Less than human: dehumanisation of people who use heroin

Abstract

Purpose
Stigma reduction is an important public health challenge because of the large morbidity and mortality associated with some forms of substance use. Extreme stigma can lead to dehumanisation of target groups, who are ascribed with lesser humanity. We examined whether there was blatant and subtle dehumanisation of people who use heroin, and if these were associated with levels of support for non-discriminatory drug policy.

Methods

A cross-sectional online study using a UK convenience sample (n = 307; 75.2% female, mean age 28.6 ± 12.2 years). Participants completed assessments of blatant (Ascent of Humans scale) and subtle (an emotion attribution task), dehumanisation, and a bespoke measure assessing support for non-discriminatory drug policies. Other measures controlled for stigma towards people who use drugs, and moral disgust.

Findings
There was greater blatant dehumanisation of people who used heroin compared to the general population and other potentially stigmatised reference groups, including people who use cannabis. We also found evidence of subtle dehumanisation, and people who used heroin were rated as being less likely to feel uniquely human emotions, less likely to feel positive emotions, and more likely to feel negative emotions. Blatant dehumanisation was associated with significantly lower probability of support for non-discriminatory drug policy.

Originality
This is the first study to investigate blatant and subtle dehumanisation of people who use heroin, and how this relates to public support for drug policy.

Conclusions

Dehumanisation may present significant challenges for stigma reduction initiatives and in fostering public support for drug policy and treatment. Denial of the humanity of this group could be used to justify discriminatory policies or relative deprioritisation of support services in funding decisions. Activities that seek to 'rehumanise' people who use drugs, including social inclusion, and encouraging compassionate media representations that portray the lived experiences of substance use may be useful areas of future work.

Introduction

People who use drugs (PWUD) are one of the most stigmatised groups in society, and are subject to more negative public attitudes and discrimination than other groups who are labelled by their experiences and conditions such as mental ill health, smoking, or obesity (Room et al., 2001; Phillips and Shaw, 2013; Barry et al., 2019). Public stigma, and internalisation of negative attitudes by labelled groups (i.e. self-stigma) is associated with reduced health and social care uptake, poorer quality of care and outcomes, and reduced public support for supportive policies and services (Rivera et al., 2014; Lancaster, Seear and Ritter, 2017; Andersen and Kessing, 2019). Negative outcomes can affect others such as family members of out-groups through processes of association (Dyregrov and Selseng, 2021), and this may also be internalised as affiliate stigma (Mak and Cheung, 2008), leading to concealment, isolation, and reductions in quality of life (Marshall, 2013). Considering the large mortality and morbidity burden associated with substance use (Degenhardt et al., 2018; Lewer et al., 2019) addressing stigma is an important public health challenge (McGinty and Barry, 2020).

Models of stigma describe processes whereby an out-group is first identified by labelling on the basis of identifiable or perceived characteristics; subjected to stereotypes and prejudices; and then exposed to prejudice, discrimination and/or social distancing (Kilian et al., 2021). Stigma exists across the socio-ecological spectrum, and outcomes, experiences, practices, and drivers exist from individual to societal levels (Stangl et al., 2019). There is an emerging body of research that has identified determinants of public stigma towards PWUD, including media representations (e.g. Atkinson and Sumnall, 2021) the language used to describe affected groups (e.g. pejorative terms; Ashford et al., 2019); perceptions of blame, controllability, and culpability (e.g. substance use as a controllable choice; Sattler et al., 2017); personal characteristics of labelled groups (e.g. age, gender, parental status; Kulesza et al., 2016); and

3

the use of biogenetic explanations for underlying conditions (e.g. chronic relapsing condition; Kelly et al., 2021). Conversely, studies that have presented sympathetic and humanising narratives of PWUD (Bachhuber et al., 2015; Sumnall et al., 2020a; Sumnall et al., 2021) are associated with reduced public stigma, and increased support for policies benefiting PWUD, but only when associated with groups of higher socioeconomic status (Kennedy-Hendricks, Barry and McGinty, 2016)

There has been relatively less research undertaken on the processes of stigmatisation of PWUD and how this may lead to discrimination and inequity in practice and policy responses (Kilian et al., 2021). One route may be through the dehumanisation of PWUD. Dehumanisation is a distinct concept from stigmatisation, but is often applied to the most highly stigmatised groups and refers to the absence of explicit attribution of human traits to out-groups (i.e., PWUD) compared to in-group members (i.e., the general public) (Kteily and Bruneau, 2017). This may lead to reduction of inter-group pro-social behaviours and increased social distancing from out-group members (Martínez et al., 2017). The infrahumanisation theory of dehumanisation suggests that rather than blatant dehumanisation, subtle judgements made on the basis of perceptions of the relative differences in humanness between groups may be more common (Leyens et al., 2007). This is expressed through relative attribution of basic, primary emotions that both humans and animals share, and secondary emotions that are seen as unique indicators of humanity. Similarly, the two-dimensional model of humanness focuses on interpersonal and intergroup relations, and proposes that dehumanised outgroups are denied unique traits and attributes of humanness such as emotional responsiveness, interpersonal warmth (prosociality), and depth (Haslam and Loughnan, 2014). This may also include a perceived lack of agency and human experience such as consciousness and personality in out-groups relative to in-groups and non-human animals (Waytz et al., 2010). Neuroimaging studies suggest that there

may even be neuronal correlates to dehumanising perceptions, with exposure to pictorial representations of groups perceived to be low in warmth and competence such as PWUD or people who are homeless less likely to activate parts of the brain important in positive social cognitions (medial prefrontal cortex), and more likely to activate parts associated with emotional disgust (insula, amygdala) (Harris and Fiske, 2006; Harris and Fiske, 2009).

Previous research has shown blatant and subtle dehumanisation towards a number of stigmatised groups, include people with severe alcohol use disorders (Fontesse, Rimez and Maurage, 2021), those with obesity (Kersbergen and Robinson, 2019), those who have experienced homelessness (Bruneau et al., 2018), refugees (Bruneau, Kteily and Laustsen, 2018), and ethnic minority groups (Kteily and Bruneau, 2017). Blatant dehumanisation has been shown towards a range of people described as mentally ill, including those described as having 'drug addiction' (Boysen et al., 2020). Whereas dehumanisation may be functional in some care-giving situations where high levels of emotional attachment to patients has been associated with staff burnout (Vaes and Muratore, 2013; Fontesse, Rimez and Maurage, 2021), in general, dehumanising attitudes are reflected in a higher desire for social distancing, perceptions of dangerousness, violence and victimisation, and higher levels of support for discriminatory and aggressive policies targeting out-groups (Rudman and Mescher, 2012; Kteily et al., 2015; Kersbergen and Robinson, 2019; Parker, Monteith and South, 2020).

Dehumanisation of PWUD is apparent in popular media representations, particularly in visual imagery of 'contaminated' and 'polluted' bodies (Ayres and Jewkes, 2012), criminal 'mugshots' (Fitzgerald, 2020; Atkinson and Sumnall, 2021), and drug consumption practices (e.g. a focus on injection) (Weimer, 2004); and in text narratives that omit pity and grieving for victims of drug-related deaths (Fraser, Farrugia and Dwyer, 2018), or emphasise the

dangerousness of PWUD and make comparison with fictional characters such as zombies (Alexandrescu, 2018; Atkinson and Sumnall, 2021). As with the internalisation of public stigmatising attitudes, the subjective perception of being dehumanised by others (metadehumanisation) has also been observed in people with alcohol use disorders and this is associated with dysfunctional coping strategies and the use of alcohol to cope (Fontesse et al., 2020).

In this study we investigated dehumanising attitudes towards people who use heroin in the general public. Whilst a large number of studies have examined the experiences and consequences of stigma in PWUD (for useful reviews see Lloyd, 2013; Lancaster et al., 2017)), few have specifically examined dehumanisation. Of those, and as described above, Fontesse and colleagues examined internalised dehumanisation in people with alcohol use disorders (2020) or attitudes of healthcare professionals towards this group (Fontesse, Rimez and Maurage, 2021), whilst Harris and Fiske (2006; 2009) primarily examined neural responses to visual stimuli of dehumanised groups. Based upon infrahumanisation theory and previous work undertaken with other highly stigmatised populations, we hypothesised that there would be both greater blatant and subtle dehumanisation towards people who use heroin compared with other stigmatised groups (e.g. people with serious mental health problems, obesity), and with people who use cannabis. We specifically chose heroin because this is a highly stigmatised drug associated with high mortality and morbidity, and within the general population, including within groups of PWUD, there are 'hierarchies' of substance use, with people using heroin viewed more negatively than those using drugs such as cannabis (McElrath and McEvoy, 2001; Palamar, Kiang and Halkitis, 2012; Brown, 2015). We also undertook an exploratory analysis to examine whether dehumanising attitudes were associated with stigma towards people who use heroin, and support for non-discriminatory policies for PWUD.

Methods

Design

Online cross-sectional survey, and participants completed an anonymous online questionnaire.

