Errors in eyewitness identification are the primary cause of wrongful convictions in the United States (Gross, Jacoby, Matheson, Montgomery, & Patil, 2005; Innocence Project, 2012). As of this writing, over 75% of the 291 exonerations made since 1989 involved convictions that were based partly—or, in some cases, entirely—on mistaken identifications (Innocence Project, 2012). Unfortunately, exonerees spent an average of 12 years in prison before their convictions were overturned (Garrett, 2008). These unsettling statistics highlight the dire consequences of errors in eyewitness identification.

Given the gravity of wrongful convictions, it is unsurprising that research has sought to...
Osborne and Davies

Systematic Misidentifications

Systematic memory biases have long-captured the attention of scholars (e.g., Bartlett, 1932). In an influential iteration of this theme, Roediger and McDermott (1995) showed that expectations lead people to mistakenly remember information that they never encountered. Subsequent research demonstrates that stereotypes produce similar false memories (Araya, Ekehammar, & Akrami, 2003; Lenton, Blair, & Hastie, 2001; Macrae, Schloerscheidt, Bodenhausen, & Milne, 2002).

Stereotypes also influence the type of information people remember. Specifically, stereotype-consistent information is remembered better than stereotype-inconsistent information (Bigler & Liben, 1993; Dijksterhuis & van Knippenberg, 1995; Macrae, Hewstone, & Griffiths, 1993). Though this finding is controversial (Rojahn & Pettigrew, 1992), a meta-analysis confirms that stereotype-consistent information is preferentially recalled relative to stereotype-inconsistent information (Fyock & Stangor, 1994). This memory bias is especially likely to occur when the information is about an outgroup (Koomen & Dijksterhuis, 1997). These findings imply that eyewitnesses will be particularly likely to remember stereotype-consistent aspects of a perpetrator's appearance. This would, in turn, lead to systematic errors in whom they mistakenly identify.

How might stereotypes become activated by crimes? Research demonstrates that stereotypes are automatically activated by environmental cues (Devine, 1989; Payne, 2005). Once activated, stereotypes are difficult to control (Bargh, 1999; Blair, Judd, & Fallman, 2004; Gilbert & Hixon, 1991). Because different crimes elicit different stereotypes about the race of the perpetrator (Jones & Kaplan, 2003; M. K. MacLin & Herrera, 2006; Willis Esqueda, 1997), the type of crime committed should automatically activate stereotypes about a perpetrator's appearance.

Though stereotypes are activated automatically, they may be differentially associated with members of the stereotyped group. Specifically, people whose features are perceived to be more Afrocentric (e.g., darker skin, thicker lips, and/or a wider nose; hereafter referred to as high on perceived Black stereotypicality (PS)) are seen as more representative of Blacks as a group than those whose features are perceived to be less Afrocentric (hereafter referred to as low on PS; Blair, Judd, Sadler, & Jenkins, 2002; Livingston &
Accordingly, people who are high on PS are (a) seen as more likely to engage in behaviors stereotypic of Blacks (Blair, Judd, & Fallman, 2004), (b) more effective at priming stereotypes about Blacks (Eberhardt, Goff, Purdie, & Davies, 2004), and (c) thought to have a stronger racial identification (Wilkins, Kaiser, & Rieck, 2010) than those who are low on PS.

Differences in PS also affect how Blacks are treated by the criminal justice system. Relative to Blacks who are low on PS, Blacks who are high on PS are seen as more likely to be (a) engaged in (Kahn & Davies, 2011) and (b) culpable of (Eberhardt et al., 2004) criminality. Once convicted, they receive harsher sentences (Blair, Judd, & Chapleau, 2004; Eberhardt, Davies, Purdie-Vaughns, & Johnson, 2006). It is therefore possible that people expect perpetrators of stereotypically Black crimes to be higher on PS than perpetrators of stereotypically White crimes. This should, in turn, systematically affect eyewitnesses’ memory of a perpetrator’s appearance.

Though never tested, research suggests that people’s memory of a perpetrator’s appearance will be affected by stereotypes. Eberhardt, Dasgupta, and Banaszynski (2003) showed that participants who were told that a racially-ambiguous face was Black subsequently recalled the face as being higher on PS (i.e., having more Afrocentric features) than did participants who were shown the same face but told the person was White. People also exaggerate the darkness of Black faces to a greater extent than they do for White faces (Levin & Banaji, 2006; O. H. MacLin & Malpass, 2001). Thus, stereotypes could embellish (or attenuate, depending on the stereotype) eyewitnesses’ perceptions of a perpetrator’s PS, thereby affecting whom they mistakenly identify.

