (Human Nature: r = .70, p < .001, [.63, .76]; Human Uniqueness: r = .55, p < .001, [.47, .62]). Furthermore, the EDHM was strongly and significantly correlated with blatant (r = .56, p < .001, [.47, .63]) and subtle (r = .51, p < .001, [.41, .60]) meta-dehumanization. Consistent with our prediction, there was a strong and significant correlation between the experience of dehumanization and the subtle dehumanization of the perpetrator (r = .51, p < .001, [.40, .61]).

In terms of non-dehumanization constructs, the experience of dehumanization was strongly and significantly related to sense of power, helplessness, felt hurt, humiliation, perpetrator's harmfulness, blame and morality judgments, with correlations ranging from −.46 to .55 (p's < .001). These correlations were all in the predicted directions. Exploring the relationships with other discrete emotions we found that felt dehumanization was strongly and significantly correlated with embarrassment (r = .31, p < .001, [.20, .43]), and moderately correlated with shame (r = .28, p < .001, [.16, .38]). There was no significant correlation between the experience of dehumanization and guilt (r = .07, p > .05, [−.05, .19]). Finally, the HTMT ratios between the EDHM and other constructs were well below .85, offering additional evidence for the discriminant validity of the EDHM (see Table 8).[2] Overall, the results not only replicate some of our previous findings, but also strengthen the construct validity of the EDHM and extend the nomological network of the construct.

Incremental validity relative to prior measurements of dehumanization

We performed hierarchical multiple regressions to test the incremental validity of the EDHM relative to a prior measurement of experience of dehumanization—the EDHS. In Step 1, we entered demographic variables, followed by measurements of subtle and blatant meta-dehumanization in Step 2. We then entered the two EDHS dimensions in Step 3, and the EDHM in Step 4. VIF scores ranged from 1.01 to 2.41. indicating that multicollinearity was not a serious concern. As indicated by the significant change in R^2 values (see Table 9), after controlling for demographic variables, the EDHM accounted for additional variance over and above the two measurements of meta-dehumanization and two dimensions of the EDHS in the prediction of dehumanization (ΔR^2 = .04, p < .001), blame attribution (ΔR^2 = .08, p < .001), morality judgments (ΔR^2 = .07, p < .001), harmfulness (ΔR^2 = .06, p < .001), helplessness (ΔR^2 = .03, p < .001), humiliation (ΔR^2 = .04, p < .001) and sense of power

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[2]Note, the HTMT ratios are not calculated for one-item measurements.

($\Delta R^2 = .08$, $p < .001$). The only exception was felt hurt, for which the EDHM did not explain unique variance ($\Delta R^2 = .01$, $p = .117$). To explore this further, we removed the two dimensions of the EDHS (i.e. Step 3) and ran a hierarchical multiple regression controlling for demographic variables and with the meta-dehumanization measurements only. The EDHM exhibited incremental validity in predicting felt hurt over the meta-dehumanization measurements ($\beta = .27$, $p = .001$, $B = 0.23$ [0.11, 0.35]; $\Delta R^2 = .05$, $p < .001$). Taken together, the results support the incremental validity of the EDHM relative to measurements of meta-dehumanization and the prior measurement of experiencing dehumanization.

STUDY 5b

The objectives of this study were to (1) continue incremental validity analysis in relation to the prior measurement of experience of dehumanization, (2) replicate some of the prior results using a different, retrospective procedure, and (3) further validate the relationship between the experience of dehumanization and reciprocal dehumanization. Specifically, for the incremental validity analysis we used the unidimensional measurement developed by Demoulin, Nguyen, et al. (2021), which assesses the feeling of being dehumanized (labelled here as FDHS). We selected this measurement because it has been commonly adopted in research on the experience of being perceived as less than a human by others (Chevallereau, Maurage, et al., 2021; Chevallereau, Stinglhamber, et al., 2021; Fontesse et al., 2020). Indeed, whilst the measurement is generally used in the study of meta-dehumanization, the content of some of the items pertains to the actual experience of dehumanization. We therefore argue that both measurements share a common variance representing the underlying construct of the experience of dehumanization, and hence expected the EDHM would positively correlate, but not show redundancy with the FDHS.

