

The Police Officer Perception Project (POPP): An experimental evaluation of factors that impact perceptions of the police

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Abstract

Objectives To experimentally evaluate the effects of attire and patrol strategy esthetics on participants' perceptions of police officers.

Methods Using a rigorously controlled experimental methodology, I present participants ($N = 307$) with images of police officers in different attire (i.e., uniform and civilian) and patrol strategies (i.e., on a bicycle, on foot, and in a vehicle) and measure their perceptions of these officers as aggressive, approachable, friendly, respectful, and accountable.

Results Participants express relatively positive perceptions of the police; however, their perceptions vary as a function of sociodemographics, attire, and patrol strategy. Police officers are generally perceived more favorably when presented in police uniform than when presented in civilian clothing. Police officers are also generally perceived more favorably when presented on a bicycle and/or on foot than when presented in a vehicle.

Conclusions Merely observing police officers in different attire and patrol capacities produces substantial variation in perceptions of those officers. Given that most 'police interaction' occurs in relatively unceremonious settings without any exchange of formal dialogue between the public and the police (e.g., observing a police officer in passing), these findings are particularly fruitful for informing both research and practice. This is the first known study to use an experimental methodology to examine how esthetic factors of different patrol strategies can impact perceptions of the police.

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Introduction

As an institution, the police are particularly sensitive and vulnerable to public opinion due to their contentious role in society. Although the public's attitudes toward the police have generally been positive (e.g., Cao et al. 1996; Dai and Jiang 2016; Frank et al. 2005; Ivković 2008), recent events involving public–police violence have pivoted the public and the police against each other in highly problematic (and publicized) ways. In response, police departments have increasingly begun to modify their practices in attempts to restore public–police relations. For example, many departments nationwide have implemented body camera programs in hopes of increasing their officers' accountability. Many departments have also introduced citizen police academies and informal coffee hours with community members (e.g., 'Coffee with a Cop') in hopes of improving their officers' perceived approachability. Although practitioners often presume that these interventions impact perceptions of their officers in positive and meaningful ways (as evidenced by the recent expansion of such programs), the presence and/or magnitude of these effects are not yet fully known. Considering the immense personnel and resource costs associated with such interventions, research should also examine the potential benefits of less intensive interventions. It is possible that even mere presence factors (i.e., absent contact), such as the *appearance* of police officers in different attire and patrol capacities, may be enough to impact their perceived approachability, accountability, respectability, and so on. Little research, however, has experimentally explored the perceptual effects of these types of factors. Instead, past research has generally examined the effects of demographic, contextual, and/or contact factors on perceptions of the police.

For example, scholars have found that age can predict perceptions of the police, with older citizens reporting more positive attitudes toward the police than younger citizens (e.g., Bridenball and Jesilow 2008; Ivković 2008; Jesilow et al. 1995; Reisig and Giacomazzi 1998). Scholars have also found that gender (e.g., Cao et al. 1996; Ivković 2008) and race (e.g., Brick et al. 2009; Frank et al. 2005; Leiber et al. 1998; Prine et al. 2001; Weitzer and Tuch 1999, 2004; Weitzer et al. 2008) can predict perceptions of the police, with females and Whites reporting more positive perceptions of the police than males and non-Whites (although the evidence for these factors has been more mixed; e.g., Bridenball and Jesilow 2008; Cao et al. 1996; Dai and Jiang 2016; Jesilow et al. 1995). In terms of contextual factors, scholars have found that residents who report greater satisfaction with their neighborhood (Cao et al. 1996) and/or live in less concentrated disadvantage (Sampson and Bartusch 1998) generally report more favorable perceptions of the police than residents who report less satisfaction and/or live in greater concentrated disadvantage. Finally, scholars have found that encounters with the police can impact perceptions of the police in significant and meaningful ways (e.g., Bradford et al. 2009; Brick et al. 2009; Bridenball and Jesilow 2008; Jesilow et al. 1995; Leiber et al. 1998; Maguire et al. 2016; Mazerolle et al. 2012, 2013; Skogan 2005, 2006; Weitzer and Tuch 1999, 2004; Weitzer et al. 2008).

Although these studies have provided valuable insight into a wide array of factors that can explain perceptions of the police, it is important to note that many of them have relied on traditional survey and interview methodologies (e.g., Bradford et al. 2009; Bridenball and Jesilow 2008; Cao et al. 1996; Frank et al. 2005; Ivković 2008; Jesilow et al. 1995; Prine et al. 2001; Reisig and Parks 2000; Skogan 2005, 2006; Weitzer and Tuch 1999, 2004; Weitzer et al. 2008; Worrall 1999; Wu et al. 2011). Thus, it is possible that our ability to fully disentangle the spectrum of factors that can impact perceptions of the police may be enhanced by using more experimental methodologies (e.g., Maguire et al. 2016; Mazerolle et al. 2012, 2013; Seron et al. 2006).

The present research, therefore, employs a novel strategy in order to explore the effects of esthetic factors associated with the police on perceptions of the police. For example, does presenting an officer in uniform versus civilian attire, or on foot versus in a vehicle, impact perceptions of that officer? More importantly, the present research measures these effects in an experimental context where participants are blind to the research questions of interest. In doing so, this experiment, titled the Police Officer Perception Project (POPP), overcomes many of the limitations of past studies that have relied on non-experimental methodologies to explore factors associated with the public (i.e., the judge) that can impact perceptions of the police (i.e., the judged). This experiment also sheds important insight into the effects of mere presence factors on perceptions of the police, a topic not frequently explored in the literature. Indeed, this is the first known study to use an experimental methodology in order to examine how esthetic factors of different patrol strategies can impact perceptions of the police. Considering the potential dividend of this style of intervention, and its applicability and accessibility to police agencies of different sizes and compositions, the findings of this research could prove to be particularly fruitful for enhancing public–police relations.

I begin my paper by describing how patrol strategies and attire can impact perceptions of the police, using existing literature as well as social identity theory and procedural justice frameworks to guide such discussion. Following my introduction, I describe my sample and experimental methodology. Lastly, I present my results, and conclude with implications.

Patrol strategies

A plethora of research has examined the relationship between patrol strategies and crime (e.g., Andresen and Lau 2014; Bowers and Hirsch 1987; Esbensen 1987; Groff et al. 2015; Jones and Tilley 2004; Kelling et al. 1974; Piza and O’Hara 2014; Police Foundation 1981; Ratcliffe et al. 2011; Sherman and Weisburd 1995; Taylor et al. 2011). Despite this abundance of research, however, few studies have examined the relationship between patrol strategies and perceptions of the police. In fact, no known studies have examined the effects of patrol strategy *esthetics* on perceptions of the police. Instead, past studies have generally examined how patrol strategies can impact perceptions of the police by mediating other variables, such as the number (and types) of public–police contacts.

