The weapon focus effect is weaker with Black versus White male perpetrators

Kerri L. Pickel and Danielle E. Sneyd

ABSTRACT

We compared the influence of a weapon’s presence on eyewitnesses’ memory for a White versus a Black male perpetrator. Prior data indicate that unusual objects in visual scenes attract attention and that a weapon’s effect depends on how unusual it seems within the context in which it appears. Therefore, given the stereotype linking Black men and weapons, we predicted a weaker weapon focus effect with the Black perpetrator. The results of Experiment 1 supported this hypothesis using White and Black witnesses. Moreover, in Experiment 2 the weapon focus effect became nonsignificant when the Black perpetrator wore a style of clothing that is strongly associated with Black men. We propose that observing an armed Black perpetrator automatically activates a stereotype linking Black men with weapons and crime, which in turn reduces the perceived unusualness of the weapon and thus its ability to attract attention.

If eyewitnesses to a crime see a weapon in the hands of a perpetrator, they will subsequently remember him or her less accurately than they would have if no weapon had been visible. This weapon focus effect is usually conceptualised as the result of divided attention at the encoding stage of processing (Pickel, 2015). Witnesses tend to direct their attention toward the weapon at the expense of forensically relevant details associated with the perpetrator, and therefore these details are poorly encoded. Eye tracking research supports this account; while viewing photos, witnesses make more frequent and longer lasting eye fixations on a perpetrator’s weapon, such as a gun or a knife, than on a neutral object, such as a personal check or a remote control (Biggs, Brockmole, & Witt, 2013; Loftus, Loftus, & Messo, 1987). Initially, researchers assumed that the weapon must be visible concurrently with the perpetrator in order to divert attention away from him or her, but recent data raise the possibility that sequential presentations may also work (Erickson, Lampinen, & Leding, 2014). For example, if an armed robber briefly displays a handgun and then pockets it, witnesses might continue to ruminate on it, making it difficult for them to switch their attention to the task of encoding the perpetrator’s appearance.

According to a recent meta-analysis (Fawcett, Russell, Peace, & Christie, 2013), a weapon’s presence reduces witnesses’ lineup identification performance as well as the accuracy of their descriptions of the perpetrator’s physical features and clothing, although the effect size is smaller for the former measure. In some situations, a weapon can even impair witnesses’ memory for verbal statements made by the perpetrator (Pickel, French, & Betts, 2003). Consequently, perpetrators who display a weapon while committing a crime might have a better chance of avoiding arrest and prosecution compared to those who keep the weapon hidden.

Why do weapons attract attention?

Although there is general agreement that a weapon’s presence divides witnesses’ attention, it is not clear why. One proposal, referred to here as the threat explanation, is based on Easterbrook’s (1959) cue-utilisation hypothesis and relies on the fact that weapons can be used to cause pain, injury, or death either to the witnesses themselves or to another person in the vicinity. As witnesses recognise the threat, their anxiety level rises, which in turn restricts the number of stimuli that they can simultaneously process and heightens the effects of competition among stimuli (Mather & Sutherland, 2011). High-priority stimuli receive an increased amount of cognitive resources while attention to low-priority stimuli drops. Priority is determined in part by witnesses’ goals, and it logically follows that they would consider a weapon, but not the perpetrator’s physical features and clothing, informative and relevant to the goal of avoiding harm.

Some studies have supported the threat explanation. For example, Davies, Smith, and Blincoe (2008) asked participants (children aged 7–9 years) to play a memory game. Interacting with the participants individually, an experimenter showed them a set of common objects on a table, which they could study for 40 seconds before
trying to recall them. After a three-hour delay, the participants completed a questionnaire testing their memory for the experimenter's appearance. Participants who viewed a set of items that included a threatening object (a syringe filled with red liquid) remembered the experimenter less accurately compared to those who saw only non-threatening objects. This result suggests that the threat associated with a weapon causes witnesses to pay attention to it, leaving fewer cognitive resources for encoding other aspects of the event, such as the perpetrator's appearance.

Despite some success, the threat explanation cannot account for certain weapon focus findings. For instance, unusual but non-threatening objects can sometimes produce the same effect as a weapon, manipulations of the level of threat in the perpetrator's behavior have not influenced memory for his appearance, and the weapon focus effect can emerge even when witnesses' self-reported anxiety level is low (Kramer, Buckhout, & Eugenio, 1990; Mitchell, Livosky, & Mather, 1998; Pickel, 1998, 1999). Results like these led to the development of the unusualness explanation, which is that weapons are unexpected within most environments, and observers attend preferentially to unusual objects while trying to resolve the incongruity between those objects and the context activated by the visual scene (Gordon, 2004; Henderson, Weeks, & Hollingworth, 1999). As an illustration (Pickel, 2015), imagine a customer entering a convenience store. Once she has stepped through the door, she quickly and automatically acquires a gist for the visual scene inside the store and begins identifying objects (Gordon, 2004). During this process, she refers to the convenience store schema she has developed through her past shopping experiences. Many items in front of her are consistent with the schema, and she is not surprised to see them. For example, on the counter is the cash register, down below are shelves of candy, and nearby is the soda machine. If the customer is unfortunate enough to happen upon an armed robbery in progress, she would consider the weapon incongruent with the convenience store schema and would allocate increased attention to it as she attempts to reconcile its presence with the schema. Moreover, focusing on the weapon would occur at the expense of attention to the robber's appearance.

Whether an object is expected or unexpected depends on the schema activated by the observer. Thus, the unusualness explanation predicts that the weapon focus effect might disappear if witnesses view the weapon within a context that is consistent with it. In line with this prediction, witnesses more accurately remembered a perpetrator carrying a handgun when the setting was a shooting range as opposed to a little league baseball park (Pickel, 1999). Furthermore, the presence of a large kitchen knife (versus a plastic water bottle) held by a mail carrier but not a chef elicited a weapon focus effect (Pickel, Narter, Jameson, & Lenhardt, 2008).

In the end, both the threat explanation and the unusualness explanation could be correct. They are not mutually exclusive, and both have some empirical support (Fawcett et al., 2013).

Stereotypes and the weapon focus effect

Given that the degree to which a weapon seems unusual depends on context, it makes sense that the strength of the weapon focus effect might be influenced not only by the physical environment in which the action occurs but also by stereotypes associated with the perpetrator (Pickel, 2009). According to gender stereotypes, for example, women are gentle, nurturing, and dainty, whereas men are aggressive, dominant, and strong. Moreover, most crimes are committed by men. Thus, although a weapon may be unexpected no matter who brandishes it, it should seem especially out of place in the hands of a woman.