The findings from Study 5a demonstrate that the experience of dehumanization is strongly associated with reciprocal dehumanization, although we only examined the relationship with its subtle form. Specifically, we found that those who sense being dehumanized are more likely to downplay the possession of traits associated with human uniqueness and human nature by the perpetrator. To validate this reciprocal subtle dehumanization further, we included the measure of infrahumanization in Study 5b. Consistent with the infrahumanization account of dehumanization, we expected that dehumanized individuals would tend to deny the perpetrator as having positive, uniquely human emotions associated with civilization and moral reasoning (Leyens et al., 2000). In these models of dehumanization, participants explicitly attribute human traits or emotions to others, but are likely unaware that their judgments are intended to reflect perceived humanity (Kteily & Landry, 2022). Therefore, we also explored the relationship between experiencing dehumanization and blatant dehumanization. Consistent with accounts of blatant dehumanization and previous studies (Kteily et al., 2016; Kteily & Landry, 2022), we predicted that the experience of dehumanization would be positively associated with the explicit assertion that the perpetrator is less 'evolved', more like 'lower' animals.

Method

Participants

Based on a power analysis the minimum sample required was 189 participants ($a = .05$, $\beta = .80$, $r = .20$). We recruited 221 participants in the United Kingdom using Prolific. After removing 12 participants who failed the attention check and two participants who did not complete the recall task, the sample consisted of 207 participants ($M_{age} = 37.36$; 58.45% female, 38.65% male). The sensitivity analysis ($a = .05$, $\beta = .80$) indicated that the sample was sufficient to detect $r = .19$.

Materials and procedure

Participants responded to the same measurements of others' dehumanization (unidimensional; $\omega = .76$), sense of power ($\omega = .82$), morality judgments ($\omega = .92$), perceived harmfulness ($\omega = .87$) and humiliation as in Study 5a.

Experience of dehumanization

In this study, we adjusted the EDHM items to refer to a specific dehumanization perpetrator (e.g. '*This person sees* me as insignificant'). The 10-item EDHM showed strong psychometric properties (see Table 2). The second measurement of experience of dehumanization by Demoulin, Nguyen, et al. (2021) consisted of 19 items (e.g. 'The other person perceives me to be sub-human/ treat me as if I was under-evolved'; 1 = 'Strongly Agree', 7 = 'Strongly Disagree'). The measurement reliability was good ($\omega = .94$).

Blatant dehumanization

We used the Ascent of (Hu)Man scale (Kteily et al., 2015) to measure blatant dehumanization. We presented participants with the Ascent of (Hu)Man diagram depicting the evolutionary process and asked them to indicate using the unlabelled sliders scale how evolved they considered the perpetrator to be (0 = least evolved; 100 = most evolved). Higher scores indicated higher perpetrator humanization.

Infrahumanization

Following Kteily et al. (2015), we presented participants with (1) six secondary emotions: three positive (compassion, tenderness, hope) and three negative (bitterness, regret, and shame), and (2) six primary emotions: three positive (happiness, pleasure, and excitement) and three negative (sadness, pain, and rage). We asked participants to indicate how well each of the emotions characterized the perpetrator. We computed the average score for each participant's ratings of positive ($\omega = .75$) and negative ($\omega = .68$) secondary emotions, and positive ($\omega = .84$) and negative ($\omega = .79$) primary emotions.

We used a different recall task. Specifically, we asked participants to vividly recall and write about an experience in which someone made them feel as if they were less human. Next, participants completed a questionnaire wherein measurements were presented in random order, followed by a demographic survey.

