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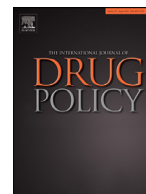
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## Research Paper

# Effects of media representations of drug related deaths on public stigma and support for harm reduction



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## ABSTRACT

**Background:** Drug related deaths (DRD) are at historically high levels in the United Kingdom (UK), but some approaches that have the potential to reduce risk of mortality remain controversial. Public support makes an important contribution to drug policy development but there are high levels of public stigma towards people who use drugs (PWUD), and this is partly shaped by media representations. We investigated whether depiction of the characteristics of decedents represented in news articles about DRD was associated with differences in stigmatising attitudes and support for harm reduction policy.

**Methods:** We undertook a cross-sectional online study with a randomised design, conducted with a nationally representative sample (UK). Participants (N = 1280) were randomly presented with one of eight simulated news stories that reported on a DRD that differed with respect to drug (ecstasy or heroin), and the gender (male or female) and age (younger or older) of the decedent. Data were analysed using MANOVA.

**Results:** Data were obtained for 1248 participants (51.0% female; mean age 45.7±15.4). Stigma was higher towards depictions of male, older, and heroin deaths (all  $p < .001$ ). Harm reduction support was higher in those participants seeing older compared to younger subjects ( $p = .035$ ), and the older ecstasy decedent compared to younger decedent ( $p = .029$ ).

**Conclusion:** Presentation of some types of DRD are associated with higher public stigma towards the decedent than others. Those groups developing agenda-setting activities designed to reduce stigma or foster public support for harm reduction policies should consider the different ways in which audiences may respond to the depiction and framing of DRD in news media.

## Introduction

Drug related deaths (DRD) are at historically high levels in the United Kingdom (UK), with rates of 84 per million in England and Wales, 118 per million in Northern Ireland, and 252 per million in Scotland (National Records of Scotland, 2021; Northern Ireland Statistical Research Agency, 2022; ONS, 2022). In addition to loss of life, DRD are associated with high economic costs (e.g. £6.3 billion annual costs in England and Wales; Black (2021)); and adverse social, emotional, and physical impact on family, friends, witnesses, and service providers (Guy & Holloway, 2007; McAuley & Forsyth, 2011; Templeton, et al., 2017; Titlestad, Schmid, & Dyregrov, 2022). Family members of the deceased, for example, report affiliate and self-stigma after a DRD, leading to shame and guilt, which can lead to loss of quality of life and im-

pede the grieving process (Dyregrov & Selseng, 2022; Marshall, 2013; Titlestad, Lindeman, Lund, & Dyregrov, 2021).

Despite the availability in the UK of treatment and harm reduction interventions shown to reduce DRD, there are variations in coverage and quality of provision (ACMD, 2016; Roscoe, Pryce, Buykx, Gavens, & Meier, 2021). There is sub-optimal distribution of naloxone upon prison-release, resistance to carriage by police officers, and barriers to expansion of take home naloxone in community settings (ACMD, 2022). Other approaches that have the potential to reduce risk of death such as drug checking and overdose prevention services remain controversial and have not received governmental support (ACMD, 2016; Atkinson, McAuley, Trayner, & Sumnall, 2019; Home Office, 2017; Measham & Turnbull, 2021). This is partly justified on an under-developed evidence base and national drug strategy priorities (Caulkins, Pardo, & Kilmer, 2019; Maghsoudi, et al., 2021;

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Nicholls, et al., 2022), but may also reflect the complex political and moral environment in which policy decisions are made, and a lack of leadership on harm reduction measures, which reflects structural underpinnings of stigma and discrimination (Humphreys & Piot, 2012; Stangl, et al., 2019; Stevens, 2019; Unlu, Tammi, & Hakkarainen, 2022).

Public support makes an important contribution to drug policy development, whether through creating pressure for policy change, signifying acceptance of a given policy direction, or confirming the credibility of policymakers (Ritter, 2021). Most members of the UK public do not have direct personal experience of DRD or with other people experiencing problems with drugs (The Scottish Government, 2016; YouGov, 2022). Therefore, media reporting of drug-related topics are one mechanism that can shape public support through agenda setting and editorialising in ways that frame public understandings of drug problems, and (indirectly) shape public perceptions and attitudes towards people who use drugs (PWUD) (Atkinson & Sumnall, 2018; Netherland & Hansen, 2016; Nielsen & Bonn, 2008; Orsini, 2017). Media outlets may also influence policy making through providing preferential access to selected policy entrepreneurs and advocates who can share representations in ways that support their positions (Bacchi, 2009; Stevens & Zampini, 2018).

There have been relatively few studies of the representation of DRD in popular media, but these have shown variations in how deaths are framed and the ways in which decedents are depicted. In keeping with the way individuals are used more generally in media to exemplify a particular issue (McGinty, Goldman, Pescosolido, & Barry, 2015), and long-standing cultural distinctions that are made between 'good' and 'bad' drug use (McLean, 2017; Taylor, 2008; Tiger, 2013), some DRD are presented as more deserving of sympathy and preventative policy action (Johnston, 2020; McGinty, Stone, Kennedy-Hendricks, Sanders, et al., 2019; McLean, 2017). Rarer, but more newsworthy deaths (Jewkes, 2015) involving drugs more strongly identified with familiar leisure cultures such as MDMA/ecstasy (ONS, 2022), are over-represented in media reporting. Such reports often construct what Christie (1986) has previously described as 'ideal victims'; that is, they depict people - often young, middle class, white and female - in ways that align with established cultural scripts around innocence and victimhood (Forsyth, 2001; Höjjer, 2004; Webster, Rice, & Sud, 2020). Higher incidence DRD associated with more 'problematic' forms of drug use, including opioids, are disproportionately under-reported in news media, and compared to other types of DRD there is an over-reliance on narratives of blame that often omit accounts of pity and grieving for the deceased (Ayres & Taylor, 2020; Fraser, Farrugia, & Dwyer, 2018). These deaths are presented as discrete episodes, and as being difficult to prevent due to being a predictable outcome of drug use relating to individual responsibility and circumstances, whilst relevant structural, economic, and socio-political factors (e.g. availability of treatment and harm reduction services, harms of the illicit drug market) are often ignored (Fraser, et al., 2018; Jay, Chan, Gayed, & Patterson, 2022; Johnston, 2020; Willis & Painter, 2019). For example, as opioid deaths increased in the US there was a positive correlation between mortality and the volume of related news-reporting, but this was focused on the impact of DRD on more affluent and urban areas, whereas deaths were more likely to have occurred in rural and socioeconomically deprived geographies (Hswen, Zhang, Freifeld, & Brownstein, 2020).

There have been no empirical studies of the effects of news media representation of DRD on public attitudes towards PWUD, or support for drug policy. Other work has shown that media representations of PWUD more generally may be an important determinant of public stigma (Atkinson, et al., 2019; Atkinson & Sumnall, 2018, 2021; Belackova, Stastna, & Miovsky, 2011; Ghosh, et al., 2022; McGinty, Stone, Kennedy-Hendricks, & Barry, 2019). Public stigma refers to stereotypes, negative attitudes and beliefs held by members of the public about people with devalued characteristics, and which may motivate fear, avoidance, and discrimination (Corrigan & Rao, 2012). Previous research has shown that public stigma is associated with differential public and political support for policies, and preferences for re-

source allocation (Kennedy-Hendricks, et al., 2017; Kulesza, Teachman, Werntz, Gasser, & Lindgren, 2015; McGinty, et al., 2018; Meurk, Carter, Partridge, Lucke, & Hall, 2014; Schneider, Wilson, Dayton, Goodell, & Latkin, 2021; Sumnall, Atkinson, Gage, Hamilton, & Montgomery, 2021). Label avoidance (whereby PWUD seek to avoid the stereotypes and prejudices associated with publicly stigmatised identities), and internalised stigma (whereby individuals internalise those stereotypes and prejudices) are both barriers to accessing treatment, harm reduction, and other health care interventions that have been shown to reduce the risk of DRD (e.g. opioid agonist prescribing) (Corrigan & Niewegłowski, 2018).

Editorials, journalistic stylebooks and other resources promote the use of person-first and medically neutral language, and guidance has been published for media professionals on less-stigmatising framings and representations of drug use and PWUD (e.g. Botticelli and Koh (2016); SFAD and SRC (2020)). However, there is limited evidence on the extent of adoption of these or the effectiveness of such strategies on reducing public stigma, particularly when delivered within routine media reporting contexts, especially news media which may prioritise reporting of (violent) drug-related crime (Alexandrescu, 2018; Atkinson & Sumnall, 2021). There is also evidence of differential stigma towards subgroups of PWUD, based on external characteristics such as socio-demographics (e.g. male vs female; older vs younger), substances used (e.g. prescription opioids vs heroin), and adherence to social norms and role-obligations (e.g. employed vs involved in criminality). Furthermore, the 'drug user' label intersects with other characteristics, including those that may be stigmatised (e.g. homelessness; motherhood, socioeconomic deprivation) (Adley, Atkinson, & Sumnall, 2022; Kennedy-Hendricks, McGinty, & Barry, 2016; Sattler, Zolala, Baneshi, Ghasemi, & Amirzadeh Googhari, 2021). This means that general media-targeted approaches to stigma reduction could generate inequalities, and so research into this topic should aim to simulate real-world reporting as far as possible (McGinty, Kennedy-Hendricks, & Barry, 2019).

One approach that has been used to understand public stigma is attribution theory (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003; Weiner, 1995). Attribution theory suggests that to better understand and explain the behaviour of others and its outcomes, people make causal attributions about the controllability of behaviour, which subsequently leads to inferences about responsibility. Higher levels of belief about personal controllability and responsibility can produce negative cognitive responses such as blame and the perception of dangerousness, and emotions such as anger and fear, which underpin stigmatising attitudes and discriminatory behaviours. Attributions can be triggered by information about precipitating events or responses to external labels that result from presentation of target group characteristics and behaviours, including through media, and responses are affected by individual differences in internal perceiver attributes such as empathy, or familiarity with affected groups (Corrigan & Niewegłowski, 2019; Howell, Ulan, & Powell, 2014; Wright, Lopez, & Magyar, 2021). Previous studies of stigma towards PWUD that have drawn upon attribution theory, and of relevance to understanding DRD, suggest that the public perceives older people to have greater control of their behaviour, and male PWUD are rated higher than females on attributes such as blame, fear, and anger, whilst those using drugs that are perceived as being more harmful such as heroin are rated as being more responsible for adverse outcomes (Goodyear, Haass-Koffler, & Chavanne, 2018; Sattler, Escande, Racine, & Goritz, 2017; Sattler, et al., 2021; Witte, Wright, & Stinson, 2019).

