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Published online: 18 Sep 2015.

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Tipping the Scales: How Defendant Body Type May Result in Eyewitness Biases

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Body type is often overlooked as a basis for discrimination and has rarely been examined in legal contexts. The present research examined the role of body type on eyewitness line-up misidentification. Participants watched a video of a violent crime or theft and were asked to select the defendant out of a suspect-absent line-up. The lineup included digitally altered photos displaying muscular, normal weight, and overweight defendants. Muscular defendants were most likely to be mistakenly selected out of the simultaneous line-up, and overweight defendants were least likely to be selected. These results indicate that body type may be a biasing factor in comparative eyewitness evaluations.

Key words: bias; discrimination; eyewitness; juror; legal decision-making; line-up.

Legal decision-making and eyewitness identification are prone to the same kinds of biases as other cognitive processes, including the potentially biasing effects of legally irrelevant physical characteristics of the person. One of the most widely studied physical person biases within the legal context is own-race bias, which refers to eyewitnesses recognizing own-race faces better than the less familiar faces of other races (e.g., Brigham, Bennett, Meissner, & Mitchell, 2007; MacLin & Malpass, 2001; Malpass, 1974; Meissner & Brigham, 2001; Ng & Lindsay, 1994; Sporer, 2001; Wells & Olsen, 2001). Similarly, gender, age, and attractiveness biases have also been found within the eyewitness recognition literature (Darby & Jeffers, 1988; Harrison & Hole, 2009; Wright & Sladden, 2003), demonstrating a propensity for better recognition of suspects who possess characteristics the

witness has a lot of exposure to, and who possess similar physical features as the witnesses themselves. A related line of research has looked into the stereotypicality of the physical person characteristics of suspects. This literature asks whether some people stereotypically look more like offenders and whether this has legal repercussions. A series of studies has demonstrated the importance of facial trustworthiness (Korva, Porter, O'Connor, Shaw, & ten Brinke, 2013), attractiveness (Efran, 1974), and race (Brown, Henriquez, & Groscup, 2008; Mitchell, Haw, Pfeifer, & Meissner, 2005) for mock-juror sentencing − with suspects who are rated to look more like criminals receiving harsher sentences, needing fewer pieces of evidence to be convicted, and being less likely to receive an acquittal in light of exonerating evidence. To date, the research demonstrating

such eyewitness and juror reliance on irrelevant physical person characteristics in identification and sentencing has focused almost exclusively on biases related to facial characteristics. However, in legal viewing conditions it seems likely that an eyewitness or juror would see more of a perpetrator than just the face. The present research is the first to examine whether the body type of a suspect can additionally impact upon the partiality of legal decision-makers in line-ups, which would suggest the presence of a body type bias in legal processes.

While the influence of body type on legal processes is underdeveloped, the social psychological literature has an area of research focusing on the everyday implications of one body type in particular − the overweight body type. Referred to as weight bias (e.g., Puhl, Latner, King, & Luedicke, 2014), weightism (e.g., Bucchianeri, Eisenberg & Neumark-Sztainer, 2013), or antifat bias (e.g., Schwartz, Vartanian, Nosek, & Brownell, 2006), it involves a negative perception of individuals who are viewed to be overweight. This bias is generally associated with the perception of overweight individuals as inactive, lazy, neglectful, and in poor health (Brochu & Esses, 2011). This stereotyping due to weight and body type affects our daily lives, and such prejudices can have implications such as diminished employment opportunities (Larkin & Pines, 1979; Marlowe, Schneider, & Nelson, 1996; O'Brien et al., 2008; Przygodzki-Lionet, Olivier, & Desrumaux, 2010), lower salaries (Pagán & Dávila, 1997; Rudolph, Wells, Weller, & Baltes, 2009), worse health care provision (Davis, 1998), and being seen as more deserving of verbal abuse (Nabors et al., 2011). Even health care professionals specializing directly in obesity treatment often have strong negative biases towards obese individuals (Puhl et al., 2014; Teachman & Brownell, 2001), demonstrating the persistence of these body type stigmas.