Participants

A convenience sample was recruited from the UK general public. Inclusion criteria were people who were UK residents and aged over 18 years, and the questionnaire included screening checks. Participants were recruited through a number of methods, including students recruited internally for course credit, social media, and snowball sampling. To reduce bias, recruitment materials mentioned that this was a study investigating the decisions people make about substance use policy, but not that it was investigating dehumanisation or stigmatising attitudes, and this was only revealed in the survey debriefing. A priori power calculations were undertaken to estimate minimum sample sizes required for the two main analyses (see below) (G*Power 3.1; Faul et al. (2007)). To detect a medium effect size for the analysis of blatant dehumanisation (Friedman's test), (f= 0.25, power 0.95; 10 measurements) an estimated a minimum sample size of 20 was required. Analysis of subtle dehumanisation was undertaken using a 2 x 2 x 4 repeated measures ANOVA, and to detect a medium effect size (f= 0.25, power 0.95) an estimated minimum sample size of 279 was required.

Overall, 363 survey attempts were recorded, but only those participants providing complete data on both primary outcomes (blatant and subtle dehumanisation) were retained. The final sample comprised 307 participants (84.6% of attempts; n = 231 (75.2%) Female; mean age 28.6 ± 12.2 years). Of relevance to study outcomes, 177 participants (57.7%) reported a lifetime use of a controlled drug (37.5% cannabis; 3.3% heroin); 7 (2.3%) had received structured drug

treatment, and 59 (19.2%) had a family member of close friend who they believed had received support.

Materials and Procedure

Participants completed a single online questionnaire hosted on the Qualtrics platform (Qualtrics, Provo, UT, USA), and this took approximately 10 minutes to complete. All measures are described, but not all were included in the analyses reported here as our group utilises similar measures across different studies (e.g. media use, detailed patterns of substance use, demographics).

After reading the study information and providing consent, participants completed two screening questions (UK resident; aged > 18 years) before proceeding. Participants completed questions on demographics (age, gender, education, ethnicity, employment); substance use history (lifetime and last year use of a number of substances); and voting preference to assess political orientation (main UK political parties; recoded into *left*; *right*; *centre* parties for analysis).

Primary outcome measures

Blatant dehumanisation was assessed using the Ascent of Humans (AoH) scale (Kteily et al., 2015). This is a 100-point slider underneath a pictorial representation of five evolutionary stages between non-human primates and humans. Instructional text read "*People can vary in how human-like they seem. Some people seem highly evolved, whereas others seem no different than lower animals. Using the image as a guide, indicate using the sliders how evolved you consider the average member of each group to be. Note: 'Brits' refers to citizens of the United Kingdom.*" Participants were asked to rate on the scale how evolved they thought each of 11

groups was (including an attention check requesting the slider was moved all the way to the right). The target group for our study was *Brits who use heroin* (hereafter *heroin*); and comparison groups were *Brits*; *Arabs*; *Brits who use cannabis*; *Brits with cancer*; *Mixed race Brits*; *Brits who are homeless*; *Brits with schizophrenia*; *Brits who are unemployed*; *Brits who are employed*; *Obese Brits*. This measure has previously been used to investigate explicit dehumanisation of population groups such as people who have mental health problems; those with experiences of homelessness people involved in criminality; minority ethnic, cultural, and religious groups; and predicts both hostility towards targets, and support for punitive polices (Kteily and Bruneau, 2017; Bruneau et al., 2018; Boysen et al., 2020). Comparison groups were chosen on the basis of representing groups that are less- or similarly stigmatised compared to people who use heroin (e.g. Kersbergen and Robinson, 2019; Ktiely et al., 2015; Sattler et al., 2017).

Subtle dehumanisation was assessed using an adapted version of the emotion attribution task used by Kersenberger and Robinson (2019) in their study of attitudes towards obesity. Participants were asked to indicate on a 100-point slider (*Not well at all* to *Very well*) how well each of 16 emotions (presented at random) characterised *UK citizens who use heroin*; and three comparison groups, *UK citizens*; *UK citizens who use cannabis*; and *UK citizens who are homeless* (presented at random). Included emotions were classed as primary or secondary, and as positive or negative. Primary emotions are considered universal to all humans and non-human animals, and those included were anger; disgust; euphoria; fear; happiness; joy; pleasure; and sadness. Secondary emotions are considered uniquely human and those included were admiration, guilt, hope, love, remorse, resentment, shame, and tenderness. Lower endorsement of secondary emotions represents greater subtle dehumanisation. An advantage

of this measure is that participants are less aware that choice of attributes is an indicator of target group dehumanisation (Haslam and Loughnan, 2014).

Additional measures

Moral disgust was assessed using the seven-item subscale of the Three Domains of Disgust Scale (TDDS), which assesses disgust that motivates the avoidance of social-norm violators. (Tybur, Lieberman and Griskevicius, 2009). Item were scored on a Likert scale (0 Not disgusting at all, to 6 Extremely disgusting) with higher scores representing greater disgust. Cronbach's $\alpha = 0.84$, indicating a good level of internal consistency.

The Disgust Scale Revised (DS-R) was used to measure individual differences in sensitivity to general disgust (Olatunji et al., 2007). It comprises 25-items, with items 1 to 13 scored True (1) or False (0), and the remainder as Not (0), Slightly (0.5), or Very (1) disgusting. Disgust sensitivity is scored by calculating by summing the responses to all 25 items, with higher scores representing greater disgust sensitivity. Cronbach's $\alpha = 0.80$, indicating an acceptable level of internal consistency.

We assessed participant support for five non-discriminatory drug policies (*Making people pay extra for their own NHS treatment where their illness is caused by their illegal drug use*; *Prescribing heroin on the NHS to people who are addicted to the drug*; *Making payment of benefits to people who are addicted to drugs dependent on them attending drug treatment services*; *Provide all people who have problems with drugs access to free drug treatment*; *Provision of a facility where people can inject illegal drugs under the supervision of a doctor, nurse, or other healthcare professional*). These items were randomly presented alongside seven other health and social policy filler items. Each item was scored from 1 (No support at

all) to 10 (Complete support), with higher total scores (with appropriate reverse scoring) representing greater support. Cronbach's α = 0.74, indicating an acceptable level of internal consistency.

Attitudes towards people who are homelessness were assessed through three questions taken from the Scottish Social Attitudes Survey General Attitudes to Homeless Module (The Scottish Government, 2006). These were *Most homeless people have just been unlucky in their lives*; *Most homeless people could find somewhere to live if they really tried* (reverse scored); *Many people say they are homeless just to try and get a house from the council* (reverse scored). Questions were scored on a Likert scale (1 Strongly Disagree to 5 Strongly agree), with higher scores representing more positive attitudes. In the present study, Cronbach's α = 0.81, indicating a good level of internal consistency.

Attitudes towards people with substance use disorders (hereafter attitudes towards people in recovery) were assessed through 19 questions taken from a public attitudes to drugs survey (Singleton, 2010), originally adapted from the Attitudes to Mental Illness survey (Singer et al., 2016), and utilised in the 2016 Scottish Government's Public Attitudes Towards People with Drug Dependence and People in Recovery survey (The Scottish Government, 2016). Questions were scored on a five-point Likert scale (1 Strongly Agree to 5 Strongly disagree) and assessed attitudes towards people with a history of drug dependence (e.g. *Parents should not let their children play with the children of someone with a history of drug dependence* (reversed scored); *People with a history of drug dependence are too often demonised in the media*). Higher total scores represented more negative attitudes. In the present study, Cronbach's α = 0.89, indicating a good level of internal consistency.

Stigmatising attitudes towards PWUD was assessed using a version of the 9-item Attribution Questionnaire (AQ-9; Corrigan et al., 2003), previously adapted for use in a study assessing stigma towards PWUD (Sumnall et al., 2020b). The scale was worded to aid understanding for non-specialists, and included items across subdomains of lack of pity (*Do you feel pity for people with drug dependence?*; reversed scored); dangerousness (*How dangerous do you feel people with drug dependence are?*); fear (*How scared of people with drug dependence do you feel?*); blame (*Do you think that it is people with drug dependence's own fault that they are in their present condition?*); segregation (*Do you think it is best for the communities of people with drug dependence if they are confined in a hospital?*); anger (*How angry do you feel at people with drug dependence?*); avoidance (*Would you try to stay away from people with drug dependence?*); coercion (*How much do you agree that people with drug dependence should be forced into drug treatment even if they do not want to?*); and failure to help (*How likely is it that you would want to help someone with drug dependence?*; reversed scored). Individual items are scored on a nine-point Likert scale (1 not at all to 9 very much), and a total stigma score calculated (range 9-81). Higher scores represent higher total stigmatising attitudes. In this study, Cronbach's $\alpha = 0.80$, indicating a good level of internal consistency.

Participants were also asked to indicate if i) they; and ii) a family member/close friend, had ever received drug treatment (coded 0 = no; 1 = yes). Finally, they self-rated their knowledge of the reasons why some people developed problems with substances and others do not (10-point scale; From 1 = No knowledge to 10 = most knowledge), and if they had seen media reports about people who have experienced problems with substances in the previous six months. Those who positively endorsed this item were asked whether they judged these to be supportive, negative, or balanced in their representation of PWUD.

The research was approved by Liverpool John Moores University Research Ethics Committee.

Analysis

Primary analyses

To assess differences in AOH scores between the heroin, cannabis, and reference groups we used Friedman's test for non-parametrically distributed data, followed by Wilcoxon signed rank test with Bonferroni correction for multiple comparisons.