Overview

This research is guided by two goals. First, we seek to demonstrate that people have stereotypes about a perpetrator’s appearance that vary by the type of crime committed. Study 1 addresses this goal by assessing participants’ stereotypes about the appearance (i.e., the level of PS) of perpetrators associated with different crimes. Second, we aim to assess the impact these stereotypes have on eyewitness identifications. Studies 2 and 3 address this objective by having participants watch a video of a suspect ostensibly accused of a stereotypically Black or White crime. Participants then performed an identification task in which the suspect’s appearance varied from low-to-high PS. By addressing these goals, our research expands the field’s understanding of the variables that affect the accuracy of eyewitness identifications. We also provide insight into whom eyewitnesses are likely to mistakenly identify.

Study 1

Study 1 seeks to demonstrate that people have stereotypes about the PS of a perpetrator and that these stereotypes vary by the type of crime committed. Though never examined, research indirectly supports this assertion. Specifically, studies show that people have distinct stereotypes about the appearance of perpetrators associated with different crimes (Bull & McAlpine, 2003; Dumas & Testé, 2006). Moreover, these stereotypes differentiate between the perpetrator’s race/ethnicity (M. K. MacLin & Herrera, 2006). It remains to be seen whether stereotypes about a perpetrator’s PS also exist.

The possibility that stereotypes about a perpetrator’s PS exist is of considerable importance. People whose appearance is consistent with stereotypes about a given crime are seen as more culpable (Berry & Zebrowitz-McArthur, 1988; Bodenhausen, 1990; Hurwitz & Peffley, 1997) and receive harsher punishments (Bodenhausen & Wyer, 1985; Jones & Kaplan, 2003) than people whose appearance is inconsistent with these stereotypes. Moreover, these biases emerge in actual courtrooms (Zebrowitz & McDonald, 1991). Thus, stereotypes about a perpetrator’s PS may constitute an unrecognized sentencing bias.

This study was designed to extend previous work by demonstrating the existence of stereotypes about a perpetrator’s PS. Because people who are high (relative to low) on PS are seen as
We predicted that participants would expect perpetrators of stereotypically Black crimes to be high (rather than low) on PS. Conversely, people should expect perpetrators of stereotypically White crimes to be low (rather than high) on PS.

Pretesting

Pretesting was used to identify six stereotypically Black and six stereotypically White crimes. Specifically, 33 undergraduates evaluated a list of 47 crimes on three dimensions: (a) seriousness, (b) violence, and (c) likely race of the perpetrator. The first two dimensions were rated on a 7-point Likert scale with anchors at -3 (Not at all) and 3 (Extremely), whereas the last dimension was rated on a 7-point Likert scale with anchors at -3 (Definitely White) and 3 (Definitely Black). The six crimes with the highest means and the six crimes with the lowest means on the last dimension were used to represent stereotypically Black1 and stereotypically White2 crimes, respectively. A paired-samples t-test confirmed that participants believed that the 6 stereotypically Black crimes were more likely to be committed by Black perpetrators (Mgroup = 1.92, SDgroup = 0.37), whereas the other target was low on PS (Mgroup = -0.57, SDgroup = 0.99). Paired-samples t-tests confirmed that participants found each of the target pairs to differ on their level of PS, ts > 3.80, ps < .01.

Method

Participants. Undergraduates (N = 39) participated in this study for course credit. Participants were young (M = 19.90, SD = 1.90), primarily women (N = 29), and self-identified as either Asian-American (N = 18), Latino (N = 7), or White (N = 9; 5 were classified as “Other”). Because ethnicity (minority vs. majority) did not moderate our results, we collapsed our data across ethnicity for the analyses presented below. None of the participants were involved in the pretesting sessions.

Design. This study was a within-participants design with a single factor (Type of Crime: stereotypically Black vs. stereotypically White). The dependent variable was the number of times participants selected the high PS target from the mug shot pairs.

Materials and procedure. Participants were told that we were interested in people’s intuitions about the appearance of perpetrators who were either Black or White. As such, participants believed that they would be randomly assigned to one of two groups: One group would see Black targets, whereas the other group would see White targets. In truth, all participants saw 12 mug shot pairs of Black targets who varied in their PS (high vs. low).

After hearing our cover story, participants were given instructions on how to perform the experimental task. Specifically, participants were informed that they would be shown a crime and a mug shot pair (see Fig. 1a). It was their job to decide which of the two targets committed the given crime. After making their selection, participants were shown a different crime paired with a
different mug shot pair. This was repeated for all 12 crimes.

To control for order effects, both the crimes and the mug shot pairs were randomly determined (without replacement). Thus, each of the 12 mug shot pairs could appear with any of the 12 crimes. Additionally, the position (left vs. right) of the high PS target was randomly determined. After participants completed this task, they were probed for suspicion, debriefed, and thanked for their participation.

Results

Our hypothesis was that people have stereotypes about a perpetrator’s PS and that these stereotypes vary by the type of crime committed. Specifically, stereotypically Black crimes should be more strongly associated with perpetrators who are high (rather than low) on PS. The opposite pattern should emerge for stereotypically White crimes.