In a test of this prediction (Pickel, 2009), witnesses watched a video of a male or a female perpetrator emerging from a parked car to surprise and rob two victims. In different versions, the perpetrator carried either a handgun or a music CD. The witnesses described both robbers less accurately if they saw the gun rather than the CD, but the difference between object conditions was greater when the robber was female. The two robbers were rated as equally threatening, so the threat explanation cannot account for the results. Instead, it appears that witnesses quickly categorised the robber as male or female and activated the relevant gender stereotype (Ito & Urland, 2003; Yzerbyt & Demoulin, 2010). Because guns are less associated with women than with men, the weapon focus effect was stronger with the female perpetrator.

The results of another experiment within the same study (Pickel, 2009) illustrated a different method of altering the strength of the weapon focus effect. In one condition, witnesses were induced to stereotype the target individual as a dangerous criminal by telling them before they watched the video that the target had previously been convicted of robbery and had once attacked and injured another person. Compared to controls, witnesses in this condition remembered the targets equally well whether they were armed or not, apparently because the witnesses expected to see these targets holding a weapon and were not surprised by the presence of one. In sum, this research indicates that the weapon focus effect can be reduced or even eliminated when witnesses stereotype the perpetrator as someone who is likely to be armed.

Can racial stereotypes influence the strength of the weapon focus effect?

Like the sex of a target individual, information about his or her race is identified automatically and at an early stage of
processing (Ito & Urland, 2003; Yzerbyt & Demoulin, 2010), which in turn allows observers to activate racial stereotypes that apply to the target. In most published weapon focus studies, the perpetrator was a White man, and none have manipulated the perpetrator’s race. What would happen if witnesses observed a Black male perpetrator committing a robbery?

Several lines of research provide converging evidence that Black men are associated with dangerousness and lawbreaking. For instance, in an examination of general knowledge of the “Black stereotype” (Devine & Elliot, 1995), most White participants identified the traits “criminal” and “hostile” as two of its components, regardless of their reported beliefs. Moreover, Black men are stereotypically linked with weapons and street crimes, such as assault, mugging, bank robbery, auto theft, drug dealing, drive-by shooting, and carrying a weapon illegally (Skorinko & Spellman, 2013; Smalarz, Madon, Yang, Guylil, & Buck, 2016). Another study investigated perceptions of crime in urban neighbourhoods in three different U.S. cities (Quillian & Pager, 2001). Both Black and White residents’ perceptions of crime levels were positively correlated with the number of young Black men living in the neighbourhood, even when controlling for actual crime rates. The authors suggested that historical stereotypes and media depictions of Black men as criminals could have contributed to the findings. As a final example, Black men responding to a stereotype threat scale agreed that, during interactions with police officers, they worry about being stereotyped as a criminal because of their race (Najdowski, Bottoms, & Goff, 2015).

Other research has shown that people link stereotypically Black physical traits (e.g., nose shape, hair texture, and skin tone) with criminal behaviour in male targets (Kleider-Offutt, Bond, & Hegerty, 2017). In one study, for example, police officers were more likely to say that a target “looked criminal” the more Afrocentric his features were (Eberhardt, Goff, Purdie, & Davies, 2004). In an investigation of actual legal cases, Eberhardt, Davies, Purdie-Vaughns, and Johnson (2006) found that Black men convicted of murdering White victims were more likely to be sentenced to death if their faces were rated as high rather than low in stereotypicality, regardless of other factors, including aggravating circumstances and the defendant’s socioeconomic status. Similarly, Blair, Judd, and Chapleau (2004) reported that Florida judges gave Black male offenders longer sentences the more “Black” their faces looked, even when controlling for crime seriousness and criminal history. The researchers contended that these effects occurred automatically and implicitly and that they are independent of racial prejudice.

Studies of “shooter bias” also relate to racial stereotypes. In these experiments, which were inspired by well-publicised police shootings of unarmed Black suspects, participants typically observe still photos or videos showing White and Black target individuals holding either a weapon or a neutral object. Across multiple trials, their task is to make a “shoot” response to armed targets and a “not shoot” response to unarmed targets within a time window of one second or less. A meta-analysis (Mekawi & Bresin, 2015) comparing reactions to White and Black targets found that participants are faster to shoot armed Black targets and are slower to not shoot unarmed Black targets. In addition, they demonstrate a more liberal shooting threshold for Black targets, meaning that participants have a stronger bias toward shooting them, whether armed or not.

Even individuals who are not racially prejudiced display the shooter bias (Mekawi & Bresin, 2015), and most data suggest that the effect occurs if participants are merely aware that the racial stereotype exists (Correll, Park, Judd, & Wittenbrink, 2002; Cox, Devine, Plant, & Schwartz, 2014). This awareness causes “the concepts of race and crime to be automatically and inextricably linked, with thoughts of one leading to thoughts of the other”, and in this way “the Black criminal stereotype can unconsciously and automatically influence what police officers see when they encounter Black citizens” (Najdowski et al., 2015, p. 463). In other words, a stereotype can be activated regardless of whether an individual believes in it (Banaji & Greenwald, 1995), at which point it has the power to affect his or her cognitive processes.

Given the existence of the stereotype associating Black men with weapons and crime, it is possible that witnesses observing an armed robbery scenario would expect to see a weapon held by a Black man more than they would expect to see one held by a White man. Because they would consider the weapon less unusual in the hands of the Black perpetrator, witnesses would be less likely to allocate attention to it at the expense of his appearance. Finally, when interviewed by police, their memory would be more accurate for the Black than the White perpetrator.

The current study

The current research investigated the weapon focus effect as a function of the perpetrator’s race. In the first of two experiments, witnesses watched a video of a robbery committed by a White or a Black man and afterward tried to remember descriptive information about his appearance. We developed two hypotheses. First, we expected to find the standard weapon focus effect such that witnesses’ memory would be less accurate when the perpetrator held a weapon instead of a neutral object. Second, we predicted that this effect would be weaker when the perpetrator was Black rather than White. Note that, although one of the perpetrators might be more memorable than the other, for example because of differences in the distinctiveness of certain articles of clothing, our second hypothesis would still be supported if a significant perpetrator by object interaction emerged.

We included both White and Black participants. Black individuals are as familiar with racial stereotypes as White ones are, and they are equally susceptible to effects like
the shooter bias (Correll et al., 2002), so we anticipated finding the same pattern of results for the two groups.

The second experiment had three goals. First, we wanted to show that the data obtained up to that point would generalise, so we created a new stimulus video that depicted a different crime scenario and that used different weapons and different actors portraying the perpetrators. Second, we extended our results by adding a lineup task. Third, we tested the hypothesis that the weapon focus effect would be extremely weak or perhaps nonexistent with a Black male perpetrator whose appearance (defined by his style of clothing) is especially associated with Black men.