In this study we investigated whether depiction of the characteristics of decedents represented in a simulated news article about a DRD was associated with differences in stigmatising attitudes and support for harm reduction policies. In accordance with attribution theory and the previous research on public stigma and drug policy support discussed above, we hypothesised that 1), there would be lower stigmatising attitudes towards people depicted in stories of i) ecstasy vs heroin deaths; and in ii) female vs male, and iii) younger vs older decedents; and 2), that viewing

these depicted characteristics would be associated with greater support for harm reduction policies designed to reduce drug related deaths.

We also assessed the relationship between participant characteristics, stigma, and harm reduction support in exploratory analyses. Research in the mental health field suggests that there is an inverse relationship between public stigma and knowledge or experience with a condition or affected group (Corrigan & Nieweglowski, 2019). In accordance with familiarity hypothesis (Corrigan, Edwards, Green, Diwan, & Penn, 2001), we therefore predicted that 3) greater familiarity with PWUD would be associated with lower stigma and greater harm reduction policy support. We also predicted that 4) in accordance with moral experience theory, higher levels of participant empathy would be associated with lower levels of stigma (Čehajić, Brown, & González, 2009; Howell, et al., 2014). Previous research has suggested that people reporting more conservative views tend to have less tolerance for minority groups or progressive policies more generally and this is reflected in greater stigma, and less support for drug policy (Agle, Xiao, Eldridge, Meyerson, & Goltzari-Arroyo, 2022; Broady, Brener, Cama, Hopwood, & Treloar, 2020; McGinty, et al., 2018; Sumnall, Atkinson, Trayner, Gage, & McAuley, 2020). We therefore predicted that 5) political conservatism would be associated with greater stigma and lower harm reduction policy support.

Finally, considering the importance of beliefs about responsibility in attribution theory, we assessed the extent to which participants held 'Just World' beliefs, which is a personality trait of believing that people tend to 'get what they deserve in life, and that they deserve what they get' (Lipkus, 1991). These types of beliefs are often drawn upon to provide explanations for outcomes in life, and serve as a protective psychological mechanism against negative emotions associated with the possibility that a negative outcome is undeserved (Appelbaum, Lennon, & Lawrence Aber, 2006). If the world is considered 'just', then negative outcomes are considered the responsibility of individuals, and they are subsequently considered less deserving of support. Greater endorsement of Just World beliefs has previously been shown to negatively correlate with support for expansion of naloxone access (Rudski, 2016). We therefore predicted that 6) greater belief in a Just World would be associated with higher stigma and lower harm reduction policy support.

## Methods

### Design

The study utilised a 2x2x2 factorial design, and participants completed an anonymous online survey.

### Participants

Adult members of the public (n = 1280) were recruited from a nationally representative research panel (provided by Prolific, UK <https://prolific.co/>) in June 2022. Thirty-two participants failed to complete the survey (clicked the survey link but did not proceed), leaving a final sample size of 1248 (97.5 %). An *a priori* power calculation (G\*Power 3.1; Faul, Erdfelder, Lang, and Buchner (2007)) to detect a medium effect size ( $f = 0.25$ ; power 0.95) for global effects of a MANOVA, estimated a minimum sample size of 54 was required.

Eligible individuals were people who were currently living in the UK and aged over 18 years. These two criteria were assessed through demographic profiling attributes provided by participants to the panel administrators, and these were checked through screening questions included in the online survey. The sample was representative of the UK adult population on the basis of sex, age, and ethnicity. Participants received an invitation email from the panel provider inviting them to take part in the research. The email included some general information on the research topic ('This study investigates how people respond to drug-related news stories in the media'), how long it took to complete, and the compensation available (small monetary reward managed by the

panel provider). Clicking the included link took them to an online survey hosted on the Qualtrics platform (Qualtrics, Provo, UT, USA) where full study information was provided, and consent obtained.

## Materials

### Stimuli

A total of eight news story conditions were prepared, and participants were randomised to receive one of these. Stories were adapted from an online news report published by the BBC (UK) about an ecstasy death that occurred in 2019. The BBC is the UK's most frequently accessed and trusted news platform (Newman, Fletcher, Robertson, Eddy, & Nielsen, 2022). Subject, imagery, and other details (e.g., geography, name of the family member, and coroner quoted) were changed, but the story length and presentation were similar to the original and based on a template that included the original publisher's branding for realism. For each of the three factors of interest, one of two levels was presented:

- 1 The gender of the subject (*Jane* or *John*)
- 2 The age of the subject (*young*, 21 years, used [drug] 'once or twice'; *old*, 43 years, used [drug] 'for 15 years')
- 3 The drug associated with the death (*ecstasy* or *heroin*)

An appropriate facial image and caption accompanied each story, and this corresponded with the target subject's age and gender. Images were taken from the Chicago Face Database (Ma, Correll, & Wittenbrink, 2015). Subjects were White, had neutral expressions, were posed against a white background, and were matched on mean ratings of age (21 or 24 years of age) and attractiveness. Stories referenced length of drug use ('once or twice', '15 years') in order to reflect the subject's age.

An image of an example news story is reproduced in Fig. 1 (branding removed; see Supplementary material S1 for materials), and the text that was changed between conditions is identified:

A woman [1] who collapsed in a car park and later died in hospital had taken ecstasy [3], an inquest has heard

*Jane Roberts* [1], 43 [2], collapsed in the Northgate car park in Newton in May.

The North Tyne coroner confirmed she had died after taking MDMA [3], the chemical name for ecstasy [3].

Mr Ian Lewis adjourned the inquest pending the completion of the police investigation into Jane's [1] death.

Emergency services had been called to the car park at 21:30 BST on 11 May.

Jane [1], who was from Newton, was taken to hospital in Allsborough where she later died.

Her older brother Rhys, 48, told the inquest that he believed that Jane [1] had regularly [2] used ecstasy [3] for the last 15 years [2].

For all stories, Flesch Reading Ease score was 63, indicating easy reading comprehension. Stories were piloted with the lead authors' departmental colleagues to confirm comprehension and distinction between conditions.

### Outcomes

We created a bespoke nine-item measure to assess the degree to which participants held stigmatising attitudes towards the depicted subject. This included three items adapted from the Attribution Questionnaire (AQ-9) (Corrigan, et al., 2003): 1) blame ('How much did [subject] deserve what happened to him/her?'); 2) anger ('Do you feel annoyed when hearing about people like [subject]?'); and 3) pity ('How much sympathy do you feel for [subject]?'), and in accordance with attribution theory, two items assessing controllability: 1) 'Could [subject's] death have been prevented?'; and responsibility 2) 'How responsible do you think [subject] was for his/her own death?' (Weiner, Perry, & Magnusson, 1988). It also

The screenshot shows a news article on the BBC website. At the top, there is a navigation bar with 'NEWS' in large letters and a search bar. Below the navigation bar, there are several categories: Home, UK, World, Business, Politics, Tech, Science, Health, Education, Entertainment & Arts, Video & Audio, and More. The article title is 'Jane Roberts: Woman died after taking ecstasy'. Below the title, it says '5 hours ago' and 'UK'. There is a 'Share' button. The article text starts with 'Jane Roberts, 21, collapsed in a car park on May 11'. It then describes the incident: 'A woman who collapsed in a car park and later died in hospital had taken ecstasy, an inquest has heard.' It mentions that Jane Roberts, 21, collapsed in the Northgate car park in Newton in May. The North Tyne coroner confirmed she had died after taking MDMA, the chemical name for ecstasy. Mr Ian Lewis adjourned the inquest pending the completion of the police investigation into Jane's death. Emergency services had been called to the car park at 21:30 BST on 11 May. Jane, who was from Newton, was taken to hospital in Allsborough where she later died. Her older brother Rhys, 26, told the inquest that he believed that Jane had only used ecstasy once or twice before.

Fig. 1. Example of news story presented to participants (Jane/Young/Ecstasy).

included four 'social distance' items in accordance with McGinty and colleagues (2015): 1) 'Would you want someone like [subject] for a neighbour?'; 2) 'Would you want someone like [subject] marrying into your family?'; 3) 'How willing would you be to work closely with someone like [subject] on a job?'; and 4) 'How willing would you be to make friends with someone like [subject]?'. Individual items were scored on a nine-point Likert scale (1 not at all to 9 very much), and a total score calculated (range 9-81). Higher total scores represented higher overall stigmatising attitudes (Cronbach's  $\alpha = .81$ ).

We assessed support for drug harm reduction interventions using a culturally adapted version of the measure used by Wild and colleagues in the Canadian general public (2021). After presenting a general descrip-

tion of harm reduction approaches, we asked respondents to indicate if they had been exposed to media coverage featuring examples of drug harm reduction (Yes; No). After providing relevant descriptions of activities (see Wild et al., 2021 for further details), we assessed support (1 Strongly oppose to 5 Strongly support) for: 1) general harm reduction programmes; 2) government financial support for harm reduction; 3) provision of drug checking services; 4) establishment of drug consumption rooms; 5) provision of take-home naloxone; and 6) use of opioid agonist therapies in treatment. Scores were totalled, with higher scores representing greater support for harm reduction ( $\alpha = .88$ ).

We also assessed support for criminal justice diversionary programmes for possession offences for our two target drugs (ecstasy and

heroin), as well as for cannabis and for any controlled drug. This item was collected for a separate analysis and was not included in the total harm reduction policy support score as it does not form part of the current study.

