



# Racial Prejudice and Police Stops: A Systematic Review of the Empirical Literature

Aline Ara Santos Carvalho<sup>1</sup>  · Táhcita Medrado Mizael<sup>2</sup>  · Angelo A. S. Sampaio<sup>1,3</sup> 

Accepted: 21 March 2021 / Published online: 28 May 2021  
© Association for Behavior Analysis International 2021

## Abstract

A police stop must be based on founded suspicion: an officer's ability to correctly discriminate suspicious behavior. However, police stops can be influenced by negative attitudes toward Black individuals. We conducted a systematic review of empirical articles published from 2014 to 2019 that investigated the relationship between racial prejudice and police stops on PsycInfo using keywords such as “race,” “ethnic,” “police stop,” “traffic stop,” and “stop and frisk.” Results included 16 studies conducted in the United States, England, Wales, and the Netherlands and showed that Black men were the most frequent targets of police stops; that many individuals who have been stopped by the police reported negative perceptions of the police force; that the Stop, Question, and Frisk strategy used by some U.S. police departments proved to be a type of stop that favors racial selectivity; and that traffic stops were favorable environments for racially biased actions by officers. We conclude that institutional racism in police stops proves to be a problem shared by several countries, including Brazil. We suggest more investigations to characterize institutional racism in the police force and in other settings and interventions aimed at reducing individual biases and collective racist practices.

**Keywords** police stop · Terry stop · stop and frisk · systemic racism · racial prejudice · racial issues

In recent years, murders of Black<sup>1</sup> men by White police officers have sparked outrage around the world. In Brazil, in 2013, Amarildo Dias de Souza, a Black man who worked as a bricklayer helper and who lived in Rio de Janeiro's Rocinha slum, disappeared after a police operation. Twenty-five officers were sued for Amarildo's disappearance, generating eight convictions, but the case is still under investigation. In 2014, a White officer

murdered the 18-year-old Black American Michael Brown. Investigations showed that the young man was unarmed. The event sparked protests across the country (Chaney, 2015). These are just two examples of the many cases where police officers abused their power during operations (Barrett et al., 2014; Cerqueira & Moura, 2013; Sinhoretto, Batitucci, et al., 2014a).

The police force, an armed corporation responsible for maintaining and restoring order, is the primary public security service with which the community interacts. To pursue its mission, it carries out ostensible activities such as conducting stops, which can be defined as the “technique of stopping an individual or a group of people . . . with signs of suspicion; who have practiced or are on the verge of committing criminal offenses, to investigate, guide, warn, arrest, assist, etc.” (Boni, 2006, p. 29). Police stops should limit individual freedom according to the collective interest and be based on founded suspicion—a concrete and sure presumption of the level of suspicion of the individuals stopped (Boni, 2006). Although most police forces have operational manuals to guide their procedures, the way an officer conducts a police stop or search depends on their personal evaluation, which may be influenced by negative attitudes, for example, about the suspect's race.

<sup>1</sup> The term “Black” (*negro* in Portuguese) is used here to denote individuals with African ancestry. In Brazil, the term is used both by government agencies and by individuals themselves.

This article is part of the special issue on racism and needs the editor's note from Denisha Gingles added to it.

✉ Angelo A. S. Sampaio  
angelo.sampaio@univasf.edu.br

<sup>1</sup> Department of Psychology, Universidade Federal do Vale do São Francisco, Petrolina, Pernambuco, Brazil

<sup>2</sup> Department of Experimental Psychology, University of São Paulo, São Paulo, São Paulo, Brazil

<sup>3</sup> Graduate Program in Psychology, Universidade Federal do Vale do São Francisco, Av. José de Sá Maniçoba, s/n, Centro, Petrolina, Pernambuco 56304-205, Brazil

An attitude can be seen as a favorable or unfavorable evaluation of a stimulus or set of stimuli (e.g., Eagly & Chaiken, 1993). Attitudes regarding racial issues have been discussed with related concepts such as (a) *racism*, which can be seen as an ideology based on the belief that biological, phenotypic, or cultural differences are inherently related to moral, intellectual, and aesthetic characteristics of individuals (Munanga, 2004); (b) *racial prejudice*, a set of negative attitudes regarding an individual or group of individuals, based on the characteristics of the individual/group, such as skin color, type of hair, and size of lips (Nogueira, 2006); and (c) *institutional racism*, a systemic form of prejudice, which can be defined as “the failure of institutions and organizations to provide a professional and adequate service to people due to their color, culture, racial or ethnic origin” (Geledés – Instituto da Mulher Negra, 2006, p. 22).