For example, Menton (2008) observed that bicycle patrol resulted in more than double the number of contacts with the public than vehicle patrol during his field

observations in cities across the United States. Moreover, Menton (2008) reported that bicycle patrol officers' contacts with the public were generally more positive and less serious than vehicle patrol officers' contacts with the public. Thus, although bicycle patrol officers may engage in similar levels of 'serious' (e.g., arrests) and 'somewhat serious' (e.g., issuing citations) work, they appear to engage in significantly more 'non-serious' (e.g., salutations, chatting) work (Lundälv et al. 2008; Menton 2008; Rantatalo 2016). This non-serious work may be particularly important for perceptions of the police, given that it affords opportunities for non-negative public–police encounters.¹

Related research has found similar results for foot patrol. Although foot patrol officers still engage in traditional police activities (albeit arguably to a lesser extent), they generally engage in more non-adversarial encounters (i.e., interactions with no criminal focus, such as public service interactions) than vehicle patrol officers (Payne and Trojanowicz 1985). Furthermore, foot patrol officers generally have more opportunities for community contact, disorder policing, and proactive police work than vehicle patrol officers (Groff et al. 2013; Payne and Trojanowicz 1985), which, again, could directly (and/or indirectly) impact the public's perceptions of them.

Whereas bicycle and foot patrol appear to be more orientated toward order maintenance and community engagement, vehicle patrol appears to be more orientated toward serious crime incidents and responding to emergency calls for service (Groff et al. 2013). If these different strategies are associated with different types of activities, then it is likely that these strategies will be associated with different impressions (and, ultimately, different perceptions) of the police. With that being said, it is important to again note that these studies examine the relationship between patrol strategies and *contact with the police*.

In addition to mediating public–police contact, patrol strategies may also impact perceptions of the police by mediating citizens' *impressions* of the police. Considering that police encounters are generally citizen-initiated (Skogan 2005), a police officer's arrival at a scene often constitutes the basis for first impressions of the police. For example, when an officer arrives in a vehicle, their arrival is generally associated with a particular ritual: flashing lights, sirens, and a noticeable delay between arriving on scene and initiating contact with the public (Menton 2008). In contrast, when an officer arrives on a bicycle, or on foot, these traditionalistic rituals, which are symbolic of police presence and authority, are generally not present (Menton 2008). Similarly, whereas bicycle and foot patrol foster conversational intimacy between the public and the police, vehicle patrol creates distance (Lundälv et al. 2008; Menton 2008; Payne and Trojanowicz 1985; Rantatalo 2016). These differences in presence, structure, and transportation can then foster different impressions of the police.

Given this previous research, I propose the following hypothesis for the present research:

- **Hypothesis #1:** Police officers will be more likely to be rated as approachable, friendly, respectful, and accountable, and less likely to be rated as aggressive, when presented on a bicycle and/or on foot than when presented in a vehicle.

¹ It is important to note that the differences in non-adversarial contact between these patrol strategies are likely underestimates due to the difficulties in measuring informal interactions between the public and the police.

Attire

Although patrol strategies may differ in their numbers (and types) of public–police contact, one element of police work that generally remains consistent across patrol strategies is the presence of uniforms. Uniforms are important in the context of policing for an array of reasons (e.g., Bell 1982; Bickman 1974; Joseph and Alex 1972; Loader 1997; Paul and Birzer 2004), but particularly because of their impact on perceptions of police officers. For example, Durkin and Jeffery (2000) found that police uniforms impacted police officers’ perceived status, such that children were more likely to perceive civilians wearing police uniforms to be police officers than actual police officers not wearing their uniforms. Balkin and Houlden (1983) also reported that “persons in uniform and persons in the employ of government, working in a location in which they have a vested interest, [were] most effective in reducing fear [of crime]” (p. 13), and Singer and Singer (1985) observed that images of police officers were perceived as more competent, reliable, intelligent, and helpful when officers were presented in full uniform than when presented in civilian attire (or when no attire was visible; i.e., headshots).²

Based on these findings, it is reasonable to predict that perceptions of police officers will vary as a function of officers’ attire. Two potential mechanisms that may explain these differences across attire relate to social identity theory.

Social identity theory

“Policing has always been implicated in processes of social inclusion and exclusion” (Bradford 2014: 22).

Social group classifications exert strong influences on perceptions, behaviors, and attitudes. One theory that seeks to explain this intergroup discrimination is social identity theory. Social identity theory posits that individuals are more likely to favor members of their ingroup (i.e., individuals of their own race, gender, religion, etc.) over members of their outgroup (i.e., individuals of different race, gender, religion, etc.) because of perceived differences between their ingroup and outgroup (e.g., Brewer 1979, 1999; Hogg 2001). These perceived differences can translate into differences in the behaviors and attitudes of group members. For example, expectations of security and cooperation within an ingroup can promote adherence to ingroup norms (Brewer 1999), positive attraction toward ingroup members (Brewer 1999), and the humanization of such members (Koval et al. 2012). Together, these processes can then foster the formation of ‘us’ (i.e., ingroup) versus ‘them’ (i.e., outgroup) mentalities, which can result in hostility and conflict between groups, even in the absence of actual conflicts over power and/or material resources (Brewer 1999).

² Although informative, a couple of potential limitations of this particular study must be noted. First, Singer and Singer (1985) employed a between-subjects design that hindered their ability to make inferences regarding within-officer variability. Second, the authors did not take into account the diversity of patrol strategies frequently utilized by the police in a patrol context.

One way in which members of an ingroup differentiate themselves from members of an outgroup is through their use of symbols and behaviors. Symbols and behaviors are important for group membership because they minimize the risk that “ingroup benefits will be inadvertently extended to outgroup members [... and ...] ensure that ingroup members will recognize one’s own entitlement to receive benefits” (Brewer 1999: 433–434). In the context of policing, officers are given uniforms in order to symbolize their membership in the police department (which entitles them to the roles, responsibilities, and rights associated with the occupation; e.g., see Joseph and Alex 1972). As a result, it is reasonable to expect that the presence (or lack thereof) of such uniform may impact the saliency of an officer’s policing identity, and, therefore, impact perceptions of them.