#### Additional measures

Demographic questions included education, ethnicity, employment, and estimated household income bands. Age and sex data were added to the dataset by the panel provider. Participants were asked about voting preference (the main UK political parties were recoded into *left*; *right*; and *centre* parties for analysis). To assess political conservatism, we measured level of agreement (1 Strongly disagree to 5 Strongly agree) with four socio-political policies: 1) 'The government should increase its assistance for the poor'; 2) 'The government should lower taxes'; 3) 'The government should be actively involved in solving problems that develop in society'; and 4) 'The government has taken over too many things that should be handled by individuals, families, and private businesses' (Haley & Sidanius, 2006). Higher scores represented greater political conservatism ( $\alpha = .78$ ). This measure was included in addition to voting intention as public polling suggests that despite political party support, UK voters do not hold consistent left-wing or right-wing views when it comes to particular policies (YouGov, 2019).

We assessed participants' spontaneous propensity to take into account the perspective and concerns of others using the empathic perspective-taking scale of the Interpersonal Reactivity Index (Davis, 1983). Example items include *Sometimes I don't feel very sorry for other people when they are having problems; I am often quite touched by things that I see happen*. This was scored on a five-point Likert scale (0 does not describe me well to 4 describes me very well), with higher total scores representing greater empathic perspective-taking ( $\alpha = .75$ ).

Participants completed the seven item Global Belief in a Just World Scale (Lipkus, 1991). This is a unidimensional measure of the personal trait of belief in a 'just world'. Example items included *I feel that a person's efforts are noticed and rewarded; I feel that people who meet with misfortune have brought it on themselves*. This was scored using a six-point Likert scale (1 strong disagreement to 6 strong agreement), with higher scores representing greater belief that we live in a just world ( $\alpha = .88$ ).

Familiarity with drug use and PWUD was assessed with several separate measures. Level of familiarity with people who have substance use problems was assessed using a Level of Familiarity (LOF) scale adapted from Corrigan et al. (2001). The scale includes 11 dichotomous items ranging from no familiarity (e.g., *I have never observed a person that I was aware had a substance use problem*; (LOF score = 1)) to maximum familiarity (e.g., *I have a substance use problem*; (LOF score = 11)). Respondents indicated whether statements were true or false for them, and an overall score was assigned based on respondents' highest level of familiarity. Higher scores represent higher level of familiarity ( $\alpha = 0.74$ ). Respondents who endorsed 'none of the above' were recoded as missing. Participants were also asked to self-rate their knowledge of the reasons why some people develop problems with drugs (rated on a 10-point scale) (Sumnall, et al., 2020), to provide a brief history of their own substance use (lifetime and use in the previous year of a number of substances); and to indicate if they had been exposed to media coverage featuring families who had been affected by a DRD.

Finally, general public stigma towards people with substance use problems was assessed using four items, introduced with text asking participants for their opinions about people who experience problems with use of 'illegal drugs' and who might require treatment support (Wild et al., 2021): 1) 'Would you be afraid to talk to someone who has a substance use problem?'; 2) 'Would you be upset or disturbed to be in the same room with someone who has a substance use problem?'; 3) 'Would you make friends with someone who has a substance use problem?'; and 4) 'Would you feel embarrassed or ashamed if your friends knew that someone in your family has a substance use problem?'. Responses were scored on a five-point Likert scale (1 definitely not, to 5 definitely; and prefer not

to say, recoded as missing). Higher scores indicated greater stigmatising attitudes towards people with substance use problems ( $\alpha = .80$ ).

#### Procedure

A pre-launch pilot ( $n = 10$ ) indicated that the median survey completion time was 10 minutes. Participants who subsequently completed the survey in under 5 minutes (one half of the median time, indicating possible lack of attention), were excluded from the final analysis ( $n = 0$ ). After reading the study information and providing consent, participants first completed demographic questions and were then randomised to receive one of the eight story conditions described above. After presentation of the story, they were asked to complete attention checks which comprised questions about the story (gender, age, and drug involved; no responses were withdrawn in this way), and then the primary outcome measure. Participants then completed the remaining questions.

The research was approved by Liverpool John Moores University Research Ethics Committee (Reference: 22/PHI/010).

#### Analysis

Our primary analysis was a 2 (gender) x 2 (age) x 2 (drug) factorial MANOVA with total stigma score and support for harm reduction as the dependent variables, using the multivariate general linear model function in SPSS 28 (IBM Corp, 2021). Measured covariates were balanced across groups (Table 1) and so we did not include any of these in the analyses.

Exploratory hierarchical linear regression analyses were then undertaken with i) stigma score and ii) support for harm reduction as the dependent variables to investigate individual-level predictors. Variables were entered in four steps: step 1) main story factors; step 2) participant demographics (age, sex, education, household income); step 3) political orientation, political conservatism, belief in a just world, and empathic perspective-taking; and step 4) harm reduction support (stigma analysis only), knowledge about drugs, general stigma towards people with substance use problems, LOF, and seeing a drug related death in the media.

Alpha was set at .05 for all tests.

#### Results

Sample demographic and other descriptive data are presented by randomised condition in Table 1. For discussion purposes, analysis of individual items are presented in Supplementary material S2.

There were significant main effects of the MANOVA for the manipulated variables of gender (Wilks'  $\Lambda = .99$ ;  $F_{2,1229} = 9.1$ ,  $p < .001$ ), age (Wilks'  $\Lambda = .93$ ;  $F_{2,1229} = 45.2$ ,  $p < .001$ ), and drug (Wilks'  $\Lambda = .94$ ;  $F_{2,1229} = 36.9$ ,  $p < .001$ ). The interaction effects for gender x age (Wilks'  $\Lambda = 1.00$ ;  $F_{2,1229} = .1$ ,  $p = .869$ ), and gender x drug (Wilks'  $\Lambda = 1.00$ ;  $F_{2,1229} = 2.3$ ,  $p = .099$ ) were non-significant, but the age x drug interaction (Wilks'  $\Lambda = .99$ ;  $F_{2,1229} = 4.9$ ,  $p = .007$ ) was significant.

Examining between-subject effects, stigma was higher towards representations of males vs females ( $F_{1,1230} = 11.1$ ,  $p < .001$ ; mean  $45.6 \pm SD 12.1$  vs  $43.4 \pm 12.6$ ); older vs younger subjects ( $F_{1,1230} = 40.5$ ,  $p < .001$ ;  $46.7 \pm 11.8$  vs  $42.3 \pm 12.7$ ); and heroin vs ecstasy deaths ( $F_{1,1230} = 50.1$ ,  $p < .001$ ;  $46.9 \pm 11.5$  vs  $42.1 \pm 12.8$ ).

Harm reduction support was higher in participants who had seen older compared to younger subjects ( $F_{1,1230} = 4.5$ ,  $p = .035$ ;  $22.98 \pm 5.09$  vs  $23.57 \pm 4.78$ ). There were no other main effects on harm reduction support (gender  $F_{1,1230} = .0$ ,  $p = .802$ ,  $23.2 \pm 5.1$  vs  $23.3 \pm 4.8$ ; drug  $F_{1,1230} = .0$ ,  $p = .922$ ,  $23.2 \pm 4.8$  vs  $23.2 \pm 5.08$ ). Inspection of profile plots for age x drug interaction suggested that harm reduction support was higher in participants who had seen the older ecstasy decedent compared to younger decedent ( $F_{1,1230} = 4.8$ ,  $p = .029$ ;  $22.7 \pm 5.4$  vs  $23.89 \pm 4.67$ ). The gender x age x drug interaction was non-significant (Wilks'  $\Lambda = 1.000$ ;  $F_{2,1229} = .1$ ,  $p = .926$ ).

**Table 1**

Sample characteristics. 1, Jane + Young + Ecstasy condition; 2, John + Young + Ecstasy; 3, Jane + Young + Heroin; 4, John + Young + Heroin; 5, Jane + Old + Ecstasy; 6, John + Old + Ecstasy; 7, Jane + Old + Heroin; 8, John + Old + Heroin. <sup>1</sup>Significant difference between groups,  $F_{7,1232} = 14.67^* p < 0.001$ .

	1 (n = 158)	2 (n = 155)	3 (n = 155)	4 (n = 154)	5 (n = 155)	6 (n = 158)	7 (n = 156)	8 (n = 157)	All participants (n = 1248)
Age	47.5±14.8	45.7±15.3	45.1±15.3	45.9±15.5	45.3±16.4	43.8±15.7	45.9±15.8	46.7±14.7	45.7±15.4
Female (%)	44.9	51.0	49.0	51.9	62.6	51.3	48.7	49.0	51.0
Degree or above (%)	55.1	52.3	52.9	59.1	61.3	60.1	61.5	56.7	57.4
White/White British (%)	87.3	56.5	87.1	86.4	82.6	88.0	88.5	87.3	86.7
Median income band (£000s)	25.0-49.9	25.0-49.9	25.0-49.9	25.0-49.9	25.0-49.9	25.0-49.9	25.0-49.9	25.0-49.9	25.0-49.9
Voting preference (%)									
<i>Left wing</i>	64.6	58.5	58.8	65.9	68.3	64.5	54.6	65.5	62.6
<i>Centre</i>	15.7	13.8	14.3	9.5	13.3	14.5	13.8	23.5	13.3
<i>Right wing</i>	19.7	27.6	26.9	24.6	18.3	21.0	31.5	10.9	24.2
Political conservatism	10.4±2.6	10.4±2.4	10.4±2.4	10.3±2.2	10.0±2.3	10.2±2.2	10.6±2.7	10.2±2.4	10.3±2.4
Belief in a Just World score	18.6±6.5	19.2±6.2	18.8±5.4	19.7±6.1	18.3±5.9	19.0±6.2	19.5±5.8	19.4±6.1	19.0±6.1
Empathic perspective taking	33.8±6.9	34.6±6.8	35.5±6.4	34.9±5.4	35.4±6.7	34.8±6.2	34.8±6.7	34.4±6.4	34.8±6.5
Seen harm reduction in media (%)	58.2	52.9	43.9	52.6	50.3	50.0	57.1	52.2	52.2
Seen drug related death in media (%)	84.2	78.1	77.4	77.3	78.1	79.7	83.3	75.2	79.2
Lifetime use of drugs (%)									
<i>Any</i>	51.9	51.0	52.3	60.4	58.7	52.5	51.3	50.3	53.5
<i>Cannabis</i>	48.1	50.3	59.7	57.1	56.1	50.0	46.8	49.7	51.0
<i>MDMA/Ecstasy</i>	18.4	17.4	14.8	17.5	14.8	18.4	17.3	14.6	16.6
<i>Heroin/methadone</i>	4.4	2.6	3.2	3.9	4.5	2.5	4.5	4.5	3.8
Self-reported knowledge about substance use problems	5.0±2.4	5.4±2.5	5.1±2.3	5.2±2.4	5.2±2.5	5.0±2.4	5.3±2.4	5.0±2.3	5.2±2.4
General stigma towards PWUD score	10.8±4.1	10.5±3.7	10.3±3.9	10.8±3.4	10.6±4.0	10.7±3.7	10.8±3.6	10.8±3.6	10.7±3.8
Level of familiarity with PWUD	6.1±2.4	6.1±2.4	5.7±2.6	5.8±2.4	6.3±2.5	6.0±2.4	5.9±2.3	5.8±2.3	6.0±2.4
Stimuli stigma score <sup>1</sup>	38.6±13.6	41.0±12.2	43.7±11.8	46.2±11.7	43.5±12.5	45.4±12.0	47.7±10.8	50.1±11.0	44.5±12.4
Harm reduction support score	22.9±5.1	22.4±5.7	23.1±5.4	23.5±4.0	24.0±4.6	23.8±4.7	22.9±5.2	23.6±4.5	23.2±4.9