To assess differences in subtle dehumanisation we undertook a 2 (Emotional valence: positive, negative) x 2 (Emotion level: primary, secondary) x 2 (group; 'Brits', 'Brits who use heroin') repeated measures ANOVA, followed by *post hoc* paired samples t-tests corrected for multiple comparison. We repeated the analyses to assess differences in subtle dehumanisation between *heroin* and groups who use other substances (*cannabis*) or who are also stigmatised (*homeless*).

Exploratory analyses

We undertook two exploratory analyses. Firstly, to assess the utility of dehumanisation as a predictor of stigmatising attitudes we correlated AOH and subtle dehumanisation with AQ-9 scores. Secondly, we undertook hierarchical linear regression with score for non-discriminatory drug policy as the dependent variable. For both analyses we first calculated (unstandardised) residual change scores for i) AOH ratings for 'Brits who use heroin' predicted by ratings for 'Brits'; and ii) secondary emotion attributions for 'Brits who use heroin' predicted by ratings for 'Brits'. Lower residual scores indicated greater blatant or subtle dehumanisation of *heroin* (i.e., greater dehumanisation compared to the reference group).

For prediction of policy support, residual change scores were entered into block 1; demographics and political orientation were entered into block 2; TDDS and DS-R scores were entered into block 3; and scores for attitudes towards people who are homeless, people in recovery, AQ9, self-rated knowledge about substance use, and personal experience of treatment or knowing someone who had received treatment were all entered into block 4.

These covariates were chosen on the basis of previous research showing associations between these views, contact with people who use substances, or familiarity with drug-related topics on stigma (Addison and Thorpe, 2004; Corrigan, Kuwabara and O'Shaughnessy, 2009; Brown, 2011; Lloyd, 2013; Sattler et al., 2017; Goodyear, Haass-Koffler and Chavanne, 2018). Those holding conservative and right-wing values have also been shown to dehumanise more than other political orientations (DeLuca-McLean and Castano, 2009; Haslam and Loughnan, 2014). Although dehumanisation, stigmatisation, and disgust are distinct concepts (Kteily and Bruneau, 2017), the latter two predict dehumanisation, and so we also included measures of these (Dalsklev and Kunst, 2015).

Alpha was set at .05, and all analyses were undertaken with SPSS V27 (IBM Corp, 2020). Our study was not pre-registered and so should be considered exploratory.

Results

Primary analyses

Blatant dehumanisation

There was a statistically significant difference in AOH blatant dehumanisation score depending upon the target group, $\chi^2(10) = 282.247$, $p = 0.000$. Post-hoc analysis with Wilcoxon signed-rank tests (Bonferroni correction for 10 comparisons), indicated significant score differences between AOH rating for the *heroin* group and *Brits* ($Z = -7.455$, $p = 0.000$)*; Arabs* ($Z = -6.867$, $p = 0.000$); *Brits who use cannabis* ($Z = -6.399$, $p = 0.000$); *Brits with cancer* ($Z = -8.301$, $p = 0.000$); *Mixed race Brits* ($Z = -8.455$, $p = 0.000$); *Brits who are homeless* ($Z = -7.031$, $p = 0.000$); *Brits with schizophrenia* ($Z = -5.973$, $p = 0.000$); *Brits who are unemployed* ($Z = -6.966$, $p = 0.000$); *Brits who are employed* ($Z = -8.299$, $p = 0.000$); *Obese Brits* ($Z = -5.802$, $p = 0.000$). Heroin users were therefore rated as being less evolved than all other reference groups, including the *cannabis* group.

To assess whether this was a *heroin* specific effect, we repeated the post-hoc analysis comparing *cannabis* to other reference groups. There were no significant differences in ranks (all p > 0.05 after Bonferroni correction applied).

Subtle dehumanisation

   i) *Brits* vs *heroin*: we found a significant group (*Brits* vs *heroin*) effect ($F(1,306) = 110.89$, $p < .001$, $\eta^2_p = .25$), and significant group x emotion level (primary, secondary) ($F(1,306) = 18.15$, $p < 0.001$, $\eta^2_p = .06$); group x valence (positive, negative) ($F(1,306) = 244.03$, $p < .001$, $\eta^2_p = .44$); and group x level x emotion ($F(1,198) = 124.22$, $p < .001$, $\eta^2_p = .29$) interactions.

Post-hoc paired samples t-tests (Figure 1) showed that participants thought that the *heroin* group were significantly less likely to feel secondary emotions ($t(306) = -7.24$, $p < .001$, $d_z = 0.51$) than *Brits*. Examining emotional valence, they were rated as less likely to feel primary positive ($t(306) = -10.88$, $p < .001$, $d_z = .62$), and secondary positive ($t(306) = -22.69$ $p < .001$, $d_z = 1.30$) emotions, and more likely to feel primary negative ($t(306) = 2.31$, $p = 0.02$, $d_z = 0.13$) and secondary negative emotions ($t(306) = 6.73$, $p < .001$, $d_z = 0.38$).

ii) *Cannabis vs heroin*: we did not find a significant group (*cannabis* vs *heroin*) effect ($F(1,306) = 0.286$, $p < .593$, $\eta^2_p = .00$), but there were significant group x emotion level (primary, secondary) ($F(1,306) = 15.48$, $p < 0.001$, $\eta^2_p = .05$) and group x valence (positive, negative) ($F(1,306) = 510.92$, $p < .001$, $\eta^2_p = .63$) interactions. However, there was no group x level x emotion ($F(1,198) = .177$, $p = .674$, $\eta^2_p = .00$) interaction. Accordingly, no follow up *post-hoc* tests were performed.

iii) *Homeless vs heroin:* we found a significant group (*homeless* vs *heroin*) effect ($F(1,306) = 4.613$, $p = 0.03$, $\eta^2_p = .02$), and significant group x emotion level (primary, secondary) ($F(1,306) = 217.70$, $p < 0.001$, $\eta^2_p = .42$); group x valence (positive, negative) ($F(1,306) = 58.79$, $p < .001$, $\eta^2_p = .16$); and group x level x emotion ($F(1,198) = 490.31$, $p < .001$, $\eta^2_p = .62$) interactions.

Post-hoc paired samples t-tests showed that participants thought that the *heroin* group were significantly less likely to feel secondary ($t(306) = -5.82$, $p < .001$, $d_z = 0.33$) emotions than *homeless*. They were rated as more likely to feel primary positive ($t(306) = 18.45$, $p < .001$, $d_z = 1.05$) emotions, and less likely to feel primary negative ($t(306) = -6.61$, $p < .001$, $d_z = 0.38$) and secondary positive emotions ($t(306) = -10.29$, $p < .001$, $d_z = 0.59$). There was no difference in ratings for secondary negative emotions ($t(306) = 0.62$ $p = .538$, $d_z = 1.30$).

Exploratory analyses

There were significant correlations between residual blatant (r = -.323, p < 0.001) and subtle (r = -.157, p < 0.05) dehumanisation and AQ-9 score. Higher dehumanisation of people who use heroin relative to the general population was associated with higher stigmatising attitudes. As shown in Table I, there were significant correlations between blatant dehumanisation and all AQ-9 items, and secondary dehumanisation and lack of pity, blame, anger, and avoidance.

INSERT TABLE I HERE

The regression analysis predicting supportive drug policy support scores, and model parameters are presented in Table II. Model 1 accounted for the largest proportion (17.3%) of the variance in support for drug policy, demonstrating the importance of blatant dehumanisation and emotion. The final model was statistically significant R^2 = .483; $F(16,115)$ = 6.726, p < .001. Across all steps, younger age, lower blatant dehumanisation, and lifetime use of any controlled drug predicted greater support for supportive drug policy (β = .38, p < 0.001; β = .21, p < 0.05; β = .17, p < 0.05 at Step 4, respectively).

INSERT TABLE II HERE

17

Discussion

We investigated whether there was dehumanisation towards people who use heroin in a general population sample. Our main study hypotheses were supported, and we found that there was blatant dehumanisation, and that this group were viewed as less human than reference groups, including the general population and other stigmatised groups such as those who are homeless, have serious mental health problems, or who are obese. We also found lower ratings of humanness compared to people who use cannabis, suggesting that these attitudes may not extend to all PWUD, but only to users of certain substances. We also found evidence of subtle dehumanisation (i.e. infrahumanisation). When compared to a general British population reference group, people who use cannabis, or people who are homeless, participants rated people who use heroin just as likely to feel primary emotions common to all animals, but less likely to experience uniquely human secondary emotions. Finally, in our exploratory analyses we found that dehumanisation predicted stigmatising attitudes, and after controlling for a range of relevant demographic, stigma, and disgust variables, lower blatant dehumanisation of people who use heroin relative to the general population, younger age, and personal use of controlled substances predicted greater support for non-discriminatory drug policy.