The first mechanism by which uniforms may impact perceptions of police officers regards uniforms as potential symbols of *outgroup* status. From a very rudimentary perspective, uniforms distinguish public from police and citizen from officer. The locker room thus constitutes an important part of the policing process: adorning uniform attire suppresses preexisting indicators of *other* social statuses (Joseph and Alex 1972) in favor of the policing identity.³ As Bell (1982) argued, “The uniform represents the highly recognizable symbol of the relationship between the spirit and structure of the police officer’s duty” (p. 46). Thus, when these symbols are removed from a police officer, the officer’s perceived status as a police officer should theoretically diminish. If the officer’s perceived status as a police officer diminishes, then it is likely that the officer’s perceived social grouping will shift from a member of the outgroup (i.e., the police) to a member of the ingroup (i.e., the public), which, in return, will change others’ perceptions of them. Indeed, I propose the following hypothesis:

- **Hypothesis #2:** Police uniforms signal outgroup status, and, therefore, police officers will be more likely to be rated as aggressive, and less likely to be rated as approachable, friendly, respectful, and accountable, when presented in uniform than when presented in civilian attire.

A second mechanism by which uniforms may impact perceptions of police officers regards uniforms as potential symbols of *ingroup* status. This mechanism is more complex, and derives largely from the procedural justice literature, which has examined the importance of legitimacy in the context of policing (e.g., Sunshine and Tyler 2003a; Tyler 1990, 2004, 2006). From this perspective, public support for (and cooperation with) the police hinges upon the extent to which the police reflect, represent, and defend the group’s normative and ethical values (communicated via their procedurally just exercise of authority; e.g., Bradford 2014; Bradford et al. 2014; Sunshine and Tyler 2003b). Thus, public support for the police is greater when the police act as “prototypical representatives” (Sunshine and Tyler 2003b: 153) of the group’s moral values (e.g., see Hogg 2001 for a discussion of prototypicality), such that the public feel like they belong to (and are represented by) the group in which the police represent (Bradford 2014). These findings have much importance in the context of uniforms,

³ Joseph and Alex (1972) argued, “Since no other statuses, or any touch of individuality, are recognized in the uniformed individual by others, he is encouraged to act primarily as an occupant of his uniformed status” (726).

given their ability to enhance the saliency of identities and signal identification with social groups. Indeed, it is possible that the police uniform symbolizes representation of shared moral values and signals ingroup status. Moreover, as a symbol of legitimacy, it is possible that the mere presence of the uniform enhances perceptions of uniform-bearers: when adorned in symbolic policing attire, officers' status as legitimate representatives may be maximized. In contrast, when such symbols are removed, officers' perceived representativeness may be minimized. Given this theoretical framework, it is reasonable to predict that presenting officers in their uniforms may enhance perceptions of them, and, hence, I propose the following hypothesis (in opposition to Hypothesis #2):

- **Hypothesis #3:** Police uniforms signal ingroup status, and, therefore, police officers will be more likely to be rated as approachable, friendly, respectful, and accountable, and less likely to be rated as aggressive, when presented in uniform than when presented in civilian attire.

Overview of the present research

The present research employs a novel experimental methodology in order to explore the effects of attire and patrol strategy esthetics on participants' perceptions of police officers. Using data from 307 participants, I estimate a series of multilevel mixed-effects logistic regression models to predict participants' ratings of officers as: (1) aggressive versus *not* aggressive, (2) approachable versus *not* approachable, (3) friendly versus *not* friendly, (4) respectful versus *not* respectful, and (5) accountable versus *not* accountable. My results reveal that attire and patrol strategy esthetics are both strong predictors of perceptions of the police.

Data and methods

Sampling

Participants for the present research were recruited through the human subject pool at a large, highly selective public university.⁴ In total, 307 eligible participants (who were at least 18 years of age) participated in the experiment. All participants were compensated via course credit.

Participants

Participants were predominately female (84%) and ranged in age from 18 to 56 years (with a mean age of 21 years). Participants self-identified as Asian (48%), Black (3%), Hispanic (32%), White (10%), and other race (7%). Although these demographic statistics may appear to be skewed toward a predominately young, female, Asian population, they are representative of the human subject pool from which these

⁴ The human subject pool provides opportunities for undergraduate students to participate in research in order to obtain course credit.

participants were sampled. The demographic statistics of the sample also, in fact, appear to be generally representative of the broader undergraduate population at this university, where 54% of undergraduate students identify as female, 37% identify as Asian, 2% identify as Black or African American, 25% identify as Hispanic, and 12% identify as White.

Regarding socioeconomic status, most participants reported that their mother and father had at least some college education, and that their parents' combined annual income during their adolescence was 'a little more than average' (33%). More participants also reported having a positive contact with the police in the prior six months (20%) than a negative contact with the police (7%), although the majority of participants reported having no contact with the police (70%). Only 3% of participants reported having *both* a positive *and* a negative contact with the police in the prior six months. See Table 1 for a review of these descriptive statistics.

Method

Upon arrival at their study appointment, participants met with a research assistant who introduced themselves and the study. Participants were advised that the study sought to explore factors that could impact their memory retention. Participants were further informed that they would be: (1) randomly assigned to observe images associated with one of four different occupations (i.e., policing, nursing, teaching, or engineering), (2) rate these images on a number of different dichotomous variables, and then (3) complete a memory test that would assess their memory of the images that they previously rated. This mild deception was necessary in order to minimize demand characteristics, which could have otherwise hindered my ability to measure participants' perceptions of police officers.

After participants were introduced to the deception of the study,⁵ they were then given an envelope that allegedly contained the aforementioned four occupations, and asked to *blindly* select one occupation. Once participants selected their occupation, they were asked to *blindly* read it aloud. In reality, all of the pieces of paper in the envelope read "policing" in order to ensure that all participants observed police-related images.⁶ Participants were then provided with instructions on how to complete the perception task, and offered an opportunity to ask questions prior to the commencement of the task.⁷ Following their completion of the task, participants were provided with a thorough debrief.

*Perception task*⁸

Using Inquisit software, I presented participants with a set of 64 different images of police officers, and asked them to rate each image on the following five dichotomous outcome

⁵ This study's procedures (including the use of deception) were all approved by the Institutional Review Board at the university where it was conducted.

⁶ The four different occupations are artificial and not of interest in the present research. They were simply included in the experiment's methodology in order to minimize potential demand characteristics.

⁷ Consent was orally obtained from all participants prior to the commencement of the experiment.

⁸ Yang and Pao (2015) employed a similar experimental methodology in order to explore perceptions of disorder in a laboratory setting.

