Would you let this guy into a bar? Identifying cues that signal a perceived increase in the propensity for violence of potential bar patrons

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Abstract

Objectives Bars, pubs, and clubs are hotspots for alcohol-related aggression. Consequently, admittance decisions made by security personnel have important implications for the safety inside these venues. However, the cues used by security personnel to determine the potential for intoxicated violence and inform admittance decisions vary substantially.

Methods Here, we manipulate theoretically and practically relevant cues to determine the effects of their utilization on perceptions of violence and admittance decisions. Participants viewed images of real inmates convicted of violent or non-violent crimes, accompanied by cues derived from interviews with security staff.

Results We found that body tenseness, drug and alcohol intoxication, searching behavior, avoidant behavior, and neck and face tattoos were positively associated with a greater perceived likelihood of violence. Admittance decisions mirrored these findings. Students and security personnel differed in their utilization of some of the cues.

Conclusions To our knowledge, the current research was the first to take a quantitative approach to understanding the cues that security personnel and young adults might use to identify potentially violent patrons. These finding may help inform training for security personnel.

Keywords Alcohol · Violence · Bars · Security personnel · Bouncers · Aggressive cues

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It is widely recognized that the licensed venue is a location of considerable aggression and violence (Coomber et al., 2016; Graham & Wells, 2001, 2003; Graham et al., 2004, 2006; Homel & Clark, 1994; Miller et al., 2013, 2014; Parks et al., 2021; Quigg et al., 2020; Wadds, 2015, 2019, 2020). There is longstanding evidence that serious, non-domestic assaults coincide closely to pub and club closing times (Kypri & Livingston, 2020; Mäkelä & Warpenius, 2020; Schofield & Denson, 2013). In the USA, violent crimes such as murder, assault, and aggravated assault are more likely to occur in bars than in other locations (Savard et al., 2019).

Studies of venues that sell alcohol described several situational factors that can play a role in promoting aggressive and violent behavior. Foremost among these factors are excessive drinking and the irresponsible service of alcohol, such as continuing to serve intoxicated patrons (Donnelly & Briscoe, 2002; Graham & Homel, 2008; Jones et al., 2011; Stockwell et al., 1993). Alongside intoxication, overcrowding, and a greater proportion of patrons aged under 25, as well as "poor ventilation, lighting, seating arrangements, venue design, patron comfort, bar access, the prominence of alcohol beverage promotion, inadequate staff training, and overall venue management are all 'risk factors' for violence in licensed venues" (Wadds, 2020, p. 75; see also Homel & Tomsen, 1993; Graham et al., 2006; Graham & Homel, 2008; Green & Plant, 2007; Jones et al., 2011; McFadden et al., 2015).

The physical management of licensed venues is largely undertaken by private security staff engaged in venue control and door work. Decisions made by security staff at the entrances of licensed premises are frequently intended to limit violence within the venue (Monaghan, 2002). These decisions are important to the safety and commercial success of the venues (see Hobbs et al., 2002, 2003; Wadds, 2020; Winlow, 2001). A wrong admittance decision by security personnel at the door can result in significant violence, as is evident from numerous studies (Hobbs et al., 2003; Monaghan, 2002; Tomsen, 2005; Tomsen et al., 1991; Wadds, 2020; Winlow, 2001).

Although research has examined perceptions of bouncers' professionalism and role in causing violence (e.g., Fielder & Murphy, 2022; Silva et al., 2022), much less research has investigated bouncers' perceptions of patrons. Security guards claim they are able to intuitively recognize relevant cues through years of experience, training, and exposure to personal and witnessed violence (Hobbs et al., 2002; Monaghan, 2002; Wadds, 2020; Winlow, 2001). In some qualitative studies, security staff working in licensed environments claimed that they identified characteristics that were likely to signal the likelihood that a patron may become violent (Hobbs et al., 2003). For instance, one participant in Hobbs et al.'s ethnographic work with bouncers in England stated, "…you have to know how to read people, body language, facial expressions. You learn so much just by looking at people" (p. 120). Thus, bouncers develop a "mental checklist," which is used for rapid threat assessments of presenting patrons and is developed through experience doing bouncer work (Hobbs et al., 2003; Wadds, 2020).

These assessments may be based on demographic categories such as age, gender, class, ethnicity, or physical appearance, or more subjective judgements such as perceived level of intoxication, physical presentation, unpleasant demeanor, or bodily gestures (Hobbs et al., 2003; Søgaard, 2017; Wadds, 2020; Wicks, 2022). Minority ethnicity is a cue that is frequently utilized by bouncers to deny admission (May, 2018; Søgaard, 2017). In the present study, we examined Middle Eastern

appearances. Stereotypical media narratives often depict Middle Eastern men as dangerous. This notion of Middle Eastern facial images eliciting a threat response has been documented in past research (e.g., Fischer et al., 2007; Mange et al., 2012; Unkelbach et al., 2008). Indeed, Middle Eastern people are among the most discriminated outgroups in Australia (Awad, 2010; Dunn et al., 2021).