The influence of police officers’ racial prejudices and the institutional racism of the police on Black individuals has been found, for instance, in Brazilian studies that interviewed police officers and individuals who were stopped (Ramos & Musumeci, 2004; Souza & Reis, 2014), directly observed police stops (Ramos & Musumeci, 2004; Silva, 2009; Sinhoretto, Batitucci, et al., 2014a), analyzed police lethality data (Cerqueira & Moura, 2013; Sinhoretto, Silvestre, & Schlittler, 2014b), and examined statistical data resulting from the formalization of complaints (Duarte et al., 2014). This is a fundamental social issue, as the alarming number of young Black men killed in police encounters demonstrates. As one example, Sinhoretto, Silvestre, and Schlittler (2014b) analyzed 734 cases of deaths resulting from police conduct in the state of São Paulo, Brazil, between 2009 and 2011 and found that 61% were of Black individuals—whereas only approximately 30% of the population of São Paulo is Black.

This differential treatment of people of color can produce a distrustful relationship between the population and the police. For example, in a Brazilian survey on racial and ethnic characteristics of the population (Instituto Brasileiro de Geografia e Estatística, 2011), 68.3% of the participants considered that justice and police were the fields with the greatest influence of racial biases, suggesting that Brazilians do not trust their own public security system. The consequences of this inefficiency have been discussed in the literature as institutional racism, which can be seen in the treatment of Black users by institutions in different areas, such as education, health, and security.

Of course, racially skewed police stops are not exclusive to Brazil. Since the 1990s, after episodes of police violence directed at young Blacks, the United States has intensified the assessment of police practices in addressing so-called street crimes. For instance, Gelman et al. (2007) analyzed 5,000 cases of Stop, Question, and Frisk (SQF) police approaches (also known as Terry stops in some states), a U.S. street police department policy that allows police officers to search civilians behaving suspiciously, looking for weapons or smuggled

items. The results indicated that more Blacks and Hispanics were stopped, even when the study controlled for geographic variables, such as racial characteristics of the neighborhoods and criminal indexes of each district. Thus, Black and other underrepresented individuals are more prone to being stopped by the police. And during stops, they are more prone to suffer unnecessary use of force (Cerqueira & Moura, 2013; Sinhoretto, Batitucci, et al., 2014a). This produces immense behavioral consequences for both their relationship with the police force itself and other areas of their lives. For instance, the number of occurrences that involve underrepresented groups could be higher due to the disproportional number of times they are stopped. In fact, Mizael and Sampaio (2019), in a behavioral and cultural analysis of the Brazilian police force, argued that the “war on drugs” (the policy of trying to reduce drug trafficking at any cost) leads to greater policing of underprivileged areas, where there are more Blacks and people of color. Additionally, the unnecessary use of force toward underrepresented groups could lead to responses such as escape and avoidance in the form of freezing or hiding from the police, which could be seen by police officers as suspicious behavior, leading to more stops (and more fear and escape or avoidance responses by the individuals being stopped). Additionally, the unnecessary use of force could lead to a difference in attitude toward the police: Whereas Whites could be more prone to see the police force as a positive and necessary group in society, Blacks and other underrepresented groups could be more likely to associate the police force with negative attributes.

In this respect, any behavior analyst or social scientist working with this public or interested in them should be aware of the most recent evidence regarding the matter. The first step to planning any type of intervention is being aware of the current data. This facilitates the identification of gaps and the proposition of additional research and future application. More importantly, any professional interested in contributing to alter this fundamental social issue should be familiar with empirical work that could inform organizational and cultural interventions (e.g., training and educational activities, culturo-behavior science and organizational behavior management applications) to pursue that end. In this direction, we carried out a systematic review of the literature to analyze recent results of empirical, archival, and statistical research that investigated the relationship between racial prejudice and police stops.

## Method

We searched PsycInfo, which covers themes of the behavioral and social sciences, with keywords related to racial issues and police stops: [race OR racial OR ethnic] AND [“police stop” OR “traffic stop” OR stop AND search OR stop AND frisk].

We also searched for the Portuguese translation of the keywords. Keywords must have appeared in the abstract. The search was filtered by type of document (journal articles only) and time period (2014 to 2019) and was carried out in October 2019. The inclusion criteria for the studies were as follows: The study had to be an empirical research (e.g., reviews and mathematical modeling studies were excluded) and to have primarily investigated the relationship between racial prejudice and police stops. The selected studies were analyzed regarding (a) authors, (b) aims, (c) study design, (d) participants, (e) country, (f) dependent variables, (g) independent variables, and (h) main results found. The recommendations of the PRISMA group (Liberati et al., 2009) were considered for the presentation of the results.

## Results

In the identification stage, no studies written in Portuguese and 23 studies written in English were found (with no repeated results). Of these, seven studies were eliminated: two for being nonempirical and five for not being primarily related to racial prejudice and police stops. Thus, 16 studies were read in full and evaluated for eligibility, all of them being included. Table 1 summarizes the reviewed studies' main characteristics. The studies were carried out in the United States, England, Wales, and the Netherlands and mainly analyzed database or survey data.

The studies' main results on the relationship between racial prejudice and police stops showed, first, that a larger proportion of Black people (vs. other races), especially men, were stopped and exposed to excessive use of force by police (Ariza, 2014; Morrow et al., 2017; Motley Jr. & Joe, 2018; Svensson & Saharso, 2015). Black men with low incomes were especially prone to this (Motley Jr. & Joe, 2018). Furthermore, living in communities where the use of force by police is common or racially skewed was associated with poor health (Sewell, 2017).