Table 1 Descriptive statistics for participants in the present research; $N = 307$

Variable	Number (%)	Mean	Std. dev.	Min.	Max.
Gender					
Male	48 (16%)	–	–	0	1
Female	259 (84%)	–	–	0	1
Age	–	21	3.966	18	56
Race/ethnicity					
Asian	146 (48%)	–	–	0	1
Hispanic	98 (32%)	–	–	0	1
White (non-Hispanic)	32 (10%)	–	–	0	1
Other	31 (10%)	–	–	0	1
Father's education					
No high school	60 (20%)	–	–	–	–
High school	62 (20%)	–	–	–	–
Some college	77 (25%)	–	–	–	–
Bachelor's degree	61 (20%)	–	–	–	–
Master's degree	29 (9%)	–	–	–	–
Doctoral degree	9 (3%)	–	–	–	–
Unknown	9 (3%)	–	–	–	–
Mother's education					
No high school	52 (17%)	–	–	–	–
High school	74 (24%)	–	–	–	–
Some college	70 (23%)	–	–	–	–
Bachelor's degree	71 (23%)	–	–	–	–
Master's degree	27 (9%)	–	–	–	–
Doctoral degree	7 (2%)	–	–	–	–
Unknown	6 (2%)	–	–	–	–
Household income					
Much less than average	37 (12%)	–	–	–	–
Little less than average	65 (21%)	–	–	–	–
Average	73 (24%)	–	–	–	–
Little more than average	101 (33%)	–	–	–	–
Much more than average	31 (10%)	–	–	–	–
Socioeconomic status	–	–0.009	0.89	–1.741	1.818
Police contact					
Negative	62 (20%)	–	–	0	1
Positive	21 (7%)	–	–	0	1
Both	8 (3%)	–	–	0	1
None	216 (70%)	–	–	0	1

variables: (1) aggressive versus *not* aggressive, (2) approachable versus *not* approachable, (3) friendly versus *not* friendly, (4) respectful versus *not* respectful, and (5) accountable versus *not* accountable.⁹ Each of the 64 different images presented one of four different officers (i.e., 16 images/officer), in one of three different patrol strategies (i.e., bicycle, foot, or vehicle), in either police uniform or civilian clothing (see Table 2).^{10,11} At the

⁹ Verbatim instructions: “ATTENTION: Please rate the following images as either [dependent variable] or not [dependent variable]. When making your decisions, please move as quickly as you can observe the image in its entirety.”

¹⁰ However, I only analyzed data for 40 of the 64 images for the purposes of the present analyses because the remaining 24 images (6 images/officer) varied as a function of the phase of the experiment, and, therefore, could not be included in analyses that utilized the full sample of participants from *all* phases (as done in this manuscript). With that being said, the poses featured in the images that were excluded from these particular analyses were *identical* for all officers, and, thus, removing them did *not* impact the integrity of the experiment and/or its conclusions; i.e., the composition of officers (gender/race/number) remained balanced (there were no expected differential impacts on the outcomes of any particular groups of officers as a result of this decision; see Table 2).

¹¹ All of the images used in this experiment were collected during a choreographed photo shoot with local police agencies, and, therefore, feature real police officers, real police vehicles, and real police equipment.

Table 2 Description of the set of 64 images that participants observed during the experiment

Officer	Gender	Race	Attire	Image ID	Image Description	No. of images
1	Male	Same as participant	Uniform	1	Vehicle - Marked	16
				2	Vehicle - Unmarked	
				3	Vehicle - Unrelated	
				4	Bicycle	
				5	Foot	
				6	^a Foot + Accessory 1	
				7	^a Foot + Accessory 2	
				8	^a Foot + Accessory 3	
			Civilian	9	Vehicle - Marked	
				10	Vehicle - Unmarked	
				11	Vehicle - Unrelated	
				12	Bicycle	
				13	Foot	
				14	^a Foot + Accessory 1	
				15	^a Foot + Accessory 2	
				16	^a Foot + Accessory 3	
2	Male	Different from participant	Uniform	17-24	...	16
			Civilian	25-32	...	
3	Female	Same as participant	Uniform	33-40	...	16
			Civilian	41-48	...	
4	Female	Different from participant	Uniform	49-56	...	16
			Civilian	57-64	...	
					Total	64

^a As discussed in the manuscript, these particular images varied as a function of the phase of the experiment (e.g., accessories in Phase 1 are different from accessories in Phase 2)

commencement of the task, and during each phase of instructions throughout the task, participants were requested to rate each image as quickly as it took them to digest the image in its entirety. These instructions appeared to be well digested, as, on average, participants viewed each image for approximately two seconds.

All of the images presented to participants occupied approximately 50% of the computer screen that was situated directly in front of them. The images were horizontally centered and vertically aligned at the bottom of the screen (which featured an all-white background). In the top left and top right corners of the screen, participants saw the two dichotomous categorizations of each dependent variable (e.g., approachable versus *not* approachable, etc.). Once participants reviewed each image, they then selected *either* the left *or* the right arrow key on their keyboard in order to indicate their categorization of the image (i.e., the left arrow key corresponded with the categorization displayed in the top left corner and vice versa). Following each rating, the next image in the set then replaced the previously rated image, and the procedure repeated until the participant rated the entire set of 64 images on each variable (i.e., participants' ratings of images were all sequential; total of 320 sequential ratings).

The order by which participants rated each set of images on each dependent variable was randomized, such that each participant could have experienced a different ordering of the five dependent variables. The order of the presentation of the 64 images within each set was also randomized, such that each participant could have experienced a different ordering of the 64 images for each dependent variable. Finally, the position of the two dichotomous categorizations of each dependent variable on the screen was

randomized, such that the negated and non-negated versions of each variable randomly alternated between the top left and top right corners of the screen. Including multiple levels of randomization ultimately allowed me to control for order effects (e.g., practice effects, fatigue effects) by ensuring that no variables or images were systematically rated at the beginning or end of the experimental procedure (see Appendix Table 4 for a graphical depiction of this computer-generated, randomization process). Once participants finished rating all 64 images on all five dependent variables, they completed a number of sociodemographic questions.

Outcome variables

I operationalized perceptions of the police via five dichotomous outcome variables: (1) aggressive versus *not* aggressive, (2) approachable versus *not* approachable, (3) friendly versus *not* friendly, (4) respectful versus *not* respectful, and (5) accountable versus *not* accountable. I selected these particular variables because they represent constructs that police departments frequently include in their mission statements *and* are variables that the public frequently use to judge the police. My decision to use dichotomous categorizations of these variables was a consequence of the experiment's novel methodology. Due to the high volume of images presented to participants, I could only display two variable options on the screen at any given time (presenting Likert-style scales, which are commonly utilized in survey research, would not have been feasible in this particular context).

Predictor variables

Attire I examined two different sets of attire as part of the present research: (1) police uniforms and (2) civilian clothing. In poses with uniform attire, officers were presented in their full patrol uniform, which included their operational duty belt (and associated equipment), navy blue short-sleeved shirt, navy blue pants, and black patrol boots. In poses with civilian attire, officers were presented in white T-shirts, blue jeans, and black shoes. In these particular images, it was not clear that the models featured in the images were in fact police officers (in order to test Hypotheses #2 and #3). Note that I selected these particular items of civilian clothing due to their generic, non-occupation-specific nature. All officers were presented in the below noted patrol strategy poses in *both* sets of attire (e.g., all officers were presented in a marked police vehicle in uniform *and* in civilian attire).