The purpose of this research was not to test hypotheses related to the own-race bias, but in generating our predictions, we considered how that bias might affect our data. Many studies have replicated the finding that witnesses can better remember faces of the same race relative to other-race faces (Meissner & Brigham, 2001). However, this phenomenon has been observed in witnesses’ ability to recognise and identify faces, not to describe faces or other physical features (Brigham, Bennett, Meissner, & Mitchell, 2007). When providing an overall description, witnesses can refer not only to the target’s face but also to his or her articles of clothing and to certain physical features, such as height, that are not part of the face. The accuracy of their accounts of these details should be unaffected by the target’s race. Thus, we did not anticipate an own-race bias in the Experiment 1 results.

On the other hand, this phenomenon has been documented in lineup identification performance, and in Experiment 2 the witnesses completed a lineup task. Still, we were uncertain whether our witnesses would exhibit the own-race bias. Our main hypothesis was that the weapon’s presence would impair witnesses’ memory for the White perpetrator more than for the Black perpetrator, which would attenuate (and possibly cancel out) the own-race bias in the weapon conditions, assuming the witnesses are White (which they were in Experiment 2). We thought the own-race bias would be more likely to emerge in the neutral object conditions. However, it might not. One reason is that much of the previous research on this topic has used static photos of faces as stimuli, as opposed to videos as in the present study. Exposure to multiple visual perspectives and facial expressions enhances encoding of faces (Bruce, Burton, & Hancock, 2007) and might benefit memory for other-race faces more than own-race faces. Another reason is that our witnesses viewed only one target individual, whereas the largest and most-cited meta-analysis examining the own-race bias (Meissner & Brigham, 2001) included only studies that used a within-subject design in which each participant saw both other-race and own-race faces. Our methodology might make it more difficult to detect the own-race bias if it occurred. In sum, we were unsure whether we would obtain the own-race bias in our data, but the presence or absence of the bias should not interfere with our ability to test our hypotheses about the weapon focus effect.

**Experiment 1**

In this experiment, White and Black participants viewed a video of a robbery. In different versions, the perpetrator was either White or Black and carried either a weapon or a neutral object. Afterward, the witnesses completed a questionnaire requiring them to remember the perpetrator’s appearance. In addition, we asked them to rate their level of awareness of the stereotype linking Black men with weapons and crime; in order to argue that seeing a Black man activates this stereotype, we must show that witnesses are familiar with it. We also requested ratings of witnesses’ belief in the stereotype so that we could ascertain whether prejudiced attitudes are related to their memory performance. Finally, to determine whether the threat explanation could account for the results, we included an item on the questionnaire asking witnesses to indicate how threatening the perpetrator was.

**Method**

**Participants**

The participants were 129 White and 138 Black individuals who acted as witnesses. Some were recruited through the research participation pool administered by the psychology department at a medium-sized Midwestern U.S. university, in which case they received course credit in return for completing the study. Others were contacted through an E-mail invitation sent by members of the research team to student and community organisations. We discarded the data of one White individual who failed the manipulation check (described below), so the final sample included 266 participants. They ranged in age from 18 to 75 years ($M = 24.85$, $SD = 11.32$); 62% were women.

**Stimulus video**

We created a video (approximate running time 1 min 30 sec) that depicts a male perpetrator entering an office building after regular business hours and robbing two male employees (one White and one Black) of their wallets and iPads. In different versions, the perpetrator is played by either a White or a Black actor. The two actors were comparable in height and age, and they wore similar clothing (button-down shirts and jeans). We also manipulated the object carried by the perpetrator. Throughout the duration of the video, he can be seen holding either a black 9-mm semi-automatic handgun or a blue cell phone. Thus, there were four versions of the video.

**Procedure and questionnaire**

The witnesses participated in one of two ways. Some ($n = 50$) were tested in a campus lab in groups of up to
10 individuals. They were randomly assigned to watch one of the four versions of the video on a flat-screen television before filling out a written questionnaire. Other witnesses (n = 216) completed the study online by following a Qualtrics link that allowed them to access one of the four versions of the video at random, followed by the questionnaire.

The first section of the questionnaire asked witnesses to remember the perpetrator’s appearance. To maximise our chances of detecting a difference in the size of the weapon focus effect with a White versus a Black perpetrator, we made sure that there were many details that witnesses could report. For example, the perpetrators wore several articles of clothing and multiple accessories that were visible in the video, and the questionnaire items inquired in detail about their physical characteristics (e.g., race, height, age, body type, and hair style), clothing (e.g., shirt, pants, and shoes), and other items (e.g., jewellery). Most of these questions offered alternatives (e.g., “Did the robber have any facial hair or stubble?” along with the options “no” and “yes”) followed by open-ended items prompting witnesses to describe the physical features or clothing in depth.

In the next section, the witnesses responded to a manipulation check that asked whether the perpetrator was carrying anything. If they answered “yes,” they were cued with an open-ended item to identify the object. The witnesses then made three ratings using 11-point scales. First, they rated the extent to which the perpetrator was threatening (from 1 = not at all to 11 = extremely). Second, they were asked, “According to racial stereotypes that exist in our society, who is more likely to commit a crime using a weapon: a white man or a black man?” For this measure, which we call stereotype awareness, the responses could range from 1 = White man is much more likely to 11 = Black man is much more likely. Third, the witnesses indicated the degree to which they endorsed the stereotype; they were asked, “According to your personal beliefs, who is more likely to commit a crime using a weapon: a white man or a black man?” The response alternatives were the same as for the previous question.

In the last section of the questionnaire, the witnesses provided demographic information. Finally, they listened to a debriefing statement read by the experimenter if they participated in the lab or read this statement if they participated online.

Results and discussion

Before conducting the main analyses, we examined whether the participation context (in the lab or online) was associated with any significant effects. It was not (ps ≥ .14). Similarly, witnesses’ sex was unrelated to any effects (ps ≥ .18). These two variables were consequently dropped from the subsequent analyses. We evaluated each of the dependent measures using factorial analyses of variance with the perpetrator’s race, the object he held, and the witnesses’ race as factors.

Manipulation check

Almost all witnesses correctly stated that the perpetrator was carrying something in the video and correctly identified the object. As mentioned above, however, one White witness, who saw the White perpetrator holding the cell phone, left this item blank and was therefore removed from the sample.