As for the perceptions of interactions with the police, young Black participants reported having difficulty communicating with officers—especially those participants who were not proficient in English or were afraid to ask questions, arguing that the police could see this type of behavior as defiance behavior (i.e., “being smart”; Barrett et al., 2014). They also reported abuses of power and “overpolicing” directed toward them (i.e., a more intense and frequent policing than necessary to maintain order; Barrett et al., 2014). Additionally, research has found that Black participants reported more negative attitudes toward the police (Nadal et al., 2017). The only experiment included in our review further found that social contextual framing factors, such as the local climate of police–community relations, the legality of the stop, and the officer's work history, have a similar or

even greater effect than the race of participants on how citizens perceive and evaluate videos of actual police–citizen encounters (Braga et al., 2014).

During traffic stops, Black drivers were also stopped more often during the day than Whites, suggesting a racial bias, because it is harder to ascertain an individual's race in darkness (Ritter, 2017; Taniguchi et al., 2017). In addition, specific police units (e.g., the High risk Entry and Arrest Team, HEAT, team) presented greater racial disparity in the number of stops conducted (Taniguchi et al., 2017). Blacks and Latinos received more traffic tickets than White drivers, and Black individuals were disproportionately targeted for discretionary searches (Gilliard-Matthews, 2017). Compared to White drivers, African American drivers were more likely to experience an investigative stop, to experience more invasive inquiries in this kind of stop, and to receive a formal complaint (Epp et al., 2017).

The study by Vito et al. (2017) found that traffic stops with Black drivers were less likely to generate citations compared to that of other races, but the researchers suggested that this could be explained because officers believed Blacks were involved in more serious crimes. According to Voigt et al. (2017), police officers' utterances spoken to White community members during vehicle stops were consistently more respectful, but not more formal, than those directed toward Black individuals, even after controlling for contextual factors such as the severity of the offense or the outcome of the stop. Related to that, traffic stops conducted at deteriorated settings were associated with a driver's race being described as African American (Barnum & Miller, 2014).

One study even found that officers' categorizations of Black women's body weight in police stops' reports were racially biased, with Black women being more likely than White women to be labeled heavy and to be stopped in private rather than public spaces, even after controlling for diverse variables (Kwate & Threadcraft, 2015).

## Discussion

Institutional racism can be measured by the low level of access, quality, or satisfaction with products and services (e.g., education, health) provided to specific racial/ethnic group(s) by an institution. This form of racial prejudice is a fundamental element in the maintenance of racial inequality in a society. As stated in the Brazilian *Handbook on Fighting Institutional Racism*, “What institutional racism produces is not only the lack of access and the low quality of access to services and rights, but it is also the perpetuation of a structural condition of inequality in our society” (Geledés – Instituto da Mulher Negra, 2006, p. 13).

Taking those measures of institutional racism into account, the studies we reviewed clearly demonstrate the institutional