Results

All bivariate correlations and HTMT ratios between the studied variables are reported in Appendix S1. Supporting our prediction, the EDHM was significantly related to the prior measurement (FDHS: $r = .52$, $p < .001$, [.40, .62]). Bivariate correlations supported a significant positive relationship between experiencing dehumanization and subtle dehumanization ($r = .57$, $p < .001$, [.48, .66]), blatant dehumanization ($r = -.30$, $p < .001$, [−.43, −.16]) and humiliation ($r = .35$, $p < .001$, [.22, .48]). As expected, we obtained negative significant correlations between our measurement and judgment of the perpetrator's morality ($r = -.46$, $p < .001$ [−.56, −.37]) and sense of power ($r = -.37$, $p < .001$, [−.49, −.23]). Finally, the experience of dehumanization was negatively and significantly related to the attribution of positive secondary emotions ($r = -.28$, $p < .001$ [−.40, −.18]). There were no significant correlations between the EDHM and the attribution of negative secondary emotions, and positive and negative primary emotions (p's $> .05$). Supporting discriminant validity, the HTMT ratios between the EDHM and other variables were well below .85.

We again used hierarchical multiple regression analyses to test for incremental validity of the EDHM over the FDHS (for more detail see Appendix S1). As the criterion variables, we used subtle and blatant dehumanization, sense of power, morality judgments, perceived harmfulness, and felt humiliation. Supporting incremental validity of the EDHM, after controlling for demographic variables, regression analyses demonstrated the EDHM added unique variance to the prediction of all criteria over and above the prior measurement of the experience of dehumanization (FDHS), with ΔR^2 ranging between .02 and .19 (all p's $< .05$).

DISCUSSION

The objective of this research was to develop a psychometrically sound and cross-culturally validated measurement of the experience of dehumanization. Building on the conceptualization of the experience of dehumanization, an extensive literature review and qualitative studies, we constructed an etic measurement to assess the perception of being dehumanized from the perspective of the individual. Using diverse samples from the United Kingdom (Studies 1–5) and Spain (Studies 1–4), we established sound psychometric properties of the 10-item measurement. We applied contemporary psychometric methods (i.e. IRT; Study 1b), cross-validated and established the stability of the measurement (Studies 2–5), demonstrated that the measurement is related, yet distinct from theoretically relevant constructs (Studies 3–5), showed the exploratory power and predictive relevance of the measurement (Studies 3–5) and demonstrated the distinctiveness of the EDHM in relation to prior measurements of the experience of dehumanization (Studies 5a and 5b). The studies we conducted allow us to conclude that the EDHM is invariant and performs well across gender and the studied cultures.

Our work is the first to report a cross-cultural assessment of the experience of dehumanization nomological model. Our general conclusions regarding the studied nomological relationships hold independently for both the United Kingdom and Spain. The evidence of the EDHM's validity and psychometric properties indicates that the construct does not have distinct culturally specific meanings, providing additional universal validity of the theory of the experience of dehumanization. The EDHM can be reliably used in future research on the experience of dehumanization, enabling accurate, meaningful and generalized cross-cultural comparisons, especially in Western cultures (Vandenberg & Lance, 2000). In sum, the results of the studies offer strong support for the cross-cultural robustness and construct validity of the newly developed measurement and provide a foundation for future empirical work on the topic of the experience of dehumanization.

In developing the EDHM, we provide some clarity regarding how to operationalize the experience of dehumanization. Aligning with previous empirical findings (Chevallereau, Stinglhamber, et al., 2021; Demoulin, Nguyen, et al., 2021), we found that the unidimensional operationalization consistently demonstrated acceptable model fit across samples (cf. Table 2), meaning that at least at the inter-personal level, the experience of dehumanization can be effectively represented by a general latent trait. In addition, our IRT results indicate that the EDHM does not measure a latent trait that is relevant in only one direction. Instead, we obtained plausible support for treating the EDHM as a medium-to-broad bandwidth measurement that assesses a normal-range latent trait (refer to Figure 2). Therefore, the EDHM could be an effective instrument in measuring the experience of dehumanization arising from subtle and blatant dehumanization.