McLennan-Dillabough's (2013) interviews with bouncers showed that they rely on appearance and an aggressive demeanor to inform admittance decisions. Furthermore, people with tattoos are evaluated as having more negative personality traits than people without tattoos, even by young people and despite the relatively high prevalence of tattooed people in Western populations (Broussard & Harton, 2018). Relative to non-tattooed people, those with tattoos are perceived as being uninhibited, having poor character, being less sociable, and being untrustworthy. People with tattoos report drinking more alcohol and describe themselves as being less submissive and more dominant (Broussard & Harton, 2018). People with facial tattoos are more likely to have been incarcerated (Birmingham et al., 1999; Laumann & Derick, 2006). Defendants with facial tattoos are more likely to be found guilty and receive prison sentences twice as long as defendants without facial tattoos (Funk & Todorov, 2013; Johnson & King, 2017).

In addition to ethnicity and tattoos, we also investigated the effects of three behavioral cues on the likelihood of violence and admittance decisions. These were visually searching for security cameras, avoidant behavior, and body tenseness. Although no study has investigated the perceptions of potential patrons searching for security cameras, research on avoidant behavior such as averting eye gaze shows that people with averted eye gaze are viewed as less trustworthy than people with direct eye gaze (Abbott et al., 2018). Thus, although avoiding eye contact was rated by police officers as one of the cues least likely to be positively associated with violence (Johnson, 2015), this type of avoidant behavior may elicit suspicion in bouncers.

There is some evidence to suggest that body tenseness is a valid predictor of physical aggression, although there is little empirical evidence to examine its validity as a predictor of intoxicated aggression. Research shows that body tenseness cues (e.g., clenched fists) are positively associated with perceptions of physical preparedness to aggress. Behaviors such as taking a boxer's stance, clenching hands, tensing jaw, and tensing body are positively associated with concerns about violence (Johnson & Aaron, 2013). Qualitative evidence from medical settings shows increased body tenseness and other behavioral cues such as agitation and increased motor activity as antecedents to aggressive outbursts (Papadopoulos et al., 2012; Pryor, 2005).

We also investigated the effects of visible drug and alcohol intoxication on the perceived likelihood of violence and admittance decisions. Although most of this prior work was conducted within a legal decision-making framework, studies typically show that people intoxicated on drugs and alcohol are viewed as less credible and more untrustworthy than non-intoxicated people (Crossland et al., 2021; Monds et al., 2022).

Admittance decisions based on these cues can result in tense interactions involving conflict and dominance challenges between potential patrons and security staff (Taylor et al., 2020; Tomsen, 2005; Wadds, 2020; Winlow, 2001). Denying entry to a patron based on perceptions of the potential for violence can be discriminatory and may promote rather than prevent violence. A lack of formal training to determine eligibility for admittance may mean security personnel are more likely to fall back

on socially constructed stereotypes to make quick decisions when mediating access to venues (McLennan-Dillabough, 2013). Reliance on stereotypes is problematic as it may lead to the systematic exclusion of certain groups of potential patrons.

Research assessing how well security staff performs in regulating the licensed environment provides mixed findings (Hayes-Jonkers et al., 2012; Prenzler et al., 2009). Some research finds that the absence of bouncers or door staff is the strongest predictor of barroom violence and is more problematic than the presence of poorly trained or "problem" security personnel (Roberts, 2007). Other research finds that security interventions were routinely the cause of violence inside venues (Forsyth et al., 2005; Homel et. al., 1992; Tomsen, 1997; Wadds, 2020). For example, violence in and around bars may stem from the unfair practices and hypermasculine displays of security staff (e.g., Graham et al., 2004; Suonperä Liebst et al., 2020). Therefore, the effectiveness of security staff in regulating licensed environments to reduce violence can be understood as unclear and complex.

To better evaluate the effectiveness of decisions made by security staff, it is important to first understand the perceptions that may underlie their judgements of potential patrons. We sought to extend the limited knowledge of static and malleable physical cues used to make judgements about men's potential for alcohol-related aggression. Brunswik's (1956) lens model provides a useful framework for understanding how people come to perceive latent psychological constructs, such as the potential for violence. The model assumes that people select from the available cues in the environment and rely on those cues to infer the focal psychological construct, which is known as cue utilization. In our study, we provided participants with several cues that purportedly predict violent behavior in bar patrons and inform admittance decisions to the venue. The specific aims were to (1) determine the extent to which people use the cues identified in our interviews with security personnel (see Supplementary Materials) to infer which potential bar patrons may become violent and should be denied entry; (2) determine whether students and security personnel differ in the cues they use to determine thelikelihood of violence and denial of entry; and (3) determine which cues people use to make violence likelihood and admittance judgements for violent and non-violent offenders. Thus, participants viewed photographs of actual violent and non-violent offenders paired with the cues and were asked to judge their potential for violence in the bar and whether they would admit the person into a bar or not. Furthermore, Hobbs et al.'s (2003) qualitative study found that the most likely reason for being excluded from the venue was violence or the perceived likelihood of violence. Thus, we examined whether violence likelihood would statistically mediate the effect of the cues on admittance decisions.