**Table 1** Summary of the Studies Reviewed

Authors	Aims	Study design	Participants	Country	Dependent variables	Independent variables	Main results
Ariza (2014)	To examine the factors that affect the likelihood of police contacts with individuals	Statistical analysis of survey data	4,600 people aged between 10 and 25 years who had experienced contact with the police in 2005	England and Wales	Probability of contacts initiated by the police; type of contact with the police	Sex; type of housing (owned/rented); family income; age; race	Having friends in conflict with the law, being male, being aged 14 to 17 years, and being part of a racial minority (especially being Black) increased the likelihood of police initiating contacts.
Barnum and Miller (2014)	To examine the relationship between characteristics of a neighborhood and perceptions of race in ambiguous conditions, such as poor lighting	Statistical analysis of database and survey data	Drivers stopped by the Davenport PD between late 2010 and early 2011	U.S.	Observers' perception of the driver's race	Social characteristics of a neighborhood (e.g., abandoned houses, poor lighting); time of day during the stop (night/day)	Poor lighting and abandoned houses were significantly related to the likelihood of observers indicating the driver's race as African American.
Barrett et al. (2014)	To examine the level of minority communities' satisfaction with the police service	Mixed-methods approach	45 ethnic minority participants living in northern England	England	Level of satisfaction with the police force	Being a victim of a crime; how communities were supervised by the police	Communication with the police was described as being hampered by language difficulties and fear of asking questions. Young people, especially Blacks, reported "overpolicing" and abuses of power during police stops.
Braga et al. (2014)	To examine the effects of social contextual variables on the evaluation of officers' behavior during stops	Experimental	1,361 participants aged 18+, living in 15 U.S. cities	U.S.	Perception of police procedures in traffic and street stops	3 videos of appropriate and inappropriate police use of force; race, sex, age, and income of participants; previous history with the police and political ideology	The negative professional history of the police officer, the police-community climate in the city, citizen characteristics, and legal circumstances engendered negative evaluations of police officers' behavior.
Kwate and Threadcraft (2015)	To examine factors associated with officers' categorization of Black women's body weight	Statistical analysis of survey data	All NYPD police stops from 2003 to 2012	U.S.	Police officers' categorization of body weight	Suspect's race, age, height, and weight; frisked or not; Black precinct or not; date of the stop; inside or outside stop	Black women were more likely than White women to be labeled heavy and to be stopped inside rather than outside, even after controlling for all other variables.
Svensson and Saharso (2015)	To examine the relationship between proactive policing and unequal treatment of young ethnic minorities	Survey	231 people aged between 12 and 25 years	Netherlands	Young people's perceptions of preventive contacts with the police	"Dutch" physical appearance; sex; data of individual delinquency; association with delinquent groups	Young individuals with a non-Dutch stereotypical appearance reported a greater number of preventive contacts with the police, a greater frequency of the use of instruments such as sprays and batons against them, and lower quality in the interactions.
Epp et al. (2017)	To examine racial disparities in the number of occurrences, reasons, and formalization of complaints in police stops	Survey	245 Kansas PD officers and 2,329 drivers stopped	U.S.	Racial disparities in police stops	Frequency; reason given for stopping; citation; violations; driver's race, type of clothing they commonly wear, age, and sex; vehicle's make, model, and year; location of the stop	African Americans were 2.7 times more likely to experience an investigative stop.
Gilliard-Matthews (2017)	To compare, in 1999 and 2008, conditions in which drivers received the most traffic tickets	Statistical analysis of survey data	Residents over 16 years old with 1 or more encounters with the police in the past 12 months	U.S.	A driver receiving a traffic ticket	Legal reasons for stopping; geographic dimensions of the place; sex, age, and number of occupants of the vehicle	Young people received traffic tickets more often. Blacks and Latinos received more traffic tickets than White drivers, and 47% of drivers stopped were Black.
Morrow et al. (2017)	To examine the circumstances, prevalence, and predictors of the use of force in Terry stops	Statistical analysis of survey data	Police officers from the NYPD	U.S.	Excessive use of police force and perceptions of police actions	Age, sex, income, race (Black/White), and situational characteristics of the suspected	Nonweapon use of force occurred more frequently against Blacks and Latinos, compared to Whites.



**Table 1** (continued)

Authors	Aims	Study design	Participants	Country	Dependent variables	Independent variables	Main results
Nadal et al. (2017)	To describe the perceptions of law enforcement in the community and how unjustifiable interactions with the police affect participants' responses	Mixed-methods approach	503 college students and/or members of Black fraternities: 124 Whites, 97 Blacks, 291 Latinos/Asians	U.S.	Perceptions of law enforcement in their daily lives	individual; type of police unit in the region Race; age; sex; intersections between race and gender	Negative views of the police were more common among Blacks, in comparison with Whites and Latinos.
Ritter (2017)	To examine whether a driver's race and the time of day predicted an officer's decision to stop	Statistical analysis of database data	Officers of and people stopped by the Minneapolis PD in 2002	U.S.	A police officer's decision to stop a driver and conduct a search	Race and period of the day	The percentage of Black drivers stopped was between 5% and 7% lower during darkness, compared to the percentage of White drivers.
Sewell (2017)	To examine the relationship between reported health and living in neighborhoods and frequent excessive use of police force	Statistical analysis of database and survey data	36,188 U.S. residents and the 2009–2012 New York City SQF database	U.S.	Health indices (diabetes, hypertension, and obesity)	Degree of use of force in police stops; race of the person stopped; characteristics of the neighborhood where the stop took place	Living in minority communities with common use of police force against pedestrians was associated with an increased risk of presenting obesity and diabetes. Living in a White community where the use of police force is racially skewed was correlated with an increased risk of obesity, diabetes, hypertension, and poor or fair reported health.
Taniguchi et al. (2017)	To examine the relationship between daylight and the number of Black/White drivers stopped by the police unit	Statistical analysis of database data	Drivers and police officers living in Durham	U.S.	Racial disproportionality in stops	Time of day (day, sunset, night); year (2010–2015); sex; law enforcement unit (uniform patrol, HEAT, traffic services, or interdiction)	A significant relationship was found between daylight and race for Black male drivers. The HEAT team was 62% more likely to stop a Black man during the day than at other times.
Vito et al. (2017)	To examine the circumstances in which police officers generate citations	Statistical analysis of database data	Louisville PD's officers and individuals stopped in 2002	U.S.	Citations as a result of a stop	Driver's race and sex; police officer's motives related to a stop (according to focal concerns theory)	34% of stopped drivers were Black, and 70% were men; 67% of the stops generated citations. Black drivers were 42% less likely to receive citations compared to other races (supposedly because officers believed Blacks were involved in more serious crimes).
Voigt et al. (2017)	To examine the level of respect in the language police officers used in stops with White and Black individuals	Analysis of police officers' body-worn camera footage	628 Black drivers, 299 White drivers, 245 officials of Oakland, CA	U.S.	Statements emitted by police officers to Black and White drivers in police stops	Level of respect, cordiality, formality, impartiality, etc. present in the statements	Statements given to White drivers were more respectful than those emitted toward Black drivers (even when controlling the context of the interaction).
Motley Jr. and Joe (2018)	To examine the self-reported exposure to and perceptions of the use of the police force by Black and White individuals	Statistical analysis of survey data	U.S. residents aged 16+: 59 Blacks and 366 Whites	U.S.	Excessive use of police force and perceptions of police actions	Age, sex, income, and race (Black/White)	The lower the income, the greater the excessive use of force for both race groups, in both sexes. Black men reported a higher frequency of excessive use of force, such as handcuffing and pushing.