To test this, participants’ target selections were analysed to assess the frequency at which they were selected relative to chance. If participants randomly selected the targets, then high PS targets would be chosen as often as low PS targets (three times each), irrespective of the crime. If, in contrast, participants had stereotypes about a perpetrator’s PS that varied by the type of crime committed, then high PS targets would be chosen more often than low PS targets when paired with stereotypically Black crimes. The opposite pattern should emerge when targets are paired with stereotypically White crimes.

To capture this response pattern, 3 was subtracted from the total number of times participants selected the high PS target for each type of crime. If participants never selected a high PS target for the 6 stereotypically Black crimes, their responses were coded as -3. In contrast, if participants selected all 6 high PS targets for the 6 stereotypically Black crimes, their responses were coded as 3. An identical scheme was used for the 6 stereotypically White crimes. The number of high PS targets selected for the two types of crimes was then submitted to a within-participants analysis of variance (ANOVA) with the Type of Crime (stereotypically Black vs.

Figure 1. Example stimuli used in Study 1 (left) and Studies 2–3 (right). Figure 1a provides an example of the mug shot pairs and question wording used in Study 1. Due to concern over ethics, however, the actual mug shot pairs used in Study 1 could not be published. As such, the example mug shot pairs shown here are of actual mug shots taken from www.cincymugshots.com. The people depicted in these photos were not suspected of the crime listed in the question wording shown above. The photo in Figure 1b is of the final picture shown in the stimulus video used in Studies 2–3. Full-color reproductions of these images are available by contacting the corresponding author.
Stereotypically White) entered as a repeated-measures factor.

Consistent with our hypotheses, there was a main effect for Type of Crime,$^3$ $F(1, 38) = 34.49, p < .01$, partial $\eta^2 = .48$. Specifically, participants selected the high PS targets more often when the mug shots were paired with stereotypically Black crimes ($M = 0.87, SD = 1.03$) than when they were paired with stereotypically White crimes ($M = -0.54, SD = 1.17$). A one-sample $t$-test confirmed that participants selected the high PS targets more often than chance (i.e., 0) when paired with stereotypically Black crimes, $t(38) = 5.28, p < .01$. In contrast, participants selected the low PS targets more often than chance (i.e., 0) when paired with stereotypically White crimes, $t(38) = -2.88, p < .01$.

Discussion

Different crimes elicit different stereotypes about the race of the perpetrator (Hurwitz & Peffley, 1997). What was unknown until now, however, was whether these stereotypes differentiate between perpetrators within these overarching racial categories. That is, research has overlooked the possibility that the applicability of these stereotypes vary based on the fit between the PS of the perpetrator and the given crime.

This study shows that stereotypes about a perpetrator’s PS do exist. Specifically, perpetrators of stereotypically Black crimes were seen as more likely to be high (rather than low) on PS, whereas perpetrators of stereotypically White crimes were seen as more likely to be low (rather than high) on PS. Because people exhibit stereotype-consistent memory biases (Fyock & Stangor, 1994), we predicted that participants’ expectations would influence their memory of the target’s PS. As such, participants who expect to see a person suspected of a stereotypically Black crime should recall the target as being higher on PS than would participants who expect to see a person either (a) suspected of a stereotypically Black crime, (b) suspected of a stereotypically White crime, or (c) involved in a control event. In truth, participants watched identical videos of a man leaving a building. Participants then completed an identification task that varied the target’s appearance from low-to-high PS.

Because people demonstrate stereotype-consistent memory biases (Fyock & Stangor, 1994), we predicted that participants’ expectations would influence their memory of the target’s PS. As such, participants who expect to see a person suspected of a stereotypically Black crime should recall the target as being higher on PS than would participants who expect to see a person either (a) suspected of a stereotypically Black crime, (b) suspected of a stereotypically White crime, or (c) involved in a control event. In contrast, participants who expect to see a person suspected of a stereotypically White crime should recall the target as being lower on PS than would participants who expect to see a person involved in a control event. In other words, participants should remember the target’s appearance in a stereotype-consistent manner.

Method

Participants. Undergraduates ($N = 131$) participated in this study for course credit. Participants were young ($M = 20.42, SD = 3.65$), primarily women ($N = 102$), and self-identified as either Asian-American ($N = 54$), Latino ($N = 15$), Middle Eastern ($N = 11$), or White ($N = 37$; 14 were classified as “Other”). Because ethnicity (minority vs. majority) did not moderate our results, we collapsed our data across ethnicity. That said, same-race and other-race faces are recognized differently.
(Meissner & Brigham, 2001). As such, participants who self-identified as Black were removed from the dataset (N = 4). Ten additional participants were removed for failing a manipulation check question that appeared at the end of the study (i.e., participants indicated the activity the target allegedly engaged in from a list of five activities). Inclusion of these participants does not change the pattern of results reported in this study. A final participant was removed for contributing an extreme value to the dependent variable (i.e., > 2.5 SD). Thus, the final sample size was 116.