Method

The University of New South Wales Human Research Ethics Committee approved this research. All participants provided informed consent prior to commencing the study. We conducted exploratory pilot interviews with five security personnel to identify the cues that they use to assess the propensity for violence in would-be patrons prior to entering a bar or pub. Based on the information gathered from the pilot interviews,

several cues were formed into descriptions for use in the primary study. The cues selected were staggering, slurred words, and smelling of alcohol (grouped together to form the cue condition alcohol intoxication); glassy eyes and a decreased need to blink (grouped together to form the cue condition drug intoxication); poor or avoidant eye contact with the security guard or avoiding pleasantries with the security guard (grouped together to form the cue condition avoidant behavior); actively searching for the guard and security cameras (searching); clenched fist, puffed-up chest, and tense shoulders (grouped together to form the cue condition body tension); hand and neck tattoos (tattoos); and being of Middle Eastern ethnicity (Middle Eastern).

Participants

The participants were 231 volunteers (179 undergraduate students and 52 security personnel). We recruited security personnel through advertisement through the Australian Security Industry Association Limited (https://www.asial.com.au/). Students received partial course credit for their participation, and security personnel were compensated AUD $15. Thirty-four participants were excluded: 33 for failing attention checks and one for showing no response variability. The final sample comprised 197 volunteers (146 undergraduate students and 51 security personnel). Participants were aged on average 27 years (SD = 11.18) and reported the following ethnicities: Caucasian (48.15%), Asian (20.37%), Indian/Pakistani/Sri Lankan (9.26%), Pacific Islander/Polynesian/Māori (8.33%), Middle Eastern (6.48%), Mixed race (4.63%), and African/South African (2.78%). Security personnel reported working in the security industry for an average of 8.93 years (Mdn = 5 years, SD = 8.87).

Materials

Stimuli

Sixteen violent and sixteen non-violent male offenders were selected from the publicly available Florida offender database (http://www.dc.state.fl.us/AppCommon/). All offenders selected had been convicted and were incarcerated for either clearly violent (e.g., murder and assault) or non-violent crimes (e.g., fraud and counterfeiting). The target stimuli were limited to men aged 25 to 35 years old showing neutral facial expressions. These 32 offenders' images were randomly allocated to the cue conditions, such that each cue condition consisted of two violent and two non-violent offenders' images. That is, each participant viewed and rated 32 images in total, 4 images for each of the 8 cue conditions. Because tattoos were clearly visible, for the tattoo condition, inmates with visible neck tattoos were shown to all participants. All images were cropped to display only the inmate's neck and face (see Fig. 1).

Cues

Each photograph was accompanied by brief written descriptions displayed below the images (see Table 1). All descriptions began with "Imagine that you are

Fig. 1 Sample stimuli showing images of non-violent (left) and violent offenders (right) from the tattoo condition. Black bars were not present in the experiment. The non-violent offender was sentenced to over 75 years in prison for numerous counts including grand theft, fraud, trafficking in stolen goods, burglary, and forgery. The violent offender was sentenced to life in prison for 1st-degree murder

Table 1 Written descriptions displaying cue information

Condition	Cue information
Control	[Name] is a 28-year-old male who would like to gain entry to your venue
Middle Eastern	[Name] is a 28-year-old male of a Middle Eastern background who would like to gain entry into your venue
Tattoo	He has multiple tattoos, including on his neck and hands
Searching	As he approaches the door, you notice that he is looking around and appears to fixate on two security cameras above you
Avoidant behavior	As he approaches you, you notice that he is trying to avoid eye contact with you. When you speak to him, he provides short answers that sufficiently answer your questions
Body tenseness	On approach, you notice that his shoulders and chest appear to be tense, and he looks like he is clenching his fists
Drug intoxication	Upon closer inspection, you notice that his eyes look glassy, and he does not seem to be blinking as regularly as other people
Alcohol intoxication	On approach, he appears to be unsteady on his feet, and when he speaks to you, you notice that he seems to be slurring his words

working on the door of a licensed venue that serves alcohol, and are responsible for determining who should be allowed entry." With the exception of the Middle Eastern condition, all descriptions included common names among White Australians (i.e., Lee, Jimmy, Graeme, Michael, Elliot, Nick, Daniel, Ryan, Adam, Oliver, Kane, Patrick, Ian, Nathan, Sam, Brian, Henry, Billy, Phillip, Peter, Declan, Shane, Billy, Andre, Harry, Dane, and Terry). For the Middle Eastern condition, names common in the Middle East were used (Youssef, Akhbar, Waleed, and Rabi). In the control condition, just the photograph and description of being a 28-year-old man were presented (i.e., no cues). The presentation of the photographs and cue conditions was randomized across participants. Each cue condition was presented twice for violent and non-violent offenders, which resulted in a total of 32 trials.

Procedure

The study was administered online. Participants were initially asked to provide demographic details before being simultaneously presented with a target photograph and description. After viewing each image and description, participants were asked to respond to the question, "How likely do you think this man is to engage in violence in this bar or club setting?" using a 7-point scale from 1 (extremely unlikely) to 7 (extremely likely). Participants then indicated whether they would allow this person into a bar or pub (Yes or No). To help ensure that participants would attend to the face and description appropriately, participants were required to stay on each page for a minimum of 8 s before proceeding to the next question.