*Note.* The studies are ordered by year of publication. SQF = stop, question, and frisk; HEAT = police team responsible for carrying out services such as proactive problem solving and drug transfers at the street level; PD = police department; NYPD = New York Police Department; excessive use of police force = degree of force above the appropriate level for a given situation, ranging from giving a warning to the lethal use of force with a weapon.

racism present in police stops—at least in the countries where the research was conducted. Black people are systematically harmed by police actions, as evidenced in the studies reviewed. Having a biased police force interferes with the population's trust in the alleged aims of the police—that is, safety and order—especially that of people of color and other underrepresented individuals. That produces a negative perception of police officers, reported by participants from studies carried out in three countries: the United States (Braga et al., 2014), England (Barrett et al., 2014), and the Netherlands (Svensson & Saharso, 2015).

The century-old idea that Black and other non-White individuals are inferior influences the behavior of members of a society, being reinforced in and by several institutions (e.g., religious, educational). Being present and reinforced in several contexts, this incorrect and outrageous idea becomes naturalized—that is, people tend to see it as a normal or natural feature of the environment, and they tend to avoid any form of countercontrol (see Sidman, 1989). However, a system that maintains institutional racism directly interferes with the quality of life of those targeted by racial selectivity during stops and can generate popular protests and riots. In Nadal et al. (2017), for example, a 19-year-old Black American man reported, “I felt as if I did something wrong, despite me knowing that I didn't do anything. I felt bad about myself” (p. 820). In addition to the emotional responses often referred to as fear and nervousness in the presence of police officers, helplessness is also a common outcome, as expressed by an 18-year-old Latino man also from the Nadal et al. study: “It happens a lot, so it really doesn't matter” (p. 821).

The SQF approach was mentioned by two studies (Motley Jr. & Joe, 2018; Sewell, 2017) from different countries (the United States and England). These studies used police departments' data on stops to assess whether this practice disproportionately targets Blacks. Common results showed a racial discrepancy in the frequency of stops. As officers register the citizen's race according to their own prejudgments, however, it is important to note that Barnum and Miller's (2014) results suggest such data can be influenced by factors such as the stop site being in a lower income neighborhood, where officers tend to report the person as Black.

We found no research reported in Portuguese or conducted with Brazilians or other Portuguese-speaking citizens. This may be due to the keywords being searched in only one database. Thus, the selection of a single database is a limitation of our review. Despite that, data regarding institutional racism in the Brazilian police can also be found. According to Cerqueira et al. (2017), the number of registered deaths occurring in police interventions in Brazil during 2015 was extremely high (3,320), even higher than the number of deaths after a robbery (2,314). Critically, during the same year, 71% of murdered people in the country were Black. There are no data regarding the percentage of Black people killed during police

interventions, but one can expect numbers at least equal to that for total murders. The negative perception of police officers by Black people is also present in Brazil. For example, a survey showed that 68.3% of Brazilian respondents believed that the police acted in a racially biased manner (Instituto Brasileiro de Geografia e Estatística, 2011).

Future research should investigate traffic stops—which have proved to be a favorable environment for racial discrepancies in police procedures in the United States (Barnum & Miller, 2014)—in different countries, assessing the generality of this unfortunate phenomenon and its cultural particularities. Due to social and racial inequalities in Brazil, for instance, White people tend to have more financial resources, which influences the purchase of goods such as vehicles. In addition, cars are especially expensive in Brazil. Because we could not find studies relating racial prejudice and traffic stops in Brazil, researchers could investigate, for example, whether it is more common for police officers to stop Black people driving cars that are considered expensive, compared to White individuals, and whether Black drivers are stopped more than Whites.

The absence of studies in Brazil and other countries might also be due to the difficulty of accessing data on police stops. These data may not have been produced or made publicly available. Therefore, movements that demand constant production and publicity of data are paramount for researchers to be able to collect data that could help delineate public policies.