**Table 2**

Summary of hierarchical regression for variables predicting stigma towards depicted subjects.  $R^2$  step 1 = .068;  $\Delta R^2$  step 2 = .016;  $\Delta R^2$  step 3 = .234;  $\Delta R^2$  step 4 = .251, all  $p < .001$ . \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

Variable	B	SE	b
<b>Step 1</b>			
Intercept	38.852	.81	
Story Factor (ref = basic)			
Gender (male vs female)	2.071	.811	.084*
Age (old vs young)	4.156	.811	.168***
Drug (heroin vs ecstasy)	4.430	.811	.180***
<b>Step 2</b>			
Intercept	34.208	2.161	
Story Factor			
Gender (male vs female)	1.993	.807	.081*
Age (old vs young)	4.257	.809	.172***
Drug (heroin vs ecstasy)	4.310	.807	.175***
Participant sex (male vs female)	-.967	.810	-.039
Age	.058	.026	.072*
Education (no degree vs degree)	-1.599	.842	-.064
Household income	.813	.336	.081*
<b>Step 3</b>			
Intercept	35.873	3.409	
Story Factor			
Gender (male vs female)	1.689	.699	.068*
Age (old vs young)	4.436	.701	.180***
Drug (heroin vs ecstasy)	4.462	.703	.181***
Participant sex (male vs female)	1.603	.738	.065*
Age	.010	.024	.013
Education (no degree vs degree)	-.048	.742	-.002
Household income	.346	.293	.035
Political Orientation			
Centre vs left	.202	1.086	.005
Right vs left	3.107	.960	.110***
Political conservatism	.885	.168	.168***
Belief in a just world	.437	.064	.219***
Empathic perspective taking	-.510	.057	-.265***
<b>Step 4</b>			
Intercept	40.938	3.782	
Story Factor			
Gender (male vs female)	1.959	.559	.079***
Age (old vs young)	4.826	.561	.195***
Drug (heroin vs ecstasy)	4.665	.562	.189***
Participant sex (male vs female)	.017	.596	.001
Age	-.003	.020	-.004
Education (no degree vs degree)	.019	.592	.001
Household income	.095	.235	.009
Political Orientation			
Centre vs left	.724	.778	.026
Right vs left	-.449	.868	-.012
Political conservatism	.266	.140	.051
Belief in a just world	.222	.052	.111***
Empathic perspective taking	-.227	.048	-.118***
Support for harm reduction	-.717	.072	-.285***
Drugs knowledge	1.143	.134	.027
General stigma towards people with substance use problems	1.347	.091	.404***
Level of familiarity	.169	.128	.033
Seeing coverage of drug related death in media	-1.518	.722	-.049*

The regression analysis predicting stigma towards depicted subjects, and model parameters are presented in Table 2. The final model was statistically significant ( $R^2 = .569$ ;  $F_{17,850} = 65.9$ ;  $p < .001$ ). In step 1 (inclusion of story conditions only), representation of males, older subject age, and heroin deaths significantly predicted higher stigma scores. In step 2, these three factors continued to predict higher stigma scores, as did older participant age and higher household income, but not education or participant sex. In step 3, the same three story factors continued to predict higher stigma scores, with the addition of being female, right wing political orientation, higher political conservatism, greater belief that the world is intrinsically just, and lower empathic perspective-taking, but not participant age, education, or household income. In the final step that included all predictors, story subjects being

**Table 3**

Summary of hierarchical regression for variables predicting support for harm reduction.  $R^2$  step 1 = .007;  $\Delta R^2$  step 2 = .034;  $\Delta R^2$  step 3 = .236;  $\Delta R^2$  step 4 = .102, all  $p < .001$ . \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

Variable	B	SE	b
<b>Step 1</b>			
Intercept	22.953	.332	
Story Factor			
Gender (male vs female)	.082	.333	.008
Age (old vs young)	.813	.333	.083*
Drug (heroin vs ecstasy)	.023	.333	.002
<b>Step 2</b>			
Intercept	26.382	.880	
Story Factor			
Gender (male vs female)	.076	.329	.008
Age (old vs young)	.761	.329	.077*
Drug (heroin vs ecstasy)	.058	.329	.006
Participant sex (male vs female)	-.261	.330	-.027
Age	-.046	.011	-.146***
Education (no degree vs degree)	.782	.343	.078*
Household income	-.376	.137	-.094**
<b>Step 3</b>			
Intercept	27.484	1.397	
Story Factor			
Gender (male vs female)	.154	.287	.016
Age (old vs young)	.657	.287	.067*
Drug (heroin vs ecstasy)	-.012	.288	-.001
Participant sex (male vs female)	-.967	.302	-.098***
Age	-.025	.010	-.078*
Education (no degree vs degree)	.095	.304	.010
Household income	-.195	.120	-.049
Political Orientation			
Centre vs left	-.276	.445	-.019
Right vs left	-1.867	.393	-.166***
Political conservatism	-.556	.069	-.266***
Belief in a just world	-.087	.026	-.109**
Empathic perspective taking	.164	.023	.214***
<b>Step 4</b>			
Intercept	30.106	1.480	
Story Factor			
Gender (male vs female)	.058	.267	.006
Age (old vs young)	.675	.267	.069*
Drug (heroin vs ecstasy)	-.022	.268	-.002
Participant sex (male vs female)	-.545	.284	-.055
Age	-.018	.009	-.056*
Education (no degree vs degree)	.085	.283	.008
Household income	-.186	.112	-.047
Political Orientation			
Centre vs left	-.032	.414	-.002
Right vs left	-1.486	.368	-.132***
Political conservatism	-.485	.065	-.232***
Belief in a just world	-.034	.025	-.043
Empathic perspective taking	.095	.023	.124***
Drugs knowledge	.178	.064	.084**
General stigma towards people with substance use problems	-.389	.041	-.293***
Level of familiarity	.135	.061	.065*
Seeing coverage of drug related death in media	-.192	.344	-.016

male, older, or using heroin; greater belief that we live in a just world; higher reported general stigma towards people with substance use problems; lower empathic perspective-taking; lower support for harm reduction; and not reporting seeing media coverage of a family affected by a DRD were all significant predictors of higher stigma score. All other predictors (participant personal demographics, political orientation, political conservatism, drugs knowledge, LOF) were non-significant.

The regression analysis predicting harm reduction support, and model parameters are presented in Table 3. The final model was statistically significant ( $R^2 = .379$ ;  $F_{16,851} = 3247$ ;  $p < .001$ ). In step 1 (inclusion of story conditions only), only representation of older subject age predicted higher harm reduction policy support. In step 2, this factor continued to predict higher policy scores, as did younger participant age, lower household income, and higher education, but not participant



sex. In step 3, the same story factor continued to predict higher harm reduction policy support, with the addition of being male, and greater empathic perspective taking. Having right wing political orientation, and greater political conservatism and belief in a just world were associated with lower support. Education and income were no longer significant predictors. In the final step which included all predictors, story subjects being older; younger participant age; greater empathic perspective taking and drugs knowledge, and higher LOF were all associated with greater support. Lower support was associated with right wing political orientation, greater political conservatism, and higher general levels of stigma towards people with substance use problems. In this step, belief in a just world was no longer a significant predictor of policy score, and neither was participant sex, education, household income, or having seeing coverage of a DRD in the media.

## Discussion

We investigated the effects of presentation of different characteristics of a decedent in a simulated news story of a DRD on public stigma and support for harm reduction policies. As hypothesised, we found that presentation of male and older decedents, and heroin compared to ecstasy deaths were associated with higher levels of stigma towards the depicted individual. Harm reduction support score was higher in response to older subjects, but this was not in the hypothesised direction. There were no other main effects of the experimental manipulation on support for harm reduction, but there was evidence of an interaction effect, with greater support in those participants who read about the older- compared to younger ecstasy decedent.

There have been no recent analyses of the content of news reports on DRD in the UK, but earlier work suggests over-representation of younger female decedents and deaths associated with drug such as ecstasy (Forsyth, 2001; UKDPC, 2010). Our findings suggest that rebalancing reports of DRD to more accurately reflect mortality profiles in the UK (i.e. greater reporting of opioid deaths; ONS (2022)) may lead to higher levels of stigma towards decedents. Recent studies from North America examining opioid use, including DRD, suggest that coverage of young adults dominates news reporting (Jay, et al., 2022; Webster, et al., 2020). However, whilst this reflects the profile of opioid use and mortality in that geography, under-representation of older age groups in media may contribute to low public awareness of the drug use of older adults, despite evidence of growing levels of drug-related harm and higher levels of stigma towards them (Jay, et al., 2022). In the UK, rates of DRD are highest in males who use opioids and are aged over 40 (a group categorised as an 'ageing cohort' in policy and explanations of rising DRD; H.M.Government (2021)), and services are insufficiently prepared to manage their needs, despite an increase in the number of treatment presentations (ACMD, 2019; National Records of Scotland, 2021; ONS, 2022). In accordance with attribution theory, we found that participants rated older decedents as having higher responsibility for and controllability over their own death, and reported greater blame and anger towards them (see Supplementary material S2). Older age is assumed to confer autonomy on individuals, and therefore they are perceived to be in greater control of their behaviour and its consequences. This is also associated with greater prognostic pessimism due to believing depicted subjects have had more (unsuccessful) opportunities to change their behaviour (Baumgartner, et al., 2021; Sattler, et al., 2021). Text manipulations in vignette-based research that have presented sympathetic framing of PWUD and the use of neutral and person first terminology have been shown to reduce stigmatising attitudes (Goodyear, et al., 2018; Sumnall, Hamilton, Atkinson, Montgomery, & Gage, 2021), but pre-existing attitudes towards some groups of PWUD may be more resistant to change, and some actions may even inadvertently reinforce negative attitudes (Kersbergen & Robinson, 2019). It would therefore be useful to examine the interactions of sympa-

thetic framing of older PWUD on stigma and harm reduction policy support.