**Design.** This study was a 3 (Crime: stereotypically Black vs. stereotypically White vs. control event) × 2 (Identification Direction: low-to-high PS vs. high-to-low PS) between-participants design. The dependent variable was participants’ memory of the target’s PS.

**Materials**

**Stimulus videos.** Three nearly-identical 19-s videos of a Black man (i.e., the target) leaving a building were developed. Each video contained 13 (4.30” × 3.55”) slides. The first slide was blank and displayed for 1 s. This was immediately followed by one of three text-only critical slides informing participants that they were about to see a video of a (a) suspected pimp (stereotypically Black crime), (b) suspected internet hacker (stereotypically White crime), or (c) man leaving a building (control event).4 The given critical slide was displayed for 5 s.

Following the critical slide, the video displayed a progression of three slides counting down from “3”. This was followed by six sequential pictures of the target leaving a building and a single blank slide. Each successive picture provided a clear/unobstructed view of the target walking closer to the camera (see Fig. 1b). To ensure that the target’s face was clearly seen, these pictures were taken at eye-level and under excellent lighting conditions. The three countdown slides, six sequential pictures, and single blank slide were displayed for 1 s each.

The final slide of the video was text-only and contained one of two messages. For the two crime videos, the final slide stated: “End of Surveillance Video.” The final slide for the control event video stated: “End of Video.” The respective final slide was displayed for 3 s. With the exception of the critical and final slides, the three videos were identical.

**Practice identification tasks.** FantaMorph version 4.0 (Abrosoft, 2007) was used to develop five practice identification tasks. FantaMorph morphs one photograph into another by creating a series of naturally-looking intermediate slides. For example, FantaMorph can take a photograph of Person A and morph it into a photograph of Person B so that the “person” displayed in any given slide appears real. FantaMorph also allows users to determine the number of intermediate slides used to create the morph, as well as the speed at which Person A is morphed into Person B. As such, the amount of time that passes before a given morph stops corresponds to the percentage of Person B that is morphed into Person A.

Each of the five practice identification tasks required the development of (a) a practice morph and (b) a corresponding practice target. Each practice morph was created by taking two separate mug shot style photographs of college–aged men (5 Black and 5 White), all of who displayed neutral expressions. A random one of these two photographs was then morphed into the remaining photograph. That is, either photograph A was morphed into photograph B, or photograph B was morphed into photograph A. This procedure was used to develop all five practice morphs, three of which morphed a mug shot of a Black (White) man into a White (Black) man. The two remaining practice morphs morphed a mug shot of a Black (White) man into a different Black (White) man.

The resulting practice morphs consisted of 100 (6.00” × 7.50”) slides (the actual photographs served as the 1st and 100th slides). Each practice morph took 10 s to morph from the 1st to the 100th slide. After the practice morph was created, a practice target was developed by
selecting a random intermediate slide from the
given practice morph.

After creating the five practice morphs and
five practice targets, five practice identification
tasks were developed. Specifically, the practice
identification task involved the initial presenta-
tion of the practice target. Participants then iden-
tified the practice target from a corresponding
practice morph by clicking a mouse when the
practice morph most-closely resembled their
memory of the corresponding practice target.
Longer response times indicate that participants
remembered the practice target as having a
greater percentage of features from the second
stimulus photo (i.e., the 100th slide) relative to
shorter response times.

**Target identification task.** Fantamorph (Abro-
soft, 2007) was used to develop two target iden-
tification tasks. This required the development
of a separate target morph which was done by
taking three separate mug shot style photographs
of college-aged men. The first photograph was
of a Black man who pretesting indicated was low
on PS (photograph A). The second photograph
was of a Black man who pretesting indicated was
high on PS (photograph C). These two men were,
however, matched on attractiveness. The third
photograph was of the target shown in the video
(photograph B). The target’s PS fell between the
men in photographs A and C. All of the men
were photographed displaying a neutral expres-
sion. A target morph was then created in which
the photographs were morphed from low (photo-
graph A) to moderate (photograph B) to high
(photograph C) PS.

The resulting target morph consisted of 100
\((6.0'' \times 7.50'')\) slides. The photograph of the
person low on PS served as the 1st slide and the pho-
tograph of the person high on PS served as the
100th slide. The photograph of the target served
as the 50th slide. Thus, Fantamorph (Abrosoft,
2007) created the 2nd through the 49th slides and
the 51st through the 99th slides of the target
morph. The target morph was programmed to
take 10 s to morph from the 1st slide to the 100th
slide. As such, each individual slide was displayed
for 1/10th of a second and represented an incre-
mental (and equidistant) transformation of the
target’s face from low-to-high PS.

After creating the target morph, two target
identification tasks were developed. Both tasks
had participants identify the target shown in the
video by clicking a mouse when the target morph
most-closely resembled their memory of the tar-
get. In one version, the morph began with the
photograph of the person who was low on PS
and ended with the photograph of the person
who was high on PS (i.e., the photos morphed
from low-to-high PS). In the other version, the
direction of the morph was reversed (i.e., the
photos morphed from high-to-low PS). Both ver-
sions took a total of 10 s to morph from the 1st
slide to the 100th slide. Responses were coded
such that longer response times indicate that the
target was recalled as being higher on PS relative
to shorter response times.

