Mock Juror Perceptions of Intoxicated Eyewitness Credibility

Abstract

To ascertain whether intoxication at the time of a crime affects a witness's credibility with mock jurors, 240 jury eligible individuals completed an online questionnaire rating the convincingness, confidence, competence, honesty, believability, consistency, credibility, accuracy, and completeness of one of six witness testimonies. Although sober when interviewed, witnesses were either sober, moderately, or severely intoxicated (BAC under/over .08%) during the crime, with half of jurors being provided with this information. Within each condition, the testimony was either long or short, with the former being more complete. From the credibility ratings, a single principal component analysis factor was extracted. Subsequent analysis of variance analyses indicated that knowledge of the witness's intoxication and a less complete account led to lower credibility ratings. With no main effect of intoxication, the testimony of an intoxicated witness itself was not perceived as less credible. Findings are discussed in relation to the criminal justice system and future research.

Keywords: Alcohol intoxication, Mock Jurors, Perception, Eyewitness Recall, Credibility

Mock Juror Perceptions of Intoxicated Eyewitness Credibility

Within the criminal justice system, jurors play a crucial role in ensuring that justice is served by deciding, based on the available evidence, whether a defendant is guilty or not of the offence with which they have been charged (Kapardis, 2014). In such instances, a witness's testimony can be one of the most persuasive and valuable pieces of information to aid jurors in rendering a verdict (Boyce, Beaudry, & Lindsay, 2007; Brewer & Burke, 2002). Yet, research indicates that eyewitness testimonies are prone to errors (Innocence Project, 2020; Kassin & Gudjonsson, 2004; Sporer, Penrod, Read, & Cutler, 1995), and along with eyewitness identifications are the most common cause of wrongful convictions (Boyce et al., 2007; Gross & Shaffer, 2012). Despite research indicating the fallibility of eyewitness memory (see Toglia, Read, Ross, & Lindsay, 2007), jurors are generally un-informed regarding the factors that can affect eyewitness recall (Lampinen, Neuschatz, & Cling, 2012), and are typically unable to assess the reliability of an eyewitness's evidence (Benton, Ross, Bradshaw, Thomas, & Bradshaw, 2006). For example, jurors tend to incorrectly perceive witnesses as more accurate and credible if they recall a lot of details (Bell & Loftus, 1988), their testimony is consistent (Brewer, Potter, Fisher, Bond, & Luszcz, 1999) or they are confident (Brewer & Burke, 2002; Schmechel, O'Toole, Easterly, & Loftus, 2006). It should be noted, however, that in some instances with pristine testing conditions including an uncontaminated memory, confidence and accuracy can be strongly related (Wixted & Wells, 2017). One variable, though, that has rarely been explored in relation to juror perceptions of witness credibility, is alcohol intoxication.

Intoxicated witness recall

Traditional memory research indicates that intoxication has a particularly detrimental effect on episodic recall, where conscious and intentional effort is required to remember information (e.g., Curran & Hildebrandt, 1999; Doss, Weafer, Ruiz, Gallo, & De Wit, 2018; Nilsson, Bäckman, & Karlsson, 1989). Moreover, alcohol's effect is especially apparent with the use of free recall (Hashtroudi, Parker, DeLisi, Wyatt, & Mutter, 1984; Lee, Roh, & Kim, 2009) and appears to impair encoding to a greater extent than retrieval (Birnbaum, Parker, Hartley, & Noble, 1978). Taking this body of research into account, it may be reasonable to assume that alcohol would have a detrimental effect on an eyewitness's recall of a crime. Indeed, surveys of potential jurors, law enforcement professionals, and eyewitness experts (Benton et al., 2006; Kassin, Tubb, Hosch, & Memon, 2001) indicate that these individuals consider alcohol intoxication to impair an eyewitness's ability to recall persons and events. Until recently, however, few studies have explored alcohol's effect on eyewitness recall (Malpass et al., 2008), despite research indicating that intoxicated witnesses are a relatively common occurrence (Crossland, Kneller, & Wilcock, 2018; Evans, Schreiber Compo, & Russano, 2009; Palmer, Flowe, Takarangi, & Humphries, 2013).

From this, albeit limited, body of research (see Hildebrand Karlén, 2018 for a review) and a recent meta-analysis (Jores, Colloff, Kloft, Smailes & Flowe, 2019) it appears that whether alcohol affects memory depends on factors such as: the information to be recalled (Crossland, Kneller & Wilcock, 2016; Flowe, Takarangi, Humphries, & Wright, 2016), the task being completed (Bayless, Harvey, Kneller & Frowd 2018; Harvey, Kneller & Campbell, 2013; Kneller & Harvey, 2016), the number/timing/type of interviews (Crossland, Kneller & Wilcock, 2020; Hildebrand Karlén, Roos Af Hjelmsäter, Fahlke, Granhag & Söderpalm-Gordh, 2017; La Rooy, Nicol, & Terry, 2013; Schreiber Compo et al., 2017) and the timing of alcohol