Similarly, we found lower ratings of stigma towards the depiction of a death associated with ecstasy use. The public, including those who use drugs, rate opioids as being more harmful than ecstasy with respect to short- and long-term health and social harms (Carhart-Harris & Nutt, 2013; Morgan, Noronha, Muetzelfeldt, Fielding, & Curran, 2013), although they tend to overestimate the societal burden of harm of most controlled drugs compared to expert ratings (Reynaud, Luquiens, Aubin, Talon, & Bourgain, 2013). Previous research drawing upon attribution theory suggests greater levels of blame, fear, and avoidance towards users of drugs perceived as being more harmful (Sattler, et al., 2017; Sattler, et al., 2021). There are hierarchies of stigma towards particular drugs, with users of heroin being the most stigmatised (McElrath & McEvoy, 2001; Palamar, Kiang, & Halkitis, 2012), and blatant dehumanisation of people who use heroin compared to reference groups, including other stigmatised groups such as those who are homeless, have serious mental health problems, or who are obese (Sumnall, Atkinson, et al., 2021). Research participants spontaneously describe 'typical' heroin users with reference to negative individual physical (e.g. 'bad teeth', 'unkempt hair', 'scabs', 'dirty') and psychological (e.g. 'jumpiness', poor mental health, 'desperate') characteristics, in contrast to a focus on positive descriptions of functions and settings of use when asked to describe drugs like ecstasy (e.g. party, music, 'thrill seeker', 'fun') (Swalve, DeFoster, & Konoplyanko, 2021). Considering these commonly held public perceptions, it was unsurprising that we found higher stigma ratings towards the heroin death.

As predicted, there were also lower stigma ratings towards the depiction of the female death. Men who use drugs are typically rated as being less vulnerable, and more dangerous and threatening compared to females, thus leading to higher stigma and support for more punitive policies (Sattler, et al., 2017; Sorsdahl, Stein, & Myers, 2012; Wirth & Bodenhausen, 2009). However, in experimental research stigma towards females is also found to be dependent upon other factors such as the drug they are associated with, perceived socioeconomic status, presentation of barriers to treatment access, and stability of presented substance use disorders (Goodyear, et al., 2018; Kennedy-Hendricks, et al., 2016; Meyers, et al., 2021). Expectations about gender roles in society (e.g. maternal duty) may also underlie greater support for compulsory treatment for women compared to men (Sorsdahl, et al., 2012). We found no interaction in the present study between presentation of gender with age or drug for our stigma outcome. Considering the importance of intersecting characteristics in previous research, it will be important to investigate whether textual or visual prompts that include these types of factors also affect responses to media reports of DRD. We used standardised visual imagery to illustrate the news stories (see discussion of limitations below). As there are gender differences in societal evaluations of body image and attractiveness (Mazurkiewicz, Krefta, & Lipowska, 2021), and a predominance of criminal 'mugshots' (Atkinson & Sumnall, 2021; Fitzgerald, 2020) and images of 'polluted' and 'contaminated' bodies (Ayres & Jewkes, 2012) in media reports of the consequences of problematic drug use (and in some media-based prevention campaigns (Ferestad & Thompson, 2017; Marsh, Copes, & Linnemann, 2017)), the choice of accompanying photograph may have also affected our results.

Our study referenced a single DRD and focused on the circumstances of the death, which is typical of the episodic and individual-level reporting of drugs issues in news media (Jay, et al., 2022). Although there are examples of UK news titles that have published detailed investigations of the underlying causes and responses to DRD (Atkinson, et al., 2019; Nicholls, et al., 2022), despite comprehensive coverage of the extent and scale of drug-related harms (e.g. number of deaths), discussion of the social and structural determinants of harm or evidence-based responses to drug harms are less common (Atkinson & Sumnall, 2018; McGinty, Stone, Kennedy-Hendricks, Sanders, et al., 2019; McGinty et al., 2019). This may suggest why we found no main effects

of gender and drug depicted on harm reduction policy support. Participants were provided with descriptions of various harm reduction approaches, but these were presented separately from the news stimuli. Previous research using vignette-based approaches have found that differences in framing that emphasised effective responses to depicted drug-related problems were associated with greater public support for harm reduction policy (Bachhuber, McGinty, Kennedy-Hendricks, Niederdeppe, & Barry, 2015; Kennedy-Hendricks, et al., 2017). For example, public support for supervised drug consumption rooms (overdose prevention sites) in the UK was greater after exposure to a short sympathetic description of a family affected by a DRD, compared to presentation of scientific evidence of the effectiveness of the service alone (Sumnall, et al., 2020). However, unless specifically refuted, presentation of factual information alone may be insufficient to challenge commonly-held negative beliefs about the impact of such policies (e.g. encouraging drug use, delaying not preventing DRD) (Bachhuber, et al., 2015). In the current study, embedding descriptions of relevant harm reduction approaches within the story (e.g. drug checking for the ecstasy death; naloxone and drug consumption rooms for the heroin death; general harm reduction for both), may have led to detection of differences in support. We did find a main effect of the manipulation of age on harm reduction support, with greater support after exposure to older decedents, and greater support after depictions of older compared to younger heroin deaths. Whilst this may seem counter to attribution theory and the general relationship between age and stigma, this may relate to the text suggesting that older age meant a longer period of drug use, hence participants may have believed that the depicted individual would be more likely to benefit from intervention due to accumulated risk, compared to someone with limited experience or more sporadic patterns of drug use. Notably, data suggested that the age x drug interaction was only evident for the representations of the ecstasy death. Examining attitudinal responses to different patterns of substance use may therefore be informative (e.g. death after occasional use vs death after long term use), but support and attributions of responsibility and blame may be drug specific.

Briefly, in our exploratory analyses we also found that participant characteristics were associated with stigma ratings and harm reduction policy support. Higher levels of stigma towards depicted decedents were reported by those participants with a greater belief that we live in a 'just world' (and that people therefore 'deserve' what happens to them (Rudski, 2016)), lower trait empathy, lower support for harm reduction policy, and less likelihood of seeing media reports about a family affected by a DRD. In contrast to predictions suggested by the familiarity theory (Corrigan, Edwards, Green, Diwan, & Penn, 2001), our other assessment of familiarity, the LOF scale, did not predict stigma. Although greater familiarity with the topic of drug use (whether directly or vicariously) has been found to be associated with lower ratings of blameworthiness, fear, and stigma, and a greater desire to help affected groups, a U-shaped relationship may exist (Corrigan & Nieweglowski, 2019). An increase from no familiarity with substance use to greater knowledge and personal contact with PWUD is initially associated with a decrease in stigma. However, as personal relationships become more familiar (e.g. affected family members) associative and vicarious stigmas may increase due to the burdens of caring for someone with a substance related problem and the challenges that they face. In our study, modal familiarity was relatively low (*I have watched a documentary on television about substance use problems*), hence direct familiarity with a DRD (through the item assessing seeing media reports about a family affected by a DRD) may be a more sensitive measure of familiarity than personal contact in these types of media-based study. Higher levels of harm reduction policy support were predicted by greater empathy, greater familiarity with PWUD and drug use (LOF, seeing media accounts of a family affected by a DRD, drugs knowledge). Lower support was predicted by higher stigma towards people with substance use problems, right-wing political views, and political conservatism which may indicate less support for state intervention in responses to health and so-

cial problems more generally (Cruz, Patra, Fischer, Rehm, & Kalousek, 2007; Kulesza, et al., 2015; McGinty, et al., 2018; Rasinski, Timberlake, & Lock, 2000; Wild, et al., 2021).

Taken together, these findings suggest that initiatives designed to reduce public stigma or increase harm reduction policy support are likely to have differential effects on the basis of target audience characteristics. Previous research has found that public (and political) support for different drug policy depends less on information about effectiveness of particular responses, and more on the moral and political positions people have towards controlled substances, the people who use them, and views about which groups in society are most 'deserving' of support (Brown & Wincup, 2020; Kelly, Dow, & Westerhoff, 2010; Kulesza, et al., 2015; Radcliffe & Stevens, 2008; Stevens, 2019; Sumnall, et al., 2020). As these personal factors and attitudes are difficult to change (Lancaster, Seear, & Ritter, 2017; Lloyd, 2013) message and audience segmentation techniques would be important in the design and delivery of such campaigns (Noar, Harrington, & Helme, 2010). Anti-stigma and harm reduction campaigners could specifically target publishers with more conservative editorial positions for example, with framings that align with their priorities and values, such as the economic burden of a drug related death, although appeals to cultural conservatives may be less successful (Broadly, et al., 2020).