Descriptions of the perpetrator

To determine how to score witnesses’ descriptions of the perpetrator, the authors studied the videos and created an answer key that specified the correct responses to each item. A coder who was blind to the study’s purpose then scored the questionnaires and separately calculated the number of correct and incorrect details reported by each witness. For example, the Black perpetrator was wearing a flannel shirt that was green, white, and black, so reporting that the shirt was “flannel” and that one of its colours was “green” would be counted as two correct details. Details were scored as incorrect if they were not listed on the answer key in connection with a particular clothing item or physical feature. Thus, reporting that the shirt was “blue” would be considered one incorrect detail. A second coder, who was also blind to the hypotheses, independently scored 80 questionnaires so that interrater reliability could be calculated. Interrater reliability was high; for correct details r = .96, and for incorrect details r = .95.

For correct details, we obtained the standard weapon focus effect, as revealed by a significant main effect of the object held by the perpetrator (see Table 1), F(1, 258) = 60.68, p < .001, ηp2 = .19. Specifically, witnesses reported more correct details if they saw the cell phone rather than the gun. Thus, our first hypothesis was supported.

Moreover, in line with our second hypothesis (that the weapon focus effect would be weaker for the Black than the White perpetrator), we found a significant perpetrator by object interaction, F(1, 258) = 9.98, p = .002, ηp2 = .04. Simple effects analyses clarified that, although the difference between object conditions was significant for both perpetrators, the disparity was smaller when he was Black, F(1, 258) = 10.31, p = .002, ηp2 = .01, rather than White, F(1, 258) = 60.23, p < .001, ηp2 = .26. To test the prediction that the effect was significantly larger when the perpetrator was Black versus White, we converted the F ratios for the two simple effects to r and then used Fisher’s r to z transformation and test. When we compared the two effect sizes, we obtained z = 2.16, p = .03 (one-tailed). Thus, the weapon focus effect was significantly weaker when the perpetrator was Black versus White.

There were no other significant main effects or interactions (ps ≥ .36). Note that there were no significant findings related to the race of the witnesses, meaning that
White and Black witnesses showed the same pattern when reporting correct details.

Regarding incorrect details, the standard weapon focus effect again emerged, such that witnesses made significantly more errors when they saw the gun than the cell phone, $F(1, 258) = 78.97$, $p < .001$, $\eta^2_p = .23$. As predicted, there was a significant perpetrator by object interaction, $F(1, 258) = 17.36$, $p < .001$, $\eta^2_p = .06$. According to simple effects analyses, the weapon focus effect was weaker when the perpetrator was Black, $F(1, 258) = 10.73$, $p = .001$, $\eta^2_p = .09$, rather than White, $F(1, 258) = 84.88$, $p < .001$, $\eta^2_p = .35$. As with correct details, we converted the $F$ ratios for the simple effects to $r$ and then applied Fisher’s $r$ to $z$ transformation and test, which produced $z = 2.79$, $p = .003$ (one-tailed). We concluded that the weapon focus effect was significantly weaker for the Black than the White perpetrator.

We found no other significant effects ($p \geq .09$). As before, the White and Black witnesses performed similarly.

**Stereotype awareness and endorsement**
The witnesses rated their awareness that, compared to White men, Black men are more stereotypically linked with weapons and crime. Although Black witnesses reported more awareness of the stereotype ($M = 9.94$, $SD = 1.07$) than White ones ($M = 9.09$, $SD = 1.85$), $F(1, 258) = 20.95$, $p < .001$, $\eta^2_p = .08$, there were no other significant effects related to these ratings ($p \geq .14$; see Table 1), and the witnesses demonstrated a high level of awareness overall ($M = 9.53$, $SD = 1.55$). This result is compatible with the proposal that, for witnesses in one of the Black perpetrator conditions, seeing a Black man automatically activated the stereotype, which led them to anticipate that a weapon might be present. In the condition in which a weapon actually did appear, it would not have seemed extremely unusual to witnesses due to its consistency with the stereotype. On the other hand, to witnesses who viewed the White perpetrator, the gun should have seemed relatively more unusual because it was held by a man whose race was less associated with weapons.

In general, witnesses reported very low levels of belief that the racial stereotype is true (overall $M = 6.11$, $SD = 1.82$). However, White witnesses’ ratings were significantly higher ($M = 6.40$, $SD = 1.86$) than Black witnesses’ ($M = 5.83$, $SD = 1.75$), $F(1, 258) = 6.40$, $p = .01$, $\eta^2_p = .02$. There were no other significant findings related to ratings of the belief in the stereotype ($p \geq .54$). Thus, the difference in the strength of the weapon focus effect for the Black versus the White perpetrator does not depend on witnesses’ endorsement of the racial stereotype.

**Threat ratings**
Not surprisingly, there was a main effect of the object on threat ratings (see Table 1), $F(1, 258) = 269.27$, $p < .001$, $\eta^2_p = .51$; witnesses considered the perpetrator more threatening when he carried the gun rather than the cell phone. No other significant results emerged ($p \geq .18$). Because the two perpetrators were rated as equally threatening, the threat explanation for the weapon focus effect cannot account for the finding that the effect was weaker with the Black than the White perpetrator.

**Experiment 2**
For Experiment 2 we created a new stimulus video, using different actors and objects and a new crime scenario, in an attempt to demonstrate that the results from the first experiment would generalise. Moreover, we added a lineup task. We predicted that witnesses’ ability to identify the perpetrator would mirror the memory performance findings from Experiment 1.

We also examined a new hypothesis. As noted previously (Ito & Urland, 2003; Yzerbyt & Demoulin, 2010), observers can quickly and automatically sort target individuals into racial categories and activate relevant stereotypes. Moreover, male targets who appear especially “Black” more easily evoke stereotypes about Black men and criminality (Kleider-Offutt et al., 2017), even in observers with low levels of racial prejudice (Blair, Judd, Sadler, & Jenkins, 2002; Blair et al., 2004; Eberhardt et al., 2004; Eberhardt...
et al., 2006). Based on these findings, we predicted that dressing the Black perpetrator in a style of clothing that is strongly associated with Black men would facilitate witnesses’ activation of the stereotype linking Black men with weapons and crime. In this condition, a weapon in the perpetrator’s hands might seem less unusual than it would when he wears neutral clothing (as in the first experiment), and therefore the weapon focus effect would become very weak and would perhaps disappear.