This same weight bias could also cloud the legal system, possibly resulting in biased eyewitness identification and jury decision-making − a finding supported in a study conducted by Schvey, Puhl, Levandoski, and Brownell (2013). Schvey and colleages (2013)

found that both the weight and gender of a defendant affect juror perceptions of responsibility and guilt. In this study, participants were given vignettes of cheque fraud while viewing an image of the alleged defendant and were asked to rate the defendant's culpability. Photos depicted a lean male, a lean female, an obese male, or an obese female. This study was one of the first to examine the impact of weight on legal decision-making, but the inclusion of only a fraud vignette leaves the effect of weight bias on other types of crime unexplored. Additionally, it does not examine the potential misidentification of suspects based on body type, or whether these body type effects exist in comparative line-up evaluations. Finally, the Schvey and colleagues (2013) study only included a lean and an obese condition, disregarding the potential impact of a muscular body type. Another study, involving long trial summaries, examined the influence of patient weight on juror decisions and perceptions regarding medical malpractice suits for elective surgeries (Reichert, Miller, Bornstein, & Shelton, 2011). This study also found an overall prejudice against overweight patients, but pointed to some issues because the effects of students and jurors were contradictory when it came to assigning patient responsibility. Students found overweight patients more responsible for their situation than normal-weight patients, but actual jurors found the opposite. This highlighted that caution should be taken when generalizing mock-jury student data, but it also had some limitations. The study did not examine muscular defendants or criminal scenarios and examined a legal issue that is directly related to health, which may have changed the role of weight in this decision-making process when compared to cases involving violent crime or theft. It appears that further work needs to be done in this area to clarify the role of body type, particularly of muscular body types, for legal decision-making.

In addition to the examination of weight bias, there has been some examination of links between body type and behaviour over the past century − specifically the social stereotypes associated with muscularity and

masculinity. During the 1940s, Sheldon and colleagues proposed that physique may be associated with temperament and propensity for criminal behaviour (Sheldon, Stevens, & Tucker, 1940). Sheldon's research suggested that the muscular individuals, who he referred to as 'mesomorphic', were more likely to engage in aggressive and violent acts. While trying to establish causal relationships between physical attributes and behaviour or personality has long been contentious (for opponents of Sheldeon see: Glueck & Glueck, 1956; Maddan, Walker, & Miller, 2008; Rafter, 2007), there is some evidence that supports a link that may be relevant for legal settings. In males, a positive relationship has been demonstrated between upper body strength and the likelihood of anger, physical altercations, belief in personal and political aggression, and success in conflict (Sell et al., 2009). Similarly, measures of upper body muscularity in males have been shown to correlate positively with proneness to anger and some forms of aggression (Price, Kang, Dunn, & Hopkins, 2011). In accordance with this, social perceptions have also tended towards linking a muscular body type with the perception of increased likelihood of aggression (Gacsaly & Borges, 1979), and impulsivity (Frederick & Haselton, 2007). In facial appearance studies, researchers have also demonstrated that male faces displaying a high level of testosterone-associated characteristics are rated as dominant and masculine, as well as having little warmth, emotionality, honesty, and cooperativeness (Perrett et al., 1998). These studies suggest that individuals who look muscular are stereotypically presumed to possess criminally relevant traits. These perceived correlations between muscularity and criminally relevant characteristics, combined with inaccurate body stereotypes perpetuated by society, and the already imperfect cognitive processes that eyewitnesses and jurors engage in, may well result in a body type bias that seeps into our legal system.

The Present Study

The present study examines the role of body type in potentially biasing a legally relevant

decision-making situation − eyewitness line-up identification. We examined the likelihood of a muscular, overweight, or normal-weight suspect being misidentified out of a line-up. We also examined whether the type of crime mattered − participants were presented with either violent or nonviolent criminal scenarios. This manipulation was introduced because it seemed plausible that body type, specifically muscularity, could be more stereotypically linked to violent crimes than to nonviolent crimes. However, it was predicted that suspect muscularity would impact decision-making for all types of crime, as participants would *generally* identify the muscular suspects as having more stereotypically criminal characteristics than normal-weight or overweight suspects. This study represents a novel contribution to both the stereotyping and the psycho-legal literature.

Method

We examined how muscularity can bias eyewitness line-up identification. By providing participants with a video of a staged crime, followed by an identification task, we could examine the propensity for eyewitnesses to misidentify muscular suspects. We predicted that muscular suspects would be more often misidentified than normal or overweight suspects, because they look more stereotypically criminal.

Participants

The sample included 93 (male $N = 30$, female $N = 63$) undergraduate students from a Canadian university. Participants were recruited via an online tool used by students to schedule participation in research and receive course credit. Participants were between 17 and 27 years of age ($M = 19.55$, $SD = 1.93$) and were primarily Caucasian ($N = 66$).

Procedure

All participants completed the study online. Participants watched one of two short (approximately 20-second) videos featuring depictions of a crime. Each video featured the same two adult Caucasian male actors in

a park setting with identical lighting (late afternoon) from the same viewing point. The perpetrator in the videos wore a grey hoodie covering his hair and dark knee-length shorts. Both the perpetrator and victim were young males of comparable build and height, approximately 6 feet tall and 180 pounds and their build most closely resembled the normal body type. To imitate realistic viewing conditions, lighting and point of view made it difficult for participants to determine the exact characteristics of the individuals (e.g., facial characteristics). The violent video depicted a brief altercation where the victim was physically struck before the assailant stole his wallet and left the scene. The nonviolent video featured the victim having his wallet passively stolen while it was placed beside him. Participants were randomly assigned into either video condition. The inclusion of two conditions of varying severity allowed us to test whether suspect muscularity was relevant for decisions pertaining only to violent crime, only to nonviolent crime, or to both types of crime. After watching either of the two videos, participants completed a distractor task (a logic puzzle task) to introduce a delay between witnessing the crime and being asked to identify the perpetrator.