There is a large body of research that suggests that dehumanisation of out-groups is prevalent across cultures, population characteristics, social identities, and medical diagnoses (Kteily and Bruneau, 2017), but our work is one of the few that has examined this in relation to PWUD, and more specifically heroin use. Our findings extend previous research that has consistently found that diverse groups, including the general public, and law enforcement, health and social care professionals, stigmatise PWUD (Lloyd, 2013), or blatantly dehumanise them (Harris and Fiske, 2006; Boysen et al., 2020; Fontesse, Rimez and Maurage, 2021). As we found differences in dehumanisation scores towards heroin and cannabis users compared to reference

groups, our study confirms previous research, including survey and qualitative research, that suggests stigmatising attitudes are drug dependent, and are not simply a function of the use of controlled substances (e.g. McElroy, 2001; Palamar et al., 2017). For legally regulated and socially-normalised substances such as alcohol, stigmatisation is orientated towards people with use disorders or harmful use (Kilian et al., 2021). As more countries establish legal (medical and non-medical) markets for cannabis, within-substance attitudes, including dehumanisation, may similarly shift towards transgressions of newly emerging normative use behaviours, rather than use *per se* (Asbridge et al., 2016). We replicated previous findings on blatant dehumanisation, but also found evidence of subtle dehumanisation, which was associated with stigmatising attitudes of lack of pity, and increased blame, anger, and avoidance of PWUD, which might underlie processes of dehumanisation. Across all out-groups, dehumanisation also acts as a barrier to positive social interaction, and target groups are perceived as a threat to the in-group, whether directly through aggression or violence, or by challenging in-group integrity and identity, including moral equanimity (Leyens et al., 2007; Haslam and Loughnan, 2014).

While there are many psychological factors that contribute to stigmatising attitudes (Markowitz and Slovic, 2020), one socio-moral factor suggested to have a role dehumanisation is disgust, where neural responses have indicated dehumanised social groups elicit disgust responses in the amygdala and insula (Harris and Fiske, 2006). Disgust has been defined as a defensive mechanism evolved to protect from harm by promoting withdrawal from food contaminants (Vicario et al., 2017), though disgust has also been observed in relation to non-food stimuli suggesting that it has a more wide-ranging protective function that extends to interpersonal and social interactions (Rozin, Haidt and McCauley, 1993). Moreover, stigma and disgust have been found to be strongly related to each other. In one fMRI study, comparing

activation to stigmatised faces (obesity, facial piercings, transsexual, and unattractive categories) and control faces, control faces were rated as significantly less disgusting than all other categories (Krendl et al., 2006). According to Rozin and colleagues (1999), the law of contagion dictates that stimuli that have been in contact with individuals who are deemed unwell (e.g. individuals with mental health problems, cancer patients) are viewed with disgust for fear that they may make the viewer similarly ill. Disgust propensity (how likely a person is to be disgusted), has also been found to be related to stigma towards homosexuality (Olatunji, 2008), obesity (Vartanian, 2010), and cancer patients (Pryor et al., 2004) while disgust sensitivity (how strong a disgust response is) has been shown to predict avoidance behaviour to anxiety provoking stimuli (Nicholson and Barnes-Holmes, 2012). Sherman and Haidt (2011) discuss the relationship between animalistic dehumanisation and disgust, and the role of mentalising (the processes used to decide if an entity possesses a mind). They propose that elicitors (things which elicit disgust) that remind us of our animal nature (e.g., elicitors related to sex or death) are most likely to elicit a disgust response and inhibit the processes involved in mentalising. Disruption of mentalising therefore leads us to attribute fewer human traits to a group that we perceive as disgusting. This animalistic dehumanisation results in exclusion of the disgust-eliciting and dehumanised group from social interactions, in an attempt to reduce the potential contamination.

Dehumanisation may also be used as a self- or in-group strategy of moral disengagement in order to maintain group self-image (Bandura, 1991; Bandura et al., 2001). Actions that potentially have negative consequence for others may lead to feelings of guilt and regret, and anticipation of these may lead to self-regulation of behaviour (Bandura, 1991). However, psychosocial mechanisms of disengagement, including dehumanisation of affected groups, allow group members to violate moral norms with emotional impunity by providing

justification, rationalisation, and/or absolvement of personal responsibility. Once out-group members are dehumanised and stripped of common human attributes, even when undertaken subtly and unintentionally, empathy towards them is reduced, opening them to hostility and discrimination (Čehajić, Brown and González, 2009; Boysen et al., 2020). Whilst previous research has examined how this might relate to overtly aggressive policies towards groups such as refugees, or those states perceived as hostile (e.g. Rai et al., 2017), these types of process may also be relevant to health, criminal justice, and social care policy decisions. Subtle dehumanisation of people with mental health problems, for example, predicts increased public social distancing and perceptions of dangerousness (Martinez et al., 2011; Martinez, 2014; Krzyzanowski, Howell and Passmore, 2017); blatant dehumanisation of people with obesity predicts public support for discriminatory policies (Kersbergen and Robinson, 2019); whilst dehumanisation of people with alcohol use disorders by healthcare workers has been associated with negative outcomes such as reduced value paid to patient consent and pain when making a medical decision related to their treatment (Fontesse, Rimez and Maurage, 2021). Policy makers may take advantage of public perceptions towards out-groups to justify difficult political choices, subsequently reinforcing and maintaining the social contexts that originally shaped those attitudes (Harris, 2014). Recent changes in the objectives of UK drugs policy and reduction in expenditure (Roscoe et al., 2021), for example, have been accompanied by changes in framing of responses to substance use and the people who use them, with suggestions that PWUD are denied human agency in both popular and political discourse (Stevens, 2018; Atkinson and Sumnall, 2021). Some recent UK public opinion surveys commissioned by campaigning groups suggest that public attitudes towards responses to controlled substance use might be changing (YouGov and CDPRG, 2019). However, despite this, and the high burden of societal harms associated with substance use, most studies suggest only minority support for public expenditure on drug treatment (Matheson et al., 2014), and high public opposition

towards evidence based harm reduction, even during public health events such as the US opioid overdose crisis (McGinty et al., 2018; McGinty and Barry, 2020). Considering the association we found between blatant dehumanisation and lower support for non-discriminatory drug policy, dehumanisation could be being employed as a moral disengagement strategy to rationalise lack of support, or dehumanising attitudes might simply precede lower support. Follow up work incorporating moral disengagement measures could help to resolve this, as addressing dehumanisation as a moral disengagement strategy would require a different approach to stigma reduction actions (Livingston et al., 2012; Sumnall et al., in press).

Indeed, in contrast to stigma research there has been little work examining reduction of dehumanisation of out-groups labelled on the basis of health or social behaviours (*cf* refugees or ethnicity) (Haslam and Loughnan, 2014; Lancaster, Seear and Ritter, 2017). However, in keeping with the findings of stigma research, there is a small body of evidence to suggest interventions designed to improve the quality of contact between groups, including those receiving welfare payments, have been shown to be effective in reducing dehumanisation (Vezzali et al., 2012; Corrigan, 2016; Kteily and Bruneau, 2017; Bruneau et al., 2021). Whilst these are approaches that can be relatively easily embedded within professional education or through small structured inter-group contact activities (Couture and Penn, 2003; Corrigan et al., 2014; Bruneau et al., 2021), as with all public health interventions, they may be difficult to implement at scale (World Health Organization, 2009). These types of approach may also face some additional challenges. Rather than particular behaviours or perceived characteristic leading to beliefs that out-groups are simply 'less than human', dehumanising attitudes may reflect automatic perceptions that out-groups deserve low social hierarchical status, with foundations in long-standing inter-group interactions, and individual and societal attitudes towards intersecting factors such as class, ethnicity, and gender (Haslam and Loughnan, 2014),

and beliefs about the blame and controllability of substance use disorders, and the dangerousness of PWUD (Corrigan, Kuwabara and O'Shaughnessy, 2009; Sattler et al., 2017; Ashford, Brown and Curtis, 2018; Sumnall et al., 2021). Furthermore, in accordance with social dominance theory, those who dehumanise may not simply perceive others as threatening, but may value asserting power and support efforts to separate groups through the use of discriminatory policy and other prejudicial actions, and are therefore less likely to respond to humanising interventions (Pratto, Sidanius and Levin, 2006; Markowitz and Slovic, 2020).

Acknowledging these challenges, one approach to humanisation could be through addressing popular media representations of PWUD (Fraser et al., 2016; McGinty, Kennedy-Hendricks and Barry, 2019). PWUD are typically framed in popular media as dangerous, 'contaminated', and lacking human agency (Atkinson and Sumnall, 2018; Atkinson and Sumnall, 2021), but previous work has shown that manipulations such as sympathetic framing and the use of neutral and person first terminology is associated with reduced stigma (Goodyear, Haass-Koffler and Chavanne, 2018; Sumnall et al., 2021). This is an area that requires further research with respect to dehumanisation. Of relevance, when research participants were asked to read a news article depicting a violent crime depicted by a man with a diagnosis of schizophrenia, they were much more likely to select noun-labelled headlines (e.g., 'Schizophrenic Snaps') than person-first ones (e.g., 'Person with Schizophrenia Snaps'), and this was mediated by dehumanising attitudes (Krzyzanowski, Howell and Passmore, 2017). However, another experimental intervention designed to reduce dehumanisation of people with obesity by presenting textual information on its complex causes was unsuccessful, as it may have reinforced existing norms that most people already dehumanise obesity, thus legitimising discriminatory attitudes (Kersbergen and Robinson, 2019). As people process information about in- and out-group members differently (Riek, Mania and Gaertner, 2006), these researchers suggested that

combining explanatory information with humanising imagery that contrasted with typical media representations of obesity (i.e. a focus on headless bodies, comparable to 'mugshots' and images of drug overdose or extreme intoxication in relation to substance use) warrant further investigation. Other work in the alcohol and mental health fields suggests that presentation of conditions on a continuum, which suggests that people all experience relevant symptoms at some point in their life, rather than as a binary, where experiences are presented as different from normative human experiences, is associated with reduced stigma (Peter et al., 2021). This type of framing may increase perceived similarities between groups, thus reducing inter-group boundaries. However, whilst all humans may be susceptible to mental health problems, and in many countries a majority report recent use of alcohol, only a minority use drugs such as heroin (e.g. approximately 0.5% of the UK population report a lifetime use; ONS 2020). Therefore, a focus on other overlapping human characteristics rather than experiences of substance use may be more appropriate.