### Strengths and limitations

Strengths of the study included appropriate statistical power and the recruitment of a sample that was representative of the general population on age, sex, and ethnicity. Whilst there was an overrepresentation of people with a university degree or higher (57% vs 42% in the UK population; ONS (2017)) or who expressed preference for left wing political parties (63% vs 39% in the 2019 UK General Election) in our sample, these were balanced across groups. These types of differences have also been observed in other commercial online survey panels (Levay, Freese, & Druckman, 2016). There are some limitations to our work which should be taken into account. Our protocol was not pre-registered, hence our findings should be considered exploratory. Empathic perspective taking and Just World Beliefs were also presented prior to experimental stimuli, hence despite random allocation to conditions may have introduced some priming effects on stigma and harm reduction support scores. Although we presented stimuli that were designed to approximate 'real-world' reports of DRD through publisher branding and writing style, photographs of the decedent were taken from a facial database in order to standardise images (neutral expression, equivalent attractiveness ratings). The selection of visual imagery is an important part of news framing, and so we did not replicate how photographs are used in reporting to evoke emotional responses in audiences (e.g. family photographs, smiling subjects, 'mugshots'). The newsworthiness of substance use also means that audiences are exposed to multiple competing narratives, often within the same source, with a prioritisation of 'drug scare' stories, including accounts of violent crime, which are associated with low empathy and increased stigmatising attitudes towards depicted groups (Atkinson & Sumnall, 2021; Krzyzanowski, Howell, & Passmore, 2019). Access to news through traditional platforms is also declining in the UK, with a preference for internet and social media sources in younger groups which include video and prioritise audience engagement (Ofcom, 2022). Hence, presentation of a single written stimulus may not reflect natural media consumption in some audience segments, which has implications for the development of guidelines designed to reduce stigma towards PWUD. Finally, subject ethnicity was not a manipulated factor in the current study. Although depicted ethnicity has been shown to be an important factor in US studies assessing stigma towards PWUD and support for drug policy responses (e.g. Bandara, McGinty, and Barry (2020); Kulesza, et al. (2016)), we did not include it to reduce the complexity of the design and to reflect the predominance of people of White ethnicity in UK DRDs (ONS, 2022). However, considering the lack of international research on this topic,

over-representation of people from ethnic minority populations in drug-related police contacts, and marginalisation in UK media (Allen & Tunnicliffe, 2021; Firmstone, Georgiou, Husband, Marinkova, & Steibel, 2019), this is an important area for future research.

## Conclusions

There is an important primary agenda-setting role for news media in establishing salience and focusing public attention towards an issue, which may lead to greater support for particular policy actions (Lecheler & de Vreese, 2019). There have been some recent examples of high-profile ‘focusing-events’ (Birkland, 1998) reported in news media that have provided motivations for UK drugs policy change, including rescheduling of cannabis-based products for medicinal use in response to access difficulties for children with rare forms of epilepsy (Monaghan, Wincup, & Hamilton, 2021), and the reclassification of GHB under the Misuse of Drugs Act 1971 in response to a series of sexual offences in which the drug had been used by the perpetrator as an incapacitating agent (Home Office, 2022). However, such events are relatively rare, and in general, changes in public attention and opinion may only matter when they coincide with the preferences of policy makers or the work of elite policy actors (Cairney, 2019). For example, despite extensive and largely positive media attention (Atkinson, et al., 2019) and public support (Sumnall, et al., 2020), UK government has resisted calls to change the law to permit the operation of supervised drug consumption rooms, despite record high rates of DRD (Nicholls, et al., 2022). Wood (2006) argues that in contrast to focusing-events, whereby a previously obscure issue is moved onto the policy agenda, policy change may also be a response to ‘tipping events’. These events bring new attention to an existing issue and signal a change in the balance of influence of actors competing for policy space. Importantly, the policy impact of the event is proportional to the social meaning that is attached to it. Presentation of the numbers of opioid-related DRD or the attributes of decedents alone may have (negative) secondary agenda-setting effects (i.e. influencing how audience think and feel about an issue) (Lee, 2010), particularly when presented as individual and episodic events.

Actions designed to reduce stigmatising representations of PWUD in media, or to foster public support through the media for policy actions designed to reduce DRD may therefore benefit from encouraging content creators to frame DRD in relation to those societal contexts that lead to drug harms or in ways that ‘rehumanise’ stigmatised groups of PWUD (Jay, et al., 2022). Our findings, and other work including that discussed above, suggest some useful starting points. These include discussion of the historical contexts of increasing rates of DRD, and some of the reasons for this, including the nature of the illicit drug market, structural barriers to access to evidence-based treatments and the role of stigma in reinforcing these, and the importance of addressing non-overdose related deaths such as those caused by (treatable) long term conditions. Our results should not be interpreted to suggest that media should not report on opioid related DRD, but where individual deaths are reported, these could include biographical details that minimise differences and emphasise similarities with audiences (e.g. family life), and avoid imagery that reinforces stigma. This is an area that requires further research and meaningful engagement with media creators.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## CRedit authorship contribution statement

**HR Sumnall:** Conceptualization, Formal analysis, Funding acquisition, Methodology, Writing – original draft, Writing – review & editing. **AM Atkinson:** Methodology, Writing – review & editing. **C Montgomery:** Methodology, Writing – review & editing. **OM Maynard:**

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## Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.drugpo.2022.103909.

## References

- ACMD. (2016). *Reducing opioid-related deaths in the UK*. London, UK: Home Office.
- ACMD. (2019). *Ageing cohort of drug users*. London, UK: Home Office.
- ACMD. (2022). *ACMD review of the UK naloxone implementation*. London, UK: Home Office.
- Adley, M., Atkinson, A. M., & Sumnall, H. R. (2022). Including the multiply excluded: a mixed methods study exploring intragroup stigma towards people who use synthetic cannabinoid receptor agonists. *Drugs-Education Prevention and Policy*, 1–13.
- Agly, J., Xiao, Y., Eldridge, L., Meyerson, B., & Golzarri-Arroyo, L. (2022). Beliefs and misperceptions about naloxone and overdose among U.S. laypersons: a cross-sectional study. *BMC Public Health*, 22, 924.
- Alexandrescu, L. (2018). ‘Ethnobotanicals’ and ‘Spice zombies’: new psychoactive substances in the mainstream media. *Drugs: Education, Prevention and Policy*, 25, 356–364.
- Allen, G., & Tunnicliffe, R. (2021). *Drug crime: Statistics for England and Wales*. London, UK: House of Commons Library.
- Appelbaum, L. D., Lennon, M. C., & Lawrence Aber, J. (2006). When effort is threatening: The influence of the belief in a just world on Americans’ attitudes toward antipoverty policy. *Political Psychology*, 27, 387–402.
- Atkinson, A. M., McAuley, A., Trayner, K., & Sumnall, H. R. (2019). ‘We are still obsessed by this idea of abstinence’: A critical analysis of UK news media representations of proposals to introduce Drug Consumption Rooms in Glasgow, UK. *International Journal of Drug Policy*, 68, 62–74.
- Atkinson, A. M., & 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*, 27, 15–26.
- Atkinson, A. M., & 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, 299–315.
- Ayres, T. C., & Jewkes, Y. (2012). The haunting spectacle of crystal meth: A media-created mythology? *Crime, Media, Culture*, 8, 315–332.
- Ayres, T. C., & Taylor, S. (2020). Media and intoxication: Media representations of the intoxicated. In F. Hutton (Ed.), *Cultures of intoxication: Key issues and debates* (pp. 239–261). Cham: Springer International Publishing.
- Bacchi, C. L. (2009). *Analysing policy: What’s the problem represented to be?*. Australia: Pearson.
- Bachhuber, M. A., McGinty, E. E., Kennedy-Hendricks, A., Niederdeppe, J., & 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, e0130050-e0130050.
- Bandara, S. N., McGinty, E. E., & Barry, C. L. (2020). Message framing to reduce stigma and increase support for policies to improve the wellbeing of people with prior drug convictions. *International Journal of Drug Policy*, 76, Article 102643.
- Baumgartner, S. E., Corrigan, P. W., Wan, H. T., Werner, P., Himes, C. L., & Qin, S. (2021). The difference in stigmatizing attributions toward older adults with or without Alzheimer’s disease. *Stigma and Health*. 10.1037/sah0000315.
- Belackova, V., Stastna, L., & Miovisky, M. (2011). Selling by drugs’: Content analysis of the coverage of illicit drugs in different news media types and formats. *Drugs: Education Prevention and Policy*, 18, 477–489.
- Birkland, T. A. (1998). Focusing events, mobilization, and agenda setting. *Journal of Public Policy*, 18, 53–74.
- Black, C. (2021). *Review of drugs part two: Prevention, treatment, and recovery*. London, UK: Home Office.
- Botticelli, M. P., & Koh, H. K. (2016). Changing the language of addiction. *JAMA*, 316, 1361–1362.
- Broadly, T. R., Brener, L., Cama, E., Hopwood, M., & Treloar, C. (2020). Stigmatising attitudes towards people who inject drugs, and people living with blood borne viruses or sexually transmissible infections in a representative sample of the Australian population. *PLoS ONE*, 15, Article e0232218.
- Brown, K., & Wincup, E. (2020). Producing the vulnerable subject in English drug policy. *International Journal of Drug Policy*, 80, Article 102525.
- Cairney, P. (2019). *Understanding public policy: Theories and issues* (2nd ed.). London, UK: Bloomsbury Publishing.
- Carhart-Harris, R. L., & Nutt, D. J. (2013). Experienced drug users assess the relative harms and benefits of drugs: A web-based survey. *Journal of Psychoactive Drugs*, 45, 322–328.
- Caulkins, J. P., Pardo, B., & Kilmer, B. (2019). Supervised consumption sites: a nuanced assessment of the causal evidence. *Addiction*, 114, 2109–2115.
- Čehajić, S., Brown, R., & González, R. (2009). What do I care? Perceived ingroup responsibility and dehumanization as predictors of empathy felt for the victim group. *Group Processes & Intergroup Relations*, 12, 715–729.
- Christie, N. (1986). The ideal victim. In E. A. Fattah (Ed.), *From crime policy to victim policy* (pp. 17–30). London, UK: Palgrave Macmillan.
- Corrigan, P. W., Edwards, A. B., Green, A., Diwan, S. L., & Penn, D. L. (2001). Prejudice, social distance, and familiarity with mental illness. *Schizophrenia Bulletin*, 27, 219–225.