Participants were then presented with a simultaneous photo line-up of male individuals. A simultaneous line-up was chosen in order to force relative judgements by participants, and because this is the most commonly used line-up procedure in correctional settings (e.g., Steblay, Dysart, & Wells, 2011). To create this line-up, 10 volunteers were photographed from the waist up, standing against a white background. Individuals presented in the line-up were matched for physical appearance, all being Caucasian with brown hair and of similar body weight. All individuals were clothed in the same white sleeveless shirt. Original photographs were digitally altered to create three stereotypical body types for each individual; muscular, overweight, and neutral. The muscular body type depicted broad shoulders and

accentuated chest and arm muscles, while the overweight body type featured an emphasis on excess body fat of the arms, stomach, and face. The neutral body type was the original unmanipulated photo. A pilot study was conducted to identify which of the 10 volunteers most represented the stereotypic physical traits, and to assess the realism of the digitally altered photos. The six most realistic and stereotypical subject photograph sets were chosen for use in the study − with sets including the same faces on each of the three different body types.

Line-ups were created using the digitally altered photos, with two suspects of each body type included in each line-up. This meant that six different faces were included in each line-up, with two of each body type. Which individuals (i.e., faces) were displayed with which body type (the manipulated body types) was randomized consistently across all members of the line-up, and participants were randomly assigned to the line-up combination that they were exposed to. In other words, the body types presented in each line-up were randomized to rule out the influence of facial characteristics on identification. Study participants were instructed to identify the subject that they witnessed committing the robbery in the video. This was a forced false-identification procedure, meaning that the true perpetrator of the crime was not actually offered as a suspect choice in the line-up and that participants had to identity a foil. Participants were unaware that the perpetrator was not in the line-up. This is in line with previous research methods used to examine stereotyping in eyewitness identification tasks (e.g., Wright, Boyd, & Tredoux, 2001), resulting in participants having to rely on judgements regarding the suspect in the line-up being a close enough match with the perpetrator, which may prompt increased reliance on stereotypes. Additionally there was no designated innocent suspect in the culprit-absent line-up, as all suspects were selected to match the general physical characteristics of the perpetrator. The rationale for the present

methodology was to maximize the potential stress experienced by online respondents who had to identify a suspect whom they had only briefly witnessed committing a crime from a line-up. This was done to simulate the circumstances in which witnesses of actual crimes may be pressured into selecting a perpetrator out of a line-up and feel they cannot default to nonidentification. Additionally, while there have been some notable research-based reforms for collecting eyewitness identification that include the stipulation that the witness must be told that the perpetrator may or may not be present in a line-up (particularly in the United States, Canada, and the United Kingdom; e.g., Wells, Stemblay, & Dysart, 2012), acceptance of these guidelines has been slow and in many countries remains completely absent.

Feedback was not provided to participants about whether they made correct identifications. Participants indicated which image they identified as the perpetrator out of the line-up, and this selection was coded as belonging to one of three categories; muscular, normal weight, or overweight.

Results

Hierarchical log-linear analysis was performed to assess potential interaction effects between the type of crime (violent or nonviolent) and the suspect body type selected by the participants. Chi-square tests were then performed on the selected body type variable to assess significant differences between the categorical groups. The three-way log-linear analysis produced a final model that retained one effect. While no significant interaction effects were found between body type and crime type, follow-up chi-square tests on the body type variable indicated that a difference existed between the selected suspect body type regardless of the condition; $\chi^2(2) = 24.065, p < .001$. Therefore, the analysis suggests a fundamental difference in body type identification. Based on participant endorsement percentages, presented in Figure 1, the

data suggest that participants most often misidentified muscular suspects from the line-up. Participants were also more likely to misidentify normal weight suspects from the line-up than overweight suspects. These findings are in line with our predictions.