**Procedure.** Participants were run individually
through this study. Upon arrival, participants
were told that we aimed to examine people’s
memory of an event. To meet this objective, par-
ticipants were informed that they would be
shown a short video and later asked some ques-
tions about what they saw. The cover story
emphasized that participants should attend to the
video, as the questions at the end of the study
would be based on what they saw. Participants
were not, however, told that we were interested in
the accuracy of eyewitness identifications.

After being exposed to the cover story, partici-
pants were randomly-assigned to watch one of
the three stimulus videos. Following this, partici-
pants completed a 10-min distractor task.
Participants were then introduced to the practice
identification tasks under the pretense that we
had developed a new program that should
“improve the accuracy of eyewitness memory” by
allowing eyewitnesses to “make finer distinctions”
between people. Because the program was new,
participants were told that they should familiarize
themselves with it before identifying the target.

After being told the ostensible purpose of the
program, participants were given instructions to the
practice identification tasks. Specifically, participants were told that they would have 15 s to study the photograph of a practice target. Following this, they were informed that they would be asked to identify the practice target from a corresponding practice morph. To increase the accuracy of their identifications, participants were shown the practice morph twice; the first viewing exposed participants to the entire range of the practice morph, whereas the second viewing allowed participants to stop the practice morph when it most-closely resembled their memory of the corresponding practice target. This task was repeated until participants completed all five practice identifications.

Following these practice trials, participants were randomly-assigned to one of the two versions of the target identification task and given instructions on how to perform the task. Specifically, participants were told to identify the target in the stimulus video from the target identification task. As was done during the practice trials, participants were shown the target morph twice; the first viewing exposed participants to the entire range of the target morph, whereas the second viewing allowed participants to stop the target morph when it most-closely resembled their memory of the target. Unbeknownst to them, the percentage of the total (10 s) time that participants allowed the morph to continue (which corresponded with the target’s level of PS) was recorded and served as our dependent variable.

After completing the target identification task, participants were informed the study was over and probed for suspicion. None of the participants guessed the hypotheses of the study. Participants were then debriefed and thanked for their participation.

Results

To show that the direction of the identification task did not affect participants’ responses, we conducted a 3 (Crime) × 2 (Identification Direction) ANOVA on participants’ target identifications. Results confirmed that participants’ identification of the target was not affected by the direction of the identification task, \( F(1, 110) < 1.00, p = ns \), partial \( \eta^2 = .00 \). Likewise, identification direction did not interact with the crime, \( F(2, 110) < 1.00, p = ns \), partial \( \eta^2 = .00 \). We therefore dropped identification direction from subsequent analyses.

Our hypothesis was that the type of crime a person is suspected of committing affects eyewitness identifications. Specifically, participants who expect to see a person suspected of a stereotypically Black crime should remember the target as being higher on PS than would participants who expect to see a person either (a) suspected of a stereotypically White crime or (b) involved in a control event. This would be reflected in different relative percentages of photograph C (the person high on PS) that participants allowed to morph into photograph A (the person low on PS). To test this, we submitted participants’ target identifications to a one-way ANOVA.

Results confirmed that the type of crime the target was suspected of committing had a marginal effect on participants’ identification of the target, \( F(2, 113) = 3.06, p < .06, \) partial \( \eta^2 = .05 \) (see Fig. 2). As predicted, participants who expected to see a person suspected of a stereotypically Black crime recalled the target as being higher on PS (\( M = 59.43\% \ SD = 13.18 \)) than did participants who expected to see the same person either (a) suspected of a stereotypically White crime (\( M = 51.46\% \ SD = 16.01 \), \( F(1, 75) = 5.74, p = .02, \) partial \( \eta^2 = .07 \), or (b) involved in a control event (\( M = 53.10\% \ SD = 16.26 \), \( F(1, 79) = 3.72, p < .06, \) partial \( \eta^2 = .04 \). Surprisingly, participants who expected to see a person (a) suspected of a stereotypically White crime and (b) involved in a control event had similar recollections of the target’s PS, \( F(1, 72) < 1.00, p = ns \), partial \( \eta^2 = .00 \).

To further understand these results, we examined the extent to which participants made accurate (vs. inaccurate) identifications. Specifically, we conducted a set of one-sample \( t \)-tests in which participants’ target identifications were compared to the midpoint of the scale (i.e., an accurate identification). These analyses indicated that participants who expected to see a person suspected of a stereotypically Black crime recalled the target as being higher on PS than at the mid-point of the
In contrast, participants who expected to see a person suspected of a stereotypically Black crime recalled the target as being higher on PS than did participants who expected to see the same person either (a) suspected of a stereotypically White crime or (b) involved in a control event. This is the first study to demonstrate that stereotypes about a perpetrator’s appearance systematically affect the accuracy of eyewitness identifications.