consumption (Gawrylowicz, Ridley, Albery, Barnoth, & Young, 2017). Further, research indicates that although higher intoxication levels ($M_{BrAC} > 35\mu g/100ml$, $M_{BAC} > .08\%$) result in a less complete but no less accurate testimony, alcohol does not have a particularly detrimental effect on either the accuracy or completeness of a moderately intoxicated witnesses recall ($M_{BrAC} < 35\mu g/100ml$, $M_{BAC} < .08\%$) (Crossland et al., 2016; Flowe et al., 2016; Hagsand, Roos af Hjelmsäter, Granhag, Fahlke, & Söderpalm-Gordh, 2013; Hildebrand Karlén, Roos af Hjelmsäter, Fahlke, Granhag, & Söderpalm-Gordh, 2015; Van Oorsouw & Merckelbach, 2012; Yuille & Tollestrup, 1990). It should be noted, however, that recent research by Altman, Schreiber Compo, McQuiston, Hagsand and Cervera (2018), and Altman, McQuiston and Schreiber Compo (2019) have found that alcohol negatively affects both the quality and quantity of a witness's recall with blood alcohol concentrations levels ranging from .00 - .29%. A witness's level of intoxication though is an 'estimator variable' (Wells, 1978) and therefore not one that the police, or court, can control, other than when the individual takes part in the investigation and testifies at trial. It is therefore important to determine how jurors perceive the testimony of an intoxicated witness, for if jurors view an intoxicated witness as less credible, solely because they had consumed alcohol, then the testimony of a potentially credible witness may be disregarded.

Intoxication stereotypes

When making judgements about eyewitness credibility, research suggests jurors can be influenced by stereotypes, for example, individuals with mild intellectual disabilities (Peled, Iarocci, & Connolly, 2004) and older adults (Mueller-Johnson, Toglia, Sweeney, & Ceci, 2007) are seen as less credible. In regards to intoxication, people have beliefs and established stereotypes about how

alcohol will affect themselves and others (Christiansen & Goldman, 1983; Miller, Smith, & Goldman, 1990). Studies suggest that individuals expect alcohol consumption to have positive and negative consequences, for instance, by enhancing social facilitation (Borjesson & Dunn, 2001), but also by causing cognitive and behavioural impairments (Adams & McNeil, 1991). Further to this, individuals expect alcohol to have positive effects when moderately intoxicated, but increasingly more negative effects as intoxication levels increase (George & McAfee, 1987; Madden & Clapp, 2019; Southwick, Steele, Marlatt, & Lindell, 1981). Individuals expect others to be more susceptible to these negative effects than they would be themselves, and that personal drinking habits can affect how an individual anticipates alcohol will affect others (e.g., Rohsenow, 1983, Jones, Corbin & Fromme, 2001). For example, compared with drinkers, non-drinkers expect others to suffer greater cognitive impairment after consuming alcohol (Leigh, 1987; McMahon, Jones, & O'Donnell, 1994; Oei, Ferguson, & Lee, 1998). As a consequence of these negative intoxication stereotypes, jurors may disregard the testimony of a potentially accurate and credible intoxicated eyewitness, solely because they know that alcohol had been consumed.

The effects of negative intoxication stereotypes can be seen in studies exploring public and police perceptions of intoxicated sexual assault victims, where intoxicated victims are perceived more negatively than sober victims, and fewer guilty verdicts are reported (e.g., Ferguson & Ireland, 2012; Hammock & Richardson, 1997; Stormo, Lang, & Stritzke, 1997), although this does not affect the likelihood of the perpetrator being charged (Schuller & Stewart, 2000; Stewart & Maddren, 1997). In relation to intoxicated witnesses, a recent survey of police officers in England (Crossland et al., 2018) indicated that respondents felt reckless or incompetent in court if they presented evidence obtained from an intoxicated person, irrespective of the evidential value. Officers also indicated that witnesses often felt their evidence would not

be believed in court if they were intoxicated at the time of the crime. Despite this negative view of intoxicated witnesses, to date, only five studies have explored mock juror perceptions of intoxicated witness credibility, and all but one has focused on intoxicated victims of sexual crimes.

Intoxicated victim/witness credibility

From research exploring the credibility of intoxicated victims/witnesses in court, each of which has used written case summaries, it appears that mock jurors perceive intoxicated sexual assault victims as less credible than sober victims (Schuller & Wall, 1998) and that with higher levels of intoxication a victim's credibility is further reduced (Wall & Schuller, 2000). Yet, Wenger and Bornstein (2006) found only when the victim was illegally intoxicated (consumed alcohol when under the US legal drinking age of 21) were they rated as significantly less credible than a sober victim. However, if a witness is confident, then a juror's verdict is not affected by the witness's intoxication level (Lindsay, 1994). Each of these studies, has looked at juror perceptions of credibility when the witness is the victim and not a bystander, but there are a wide range of estimator variables that may have a differential effect on recall (and therefore potentially perceptions) depending on the role of the witness, such as stress (e.g., high and low arousal (but not moderate arousal) may impair memory; see Deffenbacher, Bornstein, Penrod, & McGorty, 2004). Further to this, some research also suggests that victims recall crime details more accurately than bystanders (Yuille, Davies, Gibling, Marxsen & Porter, 1994), and that there may be differences in the event information recalled such as victims providing more emotional elements (Manzanero, El-Astal & Aroztegui, 2009). Given these conflicting encoding conditions, it is unclear whether being the victim or the bystander will likely result in an enhanced recall of