Discussion

Consistent with our predictions, this study demonstrated a biasing effect of body type on eyewitness identification for a simultaneous culprit-absent line-up. Muscular suspects were most often misidentified, followed by misidentification of normal and then overweight suspects (see Figure 1). This finding is consistent with the previous literature on stereotyping and discrimination. Because no real memory cues could be relied upon for the suspect identification since participants were not presented with the real culprit, participants were expected to rely on stereotypes and innate cognitive biases when erroneously selecting an individual out of the line-up. Type of crime had no effect on participant choices in this study, suggesting that a muscular body type may be consistently associated with criminal conduct regardless of whether or not the crime involves violence. This study suggests that individuals may form rapid evaluations based on physical body type characteristics that affect their line-up selection, at least in line-ups where participants are not given a 'not present' option for suspect identification. Such erroneous intuitive evaluations could lead to legal concerns, especially in countries that have no regulations regarding line-up administration. Note that in countries that have mandated no-pick police line-up options the present research may overestimate the prevalence of body type biases, but it may still help inform impartial line-up construction. Additionally, target-absent line-ups tell only part of the story – how well people can detect the *absence* of the target. It is important for future research to examine how well witnesses can identify a perpetrator of different body types out of a target-present lineup.

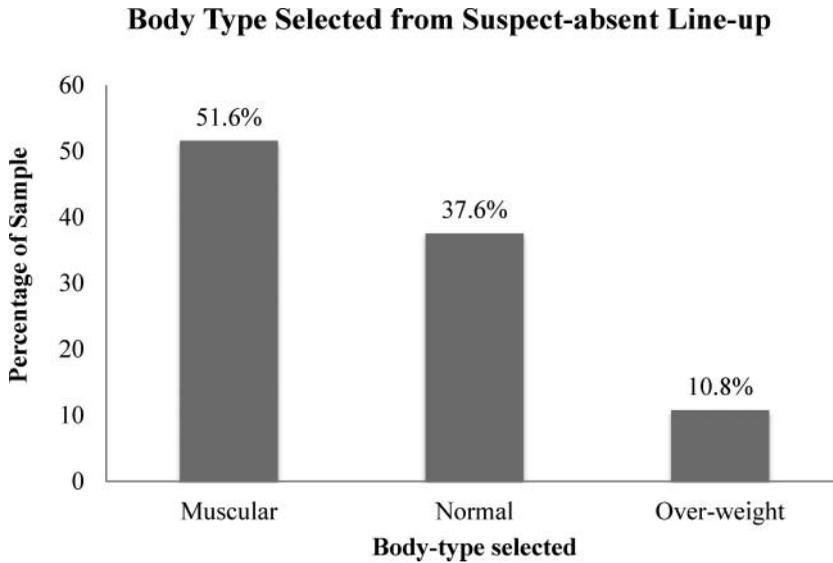## Body Type Selected from Suspect-absent Line-up

Figure 1.   Percentage of participants who misidentified muscular, normal weight, or overweight suspects from the suspect-absent line-ups. Because there were no differences found between conditions, results from the violent and nonviolent conditions have been collapsed in this figure.

This study expands our current understanding of eyewitness biases and misidentification of suspects, but there are several limitations that should be kept in mind. First, because these tasks were not part of an actual police investigation or court process, the legal implications may differ from the results found in this study. While we attempted to create situations that were as realistic as possible, there are clearly some key differences between the conditions and tasks presented in these studies and in legal investigations. Additionally, in order to manipulate suspect photo physique and avoid potential confounding variables such as facial features, we used photo manipulation software to edit the body types of our mock-suspects. The digitally altered photos used in the studies were reported as realistic by a pilot sample, and photos were rated as similar to each other on a number of other relevant characteristics (including attractiveness and trustworthiness), but it is possible that these photos somehow differ from photos of individuals who are actually muscular, normal weight, or overweight. Also, future research should examine differences between participants

who are offered a no-pick or don't know option, rather than a forced misidentification, and could benefit from including both culprit-present and culprit-absent line-ups. Future research must also explore the difference between the biased responding that is postulated to be occurring here and other factors that might influence responding, such as participant memory and the perceived similarity of the target in the video to the digitally altered photos. Finally, the use of a student sample may be problematic in this type of study, as students have been shown to exhibit more negative weight bias than community samples (Reichert et al., 2011). While this limits the generalizability of this research, the present study still provides insight into the process of decision-making and the interpretation and integration of body-type information.

Because of the key role that eyewitnesses and jurors play in many legal proceedings, research aiming to understand biases has implications for the development of safeguards to prevent biased decision-making. The present research suggests that defendant body type can potentially influence eyewitness partiality, agreeing with research

suggesting that body type can influence perceptions of culpability. Awareness of this potential source of bias can lead to more cautious decision-making. Further research is needed to examine whether body type has an impact on eyewitness misidentifications across other kinds of legally relevant scenarios and in jury decision-making, but the present research expands our current understanding of the kinds of stereotypes that could contribute to the misidentification of innocent defendants in legal contexts.

Disclosure statement

No potential conflict of interest was reported by the authors.

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