Despite finding support for our first prediction, our results failed to support our second prediction. Specifically, participants who expected to see a person suspected of a stereotypically White crime did not recall the target as being lower on PS than participants who expected to see the same person involved in a control event. One explanation for this unexpected finding is that the surprise of seeing a Black suspect accused of a stereotype-inconsistent crime may attract eyewitnesses’ attention (e.g., see Sherman, Lee, Bessenoff, & Frost, 1998). This heightened attention would, in turn,
facilitate accurate identifications. Indeed, our results indicated that only participants in the stereotypically Black crime condition inaccurately identified the Black target. A complete discussion of these findings is saved for our general discussion.

Though these results are largely consistent with our predictions, it is possible that participants were responding to the specific crimes used in Study 2. That is, the memory biases observed in Study 2 may be due to something unique about pimping and internet hacking (rather than general stereotypes about the perpetrator’s appearance). Confidence in our results would be increased if we could show that these biases generalize to other crimes. As such, we conducted a third study using a pair of different crimes that were matched on properties relevant to criminality.

**Study 3**

The goal of Study 3 was to replicated Study 2’s findings using a different pair of crimes that only varied by their stereotypes about the perpetrator’s race. By replicating these results using a different pair of crimes, we can demonstrate the robustness of our results.

**Pretesting**

To isolate the effect that stereotypes about the race of a perpetrator has on eyewitness identification, the stereotypically Black and stereotypically White crimes used in the videos should be comparable on dimensions relevant to criminality. Because pretesting from Study 1 had participants evaluate each crime for (a) seriousness, (b) violence, and (c) race of the perpetrator, we reanalysed these data to identify a pair of crimes that were matched on seriousness and violence, yet differed by the likely race of the perpetrator. Paired-samples t-tests indicated that participants found drive-by shooting and serial killing to be equally (a) serious ($M = 2.67$, $SD = 0.74$ vs. $M = 2.82$, $SD = 0.88$, respectively), $t(32) = 1.30$, $p = .20$, and (b) violent ($M = 2.67$, $SD = 0.74$ vs. $M = 2.76$, $SD = 1.00$, respectively), $t(32) = 0.45$, $p = .65$. Most importantly, participants believed that drive-by shooters ($M = 2.36$, $SD = 0.60$) were more likely than serial killers ($M = -1.27$, $SD = 1.40$) to be Black, $t(32) = 12.77$, $p < .01$. As such, drive-by shooting and serial killing were used to represent the stereotypically Black and stereotypically White crimes, respectively.

**Method**

**Participants.** Undergraduates ($N = 42$) participated in this study for course credit. Participants were young ($M = 19.88$, $SD = 1.81$), primarily women ($N = 23$), and self-identified as Asian American ($N = 7$), Middle Eastern ($N = 3$), or White ($N = 30$; 2 were classified as “Other”). Because ethnicity (minority vs. majority) did not moderate our results, we combined our data across ethnicity. Moreover, five participants were removed for failing a manipulation check question that appeared at the end of the study (participants were asked to indicate the activity in which the target was allegedly engaged). Inclusion of these participants does not change the pattern of results reported in this study. Thus, the final sample size was 37.

**Design.** This study was a between-participants design consisting of a single factor (Crime: stereotypically Black vs. stereotypically White). The dependent variable was participants’ memory of the target’s PS (as operationalized in Study 2).

**Materials.** The materials used in this study were identical to those developed in Study 2 with three exceptions. First, because the direction of the identification task did not affect participants’ identification of the target, we only used one version of the target identification task (the low-to-high PS identification task). Second, because Study 2 showed that participants who saw the control event and stereotypically White crime videos did not differ in their memory of the target’s appearance, we dropped the control event video from this study. Third, we used a different pair of crimes in the video (drive-by shooting and serial killing). Aside from these changes, the materials used in this study were identical to those used in Study 2.
Procedure. Participants were run individually through this study. Upon arrival, participants were randomly-assigned to watch either the (a) stereotypically Black crime or (b) stereotypically White crime video. The remaining procedures were identical to Study 2.

Results

We hypothesized that the type of crime a person is suspected of committing affects eyewitness identifications. Specifically, participants who expect to see a person suspected of a stereotypically Black crime should remember the target as being higher on PS than would participants who expect to see the same person suspected of a stereotypically White crime. This would be reflected in different relative percentages of photograph C (the person high on PS) that participants allowed to morph into photograph A (the person low on PS). To test this, we submitted participants’ target identifications to a one-way ANOVA.

Results confirmed that the type of crime the target was suspected of committing affected participants identification of the target. As predicted, participants who expected to see a person suspected of a stereotypically Black crime recalled the target as being higher on PS ($M = 71.82\%$, $SD = 14.24$) than did participants who expected to see the same person suspected of a stereotypically White crime ($M = 56.75\%$, $SD = 21.92$), $F(1, 35) = 5.91$, $p = .02$, partial $\eta^2 = .14$. Thus, the type of crime the target was suspected of committing affected participants’ memory of his level of PS.