- Corrigan, P. W., Green, A., Lundin, R., Kubiak, M. A., & Penn, D. L. (2001). Familiarity with and social distance from people who have serious mental illness. *Psychiatric Services*, 52, 953–958.
- Corrigan, P. W., Markowitz, F. E., Watson, A., Rowan, D., & Kubiak, M. A. (2003). An attribution model of public discrimination towards persons with mental illness. *Journal of Health and Social Behavior*, 44, 162–179.
- Corrigan, P. W., & Nieweglowski, K. (2018). Stigma and the public health agenda for the opioid crisis in America. *International Journal of Drug Policy*, 59, 44–49.
- Corrigan, P. W., & Nieweglowski, K. (2019). How does familiarity impact the stigma of mental illness? *Clinical Psychology Review*, 70, 40–50.
- Corrigan, P. W., & Rao, D. (2012). On the self-stigma of mental illness: stages, disclosure, and strategies for change. *The Canadian Journal of Psychiatry*, 57, 464–469.
- Cruz, M. F., Patra, J., Fischer, B., Rehm, J., & Kalousek, K. (2007). Public opinion towards supervised injection facilities and heroin-assisted treatment in Ontario, Canada. *International Journal of Drug Policy*, 18, 54–61.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44, 113.
- Dyregrov, K., & Selseng, L. B. (2022). "Nothing to mourn, He was just a drug addict"-stigma towards people bereaved by drug-related death. *Addiction Research & Theory*, 30, 5–15.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175–191.
- Ferestad, J., & Thompson, M. A. (2017). "I'm Not Gonna Be Like 'That Guy'": Examining antidrug shock advertising through the eyes of "That Guy". *Deviant Behavior*, 38, 173–187.
- Firmstone, J., Georgiou, M., Husband, C., Marinkova, M., & Steibel, F. (2019). *Representation of minorities in the media: UK*. Leeds, UK: University of Leeds Final Analysis Report.
- Fitzgerald, J. L. (2020). Etched in the skin: Pain, methamphetamine violence and affect. In *Life in pain: Affective economy and the demand for pain relief* (pp. 139–169). Singapore: Springer Singapore.
- Forsyth, A. J. (2001). Distorted? a quantitative exploration of drug fatality reports in the popular press. *International Journal of Drug Policy*, 12, 435–453.
- Fraser, S., Farrugia, A., & Dwyer, R. (2018). Grievable lives? Death by opioid overdose in Australian newspaper coverage. *International Journal of Drug Policy*, 59, 28–35.
- Ghosh, A., Naskar, C., Sharma, N., Fazl, E. R., Choudhury, S., Basu, A., ... Mattoo, S. K. (2022). Does online newsmedia portrayal of substance use and persons with substance misuse endorse stigma? A qualitative study from India. *International Journal of Mental Health and Addiction*, 1–19. 10.1007/s11469-022-00859-1.
- Goodyear, K., Haass-Koffler, C. L., & Chavanne, D. (2018). Opioid use and stigma: The role of gender, language and precipitating events. *Drug and Alcohol Dependence*, 185, 339–346.
- Guy, P., & Holloway, M. (2007). Drug-related deaths and the 'Special Deaths' of late modernity. *Sociology*, 41, 83–96.
- H.M. Government. (2021). *From harm to hope: A 10-year drugs plan to cut crime and save lives*. London: H.M. Government.
- Haley, H., & Sidanius, J. (2006). The positive and negative framing of affirmative action: A group dominance perspective. *Personality and Social Psychology Bulletin*, 32, 656–668.
- Höijer, B. (2004). The discourse of global compassion: The audience and media reporting of human suffering. *Media, Culture & Society*, 26, 513–531.
- Home Office. (2017). *Further government response: Drug consumption rooms*. London, UK: Home Office.
- Home Office. (2022). *Letter from the Minister of State for Crime, Policing and Probation to the Chair of the Advisory Council on the Misuse of Drugs*. London, UK: Home Office.
- Howell, A., Ulan JA, J., & Powell, R. A. (2014). Essentialist beliefs, stigmatizing attitudes, and low empathy predict greater endorsement of noun labels applied to people with mental disorders. *Personality and Individual Differences*, 66, 33–38.
- Hswen, Y., Zhang, A., Freifeld, C., & Brownstein, J. S. (2020). Evaluation of volume of news reporting and opioid-related deaths in the United States: Comparative analysis study of geographic and socioeconomic differences. *Journal of Medical Internet Research*, 22, e17693.
- Humphreys, K., & Piot, P. (2012). Scientific evidence alone is not sufficient basis for health policy. *The BMJ*, 344, e1316.
- IBM Corp. (2020). *IBM SPSS statistics for windows Version 28.0*. from <https://www.ibm.com/uk-en/products/spss-statistics>.
- Jay, J., Chan, A., Gayed, G., & Patterson, J. (2022). Coverage of the opioid crisis in national network television news from 2000–2020: A content analysis. *Substance Abuse*, 43, 1322–1332.
- Jewkes, Y. (2015). *Media and crime* (3rd ed.). London, UK: Sage.
- Johnston, G. (2020). The kids are all white: Examining race and representation in news media coverage of opioid overdose deaths in Canada. *Sociological Inquiry*, 90, 123–146.
- Kelly, J. F., Dow, S. J., & Westerhoff, C. (2010). Does our choice of substance-related terms influence perceptions of treatment need? An empirical investigation with two commonly used terms. *Journal of Drug Issues*, 40, 805–818.
- Kennedy-Hendricks, A., Barry, C. L., Gollust, S. E., Ensminger, M. E., Chisolm, M. S., & McGinty, E. E. (2017). Social stigma toward persons with prescription opioid use disorder: Associations with public support for punitive and public health-oriented policies. *Psychiatric Services*, 68, 462–469.
- Kennedy-Hendricks, A., McGinty, E. E., & Barry, C. L. (2016). Effects of competing narratives on public perceptions of opioid pain reliever addiction during pregnancy. *Journal of Health Politics, Policy and Law*, 41, 873–916.
- Kersbergen, I., & Robinson, E. (2019). Blatant dehumanization of people with obesity. *Obesity*, 27, 1005–1012.
- Krzyzanowski, D. J., Howell, A. J., & Passmore, H.-A. (2019). Predictors and causes of the use of noun-based mental disorder labels. *Stigma and Health*, 4, 86–97.
- Kulesza, M., Matsuda, M., Ramirez, J. J., Wertz, A. J., Teachman, B. A., & Lindgren, K. P. (2016). Towards greater understanding of addiction stigma: Intersectionality with race/ethnicity and gender. *Drug and Alcohol Dependence*, 169, 85–91.
- Kulesza, M., Teachman, B. A., Wertz, A. J., Gasser, M. L., & Lindgren, K. P. (2015). Correlates of public support toward federal funding for harm reduction strategies. *Substance Abuse Treatment, Prevention, and Policy*, 10, 25.
- Lancaster, K., Seear, K., & Ritter, A. (2017). *Reducing stigma and discrimination for people experiencing problematic alcohol and other drug use*. Sydney, Australia: University of New South Wales.
- Lecheler, S., & de Vreese, C. H. (2019). *News framing effects*. Abingdon, UK: Routledge.
- Lee, G. (2010). Who let priming out? Analysis of first- and second-level agenda setting effects on priming. *International Communication Gazette*, 72, 759–776.
- Levay, K. E., Freese, J., & Druckman, J. N. (2016). The demographic and political composition of mechanical Turk samples. *SAGE Open*, 6, Article 2158244016636433.
- Lipkus, I. (1991). The construction and preliminary validation of a global belief in a just world scale and the exploratory analysis of the multidimensional belief in a just world scale. *Personality and Individual Differences*, 12, 1171–1178.
- Lloyd, C. (2013). The stigmatization of problem drug users: A narrative literature review. *Drugs-Education Prevention and Policy*, 20, 85–95.
- Ma, D. S., Correll, J., & Wittenbrink, B. (2015). The Chicago face database: A free stimulus set of faces and norming data. *Behavior Research Methods*, 47, 1122–1135.
- Maghsoudi, N., Tanguay, J., Scarfone, K., Rammohan, I., Ziegler, C., Werb, D., & Scheim, A. I. (2021). Drug checking services for people who use drugs: A systematic review. *Addiction*.
- Marsh, W., Copes, H., & Linnemann, T. (2017). Creating visual differences: Methamphetamine users' perceptions of anti-meth campaigns. *International Journal of Drug Policy*, 39, 52–61.
- Marshall, O. (2013). *Associative stigma among families of alcohol and other drug users*. Perth, Australia: Edith Cowan University Unpublished Thesis.
- Mazurkiewicz, N., Krefta, J., & Lipowska, M. (2021). Attitudes towards appearance and body-related stigma among young women with obesity and psoriasis. *Frontiers in Psychiatry*, 12, Article 788439.
- McAuley, A., & Forsyth, A. J. (2011). The impact of drug-related death on staff who have experienced it as part of their caseload: An exploratory study. *Journal of Substance Use*, 16, 68–78.
- McElrath, K., & McEvoy, K. (2001). Heroin as Evil: Ecstasy users' perceptions about heroin. *Drugs: Education, Prevention and Policy*, 8, 177–189.
- McGinty, E. E., Barry, C. L., Stone, E. M., Niederdeppe, J., Kennedy-Hendricks, A., Linden, S., & Sherman, S. G. (2018). Public support for safe consumption sites and syringe services programs to combat the opioid epidemic. *Preventive Medicine*, 111, 73–77.
- McGinty, E. E., Goldman, H. H., Pescosolido, B., & Barry, C. L. (2015). Portraying mental illness and drug addiction as treatable health conditions: effects of a randomized experiment on stigma and discrimination. *Social Science & Medicine*, 126, 73–85.
- McGinty, E. E., Kennedy-Hendricks, A., & Barry, C. L. (2019). Stigma of addiction in the media. In J. D. Avery, & J. J. Avery (Eds.), *The stigma of addiction* (pp. 201–214). Cham: Springer International Publishing.
- McGinty, E. E., Stone, E. M., Kennedy-Hendricks, A., & Barry, C. L. (2019). Stigmatizing language in news media coverage of the opioid epidemic: Implications for public health. *Preventive Medicine*, 124, 110–114.
- McGinty, E. E., Stone, E. M., Kennedy-Hendricks, A., Sanders, K., Beacham, A., & Barry, C. L. (2019). US news media coverage of solutions to the opioid crisis, 2013–2017. *Preventive Medicine*, 126.
- McLean, K. (2017). From "Junkies" to "Soccer Moms": Newspaper representations of overdose, 1988–2014. *Critical Criminology*, 25, 411–432.
- Measham, F., & Turnbull, G. (2021). Intentions, actions and outcomes: A follow up survey on harm reduction practices after using an English festival drug checking service. *International Journal of Drug Policy*, 95, Article 103270.
- Meurk, C., Carter, A., Partridge, B., Lucke, J., & Hall, W. (2014). How is acceptance of the brain disease model of addiction related to Australians' attitudes towards addicted individuals and treatments for addiction? *BMC Psychiatry*, 14, 373.
- Meyers, S. A., Earnshaw, V. A., D'Ambrosio, B., Courchesne, N., Werb, D., & Smith, L. R. (2021). The intersection of gender and drug use-related stigma: A mixed methods systematic review and synthesis of the literature. *Drug and Alcohol Dependence*, 223, Article 108706.
- Monaghan, M., Wincup, E., & Hamilton, I. (2021). Scandalous decisions: explaining shifts in UK medicinal cannabis policy. *Addiction*, 116, 1925–1933.
- Morgan, C. J. A., Noronha, L. A., Muetzelfeldt, M., Fielding, A., & Curran, H. V. (2013). Harms and benefits associated with psychoactive drugs: findings of an international survey of active drug users. *Journal of Psychopharmacology (Oxford, England)*, 27, 497–506.
- National Records of Scotland. (2021). *Drug-related deaths in Scotland in 2020*. Edinburgh: National Records of Scotland.
- Netherland, J., & Hansen, H. B. (2016). The war on drugs that wasn't: Wasted whiteness, "Dirty Doctors," and race in media coverage of prescription opioid misuse. *Culture, Medicine and Psychiatry*, 40, 664–686.
- Newman, N., Fletcher, R., Robertson, C. T., Eddy, K., & Nielsen, R. K. (2022). *Reuters Institute Digital News Report 2022*. Oxford, UK: Reuters Institute for the Study of Journalism.
- Nicholls, J., Livingston, W., Perkins, A., Cairns, B., Foster, R., Trayner, K. M. A., Sumnall, H. R., Price, T., Cairney, P., Dumbrell, J., & Parkes, T. (2022). Drug consumption rooms and public health policy: Perspectives of Scottish strategic decision-makers. *International Journal of Environmental Research and Public Health*, 19, 6575.
- Nielsen, A. L., & Bonn, S. (2008). Media exposure and attitudes toward drug addiction spending, 1975–2004. *Deviant Behavior*, 29, 726–752.
- Noar, S. M., Harrington, N. G., & Helme, D. W. (2010). The contributions of health communication research to campaign practice. *Health Communication*, 25, 593–594.