Statistical analyses

The data were originally collected in two separate experiments. We combined the data to increase power and precision. The only differences between the two studies is that the second study included two additional questions to check attention and a student-only sample. We controlled for the study in all of the analyses and examined differences between students and security personnel. Data, R code, and materials for both studies are available here: https://osf.io/2exwp/.

All analyses were conducted in R version 3.6.1 (R Core Team, 2023). For the ratings of violence likelihood, we used linear mixed effects modelling with the *lmer* function in the *lme4* package (Bates et al., 2015). Our fixed effects included offender type (violent vs non-violent offender), sample type (student vs security), seven dummy-coded cues (avoidant behavior, body tenseness, drug intoxication, alcohol intoxication, Middle Eastern, searching, and tattoos), and the interactions with offender and sample types. The control condition served as the reference group such that all condition effects were interpreted relative to the ratings of the control condition. Covariates were study and gender. We specified the participant as a random factor with a random intercept. We included random slopes for each of the cues: study, student versus security status, and gender. We simultaneously modelled all main effects, two-way interactions, and three-way interactions. Predictors were mean-centered prior to analyses. No three-way interactions were significant.

Because the ratings of whether a patron should be allowed or denied entry into the bar were dichotomous, we used logistic linear mixed effects modelling. Specifically, we used the *glmer* function in package *lme4*. The outcome variable was coded: 0=no, not admitted; 1=yes, admitted; otherwise, the analysis was the same as for violence likelihood.

To test the possibility that the violence likelihood ratings would mediate the effect of the cues on admittance decisions, we used the *lavaan* package in R (Rosseel, 2012). We specified the participant as a random factor with a random slope and intercept and controlled for study and gender. To assess model fit, we relied on the Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). Values of TLI > . 95, RMSEA < 0.06, and SRMR < 0.08 indicate good fit (Hu & Bentler, 1999). Output was standardized.

Results

Violence likelihood

Cue use

The full model showed that images accompanied by all of the cues, except being of Middle Eastern appearance, were rated as more likely to engage in violence relative to the control condition (Table 2, Fig. 2).

Offender type

Images of violent offenders ($M=4.68$, SD$=1.38$) were rated as significantly less likely to engage in violence than images of non-violent offenders ($M=4.57$, SD$=1.40$) (Table 2). We observed interactions between offender type and four of the cues (Table 2, Fig. 2). We conducted follow-up tests to determine the nature of these interactions. Participants considered the non-violent offender to be less likely to engage in violence when paired with avoidance cues relative to control images, $b=-0.20$, SE$=0.07$, $t(2909.33)=-2.95$, $p=0.003$, but this effect of avoidance cues did not extend to the violent offender, $b=-0.05$, SE$=0.07$, $t(2901.64)=-0.78$, $p=0.437$. Violent offenders were viewed as more likely to commit violence when intoxicated on alcohol than not, $b=0.23$, SE$=0.07$, $t(201.78)=3.27$, $p=0.001$, but there was no effect of the alcohol intoxication cue for non-violent offenders, $b=0.12$, SE$=0.07$, $t(2908.29)=1.72$, $p=0.085$. Violent offenders who appeared Middle Eastern were rated lower in the propensity for violence than the control images, $b=-0.72$, SE$=0.07$, $t(2901.55)=-10.47$, $p<0.0001$, but this effect was stronger for non-violent offenders, $b=-1.32$, SE$=0.06$, $t(2908.06)=-20.45$, $p<0.0001$. Relative to control images, violent offenders were rated as more likely to commit violence when presented with tattoos, $b=0.20$, SE$=0.07$, $t(2901.78)=2.93$, $p=0.003$. Tattoos did not influence judgements for non-violent offenders, $b=0.07$, SE$=0.07$, $t(2907.99)=1.09$, $p=0.276$.

Students versus security personnel

Student versus security personnel status interacted with four of the cues: avoidant behavior, drug intoxication, alcohol intoxication, and searching (Table 2). Students' ratings of likelihood of violence were unaffected by avoidance, $b=-0.11$, SE$=0.06$, $t(4525.00)=-1.90$, $p=0.058$, but security personnel showed lower ratings of violence likelihood for people described as avoidant, $b=-0.20$, $SE=0.09$, $t(1480.28)=-2.21$, $p=0.027$. Relative to the control condition, both students and security personnel rated people who were high on drugs as more likely to become violent. However, the effect of drug intoxication was larger for the students, $b=0.45$, SE$=0.06$, $t(4525.00)=7.91$, $p<0.0001$, than the security personnel, $b=0.25$, SE$=0.09$, $t(1480.18)=2.75$, $p=0.006$. For students,