the event. Despite this, previous research suggests that victims of crime are generally viewed more negatively (e.g., Aramburu & Leigh, 1991; Carli, 1999; Leigh & Aramburu, 1994).

At present only one study has looked at juror perceptions of intoxicated witnesses, when that individual was a bystander Evans and Schreiber Compo (2010). Within this study, mock jurors read a summary of a sexual assault or battery case where the defendant was identified by a sober, moderately, or extremely intoxicated witness (either a bystander or victim). Intoxicated witnesses were rated as more cognitively impaired than sober witnesses, but no such difference was apparent between moderately and extremely intoxicated witnesses. Although sober bystanders were perceived as significantly less impaired than sober victims, this effect was not apparent between intoxicated victims and bystanders. In addition, the more cognitively impaired the witness was considered to be, then the less credible their identification evidence was deemed to be. Although this study explored mock juror ratings of intoxicated witness credibility, these ratings were for line-up decisions and not the witness's full testimony. Consequently, at present, there is a gap in the experimental literature which needs to be explored.

Present Study

Due to a lack of relevant research, the current study examined mock jurors' perceived credibility of an eyewitness's testimony when that individual was a bystander (and not the victim of a crime). This study manipulated the witness's degree of intoxication at the time of the crime between sober, moderately intoxicated, and severely intoxicated. To offer a more realistic and forensically relevant assessment of mock jurors' perceptions, free recall transcripts from participants who witnessed a film of a staged theft in previous research (Crossland, Kneller & Wilcock, 2020) were selected as the eyewitness testimony. As previous research indicates that

intoxication may affect the completeness, but not the accuracy of a witness's recall, the study included a 50:50 split between long and short testimonies in each of the three intoxication levels. Longer testimonies provided a more complete account of the crime but were no more accurate than the short testimonies. This allowed an investigation of whether juror perceptions of credibility were a function of the completeness of witness recall. Additionally, half of the mock jurors rated a witness's credibility in the absence of knowledge of the witness's degree of intoxication. The knowledge manipulation allowed an exploration of whether any differences in the perceived credibility of the witness (for each of three intoxication levels) was as a consequence of the actual testimonies of sober and intoxicated witnesses, or if differences were due to potentially pre-existing biases and stereotypes. This is particularly relevant as previous research (Crossland et al., 2018) indicates that, in England at least, officers are not legally allowed to breathalyse a witness to confirm their exact BrAC, and that previous research indicates that the testimony of an intoxicated witness may be just as accurate as that of a sober witness (Crossland et al., 2016; Flowe et al., 2016; Hagsand et al., 2013; Hildebrand Karlén et al., 2015; Van Oorsouw & Merckelbach, 2012; Yuille & Tollestrup, 1990). Finally, mock jurors were asked about their personal drinking habits to determine if their prior experiences affected their credibility ratings.

In light of previous research (Evans & Schreiber Compo, 2010; Schuller & Wall, 1998; Wall & Schuller, 2000) it was first hypothesised that the testimony of a witness who was intoxicated at the time of the crime would be rated as less credible than that of a sober witness. However, due to conflicting findings (Evans & Schreiber Compo, 2010; Wall & Schuller, 2000), no predictions were made as to differences in credibility ratings between moderately and severely intoxicated witnesses. Second, it was hypothesised that, due to potentially pre-existing

stereotypes (Leigh, 1987; Rohsenow, 1983), when mock jurors were aware of the witness's intoxication level at the time of the crime, their testimony would be rated as less credible than when jurors were not provided with this knowledge. Third, it was hypothesised that, in accordance with juror perceptions of sober witnesses (Bell & Loftus, 1988), mock jurors would rate a longer and more complete testimony as more credible than a short testimony, despite there being no difference in the accuracy of the recall. Fourth, it was hypothesised that the effect of the knowledge manipulation would not be apparent in relation to the testimony of sober witnesses. Due to a lack of previous research, no predictions were made as to any interactions between intoxication level, testimony length and juror knowledge of witness intoxication.