This study has limitations which should be acknowledged, and which also suggest some areas of further work. Firstly, we recruited a convenience sample and so our findings may not be generalisable to the wider population; our study was also cross-sectional and so we do not make any claims about causality. Whilst this sampling method led to over-representation of females and participants with at least one lifetime use of a controlled substance, follow up analysis suggested no differences in blatant and subtle dehumanisation using these grouping variables (data not shown), and they were not significant predictors of policy support. Secondly, whilst we controlled for moral disgust and stigma towards PWUD in our exploratory analysis, we were unable to control for stigmatising attitudes towards the target and reference groups in our assessments of blatant and subtle dehumanisation. Whilst stigma is considered distinct from dehumanisation (although related concepts) (Bruneau et al., 2018), pre-existing negative

attitudes towards depicted groups may have influenced our findings. However, study objectives were only revealed in the debrief, and whilst participants may have guessed that the images used in the AOH meant we were assessing 'humanness', thus potentially introducing social desirability biases, the nature of the subtle dehumanisation task would not be immediately clear. Participants would be unlikely to be aware that their ratings of randomly presented emotional attributes indicated dehumanisation of target groups (Eyssel and Ribas, 2012). The heroin group was also rated as feeling significantly more negative primary and secondary emotions, suggesting that subtle dehumanization can be further distinguished through valence of emotions, and does not simply reflect dislike or antipathy. Thirdly, we only presented simple group labels (e.g. heroin user). Work on public stigmatisation of PWUD suggests that substance use intersects with other (perceived) characteristics including gender, age, ethnicity, deprivation and social class (Ahern, Stuber and Galea, 2007; Radcliffe and Stevens, 2008; Järvinen and Demant, 2011; Kulesza, Larimer and Rao, 2013; Smith et al., 2016; Sattler et al., 2017). Other research suggests that groups attributed with these characteristic are independently dehumanised across cultures (e.g. (Rudman and Mescher, 2012; Loughnan et al., 2014; Kteily et al., 2015), and so future work could investigate how representation of additional characteristics of people who use heroin affect dehumanising attitudes. Finally, whilst we included some individual participant predictors (e.g. demographics, social distance to PWUD, personal experiences of substance use), other psychological and social predictors such as personality (e.g. narcissism), self-perception of social power, status and vulnerability, and adverse childhood experiences that lead to lower social connectedness, have been associated with dehumanising attitudes (Markowitz and Slovic, 2020). Better understanding of these factors may assist in framing and targeting actions that aim to reduce stigma and discrimination towards dehumanised groups.

Conclusions

In conclusion, we found evidence that there was blatant and subtle dehumanisation of people who use heroin. In this sample, this was even greater relative to other highly stigmatised groups. Dehumanisation of people who use heroin may present significant challenges for the development of stigma reduction initiatives, and subsequently in fostering public support for evidence-based drug policy and treatment. As public opinion plays an important role in policy discussions, denial of the humanity of this group could be used to justify discriminatory policies or relative deprioritisation of support services in funding decisions. Person-centred activities that seek to 'humanise' people who use drugs, including social inclusion, and encouraging compassionate media representations that portray the lived experiences of substance use are likely to be challenging, but may be a useful foundation for intervention development.

References

Addison, S.J. and Thorpe, S.J. (2004) Factors involved in the formation of attitudes towards those who are mentally ill. *Social psychiatry and psychiatric epidemiology*, 39 (3), 228-234.

Ahern, J., Stuber, J. and Galea, S. (2007) Stigma, discrimination and the health of illicit drug users. *Drug and Alcohol Dependence*, 88 (2), 188-196.

Alexandrescu, L. (2018) 'Ethnobotanicals' and 'Spice zombies': new psychoactive substances in the mainstream media. *Drugs: Education, Prevention and Policy*, 25 (4), 356-364.

Andersen, D. and Kessing, M.L. (2019) Stigma, problem drug use, and welfare state encounters: changing contours of stigmatization in the era of social investment. *Addiction Research & Theory*, 27 (4), 277-284.

Asbridge, M., Valleriani, J., Kwok, J. and Erickson, P.G. (2016) Normalization and denormalization in different legal contexts: Comparing cannabis and tobacco. *Drugs: Education, Prevention and Policy*, 23 (3), 212-223.

Ashford, R.D., Brown, A.M. and Curtis, B. (2018) Substance use, recovery, and linguistics: The impact of word choice on explicit and implicit bias. *Drug and Alcohol Dependence*, 189, 131-138.

Ashford, R.D., Brown, A.M. and Curtis, B. (2019) "Abusing Addiction": Our Language Still Isn't Good Enough. *Alcoholism treatment quarterly*, 37 (2), 257-272.

Atkinson, A.M. and Sumnall, H.R. (2018) Neo-liberal discourse of substance use in the UK reality TV show, The Jeremy Kyle Show. *Drugs: Education, Prevention and Policy*, 1-12.

Atkinson, A.M. and Sumnall, H.R. (2021) 'Zombies', 'cannibals' and 'super humans': A quantitative and qualitative analysis of UK news media reporting of the cathinone psychostimulants labelled 'monkey dust'. *Drugs: Education Prevention and Policy*, 28 (4), 299-315.

Ayres, T.C. and Jewkes, Y. (2012) The haunting spectacle of crystal meth: A media-created mythology? *Crime, Media, Culture*, 8 (3), 315-332.

Bachhuber, M.A., McGinty, E.E., Kennedy-Hendricks, A., Niederdeppe, J. and Barry, C.L. (2015) Messaging to Increase Public Support for Naloxone Distribution Policies in the United States: Results from a Randomized Survey Experiment. *PLoS ONE*, 10 (7), e0130050-e0130050.

Bandura, A. (1991) Social cognitive theory of moral thought and action. In: Kurtines, W. M. and Gewirtz, J. L. (ed.) *Handbook of moral behavior and development: Theory, research and applications.* Erlbaum, Hillsdale, NJ: Psychology Press.

Bandura, A., Caprara, G.V., Barbaranelli, C., Pastorelli, C. and Regalia, C. (2001) Sociocognitive self-regulatory mechanisms governing transgressive behavior. *J Pers Soc Psychol*, 80 (1), 125.

Barry, C.L., Sherman, S.G., Stone, E., Kennedy-Hendricks, A., Niederdeppe, J., Linden, S. and McGinty, E.E. (2019) Arguments supporting and opposing legalization of safe consumption sites in the U.S. *International Journal of Drug Policy*, 63, 18-22.

Boysen, G.A., Isaacs, R.A., Tretter, L. and Markowski, S. (2020) Evidence for blatant dehumanization of mental illness and its relation to stigma. *J Soc Psychol*, 160 (3), 346-356.

Brown, S.A. (2011) Standardized measures for substance use stigma. *Drug Alcohol Depend*, 116 (1-3), 137-141.

Brown, S.A. (2015) Stigma towards Marijuana Users and Heroin Users. *J Psychoactive Drugs*, 47 (3), 213-220.

Bruneau, E., Hameiri, B., Moore-Berg, S.L. and Kteily, N. (2021) Intergroup Contact Reduces Dehumanization and Meta-Dehumanization: Cross-Sectional, Longitudinal, and Quasi-Experimental Evidence From 16 Samples in Five Countries. *Personality and Social Psychology Bulletin*, 47 (6), 906-920.

Bruneau, E., Jacoby, N., Kteily, N. and Saxe, R. (2018) Denying humanity: The distinct neural correlates of blatant dehumanization. *J Exp Psychol Gen*, 147 (7), 1078-1093.

Bruneau, E., Kteily, N. and Laustsen, L. (2018) The unique effects of blatant dehumanization on attitudes and behavior towards Muslim refugees during the European 'refugee crisis' across four countries. *European Journal of Social Psychology*, 48 (5), 645-662.

Čehajić, S., Brown, R. and González, R. (2009) What do I Care? Perceived Ingroup Responsibility and Dehumanization as Predictors of Empathy Felt for the Victim Group. *Group Processes & Intergroup Relations*, 12 (6), 715-729.

Corrigan, P.W. (2016) Lessons learned from unintended consequences about erasing the stigma of mental illness. *World Psychiatry*, 15 (1), 67-73.

Corrigan, P.W., Kuwabara, S.A. and O'Shaughnessy, J. (2009) The Public Stigma of Mental Illness and Drug Addiction:Findings from a Stratified Random Sample. *Journal of Social Work*, 9 (2), 139-147.

Corrigan, P.W., Markowitz, F.E., Watson, A., Rowan, D. and Kubiak, M.A. (2003) An attribution model of public discrimination towards persons with mental illness. *Journal of health and social behavior*, 44 (2), 162-179.