Table 2 Linear mixed effects model showing effects of cue types (relative to the no-information control), offender type, student versus security roles, and their interactions on the perceived likelihood of aggression in the venue

	b	SE	df	t	p
Main effects					
Offender type	-0.13	0.03	193.14	-4.49	<.0001*
Student versus security	22.38	0.22	193.57	100.61	<.0001*
Avoidant behavior	0.67	0.08	263.88	8.88	<.0001*
Body tenseness	1.48	0.09	243.97	17.34	<.0001*
Drug intoxication	1.12	0.72	297.74	15.33	<.0001*
Alcohol intoxication	0.93	0.09	244.71	10.33	<.0001*
Middle Eastern	-0.02	0.07	277.55	-0.37	.712
Searching	1.31	0.08	263.63	16.99	<.0001*
Tattoos	0.98	0.08	259.96	12.22	<.0001*
Cues×offender type interactions					
Avoidant×offender type	0.35	0.11	4399.71	3.29	.001*
Body tenseness×offender type	-0.10	0.11	4390.70	-0.99	.321
Drug intoxication×offender type	0.03	0.11	4403.60	0.32	.749
Alcohol intoxication×offender type	0.29	0.11	4403.48	2.74	.006*
Middle Eastern×offender type	0.74	0.11	4381.56	6.97	<.0001*
Searching×offender type	0.15	0.11	4399.91	1.41	.159
Tattoo×offender type	0.32	0.11	4392.96	2.99	.003*
Student/security×offender type	-0.02	0.06	193.40	-0.30	.761
Cues×student/security interactions					
Avoidant×student/security	0.46	0.16	264.30	2.90	.004*
Body tenseness×student/security	0.34	0.18	244.31	1.93	.055
Drug intoxication×student/security	0.56	0.15	280.55	3.69	.0003*
Alcohol intoxication×student/security	0.53	0.19	245.25	2.82	.005*
Middle Eastern×student/security	0.09	0.14	277.68	0.69	.494
Searching×student/security	0.82	0.16	264.25	5.10	<.0001*
Tattoo×student/security	0.15	0.17	260.36	0.90	.367
Covariates					
Female sex	0.21	0.10	192.06	1.97	.050
Study	22.41	0.25	195.79	88.92	<.0001*

Offender type=violent vs non-violent. Statistics are unstandardized coefficients, standard errors (SE), t-statistics, degrees of freedom, and p-values

* Indicates significance at $p < .05$

alcohol intoxication increased ratings of violence likelihood, $b=0.22$, SE$=0.06$, $t(4525.00=3.89$, $p<0.0001$, but not for security personnel, $b=0.02$, SE$=0.09$, $t(1480.34)=0.25$, $p=0.80$. Both students and security personnel considered searching cues to be indicative of violence propensity, but the effect was larger for students, $b=0.81$, SE$=0.06$, $t(4525.00)=14.55$, $p<0.0001$, than security personnel, $b=0.31$, $SE=0.09$, $t(1480.48)=3.35$, $p=0.001$.
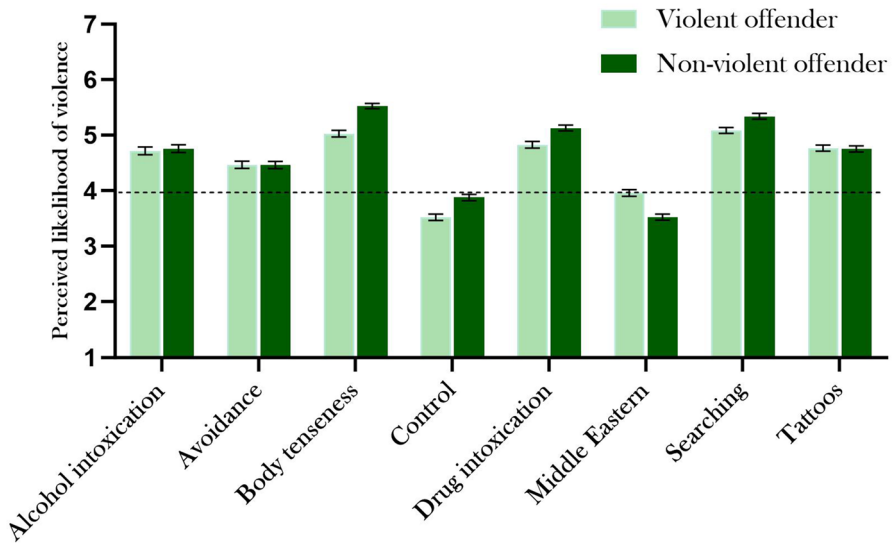
Fig. 2 Perceived likelihood of violence as a function of cue type and whether the target images were violent or non-violent offenders. Note: The line drawn at "4" indicates the point at which participants stated that the man in the image was "neither likely nor unlikely" to become violent in the bar

Admittance decisions

Cue use

All of the cues except Middle Eastern appearance and tattoos significantly decreased the likelihood of being admitted to the venue (Table 3). Specifically, relative to the control condition, the men in the avoidant behavior, body tenseness, drug intoxication, alcohol intoxication, and searching conditions were rated as less likely to be given entry than the men in the control images.

Offender type

The only cue × offender type interaction was with body tenseness. Non-violent offenders who were described as physically tense were less likely to be admitted than non-violent offenders who were not described as tense, $OR = 0.61$, $SE = 0.07$, $z = -4.31$, $p < 0.0001$. The body tenseness cue did not influence admittance decisions for violent offenders, $OR = 0.91$, $SE = 0.11$, $z = -0.77$, $p < 0.0001$.