Method

Participants

A total of 240 jury eligible individuals (92.9% female) completed an online study which ensured 20 participants in each condition, with each testimony viewed 40 times. This is not dissimilar to previous juror perception research where each testimony is rated as few as 13 times (e.g., Culhane & Hosch, 2004; Henry, Ridley, Perry, & Crane, 2011; Stobbs & Kebbell, 2003). Potential mock jurors were invited to take part via social media (e.g., Twitter and Facebook) using a snowballing technique, starting with the first researcher. This opportunity sample ranged in age from 18 to 67 years ($M = 35.64$, $SD = 11.86$) with all mock jurors being eligible for jury service in the UK. With a non-student sample, this research is potentially more representative of a genuine jury than previous mock juror studies, where undergraduate students tend to take part (Evans & Schreiber Compo, 2010; Wall & Schuller, 2000; Wenger & Bornstein, 2006).

A 3 x 2 x 2 between participants ANOVA indicated no significant difference in mock juror ages across witness intoxication level ($F(2, 228) = 0.25$, $p = .78$, $\eta\rho^2 = .002$), knowledge condition ($F(1, 228) = 1.85$, $p = .18$, $\eta\rho^2 = .008$) and testimony length ($F(1, 228) = 0.66$, $p = .42$, $\eta\rho^2 = .003$). Log-linear analyses indicated no interaction between mock juror gender and any of the three independent variables ($p = .21-.80$). Mock jurors were predominately Caucasian (97.2 %) and employed (84.2%).

Design

The study utilised a 3 (Witness intoxication level: sober, moderately intoxicated, severely intoxicated) x 2 (Knowledge of witness's intoxication level: with knowledge, without knowledge) x 2 (Testimony length: long, short) independent measures design. Dependent measures were obtained as to the perceived credibility of each witness testimony in relation to believability, consistency, completeness, accuracy, convincingness, credibility, confidence, honesty, competence, and how good a witness they were overall. Responses were measured on a 7-point Likert scale (1= *not at all* to 7 = *extremely*) with lower scores indicating, for example, a less accurate or believable testimony. As per Evans and Schreiber Compo (2010) mock jurors' agreement with three statements about their own drinking habits (1 = *completely disagree* to 7 = *completely agree*) were also included, as were two questions about how frequently they consumed alcohol.

Materials

Mock jurors each read one of six witness transcripts provided by participants in previous research (Crossland, Kneller & Wilcock, 2020), and completed the questionnaire asking about the credibility of the witness and their testimony.

Testimonies

Of the six testimonies, two were provided by individuals who witnessed the crime sober, two were from witnesses who were moderately intoxicated at the time of the crime (under the 35μg/100ml drink drive limit for England, Wales, and Northern Ireland; 29μg/100ml (BAC: 0.066%) and 33μg/100ml (BAC: 0.075%)), and a further two were from witnesses who were severely intoxicated when they saw the crime (over the drink drive limit; 54μg/100ml (BAC: 0.123%) and 63μg/100ml (BAC: 0.144%)). In terms of the degree of intoxication, previous research has defined this in terms of the number of beers consumed within a certain time period (Evans & Schreiber Compo, 2010; Schuller & Wall, 1998; Wall & Schuller, 2000), or by merely stating that the witness was clearly intoxicated (Wenger & Bornstein, 2006). The moderate/severely intoxicated BAC levels applied in the present study, however, are comparable to those of previous real-world intoxicated eyewitness research (Crossland, et al., 2016; Van Oorsouw & Merckelbach, 2012; Van Oorsouw, Merckelbach & Smeets, 2015) and those stated by English police officers (Crossland et al., 2018).

All testimonies had an 87-89% accuracy rate. Within each pairing, one testimony was short in length and the other long, with the latter testimonies being more complete. Short testimonies were 497 (sober), 445 (moderately intoxicated) or 462 words (severely intoxicated) long and included 33, 31 and 33 details, respectively. Long testimonies were 835 (sober), 797 (moderately intoxicated) or 761 words (severely intoxicated) long with 67, 64 and 61 details,

respectively. The selection of these testimonies ensured that long testimonies were more complete than short testimonies, but that there was no difference in the accuracy, thereby replicating the effect of intoxication whereby completeness is reduced but accuracy is unaffected. All six testimonies were from previous participants who were interviewed about the witnessed event (a man entering an empty school and proceeding to take a laptop and some money from a purse) using the Enhanced Cognitive Interview which incorporated rapport building, report everything, mental reinstatement of context, free recall and questioning, but excluded reverse order and change perspective. Witness participants were aged between 18 and 21 years old, and all were interviewed a week after the event when they were again sober.