Corrigan, P.W., Michaels, P.J., Vega, E., Gause, M., Larson, J., Krzyzanowski, R. and Botcheva, L. (2014) Key ingredients to contact-based stigma change: A cross-validation. *Psychiatric Rehabilitation Journal*, 37 (1), 62.

Couture, S. and Penn, D. (2003) Interpersonal contact and the stigma of mental illness: A review of the literature. *Journal of Mental Health*, 12 (3), 291-305.

Dalsklev, M. and Kunst, J.R. (2015) The effect of disgust-eliciting media portrayals on outgroup dehumanization and support of deportation in a Norwegian sample. *International Journal of Intercultural Relations*, 47, 28-40.

Degenhardt, L., Charlson, F., Ferrari, A., Santomauro, D., Erskine, H., Mantilla-Herrara, A., Whiteford, H., Leung, J., Naghavi, M., Griswold, M., Rehm, J., Hall, W., Sartorius, B., Scott, J., Vollset, S.E., Knudsen, A.K., Haro, J.M., Patton, G., Kopec, J., Carvalho Malta, D., Topor-Madry, R., McGrath, J., Haagsma, J., Allebeck, P., Phillips, M., Salomon, J., Hay, S., Foreman, K., Lim, S., Mokdad, A., Smith, M., Gakidou, E., Murray, C. and Vos, T. (2018) The global burden of disease attributable to alcohol and drug use in 195 countries and territories: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet Psychiatry*, 5 (12), 987-1012.

DeLuca-McLean, D. and Castano, E. (2009) Infra-humanization of ethnic minorities: The moderating role of ideology. *Basic and Applied Social Psychology*, 31 (2), 102-108.

Dyregrov, K. and Selseng, L.B. (2021) "Nothing to mourn, He was just a drug addict" - stigma towards people bereaved by drug-related death. *Addiction Research & Theory*, 1-11.

Eyssel, F. and Ribas, X. (2012) How to be good (or bad): On the fakeability of dehumanization and prejudice against outgroups. *Group Processes & Intergroup Relations*, 15 (6), 804-812.

Faul, F., Erdfelder, E., Lang, A.-G. and Buchner, A. (2007) G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39 (2), 175-191.

Fitzgerald, J.L. (2020) Etched in the Skin: Pain, Methamphetamine Violence and Affect. In: (ed.) *Life in Pain: Affective Economy and the Demand for Pain Relief.* Singapore: Springer Singapore. pp. 139-169.

Fontesse, S., Rimez, X. and Maurage, P. (2021) Stigmatization and dehumanization perceptions towards psychiatric patients among nurses: A path-analysis approach. *Arch Psychiatr Nurs*, 35 (2), 153-161.

Fontesse, S., Stinglhamber, F., Demoulin, S., Chevallereau, T., de Timary, P., Cappeliez, B., Bon, F., Geus, C., Talent, J., Ayache, L. and Maurage, P. (2020) Metadehumanization in severe alcohol-use disorders: Links with fundamental needs and clinical outcomes. *Addictive Behaviors*, 107, 106425.

Fraser, S., Farrugia, A. and Dwyer, R. (2018) Grievable lives? Death by opioid overdose in Australian newspaper coverage. *International Journal of Drug Policy*, 59, 28-35.

Fraser, S., K.M., P., Dilkes-Frayne, E., Kokanovic, R., D.R., M., Treloar, C. and Dunlop, A. (2016) *Lives of Substance: Personal stories of alcohol and other drug addiction, dependence or habit* [online]
Available at: https://www.livesofsubstance.org/

Goodyear, K., Haass-Koffler, C.L. and Chavanne, D. (2018) Opioid use and stigma: The role of gender, language and precipitating events. *Drug and Alcohol Dependence*, 185, 339-346.

Harris, L.T. (2014) Why Economic, Health, Legal, and Immigration Policy Should Consider Dehumanization. *Policy Insights from the Behavioral and Brain Sciences*, 1 (1), 144-150.

Harris, L.T. and Fiske, S.T. (2006) Dehumanizing the Lowest of the Low:Neuroimaging Responses to Extreme Out-Groups. *Psychol Sci*, 17 (10), 847-853.

Harris, L.T. and Fiske, S.T. (2009) Social neuroscience evidence for dehumanised perception. *European Review of Social Psychology*, 20 (1), 192-231.

Haslam, N. and Loughnan, S. (2014) Dehumanization and Infrahumanization. *Annual Review of Psychology*, 65 (1), 399-423.

IBM Corp. (2020) *IBM SPSS Statistics for Windows, Version 27.0* [online]
Available at: https://www.ibm.com/uk-en/products/spss-statistics

Järvinen, M. and Demant, J. (2011) The normalisation of cannabis use among young people: Symbolic boundary work in focus groups. *Health, Risk & Society*, 13 (2), 165-182.

Kelly, J.F., Greene, M.C. and Abry, A. (2021) A US national randomized study to guide how best to reduce stigma when describing drug-related impairment in practice and policy. *Addiction*, 116 (7), 1757-1767.

Kennedy-Hendricks, A., Barry, C.L. and McGinty, E.E. (2016) Effects of Competing Narratives on Public Perceptions of Opioid Pain Reliever Addiction During Pregnancy. *Journal of Health Politics, Policy and Law*, 41 (5), 873-916.

Kersbergen, I. and Robinson, E. (2019) Blatant Dehumanization of People with Obesity. *Obesity*, 27 (6), 1005-1012.

Kilian, C., Manthey, J., Carr, S., Hanschmidt, F., Rehm, J., Speerforck, S. and Schomerus, G. (2021) Stigmatization of people with alcohol use disorders: An updated systematic review of population studies. *Alcoholism: Clinical and Experimental Research*, 45 (5), 899-911.

Krendl, A.C., Macrae, C.N., Kelley, W.M., Fugelsang, J.A. and Heatherton, T.F. (2006) The good, the bad, and the ugly: an fMRI investigation of the functional anatomic correlates of stigma. *Soc Neurosci*, 1 (1), 5-15.

Krzyzanowski, D., Howell, A. and Passmore, H.-A. (2017) Predictors and Causes of the Use of Noun-Based Mental Disorder Labels. *Stigma and Health*, 4.

Kteily, N.S. and Bruneau, E. (2017) Darker Demons of Our Nature: The Need to (Re)Focus Attention on Blatant Forms of Dehumanization. *Current Directions in Psychological Science*, 26 (6), 487-494.

Kteily, N.S., Bruneau, E., Waytz, A. and Cotterill, S. (2015) The ascent of man: Theoretical and empirical evidence for blatant dehumanization. *J Pers Soc Psychol*, 109 (5), 901-931.

Kulesza, M., Larimer, M.E. and Rao, D. (2013) Substance Use Related Stigma: What we Know and the Way Forward. *Journal of addictive behaviors, therapy & rehabilitation*, 2 (2), 782.

Kulesza, M., Matsuda, M., Ramirez, J.J., Werntz, A.J., Teachman, B.A. and Lindgren, K.P. (2016) Towards greater understanding of addiction stigma: Intersectionality with race/ethnicity and gender. *Drug Alcohol Depend*, 169, 85-91.

Lancaster, K., Seear, K. and Ritter, A. (2017) *Reducing stigma and discrimination for people experiencing problematic alcohol and other drug use* [online]
Available at: https://ndarc.med.unsw.edu.au/project/reducing-stigma-and-discrimination-people-who-use-alcohol-and-other-drugs
[Accessed: 5/7/2021]

Lewer, D., Freer, J., King, E., Larney, S., Degenhardt, L., Tweed, E.J., Hope, V.D., Harris, M., Millar, T., Hayward, A., Ciccarone, D. and Morley, K.I. (2019) Frequency of health-care utilization by adults who use illicit drugs: a systematic review and meta-analysis. *Addiction*.

Leyens, J.-P., Demoulin, S., Vaes, J., Gaunt, R. and Paladino, M.P. (2007) Infra-humanization: The Wall of Group Differences. *Social Issues and Policy Review*, 1 (1), 139-172.

Livingston, J.D., Milne, T., Fang, M.L. and Amari, E. (2012) The effectiveness of interventions for reducing stigma related to substance use disorders: a systematic review. *Addiction*, 107 (1), 39-50.

Lloyd, C. (2013) The stigmatization of problem drug users: A narrative literature review. *Drugs: Education, Prevention and Policy*, 20 (2), 85-95.

Loughnan, S., Haslam, N., Sutton, R.M. and Spencer, B. (2014) Dehumanization and social class: Animality in the stereotypes of "white trash," "chavs," and "bogans". *Social Psychology*, 45 (1), 54-61.

Mak, W.W.S. and Cheung, R.Y.M. (2008) Affiliate Stigma Among Caregivers of People with Intellectual Disability or Mental Illness. *Journal of Applied Research in Intellectual Disabilities*, 21 (6), 532-545.

Markowitz, D.M. and Slovic, P. (2020) Social, psychological, and demographic characteristics of dehumanization toward immigrants. *Proceedings of the National Academy of Sciences*, 117 (17), 9260.

Marshall, O. (2013) *Associative stigma among families of alcohol and other drug users.*thesis, Edith Cowan University.

Martinez, A.G. (2014) When "they" become "I": Ascribing humanity to mental illness influences treatment-seeking for mental/behavioral health conditions. *Journal of Social and Clinical Psychology*, 33 (2), 187-206.