Behavior analysts have contributed to studies on racial prejudice and institutional racism (de Carvalho & de Rose, 2014; Mizael et al., 2016; Mizael & de Rose, 2017; Mizael & Sampaio, 2019). In that line, future research could investigate, for instance, the cumulative effect of prejudice in organizations such as the police force and some of the individual and cultural consequences that permit the maintenance of these behaviors, thus describing the components of the macrocontingencies involved (cf. Glenn et al., 2016; Mizael & Sampaio, 2019). These can help design cultural interventions aimed at reducing this and other types of prejudices—one thing that was unfortunately lacking in the literature we reviewed. Interventions to fight racial prejudice and institutional racism are badly needed, and a behavior-analytic perspective might just be what is missing for us to win this battle.

A possible way that behavior analysts could ameliorate racial bias in police stops could be by analyzing strategies already used, such as training programs. Generally, those types of programs focus on presenting the audience (police officers) with written and visual material describing how to better interact with civilians. According to Machado and Lugo (*in press*), this type of strategy could be effective to change verbal behavior. However, to establish specific skills (e.g., to use force only when no other alternative is possible), it could be more effective to use performance- and competency-based strategies. In this sense, behavior analysts could evaluate the use of video modeling or behavioral skills training to decrease racial bias in police stops.

Body-worn cameras (BWCs)—cameras attached to a police officer's chest area or head that record their interactions with civilians—are another strategy already in use (see Voigt et al., 2017). According to Machado and Lugo (in press), they have been used by the U.S. Department of Justice since 2005, and, each year, more cameras are available to police officers. According to the authors, BWCs could be seen as an antecedent manipulation that could evoke socially congruent behavior (covert rules or overt behavior) or increase the probability of behavior that could avoid the punitive consequences related to racial misconduct (Machado & Lugo, in press). Those videos could also be used in sessions where a trainer reinforces professional behavior (e.g., by adding points that could lead to a higher salary) and where police officers are held accountable for unprofessional behavior, such as the abusive use of force (e.g., the police officer loses points that decrease their salary).

Racial bias in police stops is an urgent and fundamental matter affecting different aspects of society (e.g., health, traffic, imprisonment). Our review confirms the unfortunate and systematic presence of this social issue in different countries. We hope that such information can be useful in furthering more basic and applied research, helping to formulate interventions to reduce individual biases and to implement measures to decrease institutional racism.

**Author Note** The present research is based on the undergraduate thesis in psychology of Aline Ara Santos Carvalho, under the supervision of Angelo A. S. Sampaio and Táhica Medrado Mizael. The authors would like to thank Mariana Souza, Nilton Almeida, Christian Vichi, and Marco Tagliabue for comments on previous versions of the manuscript.

**Funding** Táhica Mizael was supported by a postdoctoral fellowship from the São Paulo Research Foundation (Grant 2020/02548-7) and also by the scientific program of the Instituto Nacional de Ciência e Tecnologia sobre Comportamento, Cognição e Ensino, supported by CNPq (Grants 573972/2008-7 and 465686/2014-1) and FAPESP (Grants 2008/57705-8 and 2014/50909-8).

## Declarations

**Ethical approval** This article does not contain any studies with human participants or animals performed by the authors.

**Conflict of interest** The authors declare that they have no conflicts of interest.

## References

References marked with an asterisk indicate studies included in the systematic review.