The style of clothing worn by rap musicians is strongly associated with Black men (Stuff Black People Dig, n.d.). For example, when a Minneapolis bar banned specific apparel items of this type, a disgruntled local resident suggested, “Might as well just say, ‘No Black folks allowed’” (DeWitt, 2015, para. 2). Moreover, most famous rap musicians are Black men. A Google search of “rap artists” brings up 42 individual performers (versus groups) in the image bar at the top of the results page; 38 of these performers are Black and male. Rap-style attire includes extra-large sports jerseys and t-shirts, baggy pants, flat-billed baseball caps, long chain necklaces, and athletic shoes (DeWitt, 2015; Smith, n.d.; Stuff Black People Dig, n.d.). Due to the high frequency of these items appearing in the image bar produced by the Google search and on related websites, we chose to use them as the attire associated with Black men in our experiment. Thus, we dressed the Black perpetrator in rap-style clothing (in one condition) as a means of making him appear more “Black”.

It could be that rap-style clothing attenuates the weapon focus effect when the perpetrator is Black not by facilitating the activation of the Black male criminal stereotype but instead by making the perpetrator seem more distinctive or more likely to have criminal tendencies in a way that has nothing to do with race. In order to rule out this possibility, we included a condition in which the White perpetrator wears rap attire. Because rap clothing is not strongly linked with White men in general or with White criminals, we hypothesised that we would obtain the typical weapon focus effect with the White perpetrator. We also included a condition in which the White perpetrator wears rap attire. Because rap clothing is not strongly linked with White men in general or with White criminals, we hypothesised that we would obtain the typical weapon focus effect with the White perpetrator.

**Stimulus video**

We created a video (approximate running time 1 min 40 sec) that depicts a robbery from the point of view of the victim, who is never seen. While the victim is unloading shopping bags from the trunk of a vehicle, a male perpetrator approaches on foot and steals the bags along with the victim’s cell phone. In different versions, the perpetrator is either White or Black, and he carries either an Italian stiletto knife with a 4.5-inch blade or a plastic bottle of water (20 oz. capacity). We also manipulated the perpetrator’s clothing. In the neutral condition, he wore a button-down shirt (White perpetrator) or a polo shirt (Black perpetrator), casual pants, and casual shoes (other items are visible too, such as a belt and a wristwatch). In the rap condition, the perpetrator wore clothing associated with rap musicians: an oversize professional basketball jersey, baggy jeans, athletic shoes, a baseball cap with a flat brim, and a long gold chain necklace. As in Experiment 1, we made sure that there were many details that witnesses could report about the perpetrators in order to maximise the likelihood of detecting differences in the size of the weapon focus effect across conditions. Given the experiment’s $2 \times 2 \times 2$ design, there were eight versions of the video.

**Procedure and questionnaire**

The witnesses participated online by following a Qualtrics link. They viewed one of the eight versions of the video (selected randomly) and then completed a questionnaire that was identical to the one used in the first experiment, except that three new items were inserted immediately after the section in which witnesses described the perpetrator’s appearance. The first new item asked witnesses to rate their confidence in the accuracy of the information they had reported using an 11-point scale (from $1 = \text{no confidence at all}$ to $11 = \text{complete confidence}$). For the other two new items, the witnesses attempted to identify the perpetrator in a target-present photo lineup, and they rated their confidence in their choice. Following the most common practices used by U.S. law enforcement agencies (Police Executive Research Forum, 2013), the lineups contained six members whose photos were shown simultaneously. We created two lineups, one to accompany the videos with the White perpetrator and another for the videos with the Black perpetrator. In both lineups, the photos were cropped so that only the lineup members’ faces and the collars of their shirts were visible. The lineup members were not wearing any of the articles of clothing shown in the videos.
To construct the lineups, we followed expert guidelines (Malpass, Tredoux, & McQuiston-Surrett, 2007) by selecting foils who generally resembled the perpetrator but were not so similar that they were indistinguishable and by ensuring that no lineup member stood out from the others on the basis of one or more characteristics. For each witness, Qualtrics presented the six photos in a random order.

Before attempting the lineup task, the witnesses read instructions that the perpetrator might not be present in the lineup, and they were given the option of responding that he was not pictured. After making a choice, they rated their confidence in its accuracy using an 11-point scale (from 1 = no confidence at all to 11 = complete confidence). They read a debriefing statement upon completing the questionnaire.

Results and discussion

Preliminary analyses revealed no significant effects related to witnesses' sex (p ≥ .17), and this variable was dropped from further consideration. Except as noted below, we examined all dependent variables using factorial analyses of variance with the perpetrator and his style of clothing as factors.

Manipulation check

All witnesses stated that the perpetrator was carrying an object and correctly identified it. Thus, no witnesses were excluded from the sample.

Descriptions of the perpetrator

The witnesses' descriptions were scored using the same procedure as in the first two experiments. Interrater reliability based on a sample of 80 questionnaires was high for correct details, r = .95, and incorrect details, r = .96.

For correct details, we observed a standard weapon focus effect as shown by a significant main effect of object (see Table 2), F(1, 361) = 116.30, p < .001, ηp² = .24. In particular, witnesses who saw the water bottle reported more correct details than those who saw the knife. There was also a main effect of the perpetrator's race, F(1, 361) = 11.58, p = .001, ηp² = .03, such that witnesses provided more correct details about the White than the Black perpetrator. The third main effect was significant as well, F(1, 361) = 5.35, p = .02, ηp² = .02, with a greater number of correct details reported when the perpetrator wore rap versus neutral clothing.

More importantly, we obtained the hypothesised three-way interaction, F(1, 361) = 3.93, p = .048, ηp² = .01. To clarify the interaction, we examined simple effects of the object in each of the four conditions that are created by crossing the perpetrator's race with the clothing style. We expected the largest significant difference between object conditions when the perpetrator was White, regardless of his clothing, a smaller significant difference in the Black/neutral condition, and a weak or nonsignificant difference in the Black/rap condition. As predicted, simple effects analyses showed strong weapon focus effects in the White/neutral, F(1, 361) = 100.07, p < .001, ηp² = .51, and White/rap conditions, F(1, 361) = 88.43, p < .001, ηp² = .53. The effect was smaller but significant in the Black/neutral condition, F(1, 361) = 10.08, p = .002, ηp² = .12, and did not reach significance in the Black/rap condition, F(1, 361) = 1.01, p = .32, ηp² < .01.