Students versus security personnel

We observed interactions between students versus security personnel and the cues of alcohol and drug intoxication, body tenseness, and searching. Students used the body

Table 3 Multilevel logistic regression showing effects of cue types (relative to the no-information control), offender type, student versus security roles, and their interactions on admission into the venue

	OR	SE	z	p
Main effects				
Offender type	1.02	0.06	0.40	.688
Student versus security	2.29	0.43	4.45	<0001*
Avoidant behavior	0.73	0.10	−2.30	.021*
Body tenseness	0.57	0.08	−3.82	.0001*
Drug intoxication	0.56	0.08	−3.99	<.0001*
Alcohol intoxication	0.46	0.08	−4.74	<.0001*
Middle Eastern	0.98	0.14	−0.12	.908
Searching	0.59	0.07	−4.16	<.0001*
Tattoos	0.95	0.13	−0.39	.694
Cues×offender type interaction				
Avoidant×offender type	1.25	0.31	0.91	.362
Body tenseness×offender type	1.65	0.41	2.05	.041*
Drug intoxication×offender type	1.21	0.30	0.79	.431
Alcohol intoxication×offender type	1.22	0.30	0.79	.429
Middle Eastern×offender type	0.93	0.23	−0.31	.754
Searching×offender type	1.27	0.31	0.99	.319
Tattoo×offender type	0.67	0.17	−1.62	.105
Student/security×offender type	1.07	0.14	0.56	.575
Cues×student/security interactions				
Avoidant×student/security	0.67	0.19	−1.41	.160
Body tenseness×student/security	0.40	0.12	−3.06	.002*
Drug intoxication×student/security	0.45	013	−2.69	.007*
Alcohol intoxication×student/security	0.21	0.07	−4.71	<.0001*
Middle Eastern×student/security	1.23	0.35	0.73	.463
Searching×student/security	0.36	0.09	−3.92	<.0001*
Tattoo×student/security	0.70	0.21	−1.20	.229
Covariates				
Female sex	0.88	0.14	−0.78	.438
Study	2.13	0.39	4.18	<.0001*

Results from the logistic linear mixed model showing the effects of cue types (relative to the no-information control), offender type, and their interactions on the being admitted to the venue. Statistics are odds ratios (OR), standard errors (SE), z-statistics, and p-values. Significant odds ratios > 1.00 indicate a greater likelihood of being admitted; odds ratios < 1.00 indicate a greater likelihood of being denied admittance. None of the cue type×offender type×student/security interactions were significant

* Indicates significance at $p < .05$

tenseness cue to deny entry, OR=0.68, SE=0.06, $z=−4.07$, $p<0.0001$, but security personnel did not, OR=0.96, SE=0.15, $z=−0.24$, $p=0.81$. For the alcohol intoxication cue, both students, OR=0.20, SE=0.02, $z=−16.20$, $p<0.0001$, and security used this cue to deny entry, but the effect was stronger for security personnel, OR=0.04, SE=0.01, $z=−11.40$, $p<0.0001$. However, for drug intoxication, students, OR=0.71, SE=0.06, $z=−3.61$, $p=0.0003$, but not security personnel, OR=0.87, SE=0.14,

$z = -0.88$, $p = 0.378$, used this cue to deny admittance. For the searching cues, students used this cue to deny entry, OR$= 0.35$, SE$= 0.03$, $z = -11.20$, $p < 0.0001$, but the security personnel did not use this cue, OR$= 1.12$, SE$= 0.19$, $z = 0.71$, $p = 0.478$.

Mediation analysis

The mediation path model was a good fit, χ^2 (10, $N = 197$) $= 87.34$, $p < 0.001$, TLI$= 0.94$, RMSEA$= 0.036$, SRMR$= 0.01$ (Fig. 2). Violence likelihood mediated the effect of each cue on admittance except Middle Eastern appearance. Specifically, the indirect effects for avoidance, $b = -0.05$, SE$= 0.02$, $z = -8.75$, $p < 0.001$, body tenseness, $b = -0.09$, SE$= 0.03$, $z = -11.47$, $p < 0.001$, drug intoxication, $b = -0.08$, SE$= 0.02$, $z = -10.83$, $p < 0.001$, alcohol intoxication, $b = -0.07$, SE$= 0.02$, $z = -10.41$, $p < 0.001$, searching, $b = -0.09$, SE$= 0.02$, $z = -11.28$, $p < 0.001$, and tattoos, $b = -0.06$, SE$= 0.02$, $z = -9.78$, $p < 0.001$, showed significant mediation. None of the covariates predicted admittance (Fig. 3).