- \*Ariza, J. J. M. (2014). Police-initiated contacts: Young people, ethnicity, and the “usual suspects”. *Policing & Society*, 24(2), 208–223. <https://doi.org/10.1080/10439463.2013.784301>
- \*Barnum, C., & Miller, T. (2014). Neighborhood deterioration and perceptions of race. *Current Research in Social Psychology*, 22(10), 51–59. [https://crisp.org.uiowa.edu/sites/crisp.org.uiowa.edu/files/2020-04/art9.21.14\\_0.pdf](https://crisp.org.uiowa.edu/sites/crisp.org.uiowa.edu/files/2020-04/art9.21.14_0.pdf)
- \*Barrett, G. A., Fletcher, S. M. G., & Patel, T. G. (2014). Black minority ethnic communities and levels of satisfaction with policing: Findings from a study in the north of England. *Criminology & Criminal Justice*, 14(2), 196–215. <https://doi.org/10.1177/1748895813483760>
- Boni, M. L. (2006). Cidadania e poder de polícia na abordagem policial [Citizenship and police power in the police stop]. *Revista da Faculdade de Direito de Campos*, 7(9), 621–664. <https://core.ac.uk/download/pdf/16012941.pdf>
- \*Braga, A. A., Winship, C., Tyler, T. R., Fagan, J., & Meares, T. L. (2014). The salience of social contextual factors in appraisals of police interactions with citizens: A randomized factorial experiment. *Journal of Quantitative Criminology*, 30(4), 599–627. <https://doi.org/10.1007/s10940-014-9216-7>
- Geledés – Instituto da Mulher Negra. (2006). *Guia de enfrentamento ao racismo institucional* [Handbook on fighting institutional racism]. Gueledés – Instituto da mulher negra. <http://www.onumulheres.org.br/wp-content/uploads/2013/12/Guia-de-enfrentamento-ao-racismo-institucional.pdf>
- Cerqueira, D., Lima, R. S., Bueno, S., Valencia, L. I., Hanashiro, O., Machado, P. H. G., & Lima, A. S. (2017). *Atlas da violência 2017* [Violence atlas 2017]. Instituto de Pesquisa Econômica Aplicada; Fórum Brasileiro de Segurança Pública. [https://www.ipea.gov.br/portal/images/170609\\_atlas\\_da\\_violencia\\_2017.pdf](https://www.ipea.gov.br/portal/images/170609_atlas_da_violencia_2017.pdf)
- Cerqueira, D. C. R., & Moura, R. L. (2013). *Vidas perdidas e racismo no Brasil* [Lost lives and racism in Brazil] (Technical Note 10). Instituto de Pesquisa Econômica Aplicada [The Institute for Applied Economic Research]. [http://repositorio.ipea.gov.br/bitstream/11058/5977/1/NT\\_n10\\_vidas.pdf](http://repositorio.ipea.gov.br/bitstream/11058/5977/1/NT_n10_vidas.pdf)
- Chaney, C. (2015). Institutional racism: Perspectives on the Department of Justice's investigation of the Ferguson Police Department. *Western Journal of Black Studies*, 39(4), 312–330. <https://pdfs.semanticscholar.org/f0f3/00fa7ad4cc249d9189869fcf8535b6f55eda.pdf>
- de Carvalho, M. P., & de Rose, J. C. (2014). Understanding racial attitudes through the stimulus equivalence paradigm. *The Psychological Record*, 64(3), 527–536. <https://doi.org/10.1007/s40732-014-0049-4>
- Duarte, E. C. P., Muraro, M., Lacerda, M., & Garcia, R. D. (2014). Quem é o suspeito do crime de tráfico de droga? Anotações sobre a dinâmica dos preconceitos raciais e sociais na definição das condutas de usuário e traficantes pelos Policiais Militares nas Cidades de Brasília, Curitiba e Salvador [Who is the suspect in the drug trafficking crime? Notes on the dynamics of racial and social prejudices in the definition of user and trafficker's conduct by military police officers in the cities of Brasília, Curitiba, and Salvador]. In I. S. Figueiredo, G. C. Baptista, & C. S. L. Lima (Eds.), *Segurança pública e direitos humanos: Temas transversais* (pp. 81–120). Ministério da Justiça, Secretaria Nacional de Segurança Pública. [https://www.justica.gov.br/central-de-conteudo/senasp/anexos/pensando-a-seguranca-publica\\_vol-5.pdf](https://www.justica.gov.br/central-de-conteudo/senasp/anexos/pensando-a-seguranca-publica_vol-5.pdf)
- Eagly, A. H., & Chaiken, S. (1993). The nature of attitudes. In A. H. Eagly & S. Chaiken (Eds.), *The psychology of attitudes* (pp. 1–21). Harcourt Brace Jovanovich College Publishers.
- \*Epp, C. R., Maynard-Moody, S., & Haider-Markel, D. (2017). Beyond profiling: The institutional sources of racial disparities in policing. *Public Administration Review*, 77(2), 168–178. <https://doi.org/10.1111/puar.12702>
- Gelman, A., Fagan, J., & Kiss, A. (2007). An analysis of the New York City Police Department's “stop-and-frisk” policy in the context of claims of racial bias. *Journal of the American Statistical*