Juror questionnaire

Based on Evans and Schreiber Compo (2010) and Henry et al. (2011), a questionnaire was constructed to explore mock juror perceptions of an intoxicated witness's testimony. In section one of the questionnaire potential mock jurors were provided with the juror eligibility criteria for the UK. If this criterion was met, then they were directed to section two where demographic information was sought. Section three provided a brief summary of the case followed by one of the six witness transcripts. Within the case summary, mock juror participants were told that the defendant was accused of committing a theft from a University. They were also informed that they would be provided with a written transcript of the police interview with the only witness. Half the mock jurors in each intoxication level and testimony length condition were told that prior to witnessing the alleged crime the witness had been drinking (lemonade/alcohol) in the bar alone and was (sober/moderately/severely intoxicated) at the time of the alleged crime. In section four, mock jurors were asked to rate the honesty, competence, confidence, convincingness,

accuracy, completeness, credibility, consistency, and believability of the witness's testimony they had read. They were also asked how good the witness was overall and how witness credibility could have been improved. Section five asked about the witness's ability to recall the crime, and the likelihood that the witness would correctly recall the event if they were sober, moderately, or severely intoxicated at the time of the crime. Section six asked mock jurors about their agreement with statements about drinking alcohol as per the Evans and Schreiber Compo (2010). For example, "drinking more than one or two drinks in one evening is irresponsible." Section seven, asked about mock jurors own personal drinking habits, for example, "how often do you drink alcohol?" The final section asked whether the mock jurors had been a juror or a victim of a theft within the last year. This section also included a manipulation check question to confirm that the witness's degree of intoxication could be correctly recalled. The questionnaire used a mixture of multiple-choice, scaled, and open-ended questions, and the participant time reading the transcripts was also checked.

Procedure

Potential mock jurors were directed to a web page on the Unipark academic survey software website where their consent was requested and they were presented with the UK juror eligibility criteria, which they would need to meet to participate. Mock jurors were then randomly allocated to one of the 12 experimental conditions and asked to read the appropriate witness testimony. This was followed by the questionnaire itself and the debrief form.

Results

Participant characteristics

The successful manipulation of the witness intoxication condition was supported as all 120 of the 'with knowledge' mock jurors correctly recalled being informed whether the witness was sober, moderate, or severely intoxicated. Chi-squared analyses indicated no significant difference in the drinking frequency (X^2 (8, $N = 240$) = 4.36, $p = .82$) and units of alcohol typically consumed (X^2 (10, $N = 240$) = 12.12, $p = .28$) by mock jurors who read the sober, moderate, or severely intoxicated testimony. The majority of mock jurors indicated that they had not been a juror (99.17%) or a victim of theft (92.5%) within the last year. The 5.4% of mock jurors who had been a victim of a theft, were distributed relatively equally across the 12 conditions. On average participants spent 833 seconds (SD = 421s) reading the transcripts.

Credibility characteristics

Initial data exploration indicated no significant outliers but revealed that all nine of the credibility characteristics (confidence, honesty, accuracy, competency, consistency, convincingness, completeness, believability, and credibility) were moderately to strongly correlated ($r = .42$ to $.77$). In line with previous research (e.g., Wasarhaley & Simcic, 2012) and to preserve power and prevent issues of multicollinearity a principal component analysis (PCA) was conducted to reduce the number of rating variables. Only one component, overall credibility, had an eigenvalue over Kaiser's criterion of one, and this explained 65.17% of the variance, with this component having high internal reliability ($\alpha = .93$). A factor of overall credibility was therefore produced by summing a mock juror's rating for the nine credibility characteristics.

Using this one factor of overall credibility, as a dependent variable, a 3 (Intoxication level: sober, moderately intoxicated, or severely intoxicated) x 2 (Knowledge: with or without) x 2 (Testimony length: short or long) between participants ANOVA was conducted. With the data seen in Table 1, a main effect of testimony length was indicated with longer (more complete) testimonies being rated as more credible than shorter testimonies ($F(1, 228) = 5.08$, $p = .03$, $\eta p^2 = .02$) (hypothesis three). A main effect of knowledge was apparent with mock jurors rating the witness's testimony as more credible if they were unaware of the witness's intoxication level ($F(1, 228) = 4.85$, $p = .03$, $\eta p^2 = .02$) (hypothesis two). A follow up analysis using syntax was also conducted and indicated that mock jurors did not rate the testimony of a sober witness as any more credible when their sobriety was explicitly stated ($M = 33.95$, $SD = 10.78$) than when this information was withheld ($M = 34.85$, $SD = 9.81$; $p = .70$) (hypothesis four). No effect of intoxication ($F(2, 228) = 2.25$, $p = .11$, $\eta p^2 = .02$) (hypothesis one), or significant two- or three-way interactions were revealed (all $p's = .11$-$.56$). This thereby suggests that in this study knowledge of the witness's intoxication and the completeness of the account play a fundamental part in a juror determining the credibility of an intoxicated witness.

(Please insert Table 1 here)

How good was the witness overall?

With four further analyses being conducted, the alpha level of significance was adjusted to .0125 to minimize the chance of type 1 error. A 3 x 2 x 2 between participants ANOVA on mock jurors' ratings of 'how good this witness was overall' (1 = *Not at all credible* to 7 = *Very*

credible) indicated witnesses with more complete testimonies ($M = 3.95$, $SD = 1.43$) were rated as significantly more credible than those with short testimonies ($M = 3.34$, $SD = 1.36$) ($F(1, 228) = 11.79$, $p = .001$, $\eta p^2 = .05$). When jurors were aware of the witness's degree of intoxication, these testimonies ($M = 3.42$, $SD = 1.38$) were viewed as significantly poorer than when this information was withheld ($M = 3.87$, $SD = 1.44$) ($F(1, 228) = 6.69$, $p = .01$, $\eta p^2 = .03$). However, no main effect of intoxication level ($F(2, 228) = 2.50$, $p = .08$, $\eta p^2 = .02$), or two- and three-way interactions were revealed (all *p's* = .27-.76). This pattern is the same as that found from the PCA.