Patrol strategies I examined three different patrol strategies as part of the present research: (1) vehicle patrol, (2) bicycle patrol, and (3) foot patrol. For the vehicle patrol poses, officers were presented in: (1) a marked police vehicle (i.e., black and white or white and blue), (2) an unmarked police vehicle of the same make and model as the marked police vehicle, and (3) an unrelated police vehicle (i.e., vehicle not traditionally used for patrol purposes) of the same color (gray) as the unmarked police vehicle. In all vehicle poses, officers were seated in the driver seat of the vehicle, with their head facing the camera and both of their hands grasping the steering wheel. For the bicycle patrol poses, officers were presented on bicycles, with their head facing the camera, both of their feet planted on the ground and both of their hands grasping the handlebars. In these particular poses, all officers were wearing their standard-issued bicycle

equipment, including bicycle helmets. For the foot patrol poses, officers stood directly facing the camera with both arms at their sides. In all of the poses (regardless of patrol strategy), officers displayed a neutral facial expression.

Sociodemographic characteristics I examined several different sociodemographic characteristics of *both* participants *and* police officers as part of the present research. Using self-report surveys, I measured participants' (1) gender, (2) age, (3) race, (4) socioeconomic status, and (5) history of contact with the police. First, gender was measured via a single nominal variable ("What is your gender?") with three choice options (i.e., male, female, and other). For analytical purposes, gender was transformed into a single dummy variable (0 = female; 1 = male).¹² Second, age was measured via a single continuous variable ("What is your age?"). Third, race was measured via a single nominal variable ("What is your race?") with seven choice options (i.e., White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, two or more races, and other¹³). Fourth, ethnicity was measured via a single dichotomous variable ("Are you Hispanic?"). For analytical purposes, race and ethnicity were transformed into four¹⁴ mutually exclusive dummy variables: (1) Asian, (2) Hispanic, (3) White (non-Hispanic), and (4) other (0 = not given race; 1 = given race). Fifth, socioeconomic status was measured via three different variables that pertained to parental education and income. Participants' mothers' and fathers' highest level of education were measured via two Likert scales ("What is your mother's [father's] highest level of education?") with seven choice options (i.e., 1 = did not complete high school; 2 = high school/GED; 3 = some college; 4 = Bachelor's degree; 5 = Master's degree; 6 = Doctoral degree; missing = unknown). Participants' parents' combined approximate annual income during their adolescence was measured via a single Likert scale ("Please use the following scale to describe your parents' combined approximate annual income during your adolescence") with five choice options (i.e., 1 = much less than average; 2 = a little less than average; 3 = average; 4 = a little more than average; 5 = much more than average). For analytical purposes, these three variables were combined into a single socioeconomic status variable.¹⁵ Lastly, contact with the police was measured via two variables ("Have you had a negative [positive] experience with the police in the last 6 months?") with two choice options (0 = no; 1 = yes). For analytical purposes, these contact variables were transformed into four mutually exclusive dummy variables: (1) positive contact, (2) negative contact, (3) both positive and negative contact, and (4) no contact.

In addition to measuring the sociodemographic characteristics of participants, I also manipulated the race and gender of the police officers featured in the experiment. All participants observed one male and one female police officer of

¹² No participants identified as other gender.

¹³ These racial categories were obtained from the United States Census Bureau.

¹⁴ There were only ten Black or African American, one American Indian and Alaska Native, and one Native Hawaiian and Other Pacific Islander participants, and, therefore, these participants were categorized as other race for the purposes of my analyses.

¹⁵ First, I determined participants' parents' highest level of education and then standardized this variable. Next, I standardized the variable for participants' parents' annual income. Finally, I combined these two standardized variables in order to form a single socioeconomic status variable.

their *own* race (as measured by their prescreen self-report information) *and* one male and one female police officer of a *different* race (*randomly* selected from the remaining three different races).^{16,17} See Appendix Table 5 for the master set of police officers featured in this experiment.

Analytic strategy

In order to measure factors that impact participants' ratings of police officers on my five dependent variables, I estimated a series of multilevel mixed-effects logistic regression models. Multilevel mixed-effects logistic regression models were appropriate for my analyses because my experimental design involved (1) dichotomous outcomes and (2) repeated measurements of subjects (i.e., each participant rated each image on each of the five dependent variables during the experiment), and, therefore, I needed to correct for the inflated errors associated with repeat measurements. My model is as follows:

$$\begin{aligned} \hat{[outcome]} = & B_0 + B_1(civattire) + B_2(onfoot) + B_3(onbicycle) + B_4(maleoff) + B_5(whiteoff) \\ & + B_6(hispanicoff) + B_7(blackoff) + B_8(age) + B_9(male) + B_{10}(white) + B_{11}(hispanic) \\ & + B_{12}(otherrace) + B_{13}(ses) + B_{14}(negpolice) + B_{15}(pospolice) + B_{16}(bothpolice) \end{aligned}$$

where *[outcome]* is the dichotomous outcome variable of interest (depending on the model), *civattire* indicates the attire of the police officer (reference group are uniform poses), *onfoot* and *onbicycle* indicate the mode of patrol (reference group are vehicle poses), *maleoff* indicates the gender of the police officer (reference group are female police officers), *whiteoff*, *hispanicoff*, and *blackoff* indicate the race of the police officer (reference group are Asian police officers), *age* indicates the age of the participant, *male* indicates the gender of the participant (reference group are female participants), *white*, *hispanic*, and *otherrace* indicate the race of the participant (reference group are Asian participants), *ses* indicates the socioeconomic status of the participant, and *negpolice*, *pospolice*, and *bothpolice* indicate the presence of negative, positive, or both negative and positive police contact (reference group are participants with no police contact).

All of my models were tested at the $p < 0.05$ level. Each rating of each image by each participant was treated as an independent observation, and so my N for all of my models was 60,830 (with 307 groups: one group for each participant¹⁸). Note that this N does not divide uniformly by 320 for two reasons. First, and as described in the earlier footnote⁽¹⁰⁾, my current analyses only include data for 40 of the 64 images that participants observed during the experiment (because *all* 307 participants observed these 40 images: the remaining 24 images (6 images/officer) varied as a function of the phase of the

¹⁶ Although I collected images of eight different police officers for the purposes of this experiment, each participant only observed four of the eight officers during the experiment in order to manage the vast number of images associated with each officer.

¹⁷ All reasonable attempts were made to match the physical characteristics of the police officers featured in this experiment. All of the images of the officers were also digitally resized to the aforementioned proportions in order to further minimize any potential perceived differences in physical size.