We compared the three significant effects by converting the $F$ ratios for the simple effects to $t$ and then using

<table>
<thead>
<tr>
<th>Condition</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Description confidence</th>
<th>Threat</th>
<th>Stereotype awareness</th>
<th>Stereotype endorsement</th>
<th>Lineup accuracy</th>
<th>Lineup confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>White/neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water bottle</td>
<td>25.35</td>
<td>(3.95)</td>
<td>4.64 (1.42)</td>
<td>7.47</td>
<td>(1.52)</td>
<td>3.94 (1.63)</td>
<td>10.29 (0.91)</td>
<td>6.14 (1.23)</td>
</tr>
<tr>
<td>Knife</td>
<td>17.79</td>
<td>(3.53)</td>
<td>8.11 (2.14)</td>
<td>7.74</td>
<td>(1.81)</td>
<td>8.40 (1.25)</td>
<td>10.40 (0.85)</td>
<td>5.98 (1.33)</td>
</tr>
<tr>
<td>Total</td>
<td>21.65</td>
<td>(3.32)</td>
<td>6.44 (2.44)</td>
<td>7.60</td>
<td>(1.66)</td>
<td>6.12 (2.67)</td>
<td>10.34 (0.88)</td>
<td>6.06 (1.27)</td>
</tr>
<tr>
<td>White/rap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water bottle</td>
<td>25.17</td>
<td>(4.06)</td>
<td>4.72 (1.64)</td>
<td>6.72</td>
<td>(1.47)</td>
<td>4.54 (1.72)</td>
<td>10.20 (0.91)</td>
<td>6.28 (1.17)</td>
</tr>
<tr>
<td>Knife</td>
<td>17.79</td>
<td>(2.88)</td>
<td>8.02 (2.09)</td>
<td>7.05</td>
<td>(1.60)</td>
<td>8.26 (1.09)</td>
<td>10.42 (0.79)</td>
<td>6.28 (1.26)</td>
</tr>
<tr>
<td>Total</td>
<td>21.61</td>
<td>(5.11)</td>
<td>6.31 (2.49)</td>
<td>6.88</td>
<td>(1.54)</td>
<td>6.34 (2.36)</td>
<td>10.30 (0.86)</td>
<td>6.28 (1.21)</td>
</tr>
<tr>
<td>Black/neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water bottle</td>
<td>20.51</td>
<td>(3.40)</td>
<td>6.02 (1.71)</td>
<td>7.57</td>
<td>(1.70)</td>
<td>3.81 (2.10)</td>
<td>10.49 (0.78)</td>
<td>6.28 (1.58)</td>
</tr>
<tr>
<td>Knife</td>
<td>18.05</td>
<td>(3.31)</td>
<td>7.30 (1.69)</td>
<td>7.52</td>
<td>(1.47)</td>
<td>8.16 (1.01)</td>
<td>10.59 (0.69)</td>
<td>6.20 (1.25)</td>
</tr>
<tr>
<td>Total</td>
<td>19.32</td>
<td>(3.56)</td>
<td>6.64 (1.81)</td>
<td>7.55</td>
<td>(1.59)</td>
<td>5.91 (2.74)</td>
<td>10.54 (0.74)</td>
<td>6.24 (1.43)</td>
</tr>
<tr>
<td>Black/rap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water bottle</td>
<td>20.76</td>
<td>(4.03)</td>
<td>7.22 (1.95)</td>
<td>7.15</td>
<td>(1.74)</td>
<td>3.85 (1.62)</td>
<td>10.30 (0.89)</td>
<td>5.91 (2.09)</td>
</tr>
<tr>
<td>Knife</td>
<td>21.53</td>
<td>(4.19)</td>
<td>6.98 (2.24)</td>
<td>7.32</td>
<td>(1.60)</td>
<td>8.45 (0.75)</td>
<td>10.28 (1.08)</td>
<td>6.36 (1.71)</td>
</tr>
<tr>
<td>Total</td>
<td>21.15</td>
<td>(4.11)</td>
<td>7.10 (2.10)</td>
<td>7.24</td>
<td>(1.66)</td>
<td>6.17 (2.63)</td>
<td>10.29 (0.98)</td>
<td>6.14 (1.91)</td>
</tr>
<tr>
<td>Object totals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water bottle</td>
<td>22.97</td>
<td>(4.48)</td>
<td>5.69 (1.96)</td>
<td>7.23</td>
<td>(1.63)</td>
<td>4.03 (1.79)</td>
<td>10.32 (0.87)</td>
<td>6.15 (1.55)</td>
</tr>
<tr>
<td>Knife</td>
<td>18.82</td>
<td>(3.85)</td>
<td>7.60 (2.09)</td>
<td>7.41</td>
<td>(1.64)</td>
<td>8.32 (1.04)</td>
<td>10.42 (0.87)</td>
<td>6.20 (1.40)</td>
</tr>
</tbody>
</table>

Notes: For correct and incorrect details, the values shown are the mean number of details reported. For lineup accuracy, the proportion of correct identifications is shown. For all other variables, the values shown are ratings on 11-point scales of witnesses' confidence in the accuracy of their descriptive information, the degree to which the perpetrator seemed threatening, the relative likelihood that a Black and a White man would commit a crime using a weapon according to racial stereotypes, the relative likelihood that a Black and a White man would commit a crime using a weapon according to witnesses' beliefs, and confidence in their lineup identifications. Standard deviations are in parentheses.
Fisher’s r to z transformation and test. First, we compared the White/neutral and White/rap conditions, and as expected found these effect sizes to be similar, $z = .21$, $p = .84$. Second, we evaluated the hypothesis that the weapon focus effect in the Black/neutral condition was smaller than in the White/rap condition. In support of this hypothesis, we found $z = 2.10$, $p = .02$ (one-tailed). Because the $F$ value in the White/neutral condition was larger than in the White/rap condition, we could infer without resorting to Fisher’s test that the difference between the Black/neutral and the White/neutral conditions must also be significant.

As with correct details, a weapon focus effect also occurred for incorrect details; fewer errors were made by witnesses who saw the water bottle rather than the knife, $F(1, 361) = 94.62$, $p < .001$, $\eta^2_p = .21$. Furthermore, witnesses reported fewer incorrect details about the White than the Black perpetrator, $F(1, 361) = 5.46$, $p = .02$, $\eta^2_p = .02$. The main effect of clothing style was not significant ($p = .39$).

We obtained the hypothesised three-way interaction, $F(1, 361) = 3.92$, $p = .048$, $\eta^2_p = .01$. As before, we examined the simple effects in each of the four perpetrator race by clothing conditions. The weapon focus effect was relatively strong in the White/neutral condition, $F(1, 361) = 72.65$, $p < .001$, $\eta^2_p = .45$, and the White/rap condition, $F(1, 361) = 68.81$, $p < .001$, $\eta^2_p = .44$, but it was weaker in the Black/neutral condition, $F(1, 361) = 10.45$, $p = .001$, $\eta^2_p = .13$. The effect was not significant in the Black/rap condition, $F(1, 361) = .38$, $p = .54$, $\eta^2_p < .01$.