Improving eyewitness credibility

Only 66 of the 240 respondents (27.5%) answered the free recall question of how they thought witness credibility might be improved, with an approximately equal number of respondents from each intoxication (sober: 19, moderate: 24, severe: 23) and knowledge condition (34; 32). Overall, the most common suggestions were for the witness to stop saying "I think" as often (22.08% as it indicated uncertainty and a lack of confidence), provide more details of the crime (14.29%), provide context of how the crime was witnessed (14.29%) and ensure a consistent testimony (11.69%).

When mock jurors were unaware of the witness's intoxication level, eliminating "I think" from the testimony remained the most common suggestion to improve credibility for both sober (28.57%) and moderately intoxicated (45.45%) witnesses. However, for severe intoxication, a consistent statement (25%) was most commonly recommended. When mock jurors were aware of the witness's intoxication level, the removal of "I think" was only the primary suggestion for improving moderately intoxicated witness credibility. For sober witnesses, including more crime

details was thought to improve credibility (53.85%). In terms of severely intoxicated witnesses, 30.77% of mock jurors stated "not being drunk" would improve credibility, compared to 11.76% providing this suggestion for moderately intoxicated witnesses.

Ability to remember details of the crime

On a scale of 1 (*extremely poor*) to 7 (*excellent*) mock jurors rated 'the witness' ability to remember details of the crime'. A 3 x 2 x 2 between participants ANOVA indicated a main effect of testimony length with longer (more complete) testimonies ($M = 3.87$, $SD = 1.55$) being associated with better recall of crime details than short testimonies ($M = 2.99$, $SD = 1.27$) ($F(1, 228) = 23.59$, $p < .001$, $\eta p^2 = .09$). Although mock jurors with no knowledge of the witness's intoxication level gave higher ratings ($M = 3.62$, $SD = 1.47$) of the witnesses' ability to recall crime details, than those who were aware of their intoxication level ($M = 3.25$, $SD = 1.49$) this difference was not significant ($F(1, 228) = 4.07$, $p = .045$, $\eta p^2 = .02$). No main effect of intoxication level ($F(2, 228) = 1.63$, $p = .20$, $\eta p^2 = .01$), or two- and three-way interactions were indicated (all $p's = .19-.83$).

Sober, moderately intoxicated, and severely intoxicated recall

Mock jurors rated on a scale of 1 (*not at all likely*) to 7 (*extremely likely*) how likely it was that the witness would correctly recall the crime if they were sober, moderately, or severely intoxicated at the time of the event. A one-way within participants ANOVA indicated a significant difference between the mock juror ratings for sober ($M = 4.98$, $SD = 1.35$), moderate

(M = 3.51, SD = 1.21) and severely intoxicated witnesses (M = 1.76, SD = 1.17) (F(1.47, 350.80) = 686.49, p < .001, ηp^2 = .74) with all Bonferroni post-hoc analyses being significant (p < .001).

Beliefs about drinking

To understand mock juror's beliefs about drinking and how this may influence their ratings of witness credibility, they were asked to rate their agreement with statements about drinking beliefs and behaviours, on a scale of 1 (*completely disagree*) to 7 (*completely agree*).

(Please insert table 2 here)

As seen in table 2, a negative correlation was indicated between 'drinking more than one or two drinks in one evening is irresponsible', and ratings of how likely it was that the witness would correctly recall the event if they were sober (r = -.17, p =.008) or moderately intoxicated (r = -.19, p = .004), but not severely intoxicated (r = -.12, p = .07). Additional analyses indicated a significant negative relationship between ratings of how likely a moderately intoxicated witness is to correctly recall the crime and agreement with the statement 'I make bad decisions when I drink' (r = -.17, p = .01). Whilst these correlations are significant, it should be noted that they are quite small in size. Further to this, mock juror agreement ratings for the three drinking belief statements were not found to correlate with the measure of overall credibility established in the PCA (p's = .13 - .59).

Summary of results

Using an overall measure of credibility, as established from the PCA, longer (more complete) testimonies and withholding details of a witness's intoxication level led to witness's being considered more credible by mock jurors. No effect of intoxication was apparent. This same pattern of effects was found in relation to how good the witness was overall. Mock jurors also indicated that they believed a moderately or severely intoxicated witness would be significantly less likely to correctly recall the event than a sober witness. Finally, mock juror's beliefs about responsible drinking and the effects of alcohol on their decision making were negatively related to how likely they thought the witness was to correctly recall the crime if they were moderately but not severely intoxicated.