¹⁸ All models were two-level, with individual image ratings nested within participants.

experiment, and, thus, were not observed by the full sample of participants from *all* phases; see Table 2). Second, a number of the bicycle observations from the first 54 participants had to be excluded from these analyses due to a technical error during data collection. Please also note that the denominators for the proportion variables of each image also vary by image due to the experiment's pseudo-race conditions. For example, images of Asian police officers received greater numbers of ratings than images of Black police officers due to the greater number of Asian participants in the sample.

Results

The present research explores the effects of attire and patrol strategy esthetics on participants' perceptions of police officers as aggressive, approachable, friendly, respectful, and accountable. In order to provide a general sense of the magnitude of the relationships among these dependent variables, I begin by discussing some aggregate correlations between them.^{19,20} First, and as expected, aggressiveness is negatively correlated with friendliness ($r = -0.71$) and approachability ($r = -0.19$), but positively correlated with respectability ($r = 0.32$) and accountability ($r = 0.49$). Second, and also as expected, approachability is positively correlated with friendliness ($r = 0.67$), respectability ($r = 0.75$), and accountability ($r = 0.66$). Third, accountability is highly correlated with respectability ($r = 0.94$), but uncorrelated with friendliness ($r = 0.06$). These correlations suggest that my experimental methodology scores high on validity, as their strength and directions are *both* theoretically intuitive *and* consistent with the prescribed definitions of each of the variables (e.g., strong negative correlation between aggressiveness and friendliness).

In my first set of analyses, I explore participants' general perceptions of the police. As part of these analyses, I collapse across all independent variables in order to compare aggregate proportions of images of police officers rated as a given dependent variable. The results reveal that participants generally express favorable views of the police. For example, participants categorized police officers in uniform (regardless of officers' gender or race) as respectful and accountable roughly 75% of the time, approachable approximately two-thirds of the time, friendly more than half of the time, and aggressive less than 40% of the time. I, therefore, ask: do perceptions of the police vary as a function of attire, patrol strategy, and/or sociodemographics?

As shown in Table 3, the results of my mixed-effects logistic regression models reveal a number of significant findings (all coefficients represent odds ratios). First, and foremost, officers' attire is a strong predictor of perceptions of the police. The odds of police officers being rated as aggressive ($b = 0.671$, $p < 0.001$) are approximately 30% lower when officers are presented in civilian attire than when presented in uniform attire. Moreover, the odds of police officers being rated as approachable ($b = 0.788$, $p < 0.001$) are 20% lower, the odds of them being rated as respectful ($b = 0.617$, $p < 0.001$) are 40% lower, and the odds of them being rated as accountable ($b = 0.484$,

¹⁹ For these particular analyses, I generated proportion variables in order to calculate the percentage of images categorized as a given dependent variable (regardless of patrol strategy, attire, etc.).

²⁰ Given that it is not technically appropriate to report correlations of binary variables, I recommend caution when interpreting such values.

Table 3 Multilevel mixed-effects logistic regression models where y is the rating of police officer; coefficients represent odds ratios

Independent variable	Dependent variable				
	Aggressive (S.E.)	Approachable (S.E.)	Friendly (S.E.)	Respectful (S.E.)	Accountable (S.E.)
Civilian attire ^a	0.671*** (0.023)	0.788*** (0.02)	0.974 (0.025)	0.617*** (0.015)	0.484*** (0.013)
On foot ^b	1.121** (0.045)	1.169*** (0.037)	1.038 (0.035)	1.074* (0.034)	1.102** (0.036)
On a bicycle ^b	0.516*** (0.028)	1.405*** (0.043)	1.431*** (0.046)	1.143*** (0.036)	1.176*** (0.039)
Male officer ^c	1.202*** (0.04)	0.919** (0.023)	0.888*** (0.023)	0.987 (0.024)	0.982 (0.025)
White officer ^d	1.137* (0.061)	0.949 (0.036)	0.878** (0.035)	0.956 (0.036)	0.987 (0.04)
Hispanic officer ^d	1.117* (0.058)	0.921* (0.034)	0.808*** (0.031)	0.929* (0.034)	0.982 (0.038)
Black officer ^d	1.525*** (0.087)	0.869** (0.037)	0.774*** (0.035)	0.95 (0.04)	1.026 (0.045)
Age	1.007 (0.01)	1.009 (0.005)	1 (0.006)	0.998 (0.006)	0.997 (0.006)
Male participant ^c	1.11 (0.122)	0.949 (0.055)	1.08 (0.074)	0.972 (0.058)	1.143* (0.072)
White participant ^f	0.906 (0.126)	0.881 (0.065)	0.988 (0.086)	1.142 (0.085)	1.03 (0.082)
Hispanic participant ^f	0.907 (0.092)	0.987 (0.053)	1.027 (0.065)	1.113 (0.061)	1.202** (0.07)
Other race participant ^f	1.102 (0.15)	0.923 (0.068)	0.844 (0.075)	1.013 (0.076)	0.996 (0.08)
Socioeconomic status	0.956 (0.047)	1.016 (0.026)	0.979 (0.03)	1 (0.026)	1.076** (0.03)
Negative police contact ^g	1.019 (0.161)	0.904 (0.076)	0.784* (0.08)	0.833* (0.073)	0.963 (0.088)
Positive police contact ^g	1.052 (0.105)	1.121* (0.058)	1.017 (0.064)	1.112* (0.06)	1.109 (0.063)
Both neg. and pos. police contact ^g	1.316 (0.323)	0.979 (0.129)	0.882 (0.14)	0.927 (0.126)	0.867 (0.127)
Constant	0.052*** (0.011)	0.127*** (0.014)	0.134*** (0.018)	0.179*** (0.021)	0.159*** (0.02)
# Observations	60,830	60,830	60,830	60,830	60,830
# Groups	307	307	307	307	307

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ ^a Reference group = in uniform^b Reference group = in a vehicle^c Reference group = female officers^d Reference group = Asian officers^e Reference group = female participants^f Reference group = Asian participants^g Reference group = participants with no police contact

$p < 0.001$) are 50% lower when officers are presented in civilian attire than when presented in uniform attire.