Discussion

We examined the extent to which specific cues and violent offender status would influence judgements of violence likelihood and admittance decisions to bars. We also examined whether students versus security personnel would differ in these judgements. Among the key findings were that all cues except Middle Eastern
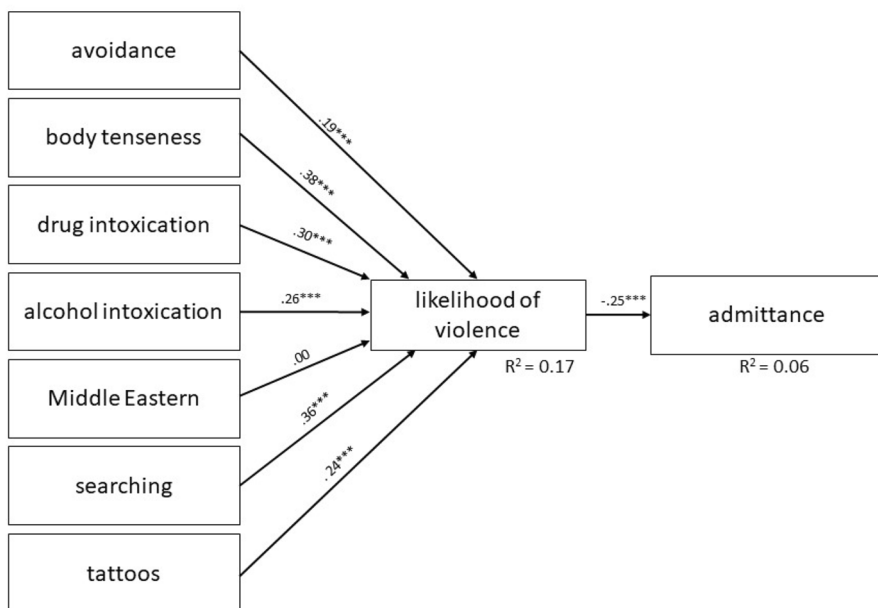

Fig. 3 Path model showing mediation of the effects of the cues on admittance decisions via likelihood of violence

appearance increased ratings of violence likelihood and reduced admission relative to the control condition. Violent offenders were rated lower in violence likelihood than non-violent offenders, but they were neither more nor less likely to be admitted to the venue. However, the effects of offender type were nuanced. Offender type interacted with avoidance, alcohol intoxication, Middle Eastern appearance, and tattoos on violence likelihood. Specifically, violent offenders were judged as higher in violence likelihood than non-violent offenders if they were described as intoxicated on alcohol or having tattoos. By contrast, non-violent offenders were rated as lower in violence likelihood if described as avoidant or Middle Eastern. Non-violent offenders who were described as physically tense were also less likely to be admitted to the venue.

Rather than the perception that violent offenders are less aggressive than non-violent offenders, our data likely indicate an inability to distinguish between types of offenders. In light of studies reporting that the likelihood of aggression or violence can be quickly and accurately detected based on facial cues (Geniole et al., 2015; Marcinkowska, 2023), the present results may cast doubt on this ability. Indeed, one study found that although participants could distinguish between criminals and non-criminals, they could not distinguish between violent and non-violent criminals (Valla et al., 2011).

Alternatively, the stimuli used in the current studies may not be suitable for inferring the accuracy of judgements about the likelihood of violence. All images in this study were of incarcerated men. Many offenders cycle in and out of incarceration for different types of offenses over time. Therefore, we cannot know with a high degree of certainty the nature of all the crimes committed by these men. We suspect that many of these men had likely been violent at some point in their past but were not sent to prison for these violent acts. Consequently, the ability to disambiguate violent from non-violent offenders may have been adversely impacted.

It may also be possible that the null finding for offender type is an artifact of the experimental design. The stimuli were likely oversaturated with potentially threatening faces and may not be an accurate representation of the likelihood of encountering a potentially violent individual. Future research may wish to address this issue by including additional control trials to improve ecological validity.

Alternatively, it is possible that judgements not assessed in this study (i.e., other than a propensity for violence) made it difficult for participants to distinguish between offender groups. The 2D model of face evaluation suggests that trustworthiness and dominance are fundamental dimensions along which faces are evaluated (Flowe, 2012; Oosterhof & Todorov, 2008). These evaluations form the basis of inferences about the persons' intentions and whether they should be approached or avoided. Research finds that faces high in "criminal appearance" are deemed to be less trustworthy and more dominant, which could have accounted for the inability to distinguish violent offenders from non-violent offenders (Flowe, 2012). Despite these mixed findings, there does appear to be support for the effect of offender status on violence likelihood as a function of alcohol intoxication and tattoos for violent offenders and Middle Eastern appearance and searching behavior for non-violent offenders. Thus, these cues when accompanied by violent or non-violent offenders may have shifted sensitivity to violence likelihood.

Although the results of the current study pertain to hypothetical judgements and decisions, research finds that perceptions and behavioral intentions are valid predictors of actual behavior (Ajzen, 2020). Many of the violence likelihood and admittance decisions may have been affected by perceptions of (un)trustworthiness. For instance, one study found that trustworthiness ratings derived from face perception predicted death sentences for both convicted murderers and exonerated individuals (Wilson & Rule, 2015). By contrast, trustworthy individuals elicit cooperation and prosocial behavior, which would be valued by security personnel. Similarly, drug and alcohol intoxication causes changes to the eyes (American Addiction Center, 2022), which influence trustworthiness judgements (Kret & De Dreu, 2019). Thus, the alcohol and drug intoxication cues may have facilitated the denial of entry due to untrustworthiness.