We compared the strength of the significant effects using Fisher’s r to z transformation and test. As predicted, the White/neutral and White/rap conditions did not differ significantly, $z = 0.8$, $p = .94$, but, the effect in the White/rap condition was significantly larger than in the Black/neutral condition, $z = 1.68$, $p = .047$ (one-tailed). The White/neutral $F$ value was larger than the White/rap $F$ value, so it was not necessary to use Fisher’s test to conclude that the difference between the White/neutral and the Black/neutral effects must be significant. Overall, the analyses of the correct and incorrect details indicate that the weapon focus effect is stronger when the perpetrator is White, regardless of the style of clothing he wears, weaker when he is Black and dressed neutrally, and non-significant when he is Black and wearing rap-style attire.

The witnesses rated their confidence in the accuracy of their descriptions. We obtained higher ratings when the perpetrator wore neutral rather than rap clothing, $F(1, 361) = 9.46$, $p = .002$, $\eta^2_p = .03$. Witnesses often wrote on their questionnaires that they could not recall the lettering and numbers on the basketball jersey and the baseball cap worn by the perpetrators in the rap condition, so the main effect of clothing style on confidence may have occurred because they took these omissions into account. There were no other significant differences ($p s \geq .22$), which fits with previous research showing that, because confidence can be influenced by many variables, it is not perfectly correlated with accuracy (Leippe & Eisenstadt, 2007).

**Lineup**

We classified witnesses’ lineup choices as either correct or incorrect and used a hierarchical loglinear analysis to examine the proportion of correct identifications (see Table 2). The typical weapon focus effect emerged, such that witnesses were more likely to identify the perpetrator if he held the water bottle instead of the knife, $\chi^2(N = 369) = 51.72$, $p < .001$. Of more importance, we obtained the predicted three-way interaction, $\chi^2(N = 369) = 3.98$, $p = .046$. Inspection of the proportion of correct identifications shows a large difference between object conditions in the White/neutral and White/rap conditions, a smaller difference in the Black/neutral condition, and virtually no difference in the Black/rap condition.

We speculated that the own-race bias would probably not emerge in the knife condition, given that the knife was expected to impair witnesses’ memory for the White perpetrator more strongly than their memory for the Black perpetrator. On the other hand, we thought an own-race bias was more likely in the water bottle condition. A significant interaction between perpetrator race and object supports these assumptions, $\chi^2(N = 369) = 23.58$, $p < .001$. Among witnesses who saw the water bottle, a greater proportion correctly identified the White (85) than the Black perpetrator (68), but the pattern was reversed among those who saw the knife (White: 26, Black: .55). There were no other significant effects ($p s \geq .11$).

The witnesses rated their confidence in the accuracy of their lineup selection. Using a factorial analysis of variance with perpetrator race, clothing, object, and identification accuracy as factors, we found no significant effects ($p s \geq .10$). As noted above, confidence and accuracy are not perfectly correlated (Leippe & Eisenstadt, 2007).

**Stereotype awareness and endorsement**

The witnesses indicated a high level of awareness of the stereotype associating Black men with weapons and crime (overall $M = 10.37$, $SD = .87$), so this stereotype could have affected their perceptions of the knife’s un-usualness. The ratings did not vary across conditions ($p s \geq .11$; see Table 2). Witnesses’ endorsement of the stereotype was fairly low (overall $M = 6.18$, $SD = 1.48$); they thought Black and White men are approximately equally likely to commit a crime using a weapon. Moreover, there were no significant effects related to this variable ($p s \geq .27$). We concluded that the memory performance results were not related to witnesses’ prejudices.

**Threat ratings**

The witnesses rated the perpetrator as more threatening when he carried the knife as opposed to the water bottle (see Table 2), $F(1, 361) = 789.26$, $p < .001$, $\eta^2_p = .69$, but no other effects were significant ($p s \geq .10$). Thus, as in the
first experiment, the threat explanation cannot account for variations in memory performance.

**General discussion**

The results of the first experiment demonstrated the standard weapon focus effect, such that witnesses reported fewer correct and more incorrect details about the perpetrator when he carried a gun instead of a cell phone. We suggest that, to witnesses who saw either the White or the Black perpetrator, the gun was at least somewhat unexpected, and therefore it attracted attention.

The data also supported our hypothesis that the effect would be weaker when the perpetrator was Black rather than White. We propose that witnesses quickly categorised the perpetrator into a racial category upon seeing him (Ito & Ural, 2003; Yzerbyt & Demoulin, 2010). Then, if he was Black, they automatically activated the stereotype linking Black men with weapons and crime. Our data indicate that the witnesses were well aware of this stereotype, and because a weapon is consistent with it, a gun held by the Black perpetrator would seem relatively less unusual and would less strongly attract attention. In contrast, the gun seemed more out of place when held by the White perpetrator because White men are not stereotypically associated with weapons and crime as much as Black men are. Witnesses’ memory performance was independent of their endorsement of the racial stereotype, which suggests that the effect is based on conceptual associations that are accessed automatically and implicitly and not on prejudice (see Correll et al., 2002; Cox et al., 2014). Moreover, it is important to note that witnesses rated the two perpetrators as equally threatening, so the threat explanation for the weapon focus effect cannot easily account for the findings.

These results were the same regardless of the witnesses’ race. Like the White participants, the Black witnesses reported a high level of familiarity with the stereotype about Black men and crime but little endorsement of it, which bolsters the argument that automatic and implicit activation of this information led to the findings we obtained.

In Experiment 2, we showed that the findings generalised to a new crime scenario involving different perpetrators and objects. We also demonstrated that having the perpetrator wear a style of clothing that is especially associated with Black men eliminated the weapon focus effect when the perpetrator was Black but not when he was White. We contend that rap-style clothing worn by the Black perpetrator facilitated the activation of the racial stereotype linking Black men and criminality, which in turn made the weapon seem even less unusual. Just as seeing an Afrocentric-looking male face cues observers to think about criminality (Eberhardt et al., 2004; Kleider-Offutt et al., 2017), perhaps seeing a Black man wearing rap-style clothing prompts them to think about weapons.

It is unlikely that the rap-style clothing nullified the weapon focus effect with the Black perpetrator by making him look more distinctive or by activating a criminal stereotype that is independent of race. If switching from neutral to rap attire produced an effect that had nothing to do with race, witnesses in the White/neutral and White/rap conditions would have performed differently. However, they did not, and both groups who saw the White perpetrator exhibited a typical weapon focus effect.