Discussion

The present study examined mock jurors' perceptions of the credibility of an intoxicated witness's testimony when that individual was a bystander and not the victim of a crime. As hypothesised and in accordance with perceptions of sober witnesses, mock jurors rated longer more complete witness testimonies, as more credible than shorter less complete accounts (Bell & Loftus, 1988, 1989). Further to this, mock jurors also associated a more complete testimony with an individual who was better able to remember details of the crime. This suggests that if, as indicated by previous research, the testimony of a severely intoxicated witness is less complete (although no less accurate) than one provided by a sober witness, then a juror is likely to consider that witness as less credible although their recall is not less reliable. Although the effect of testimony length and completeness are in accordance Bell and Loftus (1988), they conflict with Fisher, Mello, and McCauley (1999), where longer testimonies and extra details from the

Cognitive Interview did not increase witness credibility. Further to this Westera, McKimmie, Kebbell, Milne, and Masser (2015) found that with sober witnesses, the number of questions asked was a significant predictor of complainant credibility, yet response length and overall testimony length were not. As indicated by Westera et al., a juror's heightened sensitivity to details in Bell and Loftus's (1988) sober shorter testimonies (700-800 words) may account for these discrepancies. This would also explain the discrepancy between the present study (497 – 835 words) and Westera et al., (2015) (1009-2018 words).

Contrary to the initial hypothesis, there was no main effect of intoxication for overall witness credibility from the PCA, or when mock jurors rated how good the witness was overall, thereby indicating that an intoxicated witness's testimony was not rated as less credible than that of a sober witness. This lack of effect supports the conclusions of Wenger and Bornstein (2006), where only illegal intoxication (under-age drinking) was seen to reduce victim credibility. However, our findings conflict with the work of Schuller and Wall (1998), and Wall and Schuller (2000) where intoxicated victims were considered less credible as their intoxication level increased. The different roles of the witness (bystander and victim), as previously considered in relation to estimator variables such as stress (Deffenbacher et al. 2004), as well as the type of information recalled (Yuille et al. 1994; Manzanero et al. 2009) and general perceptions of victims (e.g., Aramburu & Leigh, 1991; Leigh & Aramburu, 1994; Carli, 1999; Salminen, 1992) may account for the discrepancy between these studies. Furthermore, the crime type may be a factor, given that Evans and Schreiber Compo (2010) suggested that individuals may have different intoxication 'schemata' for different crimes. Yet there is another possibility for the inconsistent findings.

In each of the previous studies (Evans & Schreiber Compo, 2010; Schuller & Wall, 1998; Wall & Schuller, 2000; Wenger & Bornstein, 2006) all mock jurors were given the same testimony, with only the independent variables (i.e., intoxication level) being manipulated. Additionally, in each of these studies there was no 'without knowledge' condition, so mock jurors were assessing the credibility of the witness based solely upon the knowledge that they were sober or intoxicated. Consistent with this effect of knowledge, a main effect of 'knowledge condition' was found in the present study suggesting that the knowledge that the witness is intoxicated negatively affects mock jurors rating of witness credibility. However, at each intoxication level within the present research, different testimonies were also employed, but no effect of intoxication was apparent. So, whilst previous research suggests that the mere knowledge that a witness is intoxicated can negatively affect witness credibility, the current study also suggests that without this knowledge the testimony is not seen as any less credible beyond the completeness of recall. Consequently, it appears that when considering the witness credibility, jurors take into account the expectation that intoxication will impair an individual's cognitive capabilities (Adams & McNeil, 1991), and view the witness more negatively.

This explanation clearly has implications for court cases where an intoxicated witness's credibility is important. It suggests that recall completeness and knowing a witness has consumed alcohol, rather than recall accuracy, reduces their credibility. This is further supported by the fact that when mock jurors were asked directly how likely it was that a witness would correctly recall the event (if they were sober, moderately, or severely intoxicated), they indicated that higher intoxication levels would leave an individual less likely to correctly remember crime details. This also supports Evans and Schreiber Compo's (2010) findings where jurors rated intoxicated witnesses as more cognitively impaired than sober witnesses. Unlike the present

study though, Evans and Schreiber Compo found no such difference between moderately and extremely intoxicated witnesses. However, it should be noted that Evans and Schreiber Compo defined the two intoxication levels in terms of the number of drinks consumed within 4 hours, but each testimony in the present study varied in terms of actual BAC. Additionally, in the present study when asked about the witness's ability to remember crime details, there was no significant difference in mock jurors' ratings across the three intoxication conditions, suggesting that it was not the actual testimony of intoxicated witnesses that led them to be seen as poorer than a sober witness.