Security personnel and students differed in judgements of violence likelihood in response to avoidance, drug and alcohol intoxication, and searching behavior cues. Security personnel viewed potential patrons exhibiting avoidance as lower in violence likelihood, whereas students viewed people intoxicated on alcohol or drugs as being more likely to become violent. Similarly, searching behavior elicited stronger judgements of violence likelihood for students but not for security personnel. Admittance decisions showed a similar yet distinct pattern of results. Students were more cautious than security personnel in denying entry. Students but not security personnel used body tenseness, drug intoxication, and searching behavior to deny entry. By contrast, security personnel were unlikely to admit people described as intoxicated on alcohol, even though they were not rated as high in violence likelihood. This may be because security personnel are required to deny admittance for a range of reasons other than violence likelihood, including intoxication. In Australia, it is unlawful for licensees to permit intoxication on licensed premises (Liquor Act, 2007, s73). Responsible Service of Alcohol guidelines in NSW list "glassy or red eyes" as a marker of intoxication and outline that anyone displaying these signs on approach to a venue should not be admitted. Similarly, in the UK, employees of licensed premises should expel or prevent individuals from entering who are drunk or disorderly (Licensing Act, 2003, s143).

Limitations and future directions

Several limitations apply to the present research. The decisions made by participants in the current studies were hypothetical and did not involve actual social decision-making. Research suggests that individuals may be less likely to overestimate judgements in real vs hypothetical scenarios (Vlaev, 2012). The consequences of decision-making in the hypothetical context outlined may carry risks for personal safety in real-world contexts. Therefore, it is possible that these risks were not salient to participants in the current studies, leading them to overestimate admission rates and underestimate the likelihood of violence.

Another limitation is that the cues we used were all hypothesized to increase judgements of violence likelihood and reduce admission to the venue. This design feature makes it difficult to disentangle the effect of the cue information

from any information beyond the control cue. However, the null effect of Middle Eastern appearance and the interactions with offender type suggest that participants were sensitive to the potential of the cue information to lower judgements of violence likelihood. To better test our hypotheses, it might be worthwhile to create cue conditions that should intentionally lower judgements of violence likelihood. For instance, to counteract the avoidance condition, an approach condition could be created in which the target approaches the bouncer, makes eye contact, and gives long answers. To counteract the body tenseness cue, additional information might include that the target's shoulders, chest, and hands look relaxed.

We also acknowledge our inability to determine, based on the current data, the relative impact of individual cue descriptions on study outcomes. It remains unclear whether the results observed in this study are due to perceived cue importance or some other stimuli characteristic. For instance, people intoxicated on drugs may be perceived more negatively than Middle Eastern people. Future research could pretest stimuli to control for negativity. However, in real life, the cues may be difficult to disentangle. For instance, drug intoxication may be considered inherently more negative than searching behavior.

The present research is also limited in that it only investigates male targets. Men are more likely to be perpetrators of violence and comprise 80–97% of homicide perpetrators globally (UN Office on Drugs & Crime, 2019). Furthermore, being male and under the influence of alcohol are predictors of arrest for violent crime (Martin & Bryant, 2001). However, men are not the only perpetrators of violence, and further research is needed to understand predictors of aggression in a more diverse range of people. Furthermore, there are undoubtedly additional cues that may predict violent behavior in the licensed environment. Future research would benefit from identifying and investigating these cues.

One of the strengths of the current research is that we used experimental quantitative methods to build upon prior qualitative work. By examining participants' perceptions, we were able to address the first component of Brunswik's lens model by determining the cues that people use to make inferences about individuals' likelihood of engaging in violence in a bar. In this research, the cues people utilized to infer propensity for violence and venue admittance were body tenseness, drug intoxication, alcohol intoxication, searching, and tattoos. However, our research design limited our ability to address the second aspect of the lens model, cue validity. That is, we are unable to identify which of the cues utilized are valid indicators of the propensity for violence. The present research provides evidence of several cues that experts and non-experts use to make judgements about the potential for violence. These data provide a basis from which to test the efficacy of these cues in predicting actual violent behavior. With further investigation, this research could contribute to policies and practices employed by security personnel to reduce intoxicated violence.

Concluding remarks

In both the USA and Australia, the security industry has been described as under-regulated, with training and licensing requirements varying drastically from state to state (Nalla & Crichlow, 2017; Wadds, 2020). According to one Australian survey, the majority of security firm owners and managers believed training was inadequate for developing skills related to communication, conflict resolution, physical restraint, and self-defense. Thus, it appears that current methods for training private security personnel to identify and communicate with potentially aggressive or violent individuals leave room for improvement. To our knowledge, the current research is the first to take a quantitative approach to understand the cues that security personnel and young adults might use to identify potentially violent patrons. The ability to inform security personnel about the potential risk of bias from possible (unconscious) reliance on non-predictive cues and identify cues that are actually predictive of aggression would greatly advance training and safety.

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