The current research contributes to the literature on the experience of dehumanization by validating and exploring the construct's extensive nomological network. Our study is amongst the first to explore different categories of criteria (e.g. needs, well-being, attitudes, emotions) to which the experience of dehumanization should theoretically relate, reflecting our purpose of providing strong support for the construct validity of the EDHM. Echoing previous studies (Demoulin, Nguyen, et al., 2021; Fontesse et al., 2020), we found the EDHM is related to central constructs in the area of inter-group and inter-personal relations, such as psychological needs, self-esteem and emotional hostility. Extending these findings, we found that dehumanized individuals report heightened social anxiety, as indicated by higher levels of fear of negative evaluations. Across studies, we documented that those who feel more dehumanized tend to report a lower sense of power. This highlights that dehumanized individuals are likely to believe they lack capacity to influence another person or other people (Anderson et al., 2012). Taken together, these results reinforce the notion that the experience of dehumanization has negative implications for individuals and their well-being.

Notably, extending previous findings on the emotional consequences of the experience of dehumanization, we found that being dehumanized is strongly associated with feelings of hurt, helplessness, and frustration. Resonating with the notion that social interaction and social relationships are primary sources of hurt feelings (Leary et al., 1998), our findings highlight that experiencing dehumanization involves

implied or real social disassociation and relational devaluation that corresponds to feeling hurt. Our results also suggest that dehumanized individuals may experience frustration as they might attribute blame to the uncontrollable circumstances rather than the particular person (Gelbrich, 2010). Based on our findings we argue that when people feel dehumanized, they experience helplessness as they may see the situation that led to this as irrevocable, with little to no possibility to alter it (Gelbrich, 2010; Meyers, 2016).

We also explored the extent to which experiencing dehumanization is related to some self-conscious emotions. Reinforcing and partly validating previous studies (Bastian & Haslam, 2011; Murray et al., 2022), we found that experiencing dehumanization is strongly associated with humiliation, embarrassment, and shame. The strong relationship identified between the experience of dehumanization and humiliation is consistent with Fernández et al. (2018), who found that situations that connote hostility are particularly strong triggers of humiliation. Dehumanized individuals also experience strong levels of embarrassment, meaning that dehumanizing mistreatments often involve the threat of unwanted evaluation of self and heighten concern for how others appraise them. In addition, given that dehumanized individuals report more intense feelings of humiliation than embarrassment, it is plausible that the experience of dehumanization targets the very essence of the individual's sense of being rather than occurring on the surface of the personal experience (Hartling & Luchetta, 1999). In the case of feeling shame, it is plausible that being dehumanized not only facilitates interpretation of the event as shaming, but also the perceived failure of the self in meeting important social standards. In this regard, the dehumanizing experience might manifest in the reproach individuals feel for themselves when they have fallen short of their standards (McGregor & Elliot, 2005), in particular the 'standard' of being fully human. On the contrary, we did not find support for the relationship between the experience of dehumanization and guilt, which is partly contrary to Bastian and Haslam (2011).[3] Yet, our result is consistent with the notion that guilt is generally triggered when the individual reflects on the negative aspects of their own behaviour, rather than the behaviours of others (Tangney, 1999; Tracy & Robins, 2006).

Our findings also provide greater insight into the relationships between the experience of dehumanization and judgments and evaluations of the perpetrator. Reinforcing previous findings on reciprocal dehumanization (Kteily et al., 2015), we found that at the interpersonal level, individuals who feel dehumanized not only subtly downplay the possession of human traits and unique human emotions by the perpetrator of the mistreatment (i.e. subtle dehumanization), but also explicitly assert that the perpetrator is less 'evolved' (i.e. blatant dehumanization). Highlighting the sense-making processes of victims, we demonstrated that those who feel dehumanized tend to attribute greater blame for the mistreatment to the perpetrator. Together, these findings support the notion of 'victim-based' moral disengagement. Indeed, the pattern of our findings demonstrates that people who feel dehumanized tend to reduce their moral obligations toward the perpetrators by (a) dehumanizing them and (b) blaming them for their current circumstances (Bandura, 1986, 1991; Huang et al., 2019). Also supporting 'victim-based' moral disengagement is our finding that dehumanized individuals are more likely to judge the perpetrator as immoral, possibly because they reason such a norm-violating event reflects the harmfulness of the perpetrator. Through the 'victim-based' moral disengagement process, a common reaction is to reduce the moral worth of those initiating the mistreatment, thereby removing them from moral consideration and obligations of fair and respectful treatment (Opotow, 1990). Consistent with past research (Aquino et al., 2006; Huang et al., 2019), this 'victim-based' moral disengagement might fuel reciprocal emotional hostility and retaliatory behaviours as a means for individuals to protect themselves from harmful agents.