Patrol strategies are also strong predictors of perceptions of the police. First, and relative to being in a vehicle, being on foot increases the odds that participants rate police officers as aggressive ($b = 1.121, p < 0.01$) by approximately 10%. With that being said, being on foot also increases the odds that participants rate police officers as approachable by more than 15% ($b = 1.169, p < 0.001$), and respectful ($b = 1.074, p < 0.05$) and accountable ($b = 1.102, p < 0.01$) by approximately 10%. Second, and again relative to being in a vehicle, being on a bicycle decreases the odds that participants rate police officers as aggressive by approximately 50% ($b = 0.516, p < 0.001$). Being on a bicycle also increases the odds that participants rate police officers as approachable ($b = 1.405, p < 0.001$) and friendly ($b = 1.431, p < 0.001$) by 40%, and respectful ($b = 1.143, p < 0.001$) and accountable ($b = 1.176, p < 0.001$) by 15%. Thus, although being on foot and/or on a bicycle are both generally associated with more favorable perceptions of the police (relative to being in a vehicle), being on a bicycle exhibits a particularly strong positive effect on perceptions of the police.

Sociodemographics also exhibit some impact on perceptions of the police. For example, the odds of police officers being rated as aggressive ($b = 1.202, p < 0.001$) are 20% higher for male officers than female officers. The odds of police officers being rated as approachable ($b = 0.919, p < 0.01$) and friendly ($b = 0.888, p < 0.001$) are also 10% lower for male officers than female officers. Relative to Asian officers, the odds of White officers being perceived as aggressive ($b = 1.137, p < 0.05$) are 15% higher, and the odds of them being perceived as friendly ($b = 0.878, p < 0.01$) are 10% lower. Relative to Asian officers, the odds of Hispanic officers being perceived as aggressive ($b = 1.117, p < 0.05$) are 10% higher, and the odds of them being perceived as friendly ($b = 0.808, p < 0.001$) are 20% lower. The odds of them being perceived as approachable ($b = 0.921, p < 0.05$) and respectful ($b = 0.929, p < 0.05$) are also 10% lower. Finally, and again relative to Asian officers, the odds of Black officers being perceived as aggressive ($b = 1.525, p < 0.001$) are 50% higher, and the odds of them being perceived as approachable ($b = 0.869, p < 0.01$) and friendly ($b = 0.774, p < 0.001$) are 15% and 25% lower, respectively.

While police officers' demographics appear to exhibit relatively large predictive effects for perceptions of the police, participants' sociodemographics appear to exhibit much smaller effects. The odds of participants rating police officers as accountable are approximately 15% higher for male participants ($b = 1.143, p < 0.05$) than female participants, and approximately 20% higher for Hispanic participants ($b = 1.202, p < 0.01$) than Asian participants. The odds of participants rating police officers as accountable are also higher for participants with higher socioeconomic status ($b = 1.076, p < 0.01$) than participants with lower socioeconomic status. Finally, the odds of participants rating police officers as friendly ($b = 0.784, p < 0.05$) and respectful ($b = 0.833, p < 0.05$) are approximately 20% lower for participants with negative contact with the police than participants without any police contact; and the odds of participants rating police officers as approachable ($b = 1.121, p < 0.05$) and respectful ($b = 1.112, p < 0.05$) are approximately 10% higher for participants with positive contact with the police than participants without any police contact.

Discussion

The present research employs a novel strategy to explore the effects of attire and patrol strategy esthetics on participants' perceptions of police officers. By utilizing a rigorously controlled experimental methodology, this research complements past research which has primarily used survey and interview methodologies to examine factors associated with the public that can impact perceptions of the police. Indeed, my results reveal a number of significant findings.

Consistent with past research (Cao et al. 1996; Dai and Jiang 2016; Frank et al. 2005; Ivković 2008), I find that participants generally reported favorable views of the police. Contrary to much public discourse, participants overwhelmingly rated images of police officers as accountable, respectful, and approachable. However, participants' perceptions varied as a function of sociodemographics. Female officers, and officers of Asian descent, were generally perceived more favorably than male officers and officers of other descents.²¹ These results provide evidence to suggest that officers' characteristics should be considered when evaluating the effects of a given variable on perceptions of the police. Collapsing across officer demography may mask the diversity among officers that could otherwise mediate and/or moderate the effects of a variable on perceptions.

Participants' sociodemographics also mattered as well. Male participants perceived the police as more accountable than did female participants, Hispanic participants perceived the police as more accountable than did Asian participants, and participants with higher socioeconomic status perceived the police as more accountable than did participants with lower socioeconomic status. Participants who had negative contact with the police also perceived the police as less friendly and respectful than did participants without police contact, and participants with positive contact with the police perceived the police as more approachable and respectful than did participants without police contact. These particular findings are consistent with past research which has found that encounters with the police can impact perceptions of the police (e.g., Bradford et al. 2009; Brick et al. 2009; Bridenball and Jesilow 2008; Jesilow et al. 1995; Leiber et al. 1998; Maguire et al. 2016; Mazerolle et al. 2012, 2013; Skogan 2005, 2006; Weitzer and Tuch 1999, 2004; Weitzer et al. 2008). With that being said, the magnitude of the effects for negative contact suggest that negative encounters with the police may have an asymmetrical effect on perceptions of the police, as suggested by Skogan (2006). Thus, although participants generally exhibited positive perceptions of the police, their perceptions were not always consistent across sociodemographics.

Participants' perceptions of the police also varied as a function of officers' attire. Although participants perceived police officers as more aggressive when presented in police uniform (versus civilian clothing), they also perceived them as more approachable, respectful, and accountable. The police uniform, therefore, appears to convey aggression, but it does so without compromising more favorable perceptions. Although these findings are generally consistent with previous research (e.g., Singer and Singer 1985), they are contrary to the rudimentary propositions of social identity theory (and associated

²¹ Although examining the effects of the race of officer and participant separately were of interest in the present analyses, examining the interactions between the race of officers and participants were outside the scope of the present manuscript.

Hypothesis #2), which would argue that police officers in uniform would be perceived less favorably than the same officers in civilian attire because the uniform symbolizes their outgroup status. Instead, it appears that police uniforms may actually signal ingroup status, a proposition suggested by the procedural justice literature (and associated Hypothesis #3). In the context of these 307 participants, presenting officers in uniform actually *increased* their ratings on a number of favorable variables, which much media discourse would otherwise argue would decrease. In this respect, police officers may be acting as prototypical representatives of participants' moral values, and, therefore, their shared identity is enhanced when their policing status is made salient via their uniform, a hypothesis that is further supported by participants' lack of negative contact with the police. Indeed, I theorize that participants' generally favorable views of the police were extended to individual officers when these officers were presented in uniform (which signified their membership in the police department and, therefore, signaled their shared group status), but were not extended to individual officers when these officers were presented in civilian attire (because now their membership in the police department was not known). With that being said, limitations in my data restrict me from effectively advancing this possibility further. Future research should explore the *mechanisms* underpinning the relationship between uniforms and perceptions of the police in greater detail. In the meantime, police officers may amplify the benefits of their policing identity by maximizing the use of their uniform during community engagement practices (rather than minimizing the saliency of such identity via civilian attire).