To further understand these results, we examined the extent to which participants made accurate (vs. inaccurate) identifications. Specifically, we conducted two one-sample $t$-tests in which participants’ target identifications were compared to the midpoint of the scale (i.e., an accurate identification). These analyses indicated that participants who expected to see a person suspected of a stereotypically Black crime recalled the target as being higher on PS than the midpoint of the scale, $t(19) = 1.34$, $p = ns$. Thus, only participants who expected to see a person suspected of a stereotypically Black crime made inaccurate identifications.

Discussion

This study sought to replicate the results produced in Study 2 using a different pair of crimes that varied solely by their stereotypes about the suspect’s appearance. Consistent with our hypothesis, participants who expected to see a person suspected of a stereotypically Black crime remembered the target as being higher on PS than did participants who expected to see the same person suspected of a stereotypically White crime. Notably, these crimes were matched on dimensions relevant to criminal activity. This increases our confidence that the memory biases observed in this study were due to stereotypes about the perpetrator’s appearance. Thus, this study speaks to the robustness of the memory biases demonstrated in Study 2.

General Discussion

Our research was guided by two goals. First, we sought to demonstrate that people have stereotypes about a perpetrator’s PS and, moreover, that these stereotypes vary by the crime committed. Assuming these stereotypes exist, our second goal was to demonstrate their impact on eyewitness identifications. In pursuing these goals, we conducted three studies that provide insight into whom eyewitnesses are likely to mistakenly identify.

As predicted, Study 1 showed that people have stereotypes about the appearance of perpetrators. Importantly, these stereotypes vary by the crime committed: Participants expected perpetrators of stereotypically Black crimes to be high (rather than low) on PS, whereas they expected perpetrators of stereotypically White crimes to be low (rather than high) on PS. Studies 2 and 3 built on these findings by showing that these stereotypes affect people’s memory of a suspect’s appearance.
Participants who expected to see a person suspected of a stereotypically Black crime recalled the target as being higher on PS than did participants who saw the same person but believed he was suspected of a stereotypically White crime. These findings have important implications for the criminal justice system. Over 75% of the wrongful convictions identified in the United States are caused by mistaken identifications (Garrett, 2008; Innocence Project, 2012). Though research has assumed that there is no pattern to who is mistakenly identified, Studies 2 and 3 suggest that these mistakes may be systematic. Specifically, stereotypes about the appearance of a perpetrator may make some suspects more likely than others to be mistakenly identified. Indeed, though Blacks constitute just over 25% of all arrests in the United States (Federal Bureau of Investigation, 2009), they account for over 40% of all mistaken identifications (Innocence Project, 2012). Taken with the results produced in Studies 2 and 3, this implies that there may be a discernible pattern to whom eyewitnesses mistakenly identify.

We should note, however, that our study is admittedly NOT a standard eyewitness identification task. Nevertheless, we believe that our results have implications for real-world identifications. Specifically, because the type of crime committed affects the accuracy of eyewitness identifications, eyewitnesses could provide sketch artists with biased depictions of perpetrators. These biased sketches could, in turn, influence who police (a) question, (b) present to eyewitnesses, (c) build a case around, (d) etc. Still, given the non-traditional nature of our identification task, policy recommendations based on this research should be made with caution until our results are replicated using procedures similar to those implemented in standard identification tasks.

Contributions

Our research makes a number of contributions to the literatures on (a) stereotypes and criminality, (b) memory biases, and (c) PS. We address each of these contributions below.

Criminal stereotypes. Research shows that people have stereotypes about a perpetrator’s appearance that vary by the type of crime committed (Berry & Zebrowitz-McArthur, 1988; Bull & McAlpine, 2003; Dumas & Testé, 2006). Moreover, these stereotypes differentiate between the perpetrator’s race (Bodenhausen & Wyer, 1985; Hurwitz & Peffley, 1997; Jones & Kaplan, 2003): Blacks are seen as more likely than Whites to commit violent crimes, whereas Whites are seen as more likely than Blacks to commit white-collar crimes (Gordon, Michels, & Nelson, 1996). We add to this literature by showing that these stereotypes extend to a perpetrator’s PS. This finding is particularly noteworthy. As indicated earlier, people whose appearance is consistent with stereotypes about the crime for which they are accused are seen as (a) more culpable (Berry & Zebrowitz-McArthur, 1988) and (b) receive harsher punishments (Jones & Kaplan, 2003) than their counterparts whose appearance is inconsistent with these stereotypes. Thus, stereotypes about a perpetrator’s PS may affect perceptions of culpability and sentence length. Indeed, Eberhardt, Davies, Purdie-Vaughns, and Johnson (2006) found that Blacks who were high on PS were more than twice as likely as their low PS counterparts to receive the death penalty for capital offenses.