- Northern Ireland Statistic Research Agency. (2022). *Drug-related and drug-misuse deaths 2010-2020*. Belfast: Northern Ireland Statistic Research Agency.
- Ofcom. (2022). *News consumption in the UK: 2022*. London, UK: Ofcom.
- ONS. (2017). *Graduates in the UK labour market: 2017*. London, UK: Office for National Statistics.
- ONS. (2022). *Deaths related to drug poisoning in England and Wales: 2021 registrations*. London: UK Statistics Authority.
- Orsini, M. M. (2017). Frame analysis of drug narratives in network news coverage. *Contemporary Drug Problems, 44*, 189–211.
- Palamar, J. J., Kiang, M. V., & Halkitis, P. N. (2012). Predictors of stigmatization towards use of various illicit drugs among emerging adults. *Journal of Psychoactive Drugs, 44*, 243–251.
- Radcliffe, P., & Stevens, A. (2008). Are drug treatment services only for 'thieving junkie scumbags'? Drug users and the management of stigmatised identities. *Social Science & Medicine, 67*, 1065–1073.
- Rasinski, K. A., Timberlake, J. M., & Lock, E. D. (2000). Public support for increased spending on the drug problem in America is not a simple matter. *International Journal of Public Opinion Research, 12*, 431–440.
- Reynaud, M., Luquiens, A., Aubin, H.-J., Talon, C., & Bourgain, C. (2013). Quantitative damage-benefit evaluation of drug effects: Major discrepancies between the general population, users and experts. *Journal of Psychopharmacology, 27*, 590–599.
- Ritter, A. (2021). *Drug policy*. London, UK: Routledge.
- Roscoe, S., Pryce, R., Buykx, P., Gavens, L., & 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 and Alcohol Review, 41*, 54–61. 10.1111/dar.13307.
- Rudski, J. (2016). Public perspectives on expanding naloxone access to reverse opioid overdoses. *Substance Use & Misuse, 51*, 1771–1780.
- Sattler, S., Escande, A., Racine, E., & Goritz, A. S. (2017). Public stigma toward people with drug addiction: A factorial survey. *Journal of Studies on Alcohol and Drugs, 78*, 415–425.
- Sattler, S., Zolala, F., Baneshi, M. R., Ghasemi, J., & Amirzadeh Googhari, S. (2021). Public stigma toward female and male opium and heroin users. An experimental test of attribution theory and the familiarity hypothesis. *Frontiers in Public Health, 9*, Article 652876.
- Schneider, K. E., Wilson, D., Dayton, L., Goodell, E. M. A., & Latkin, C. A. (2021). Political partisanship and stigma against people who use drugs in opinions about allocating COVID-19 prevention resources to vulnerable populations. *International Journal of Drug Policy, 95*, Article 103301.
- SFAD, & SRC. (2020). *Insert standard stigmatising headline & image here*. Glasgow, UK: Scottish Families Affected by Alcohol & Drugs.
- Sorsdahl, K., Stein, D. J., & Myers, B. (2012). Negative attributions towards people with substance use disorders in South Africa: variation across substances and by gender. *BMC Psychiatry, 12*, 101.
- Stangl, A. L., Earnshaw, V. A., Logie, C. H., van Brakel, W., L., C. S., Barre, I., & 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*, 31.
- Stevens, A. (2019). 'Being human' and the 'moral sidestep' in drug policy: Explaining government inaction on opioid-related deaths in the UK. *Addictive Behaviors, 90*, 444–450.
- Stevens, A., & Zampini, G. F. (2018). Drug policy constellations: A Habermasian approach for understanding English drug policy. *International Journal of Drug Policy, 57*, 61–71.
- Sumnall, H. R., Atkinson, A. M., Gage, S. H., Hamilton, I., & Montgomery, C. (2021). Less than human: dehumanisation of people who use heroin. *Health Education, 121*, 649–669.
- Sumnall, H. R., Atkinson, A. M., Trayner, K. M. A., Gage, S. H., & McAuley, A. (2020). Effects of messaging on public support for drug consumption rooms in Scotland, UK. *International Journal of Drug Policy, 83*, Article 102855.
- Sumnall, H. R., Hamilton, I., Atkinson, A. M., Montgomery, C., & 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*, 227–239.
- Swalve, N., DeFoster, R., & Konoplyanko, M. (2021). Poor and hurting: media habits and views on drugs. *SN Social Sciences, 1*, 28.
- Taylor, S. (2008). Outside the outsiders: Media representations of drug use. *Probation Journal, 55*, 369–387.
- Templeton, L., Valentine, C., McKell, J., Ford, A., Velleman, R., Walter, T., Hay, G., Bauld, L., & Hollywood, J. (2017). Bereavement following a fatal overdose: The experiences of adults in England and Scotland. *Drugs-Education Prevention and Policy, 24*, 58–66.
- The Scottish Government. (2016). *2016 Scottish public attitudes towards people with drug dependence and people in recovery*. Edinburgh, UK: The Scottish Government.
- Tiger, R. (2013). Celebrity drug scandals, media double standards. *Contexts, 12*, 36–41.
- Titlestad, K. B., Lindeman, S. K., Lund, H., & Dyregrov, K. (2021). How do family members experience drug death bereavement? A systematic review of the literature. *Death Studies, 45*, 508–521.
- Titlestad, K. B., Schmid, M. T., & Dyregrov, K. (2022). Prevalence and predictors of prolonged grief symptoms among those bereaved from a drug-related death in a convenience sample of Norwegian parents: A cross-sectional study. *Death Studies, 46*, 1354–1363.
- UKDPC. (2010). *Representations of drug use and drug users in the British Press*. London, UK: UK Drug Policy Commission.
- Unlu, A., Tammi, T., & Hakkarainen, P. (2022). Policy windows for drug consumption rooms in Finland. *Nordic Studies on Alcohol and Drugs, 39*, 205–224.
- Webster, F., Rice, K., & Sud, A. (2020). A critical content analysis of media reporting on opioids: The social construction of an epidemic. *Social Science & Medicine, 244*, Article 112642.
- Weiner, B. (1995). *Judgments of responsibility: A foundation for a theory of social conduct*. New York, NY, US: Guilford Press.
- Weiner, B., Perry, R. P., & Magnusson, J. (1988). An attributional analysis of reactions to stigmas. *Journal of Personality and Social Psychology, 55*, 738–748.
- Wild, T. C., Koziel, J., Anderson-Baron, J., Asbridge, M., Belle-Isle, L., Dell, C., Elliott, R., Hathaway, A., MacPherson, D., McBride, K., Pauly, B., Strike, C., Galovan, A., & Hyshka, E. (2021). Public support for harm reduction: A population survey of Canadian adults. *PLoS ONE, 16*, Article e0251860.
- Willis, E., & Painter, C. (2019). The needle and the damage done: Framing the heroin epidemic in the Cincinnati enquirer. *Health Communication, 34*, 661–671.
- Wirth, J. H., & Bodenhausen, G. V. (2009). The role of gender in mental-illness stigma: A national experiment. *Psychological Science, 20*, 169–173.
- Witte, T. H., Wright, A., & Stinson, E. A. (2019). Factors influencing stigma toward individuals who have substance use disorders. *Substance Use & Misuse, 54*, 1115–1124.
- Wood, R. S. (2006). Tobacco's tipping point: The master settlement agreement as a focusing event. *Policy Studies Journal, 34*, 419–436.
- Wright, B. A., Lopez, S. J., & Magyar, J. L. (2021). Widening the diagnostic focus: A case for including human strengths and environmental resources. In C. R. Snyder, S. J. Lopez, L. M. Edwards, & S. C. Marques (Eds.), *The Oxford handbook of positive psychology* (pp. 0). Oxford University Press.
- YouGov. (2019). *Left-wing vs right-wing: It's complicated*. London, UK: YouGov.
- YouGov. (2022). *The YouGov Big Survey on Drugs: Should possessing or selling drugs be legal?* London, UK: YouGov.