The current research also shows that our measurement of experiencing dehumanization is empirically distinct from the conceptually overlapping constructs of meta-prejudice, perceived regard, perceived objectification, and discrimination. Supporting its predictive validity, throughout the studies

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[3]The difference in conclusions might be due to the different measurement approach used. Whereas Bastian and Haslam (2011) performed the analysis on the combined score (labelled as shame/guilt) from three items ('I would feel shameful/embarrassed/guilty'), we performed the analysis on each emotion separately. Since we assessed the same set of emotions, we combined them in our study ($\omega = .82$) to test whether our results would reach the same conclusion as Bastian and Haslam (2011). Aligning with their findings, we found a positive and significant correlation between experiencing dehumanization and shame/guilt ($r = .27$, $p < .001$, [.15, .38]). Nevertheless, we argue that analysing each emotion separately provided us with more nuanced insight.

and across two cultures, with few exceptions the EDHM demonstrated unique explanatory power over meta-prejudice, perceived objectification, and discrimination in predicting self-esteem, emotional hostility, fear of negative evaluations, negative affect, helplessness, felt hurt and sense of power. Our results also demonstrated that the EDHM is related to, yet not redundant with orbiting constructs (subtle and blatant dehumanization and meta-dehumanization) and exhibits incremental validity over prior measurements of the experience of dehumanization and meta-dehumanization. The overlap with existing measurements is to be expected because they access the same construct of the experience of dehumanization. With one exception, the EDHM demonstrates incremental validity over the prior measurements of the experience of dehumanization and meta-dehumanization in the prediction of a plethora of outcomes, including but not limited to the sense of power, subtle and blatant dehumanization, humiliation and moral judgements.

Limitations and future research

This research has limitations that could be addressed in future research. We recognize that measurement validation is a continuous effort. Future research is needed to establish additional evidence for construct validity and to replicate our results across other samples, procedures, types of dehumanization, and study designs. For instance, our IRT results and use of retrospective procedures are supportive of the EDHM's capability to effectively gauge various forms of dehumanization. Likewise, the format of our items should allow the measurement to be applied to various perpetrators (e.g. organization, service provider). Regardless, additional research should validate the EDHM by formally using various facets of the construct and dehumanization of perpetrators.

As a further limitatition, the findings of our studies are correlational and do not allow for reliable cause-and-effect inferences. Although we argue that from the theoretical perspective, it is reasonable to postulate the experience of dehumanization should influence the constructs explored in our studies, if directionality and causality are to be inferred, alternative research designs should be employed such as a cross-lagged panel or longitudinal designs. Likewise, one could also examine the relationship between the experience of dehumanization and self-dehumanization. Whilst our findings indicate distinctiveness between the constructs, they emerge contrary to previous studies (Fontesse et al., 2021). Plausibly, the difference in findings might be due to different sample demographics or the different measurements used to assess self-dehumanization.