Memory biases. Our research also adds to the literature on memory biases. Past work has shown that people recall stereotype-consistent information better than stereotype-inconsistent information (Fyock & Stangor, 1994). This is particularly true when the to-be-remembered information is about an outgroup member (Koomen & Dijker, 1997). What was unknown until now, however, was whether these memory biases also affect eyewitness identifications.

Studies 2 and 3 demonstrate that stereotype-consistent memory biases do affect eyewitness identifications. Specifically, participants who expected to see a person suspected of a stereotypically Black crime remembered the Black target as being higher on PS than did those who saw the same person, but believed he was suspected of
a stereotypically White crime. This suggests that eyewitnesses to stereotypically Black crimes may be particularly likely to mistakenly identify suspects who are high on PS.

These stereotype-consistent memory biases did not, however, occur for stereotypically White crimes. Specifically, participants who expected to see a person suspected of a stereotypically White crime accurately recalled the target's level of PS. This would make sense if the initial surprise of seeing a person engaged in a stereotype-inconsistent act attracts eyewitnesses’ attention (e.g., Sherman et al., 1998), thereby facilitating memory for both stereotype-consistent AND stereotype-inconsistent details. In contrast, eyewitnesses who see a person engaged in a stereotype-consistent act may believe that there is no reason to pay close attention. As such, the finer details that are stereotype-consistent will be attended to at the expense of stereotype-inconsistent details. As pointed out by a helpful reviewer, this implies that, for stereotypically White crimes, White suspects will be more likely than Black suspects to be mistakenly identified. This is an interesting hypothesis that awaits further study.

Perceived stereotypicality. Our research also has implications for our understanding of PS. Most studies focus on how variations of PS affect outcomes such as sentence severity (Blair, Judd, & Chapleau, 2004; Eberhardt et al., 2006) and shooter biases (Kahn & Davies, 2011). Our research, however, shows that the context (i.e., the type of crime committed) can affect people’s memory of a target’s PS (also see Eberhardt et al., 2003). This opens up the literature on PS to a variety of topics.

Future Research

Future studies should focus on moderators of the effects produced in this research. Because stereotypes are particularly likely to be used when cognitive resources are depleted (Bargh, 1999; Macrae, Hewstone, & Griffiths, 1993), the results produced in Studies 2 and 3 are likely conservative estimates of the impact that stereotypes about a perpetrator’s PS have on eyewitness identifications. Indeed, many estimator variables—factors that likely deplete eyewitnesses’ cognitive resources—increase the rates of mistaken identifications (Loftus et al., 1987; Morgan et al., 2004; Stanny & Johnson, 2000). Investigating the effects these factors have on eyewitnesses’ memory of a perpetrator’s memory will be a promising direction for future research.

It should be noted that people have stereotypes about the appearance of people who belong to many different social groups (e.g., Berry & McArthur, 1985; Bull & McAlpine, 2003). For example, people would likely expect a prostitute to have more feminine facial features than a pimp. The results from our research suggest that these expectations will systematically affect eyewitness identifications. Examining how stereotypes affect eyewitnesses’ memory across other dimensions of perceived stereotypicality is another exciting direction for future research.

Conclusion

Errors in eyewitness identification contribute to more wrongful convictions than any other factor (Garrett, 2008; Innocence Project, 2012). Given the gravity of these errors, it is no surprise that scholars have focused on uncovering the factors that affect when these mistakes will occur (see Meissner & Brigham, 2001; Wells & Olson, 2003). Nevertheless, a critical facet of mistaken identifications has been overlooked until now. Namely, research failed to indicate who is most likely to be mistakenly identified.

We addressed this oversight by demonstrating that the type of crime committed could affect whom eyewitnesses choose from a lineup. Specifically, we showed that the type of crime committed elicits expectations about the perpetrator’s PS (Study 1). These stereotypes, in turn, can affect eyewitnesses’ memory of the perpetrator in a stereotype-consistent manner (Studies 2 and 3). This implies that there may be a systematic pattern to who will be mistakenly identified. Though more research is needed to examine the potential moderators of these effects, our findings shed a
light on who is most likely to be the victim of mistaken identifications.

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Notes
1. The stereotypically Black crimes were drive-by shooting, gang-related beating, pimp, carjacking, cop killer, and street gambling.
2. The stereotypically White crimes were internet hacker, insider trading, hate crime, identity theft, embezzlement, and serial killer.
3. Participants’ ethnicity did not moderate this effect, F(1, 37) = 0.01, p = ns.
4. Pretesting from Study 1 confirmed that pimps (M = 1.82, SD = 1.16) were seen as more likely than internet hackers (M = 2.12, SD = 0.78) to be Black, t(32) = 13.66, p < .01.
5. Participants’ ethnicity did not moderate this effect, F(2, 110) = 0.01, p = ns.
6. Participants’ ethnicity did not moderate this effect, F(1, 33) = 3.10, p = ns.

References