Martinez, A.G., Piff, P.K., Mendoza-Denton, R. and Hinshaw, S.P. (2011) The Power of a Label: Mental Illness Diagnoses, Ascribed Humanity, and Social Rejection. *Journal of Social and Clinical Psychology*, 30 (1), 1-23.

Martínez, R., Rodriguez-Bailon, R., Moya, M. and Vaes, J. (2017) How do different humanness measures relate? Confronting the attribution of secondary emotions, human uniqueness, and human nature traits. *The Journal of Social Psychology*, 157 (2), 165-180.

Matheson, C., Jaffray, M., Ryan, M., Bond, C.M., Fraser, K., Kirk, M. and Liddell, D. (2014) Public opinion of drug treatment policy: exploring the public's attitudes, knowledge, experience and willingness to pay for drug treatment strategies. *International Journal of Drug Policy*, 25 (3), 407-415.

McElrath, K. and McEvoy, K. (2001) Heroin as Evil: ecstasy users' perceptions about heroin. *Drugs: Education, Prevention and Policy*, 8 (2), 177-189.

McGinty, E. and Barry, C.L. (2020) Stigma Reduction to Combat the Addiction Crisis - Developing an Evidence Base. *N Engl J Med*, 382 (14), 1291-1292.

McGinty, E., Barry, C.L., Stone, E.M., Niederdeppe, J., Kennedy-Hendricks, A., Linden, S. and Sherman, S.G. (2018) Public support for safe consumption sites and syringe services programs to combat the opioid epidemic. *Prev Med*, 111, 73-77.

McGinty, E., Kennedy-Hendricks, A. and Barry, C.L. (2019) Stigma of Addiction in the Media. In: Avery, J. D. and Avery, J. J. (ed.) *The Stigma of Addiction: An Essential Guide.* Cham: Springer International Publishing. pp. 201-214.

Nicholson, E. and Barnes-Holmes, D. (2012) Developing an implicit measure of disgust propensity and disgust sensitivity: Examining the role of implicit disgust propensity and sensitivity in obsessive-compulsive tendencies. *Journal of Behavior Therapy and Experimental Psychiatry*, 43 (3), 922-930.

Olatunji, B.O. (2008) Disgust, scrupulosity and conservative attitudes about sex: Evidence for a mediational model of homophobia. *Journal of Research in Personality*, 42 (5), 1364-1369.

Olatunji, B.O., Williams, N.L., Tolin, D.F., Abramowitz, J.S., Sawchuk, C.N., Lohr, J.M. and Elwood, L.S. (2007) The Disgust Scale: item analysis, factor structure, and suggestions for refinement. *Psychological assessment*, 19 (3), 281-297.

ONS (2020) *Drug misuse in England and Wales: year ending March 2020* [online] Available at: [Accessed:

Palamar, J.J., Kiang, M.V. and Halkitis, P.N. (2012) Predictors of Stigmatization Towards Use of Various Illicit Drugs Among Emerging Adults. *J Psychoactive Drugs*, 44 (3), 243-251.

Parker, L.R., Monteith, M.J. and South, S.C. (2020) Dehumanization, prejudice, and social policy beliefs concerning people with developmental disabilities. *Group Processes & Intergroup Relations*, 23 (2), 262-284.

Peter, L.-J., Schindler, S., Sander, C., Schmidt, S., Muehlan, H., McLaren, T., Tomczyk, S., Speerforck, S. and Schomerus, G. (2021) Continuum beliefs and mental illness stigma: a systematic review and meta-analysis of correlation and intervention studies. *Psychological medicine*, 51 (5), 716-726.

Phillips, L.A. and Shaw, A. (2013) Substance use more stigmatized than smoking and obesity. *Journal of Substance Use*, 18 (4), 247-253.

Pratto, F., Sidanius, J. and Levin, S. (2006) Social dominance theory and the dynamics of intergroup relations: Taking stock and looking forward. *European Review of Social Psychology*, 17 (1), 271-320.

Pryor, J.B., Reeder, G.D., Yeadon, C. and Hesson-McLnnis, M. (2004) A dual-process model of reactions to perceived stigma. *J Pers Soc Psychol*, 87 (4), 436-452.

Radcliffe, P. and Stevens, A. (2008) Are drug treatment services only for 'thieving junkie scumbags'? Drug users and the management of stigmatised identities. *Social science & medicine*, 67 (7), 1065-1073.

Rai, T.S., Valdesolo, P. and Graham, J. (2017) Dehumanization increases instrumental violence, but not moral violence. *Proceedings of the National Academy of Sciences*, 114 (32), 8511-8516.

Riek, B.M., Mania, E.W. and Gaertner, S.L. (2006) Intergroup threat and outgroup attitudes: a meta-analytic review. *Pers Soc Psychol Rev*, 10 (4), 336-353.

Rivera, A.V., DeCuir, J., Crawford, N.D., Amesty, S. and Lewis, C.F. (2014) Internalized stigma and sterile syringe use among people who inject drugs in New York City, 2010–2012. *Drug and Alcohol Dependence*, 144, 259-264.

Room, R., Rehm, J., Trotter Ii, R., Paglia, A. and Üstün, T.B. (2001) Cross-cultural views on stigma, valuation, parity and societal values towards disability. *Disability and Culture: Universalism and Diversity*, 247-291.

Roscoe, S., Pryce, R., Buykx, P., Gavens, L. and Meier, P.S. (2021) Is disinvestment from alcohol and drug treatment services associated with treatment access, completions and related harm? An analysis of English expenditure and outcomes data. *Drug Alcohol Rev* (n/).

Rozin, P., Haidt, J. and McCauley, C.R. (1993) Disgust. In: (ed.) *Handbook of emotions.* New York, NY, US: The Guilford Press. pp. 575-594.

Roznin, P., Haidt, J., McCauley, C., Dunlop, L. and Ashmore, M. (1999) Individual differences in disgust sensitivity: Comparisons and evaluations of paper-and-pencil versus behavioral measures. *Journal of Research in Personality*, 33 (3), 330-351.

Rudman, L.A. and Mescher, K. (2012) Of Animals and Objects:Men's Implicit Dehumanization of Women and Likelihood of Sexual Aggression. *Personality and Social Psychology Bulletin*, 38 (6), 734-746.

Sattler, S., Escande, A., Racine, E. and Goritz, A.S. (2017) Public Stigma Toward People With Drug Addiction: A Factorial Survey. *Journal of studies on alcohol and drugs*, 78 (3), 415-425.

Sherman, G.D. and Haidt, J. (2011) Cuteness and Disgust: The Humanizing and Dehumanizing Effects of Emotion. *Emotion Review*, 3 (3), 245-251.

Singer, L.T., Moore, D.G., Min, M.O., Goodwin, J., Turner, J.J., Fulton, S. and Parrott, A.C. (2016) Motor delays in MDMA (ecstasy) exposed infants persist to 2years. *Neurotoxicology and teratology*, 54, 22-28.

Singleton, N. (2010) *Attitudes to Drug Dependence. Results form a Survey of People Living in Private Households in the UK* [online]
Available at: https://www.bl.uk/collection-items/attitudes-to-drug-dependence-results-from-a-survey-of-people-living-in-private-households-in-the-uk#
[Accessed: 5/7/2021]

Smith, L.R., Earnshaw, V.A., Copenhaver, M.M. and Cunningham, C.O. (2016) Substance use stigma: Reliability and validity of a theory-based scale for substance-using populations. *Drug and Alcohol Dependence*, 162, 34-43.

Stangl, A.L., Earnshaw, V.A., Logie, C.H., van Brakel, W., C. Simbayi, L., Barré, I. and Dovidio, J.F. (2019) The Health Stigma and Discrimination Framework: a global, crosscutting framework to inform research, intervention development, and policy on health-related stigmas. *Bmc Medicine*, 17 (1), 31.

Stevens, A. (2018) 'Being human' and the 'moral sidestep' in drug policy: Explaining government inaction on opioid-related deaths in the UK. *Addictive Behaviors*.

Sumnall, H.R., Atkinson, A.M., Trayner, K.M.A., Gage, S.H. and McAuley, A. (2020a) Effects of messaging on public support for drug consumption rooms in Scotland, UK. *International Journal of Drug Policy*, 83, 102855.

Sumnall, H.R., Hamilton, I., Atkinson, A.M., Montgomery, C. and Gage, S.H. (2020b) Representation of adverse childhood experiences is associated with lower public stigma towards people who use drugs: an exploratory experimental study. *Drugs: Education, Prevention and Policy*, 1-13.

Sumnall, H.R., Hamilton, I., Atkinson, A.M., Montgomery, C. and Gage, S.H. (2021) Representation of adverse childhood experiences is associated with lower public stigma towards people who use drugs: an exploratory experimental study. *Drugs: Education, Prevention and Policy*, 28 (3), 227-239.

The Scottish Government (2006) *Scottish Social Attitudes Survey 2006: Public Attitudes to Homelessness* [online]
Available at: https://www.gov.scot/publications/scottish-social-attitudes-survey-2006-public-attitudes-to-homelessness/
[Accessed: 5/7/2021]

The Scottish Government (2016) *2016 Scottish Public Attitudes Towards People with Drug Dependence and People in Recovery* [online]
Available at: https://www.gov.scot/publications/public-attitudes-towards-people-drug-dependence-people-recovery-research-findings/
[Accessed: 5/7/2021]

Tybur, J.M., Lieberman, D. and Griskevicius, V. (2009) Microbes, mating, and morality: individual differences in three functional domains of disgust. *J Pers Soc Psychol*, 97 (1), 103-122.