Lastly, I find that participants' perceptions of the police varied as a function of patrol strategy: officers were perceived as more approachable, respectful, and accountable when presented on a bicycle and/or on foot than when presented in a vehicle. Moreover, officers were perceived as significantly more friendly and less aggressive when presented on a bicycle than when presented in a vehicle (at which time they were perceived as slightly less aggressive than when presented on foot). Patrol strategies, therefore, not only vary in their effects on crime (e.g., Andresen and Lau 2014; Bowers and Hirsch 1987; Esbensen 1987; Groff et al. 2015; Jones and Tilley 2004; Piza and O'Hara 2014; Ratcliffe et al. 2011) and contacts with the public (e.g., Groff et al. 2013; Lundälv et al. 2008; Menton 2008; Payne and Trojanowicz 1985; Rantatalo 2016), but also in their effects on perceptions of the police. For example, the *mere presence* of a police officer on a bicycle increases favorable perceptions of that officer, suggesting that bicycle patrol provides more than just tactical advantages (Menton 2008; Rantatalo 2016). It is important that scholars and practitioners consider these perceptual effects when choreographing their patrol deployment recommendations. Police departments may maximize the benefits of police-community events by increasing the presence of officers on bicycles during such events. Where feasible, police departments may also consider incorporating more bicycle and/or foot patrol into their regular patrol practices (e.g., when patrolling high-density and/or high foot-traffic areas).

Limitations

The present research offers unique insight into the effects of attire and patrol strategy esthetics on perceptions of police officers. However, I must still note a number of potential limitations. First, and foremost, my sample only includes university students from a large, highly selective public university, and overrepresents Asian and female participants. Although these sample characteristics

may limit the generalizability of my results, they do not necessarily minimize the magnitude of the observed effects. For example, even though university students may arguably report more favorable perceptions of the police than non-university students, I do not have any theoretical reason to predict that the *specific effects of given esthetic variables* (e.g., being presented on foot versus on a bicycle) would systematically vary by sample population. Furthermore, the population groups that are overrepresented in my sample are generally understudied in the police perception literature, and some of the limited research that has examined these understudied populations has found that they generally express positive perceptions of the police (e.g., Cao et al. 1996; Ivković 2008; Wu et al. 2011). Since I detect such strong effects in my sample, which overrepresented these populations, I would expect similar effects in populations that have been found to express less positive perceptions of the police (a suspicion that is further substantiated by the *primitive* nature of the processes examined as part of this research). Indeed, ancillary analyses that excluded Asian participants ($n = 161$) showed very similar patterns in the results.²² Second, I measured all of my outcomes of interest using dichotomous variables. Although restricting ratings to dichotomous categorizations may have artificially deflated the variance on each of my measures, including *five different measures* of perceptions of the police helped to alleviate this concern. Finally, although I used trends in my data to *theorize* the link between uniforms and perceptions of the police, my ability to empirically assess the mechanism(s) driving this relationship was somewhat limited. This was largely a consequence of not explicitly asking participants to identify if police officers in uniform versus civilian attire were perceived as members of their ingroup versus outgroup. Future research should include key measures of perceived ingroup versus outgroup status to more firmly test the propositions suggested by Hypotheses #2 and #3.

Conclusion

In sum, I find evidence to suggest that *merely observing* police officers in different attire produces substantial variation in perceptions of those officers. Like laboratory coats in academia, white coats in medicine, and robes in law, uniforms are important symbols of legitimacy in policing. The locker room as a site of transformative process appears to usher police officers (by definition) into legitimate police officers (in practice). Indeed, enhancing the saliency of their policing identity via the adornment of uniform attire has both symbolic and practical consequences. I also find evidence to suggest that *merely observing* police officers in different patrol capacities produces substantial variation in perceptions of those officers. Thus, although direct contact with the police (which can vary as a function of patrol strategy) may impact perceptions of the police in significant and meaningful ways, esthetic differences between being on a bicycle versus being on foot versus being in a vehicle can also impact perceptions as well, and, in the case of this study, independently of contact with the police. Considering that most ‘police interaction’ (loosely defined here as any observation of the police) occurs in relatively unceremonious settings without any exchange of formal

²² Although my findings provide strong evidence to suggest that these effects would exist in a broad range of populations, such conclusions still warrant further empirical validation in more diverse settings.

dialogue between the public and the police (e.g., observing a police officer in passing), these findings are particularly fruitful for informing both research and practice.

The time is ripe for future research to further disentangle the relationship between police esthetics and perceptions of the police by examining the effects of more uniform and patrol strategy variants across broader sample populations (e.g., participants with more negative experiences with the police). Future research should also employ community-based sampling strategies to measure the effects of such esthetics among non-student samples, and more explicitly test the mechanisms by which attire can signal legitimacy and group representativeness.

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Compliance with ethical standards

Statement of human rights All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Conflict of interest The author declares that they have no conflict of interest.

Appendix

Table 4 Graphical depiction of the randomization embedded within the experiment’s methodology

# ^a	Aggressive		Approachable		Friendly		Respectful		Accountable	
	VO ^b	Image order ^c	VO ^b	Image order ^c	VO ^b	Image order ^c	VO ^b	Image order ^c	VO ^b	Image order ^c
1	1st	19, 55, 8 ... 64	2nd	48, 17, 3 ... 2	3rd	36, 6, 9 ... 23	4th	12, 50, 9 ... 64	5th	64, 18, 3 ... 28
2	4th	43, 37, 5 ... 9	3rd	30, 6, 55 ... 40	1st	27, 3, 7 ... 60	2nd	56, 15, 28 ... 50	5th	34, 2, 5 ... 54
3	5th	7, 15, 16 ... 20	1st	12, 19, 63 ... 5	4th	31, 39, 13 ... 9	3rd	21, 28, 36 ... 61	2nd	19, 64, 4 ... 27
4	3rd	25, 61, 50 ... 8	4th	64, 1, 18 ... 31	5th	10, 20, 6 ... 55	2nd	4, 19, 63 ... 33	1st	2, 30, 19 ... 40
...
307	2nd	4, 32, 64 ... 5	5th	19, 29, 11 ... 1	3rd	62, 3, 34 ... 41	1st	49, 40, 17 ... 13	4th	55, 9, 40 ... 21

^a Hypothetical participant number

^b Hypothetical variable order; five variables and so order randomized from 1 through 5

^c Hypothetical image order; 64 images (per set; see Table 2) and so order randomized from 1 through 64

Table 5 Composition of the master set of police officers featured in the experiment

Police officer	Male	Female	Asian	Black	Hispanic	White
1	X		X			
2		X	X			
3	X			X		
4		X		X		
5	X				X	
6		X			X	
7	X					X
8		X				X

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