The lineup data from Experiment 2 showed the same pattern as the number of correct and incorrect details witnesses reported. Specifically, witnesses who viewed the White perpetrator (in either neutral or rap-style clothing) were more likely to make a correct identification if they saw the water bottle rather than the knife, but the difference between object conditions was smaller in the Black/neutral condition and negligible in the Black/rap condition.

The lineup results also imply that the own-race bias among White witnesses may disappear when the perpetrator holds a weapon, perhaps because the degree to which the weapon diverts these witnesses’ attention away from the perpetrator’s face depends on his or her race. Specifically, the weapon may capture attention more strongly when the perpetrator is White rather than Black, which could negate the usual memory advantage for White targets. Additional research is needed to replicate this result, to identify other factors that may moderate the own-race bias, and to see how a weapon’s presence influences the own-race bias in Black witnesses.

**Practical implications**

One implication of the current data is that a weapon might make it more difficult for law enforcement officers to bring White versus Black male offenders to justice. Obviously, some individuals are more memorable than others to begin with, and witnesses usually have a harder time remembering other-race versus own-race faces, but the data nevertheless suggest that a weapon’s presence will have a greater negative influence on memory accuracy for White than Black male perpetrators. Ideally, all offenders should be held responsible, and it is unfortunate when different social groups are treated unequally within the justice system. If a weapon’s presence causes less impairment to a witness’s memory for a Black than a White perpetrator, the witness might give police detectives a better description of the Black perpetrator and might be more likely to identify him, which subsequently could increase the probability that this perpetrator would be arrested and prosecuted. In fact, racial minority suspects are more likely than White suspects to be arrested, even after controlling for other relevant factors, and they are also more likely to be convicted if tried and to receive a harsher sentence (Austin & Allen, 2000; Baldus, Woodworth, Zuckerman, Weiner, & Broffitt, 1998; Mitchell, Haw, Pfeifer, & Meissner, 2005).
On the other hand, it is possible that witnesses could be trained to overcome the weapon focus effect, in which case they should remember Black and White perpetrators equally well. Pickel, Ross, and Truelove (2006) educated witnesses in one condition about the weapon focus effect and encouraged them to study forensically relevant details rather than the weapon while observing an armed perpetrator. These witnesses, but not a control group, performed similarly regardless of whether they viewed an armed or an unarmed perpetrator during a live, staged crime event. Although the authors replicated this result after elevating witnesses’ anxiety (to better approximate some real-world witnessing conditions), memory was tested soon after the crime event, and it is unknown how long the training effects would last. Future research could examine whether training, perhaps combined with distributed practice or other techniques, would be successful after longer delays. If so, it could be beneficial especially for convenience store clerks and other categories of witnesses who are likely to run into armed perpetrators, as the authors pointed out.

**Limitations and future research**

This research investigated whether a stereotype about Black men could influence witnesses’ memory for individuals committing robberies with weapons typically used in street crimes (a gun and a knife). In a different situation, however, there might be some other stereotype that, if activated, would attenuate the weapon focus effect by increasing the extent to which witnesses expect to see a weapon. For example, witnesses to a terrorist scenario might more strongly expect a target individual to brandish a pipe bomb or assault rifle if his physical features suggest that he is Middle Eastern rather than White because Middle Easterners are more often associated with terrorism (Skorinko & Spellman, 2013). Furthermore, this tendency might be exacerbated if the Middle Eastern man wore a full beard and clothing associated with Arab culture or Islam rather than attire commonly worn in the U.S. Given previous data indicating that the strength of the weapon focus effect can depend on whether witnesses activate stereotypes related to gender or dangerousness as they view the perpetrator (Pickel, 2009), it seems logical that a variety of stereotypes could apply in different crime contexts.

A second limitation of this study is that our witnesses did not observe an actual crime, and their reports had no consequences for a real suspect. Thus, their motivation to remember the perpetrator accurately might not be the same as real-world witnesses’. Additionally, witnesses to actual crimes may be interviewed multiple times after delays of hours or days rather than only once and immediately, as in our experiments.

Another issue is that we used only a target-present lineup without including a target-absent one. We were primarily interested in measuring witnesses’ ability to identify the perpetrator rather than their ability to indicate that he was not pictured, because the former outcome is more likely to move the case against a suspect forward. Thus, like most weapon focus experiments that examine identification accuracy, ours had no target-absent lineup. Future research, however, should include both kinds of lineups, particularly given that a weapon’s presence may differentially affect identifications in the two types (Carlson & Carlson, 2014; Erickson et al., 2014). Moreover, including a target-absent lineup would permit the use of receiver operating characteristic (ROC) analysis (Gronlund, Wixted, & Mickes, 2014) and confidence-accuracy characteristic (CAC) analysis (Carlson, Dias, Weatherford, & Carlson, 2016) to examine witnesses’ identification performance as a function of weapon presence. These two methods will be crucial in helping investigators determine precisely how a weapon influences lineup accuracy.

A final suggestion for further study is to investigate the strength of the weapon focus effect when the perpetrator is Black and female. White participants rate Black women as less violent and aggressive than Black men (Navarrete, McDonald, Molina, & Sidanius, 2010), and in shooter studies they are biased away from, not toward, shooting Black women (Plant, Goplen, & Kunstman, 2011). Therefore, we tentatively predict that the weapon focus effect would not be as weak when the perpetrator is Black and female versus Black and male. However, it is nevertheless possible that the effect would be attenuated when the perpetrator is a Black woman as opposed to a White woman.

**Conclusion**

In this study, the weapon focus effect was weaker with Black than White male perpetrators, and it became nonsignificant when the Black perpetrator wore clothing that is strongly associated with Black men. The results are consistent with previous findings that the influence of a weapon’s presence depends on context, whether defined as the physical environment in which the scenario takes place (Pickel, 1999) or the perpetrator’s social category (Pickel, 2009; Pickel et al., 2008), and therefore they fit with the unusualness explanation for the weapon focus effect but not the threat explanation. From a practical standpoint, the data serve to illustrate how racial stereotypes can lead to disparate treatment of Black and White offenders.

**Acknowledgement**

We are grateful to Kayla Alves, Demani Arnold, Jacob Barnes, Alex Dilorio, Rahissa Engle, Rachel Gentry, Darryl (Dee) Jordan, Laura Kooiman, Sam Lawson, Tania Morales, Michael Moses, Megan Paschal, Kendra Stockberger, Ryan Strimple, and Sam Wisenden for their assistance.

**Disclosure statement**

No potential conflict of interest was reported by the authors.
Funding
This research was supported by a grant from the Joseph W. and Marcela S. Hollis Fund at Ball State University.

References


Stuff Black People Dig. (n.d.). Retrieved from https://stuffblackpeopledig.wordpress.com