Vaes, J. and Muratore, M. (2013) Defensive dehumanization in the medical practice: a cross-sectional study from a health care worker's perspective. *Br J Soc Psychol*, 52 (1), 180-190.

Vartanian, L.R. (2010) Disgust and perceived control in attitudes toward obese people. *International Journal of Obesity*, 34 (8), 1302-1307.

Vezzali, L., Capozza, D., Stathi, S. and Giovannini, D. (2012) Increasing outgroup trust, reducing infrahumanization, and enhancing future contact intentions via imagined intergroup contact. *Journal of Experimental Social Psychology*, 48 (1), 437-440.

Vicario, C.M., Rafal, R.D., Martino, D. and Avenanti, A. (2017) Core, social and moral disgust are bounded: A review on behavioral and neural bases of repugnance in clinical disorders. *Neurosci Biobehav Rev*, 80, 185-200.

Waytz, A., Gray, K., Epley, N. and Wegner, D.M. (2010) Causes and consequences of mind perception. *Trends Cogn Sci*, 14 (8), 383-388.

Weimer, D. (2004) Drugs-as-a-Disease : Heroin , Metaphors , and Identity in Nixon's Drug Warof Conference.

World Health Organization (2009) *ExpandNet. Practical guidance for scaling up health service innovations.* Geneva, Switzerland.

YouGov and CDPRG (2019) *Public Attitudes to Drugs in the UK* [online]
Available at: https://www.drugsandalcohol.ie/31080/
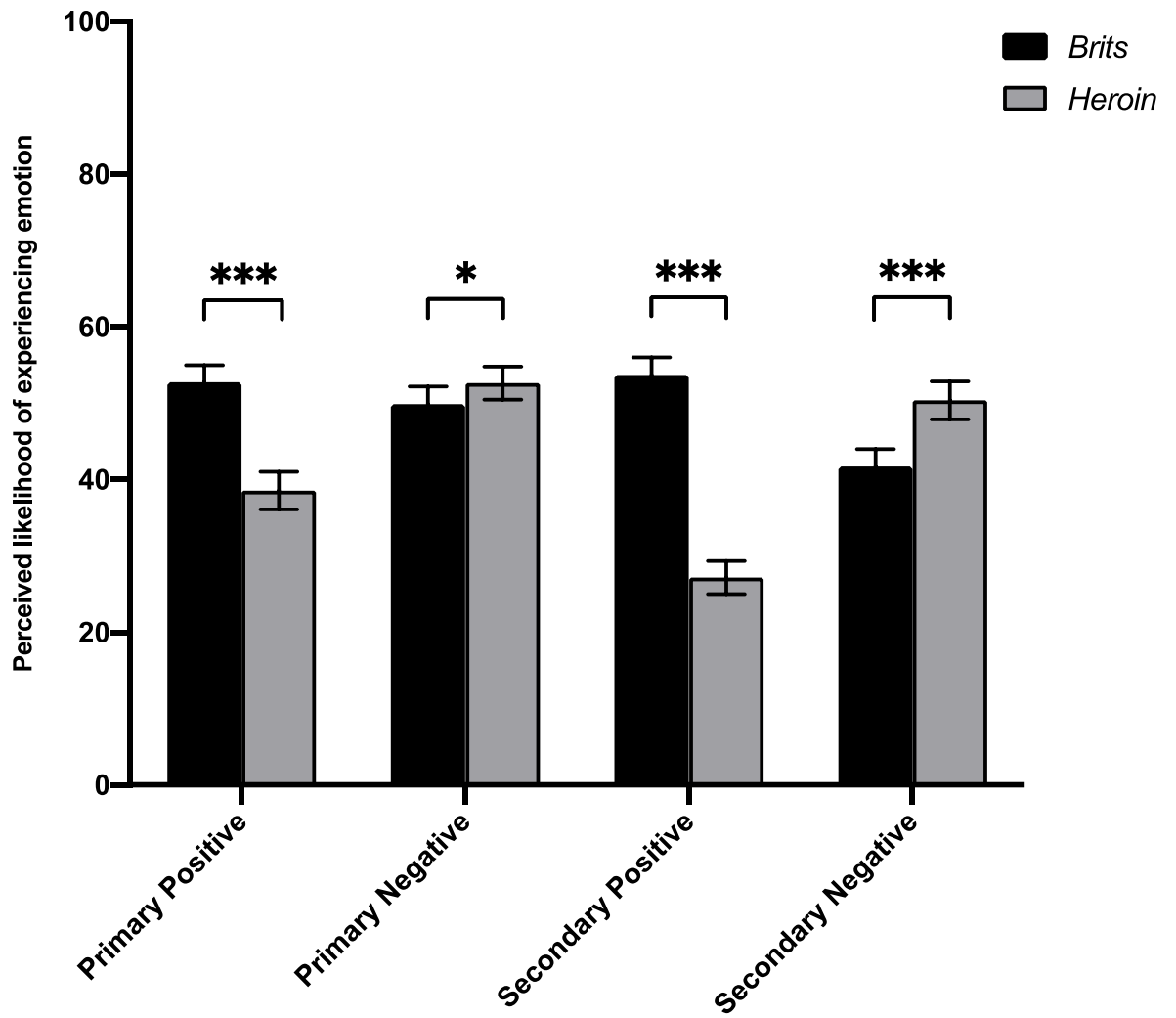[Accessed: 5/7/2021]

Figure 1 Extent to which participants attributed primary (universal) and secondary (uniquely human) emotions to the *Brits* and *Heroin* groups, split by emotional level and valence. Bars represent means and 95% CI. *** p < .001; * p < 0.05.

Table I Correlations between residual blatant and subtle dehumanisation scores and AQ-9 items. * < p < 0.05; ** p < 0.01; *** p < 0.001

	1	2	3	4	5	6	7	8	9	10
1. Blatant										
2. Subtle	0.18^{**}	—								
3. Lack of pity	0.23^{**}	0.22^{**}	—							
4. Dangerousness	-0.33^{***}	-0.13	0.07	—						
5. Fear	-0.30^{***}	-0.13	0.07	0.74^{***}	—					
6. Blame	-0.32^{***}	-0.27^{***}	0.35^{***}	0.50^{***}	0.51^{***}	—				
7. Segregation	-0.26^{***}	-0.05	0.06	0.48^{***}	0.45^{***}	0.45***	—			
8. Anger	-0.25^{***}	-0.21^{**}	0.22^{**}	0.47^{***}	0.52^{***}	0.56***	0.40***	—		
9. Avoidance	-0.32^{***}	-0.18^{*}	0.08	0.68^{***}	0.58^{***}	0.54***	0.49***	0.56***	—	
10. Coercion	-0.26^{***}	-0.14	0.03	0.40^{***}	0.43^{***}	0.40***	0.29***	0.48***	0.38	
11. Failure to help	-0.23^{**}	-0.12	0.34^{***}	0.24^{**}	0.32^{***}	0.31***	0.19**	0.28***	0.46	-.10

Table II Summary of linear regression for variables predicting support for drug policy; * < p < 0.05; ** p < 0.01; *** p < 0.001. (R^2 step 1 = .173; ΔR^2 step 2 = .227, ΔR^2 step 3 = .01, ΔR^2 step 4 = .07; p <0.05).

Variable	B	SE	β
Step 1			
Intercept	31.04	.75	
Blatant dehumanisation	.13	.03	.38***
Secondary emotion	.08	.05	.12
Step 2			
Intercept	21.95	2.263	
Blatant dehumanisation	.09	.03	.27***
Secondary emotion	.08	.05	.13
Age	.29	.07	.34**
Participant Gender (ref = male)	.36	1.60	.02
Education (ref < degree)	3.57	1.56	.19*
Voting (ref = left wing)			
Right	-3.11	1.96	-.13
Centre	1.73	3.88	.03
Step 3			
Intercept	22.39	5.85	
Blatant dehumanisation	.09	.03	.28**
Secondary emotion	.08	.05	1.21
Age	.31	.07	.37**
Participant Gender (ref = male)	.56	1.61	.03
Education (ref < degree)	3.24	1.60	.17*
Voting (ref = left wing)			
Right	-2.95	1.97	-.11
Centre	1.73	3.95	.03
TDDS	-.11	.08	-.10
DSR	.22	.34	.05
Step 4			
Intercept	11.16	12.16	
Blatant dehumanisation	.07	.03	.21*
Secondary emotion	.05	.03	.08
Age	.32	.07	.38***
Participant Gender (ref = male)	.60	1.65	.03
Education (ref < degree)	2.53	1.58	.14

Voting (ref = left wing)			
Right	-2.48	1.94	-.09
Centre	-1.05	3.95	-.02
TDDS	-.10	.08	-.09
DSR	.30	.34	.07
AQ-9	-.09	.07	-.10
Attitudes to Homelessness	-.39	.39	-.08
Attitudes to Recovery	.05	.13	.03
Self-reported knowledge	.57	.38	.12
Ever used a controlled substance	10.30	4.65	.17*
Received drug treatment - Family member/close friend	-.99	1.39	-.05
Received drug treatment - self	-1.23	5.82	-.02