In light of these findings, the present study indicates that if a mock juror knows a witness was intoxicated at the time of the crime, then the juror will view the witness's testimony as significantly less credible. Aside from the witness's recall completeness, however, the testimony itself is not considered any less credible than that of a sober witness. In terms of improving intoxicated witness credibility, mock jurors indicated that eliminating 'I think' and providing a more consistent testimony (for severely intoxicated witnesses) would be beneficial. Until further research is conducted though, the effect of these 'improvements' remains unknown.

Limitations and Future Research

This research may provide a valuable first step in understanding how jurors perceive the testimony of witnesses at varying levels of intoxication, but several limitations are acknowledged. Although studies looking at mock juror perceptions of eyewitness credibility have typically employed a paradigm with non-deliberating jurors (Bornstein, 1999), the ecological validity of the current study could have been improved by reconstructing key aspects

of a court case or by using videoed rather than written testimonies. This would allow mock jurors to observe the witnesses' behaviours, mannerisms and demeanour which research indicates may affect a witness's credibility, at least when sober (Burnett & Badzinski, 2005; McKimmie, Masser, & Bongiorno, 2014). With the present research suggesting mock juror's personal drinking beliefs can affect how likely they think a moderately intoxicated witness is able to correctly recall the crime, then an in-depth exploration of juror decision making processes should also be considered. Previous research, though, does indicate that a jurors' pre-deliberation and post-deliberation verdicts often match, suggesting that juror discussions may have little influence over their verdict (Devine, Clayton, Dunford, Seying, & Pryce, 2001; Kalven & Zeisel, 1966; Stasser, Kerr, & Bray, 1982; Zeisel & Diamond, 1978).

Second, although the participant demographics in the present study reflect greater external validity than previous research with undergraduates, a large proportion of participants were white, employed and female. Consequently, a higher percentage of male participants and a wider range of ethnicities would help ensure a more representative sample, especially as previous research indicates that males and females may differ in their expectations as to how alcohol will affect the opposite sex (Borjesson & Dunn, 2001). Third, in the current study to help ensure participant retention, each mock juror only read the testimony of one witness. As such, within-participant variations in the ratings of witness credibility could not be explored. Further to this, it is also important to replicate the present study with different testimonies, as arguably the stimuli within each condition may not be fully representative of intoxicated recall more generally (see Wells & Windschitl, 1999). Lastly, although consistent with previous research (Schuller & Wall, 1998; Wall & Schuller, 2000), the witness testimonies were provided in written rather than audio or video format. This was to enable the use of the recall of witnesses who were intoxicated at the

time of the theft, rather than constructing a testimony. However, this choice of medium differs from a genuine court case and should be considered when conducting further research to enhance validity.

As this is the first study to look at mock juror's perceptions of the overall credibility of an intoxicated witness, future research should initially seek to replicate the study to confirm the conclusions drawn here, whilst considering the limitations that have been identified. If further research indicates that aside from recall completeness and knowledge of the witness's intoxication, there are not fundamental differences in the testimonies of intoxicated witnesses (such as hesitations), which cause the poorer credibility ratings for intoxicated witnesses, then including a measure of a juror's own pre-existing stereotypes would be advantageous. With the inclusion of such a measure, it may be possible to further understand the extent to which a person's beliefs affect their perceptions of an intoxicated witness. Additionally, a means of improving a juror's perception of intoxicated witness credibility would be beneficial and may also alleviate some of the intoxicated witness concerns that they will not be believed (Crossland et al., 2018). The present study suggests that reducing how often an intoxicated individual says 'I think' may help achieve this aim and for severely intoxicated individuals improving the consistency of their testimony could be helpful. These improvements are especially important if the findings of the majority of alcohol and eyewitness literature are supported, in that, although their testimony may be less complete, the recall accuracy of intoxicated witnesses is no poorer than that of a sober witness (Crossland et al., 2016; Flowe et al., 2016; Hagsand et al., 2013; Hildebrand Karlén et al., 2015; Van Oorsouw & Merckelbach, 2012; Yuille & Tollestrup, 1990). Future research should also seek to consider the potential implications of the juror's knowledge of the witness' intoxication. For if a juror thinks a witness is not credible because they were

intoxicated at the time of the crime, but in fact their testimony is reliable, how might this impact the guilty or not guilty verdict rendered by the juror? Does the juror give more weight to the person or their testimony?

From a criminal justice perspective, previous research suggests that the testimony of a severely intoxicated witness is likely to be less complete, although no less accurate than that of a sober witness, whilst moderate intoxication appears to have little effect. This study suggests that such a testimony from a severely intoxicated witness (less complete, although no less accurate) would be rated as less credible by a juror. Additionally, when jurors are aware that a witness has consumed alcohol, then they also perceive that individual to be less credible. Therefore, the negative effect of intoxication on witness credibility appears to be as a result of the completeness of their recall and the juror's knowledge that they were intoxicated rather than the testimony itself. Further to this, jurors indicated that if an individual was moderately intoxicated then they were less likely to remember details of the crime. This indicates that although mock jurors are perceptive of the negative impact intoxication may have on an individual; they are not as sensitive to the effects of different levels of intoxication.

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