We acknowledge that samples from the United Kingdom and Spain provide only a certain level of cross-cultural robustness. Whilst it allows us to conclude the EDHM can generalize cross-culturally, additional cross-cultural validation efforts are warranted, especially in nations with distinct societal characteristics. In addition, although we collected data from the United Kingdom and Spain, we did not formally examine cross-cultural differences. And whilst our findings are supportive of the cross-cultural construct validity of the EDHM, they also point to possible nuanced cultural differences that warrant further examination. For instance, our results demonstrate noticeable discrepancies in the magnitude of correlations between the experience of dehumanization and helplessness and frustration in the United Kingdom and Spanish samples. One possible explanation is that the United Kingdom is a more individualistic culture than Spain (Hofstede Insight, 2022), and this, in turn, might have implications for different responses to aversive mistreatments. Individuals with a strong individualistic background tend to react to mistreatments more emotionally and with intense experience of threat compared to those with a less individualistic background (Pfundmair et al., 2015). It also has to be noted that we relied on back-translated measurements and hence caution should be exercised in making direct cross-cultural comparisons of our results. The limitation of back-translated measurements is that they risk imposing the original culture's perspective in cross-cultural results (Douglas & Nijssen, 2003). Consequently, an important future research endeavour is robust cross-cultural replication to determine not only cross-cultural differences in the experience of dehumanization, its consequences and determinants (Demoulin, Maurage, & Stinglhamber, 2021), but also whether the factor structure, psychometric and nomological evidence obtained here generalize to other cultures as well.

The pattern of our findings indicates that when individuals experience dehumanization they display two general behavioural reactions—active and avoidance coping. Whilst dehumanizing experiences may induce proactive coping through 'victim-based' moral disengagement with subsequent hostile retaliatory behaviours, they may also induce avoidance and withdrawal coping (Demoulin, Nguyen, et al., 2021). Indeed, we found that dehumanized individuals tend to report greater helplessness and shame, both of which are integrally related to avoidance and withdrawal tendencies (Fischer & Mascolo, 1995). Likewise, individuals who feel more dehumanized tend to endorse a greater prevention-focus orientation, suggesting they seek security and strive to avoid and prevent negative outcomes (Higgins, 1997). This warrants further examination of the moderator constructs, which may explain the activation of active (vs. avoidance) coping as the result of a dehumanizing experience. For example, in the current work, we treated regulatory focus as a state that can vary as a function of one's situation (Higgins et al., 2020). However, focusing on chronic regulatory focus might uncover different patterns in how people respond to dehumanizing experiences, with those high on prevention focus likely to adopt withdrawal coping. Individuals also vary in their beliefs about the appropriateness of negative reciprocity as a response to their mistreatment (Mitchell & Ambrose, 2007). Proactive retaliatory behaviours in response to the dehumanization may be guided by negative reciprocity beliefs, whereby when individuals experience mistreatment, they believe it is acceptable to retaliate (Cropanzano & Mitchell, 2005; Mitchell & Ambrose, 2007). In addition, individuals with a high level of moral identity, i.e., the moral traits at the core of their identity (Aquino & Reed, 2002), might have a proactive response to the experience of dehumanization because they care about fairness and kindness (Chowdhury & Fernando, 2014). Examination of these and other moderators will further our understanding of the construct by establishing possible boundaries or exacerbating conditions of the experience of dehumanization.

CONCLUSION

In this paper, we have proposed and validated the first psychometrically sound measurement designed to assess the sense of being dehumanized from the victim's perspective. By measuring the experience of dehumanization in this manner, and testing relationships with important constructs, we advance further in understanding and validating the voices of those who experience dehumanization. We believe our measurement provides researchers across disciplines with a useful instrument to refine understanding of the experience of dehumanization and stimulate further scientific inquiry into the phenomenon.

AUTHOR CONTRIBUTIONS
Artyom Golossenko: Conceptualization; data curation; formal analysis; funding acquisition; investigation; methodology; project administration; resources; software; supervision; validation; visualization; writing – original draft; writing – review and editing. **Helena Palumbo:** Conceptualization; investigation; methodology; resources; writing – original draft; writing – review and editing. **Mariya Mathai:** Conceptualization; formal analysis; investigation; resources; writing – original draft; writing – review and editing. **Hai-Anh Tran:** Conceptualization; formal analysis; investigation; methodology; writing – original draft; writing – review and editing.

CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to disclose.

DATA AVAILABILITY STATEMENT

Data, code, and materials for all studies can be accessed at https://osf.io/dxaew/.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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