- Association, 102(479), 813–823. <https://doi.org/10.1198/01621450600001040>.
- \*Gilliard-Matthews, S. (2017). Intersectional race effects on citizen-reported traffic ticket decisions by police in 1999 and 2008. *Race and Justice*, 7(4), 299–324. <https://doi.org/10.1177/2153368716648002>
- Glenn, S. S., Malott, M. E., Andery, M. A. P. A., Benvenuti, M., Houmanfar, R. A., Sandaker, I., Todorov, J. C., Tourinho, E. Z., & Vasconcelos, L. A. (2016). Toward consistent terminology in a behaviorist approach to cultural analysis. *Behavior and Social Issues*, 25, 11–27. <https://doi.org/10.5210/bsi.v25i0.6634>.
- Instituto Brasileiro de Geografia e Estatística. (2011). *Características étnico-raciais da população* [Ethnic-racial characteristics of the population]. <https://biblioteca.ibge.gov.br/visualizacao/livros/liv49891.pdf>
- \*Kwate, N. O. A., & Threadcraft, S. (2015). Perceiving the Black female body: Race and gender in police constructions of body weight. *Race and Social Problems*, 7(3), 213–226. <https://doi.org/10.1007/s12552-015-9152-7>
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleynen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *PLOS Medicine*, 6(7), s. <https://doi.org/10.1371/journal.pmed.1000100>.
- Machado, M. A., & Lugo, A. M. (in press). A behavioral analysis of two strategies to eliminate racial bias in police use-of-force. *Behavior Analysis in Practice*.
- Mizael, T. M., & de Rose, J. C. (2017). Análise do comportamento e preconceito racial: Possibilidades de interpretação e desafios [Behavior analysis and racial prejudice: Possibilities of interpretation and challenges]. *Acta Comportamental*, 25(3), 365–377 <http://www.revistas.unam.mx/index.php/acom/article/download/61632/54291>.
- Mizael, T. M., dos Santos, S. L., & de Rose, J. C. (2016). Contribuições do paradigma de equivalência de estímulos para o estudo das atitudes [Contributions of the equivalence class paradigm to studying attitudes]. *Interação em Psicologia*, 20(2), 124–134. <https://doi.org/10.5380/psi.v20i2.46278>.
- Mizael, T. M., & Sampaio, A. A. S. (2019). Racismo institucional: Aspectos comportamentais e culturais da abordagem policial [Institutional racism: Behavioral and cultural aspects of the police approach]. *Acta Comportamental*, 27(2), 215–231 <http://www.revistas.unam.mx/index.php/acom/article/download/69861/61628>.
- \*Morrow, W., White, M., & Fradella, H. (2017). After the stop: Exploring the racial/ethnic disparities in police use of force during Terry stops. *Police Quarterly*, 20(4), 367–396. <https://doi.org/10.1177/1098611117708791>
- \*Motley, R. O., Jr., & Joe, S. (2018). Police use of force by ethnicity, sex, and socioeconomic class. *Journal of the Society for Social Work and Research*, 9(1), 49–67. <https://doi.org/10.1086/696355>
- Munanga, K. (2004). Uma abordagem conceitual das noções de raça, racismo, identidade e etnia [A conceptual approach to the notions of race, racism, identity, and ethnicity]. In A. A. P. Brandão (Ed.), *Programa de educação sobre o negro na sociedade brasileira* (pp. 16–34). EdUFF.
- \*Nadal, K. L., Davidoff, K. C., Allicock, N., Serpe, C. R., & Erazo, T. (2017). Perceptions of police, racial profiling, and psychological outcomes: A mixed methodological study. *Journal of Social Issues*, 73(4), 808–830. <https://doi.org/10.1111/josi.12249>
- Nogueira, O. (2006). Preconceito racial de marca e preconceito racial de origem: Sugestão de um quadro de referência para a interpretação do material sobre relações raciais no Brasil [Mark and origin: A framework for the analysis of racial prejudice in Brazil]. *Tempo Social: Revista de Sociologia da USP*, 19(1), 287–308. <https://doi.org/10.1590/S0103-20702007000100015>.
- Ramos, S., & Musumeci, L. (2004). Elemento suspeito: Abordagem policial e discriminação na cidade do Rio de Janeiro [Suspected element: Police stops and discrimination in the city of Rio de Janeiro]. *Boletim Segurança e Cidadania*, 3(8), 1–16 <https://cesecseguranca.com.br/wp-content/uploads/2016/03/boletim08.pdf>.
- \*Ritter, J. A. (2017). How do police use race in traffic stops and searches? Tests based on observability of race. *Journal of Economic Behavior & Organization*, 135, 82–98. <https://doi.org/10.1016/j.jebo.2017.02.005>
- \*Sewell, A. A. (2017). The illness associations of police violence: Differential relationships by ethnoracial composition. *Sociological Forum*, 32(Suppl. 1), 975–997. <https://doi.org/10.1111/soef.12361>
- Sidman, M. (1989). *Coercion and its fallout*. Authors Cooperative.
- Silva, G. G. (2009). A lógica da polícia militar do Distrito Federal na construção do suspeito [The logic of the military police force from Distrito Federal in the construction of the suspected individual]. *Sociedade e Estado*, 24(3), 908–909. <https://doi.org/10.1590/S0102-69922009000300021>.
- Sinhoretto, J., Batitucci, E., Mota, F. R., Schlittler, M. C., Silvestre, G., Morais, D. S., Souza, L. G., Sousa, R. R., Silva, S. S., Ovalle, L. A., Ramos, P. C., Almeida, F. B., & Maciel, W. C. (2014a). A filtragem racial na seleção policial de suspeitos: Segurança pública e relações raciais [Racial profiling in police selection of suspects: Public safety and race relations]. In C. S. L. Lima, G. C. Baptista, & I. S. Figueiredo (Eds.), *Segurança pública e direitos humanos: Temas transversais* (pp. 121–159). Ministério da Justiça, Secretaria Nacional de Segurança Pública. [https://www.justica.gov.br/central-de-conteudo/senasp/anexos/pensando-a-seguranca-publica\\_vol-5.pdf](https://www.justica.gov.br/central-de-conteudo/senasp/anexos/pensando-a-seguranca-publica_vol-5.pdf)
- Sinhoretto, J., Silvestre, G., & Schlittler, M. C. (2014b). *Desigualdade racial e segurança pública em São Paulo: Letalidade policial e prisões em flagrante* [Racial inequality and public safety in São Paulo: Police lethality and flagrant arrests]. UFSCar. [http://www.ufscar.br/gevac/wp-content/uploads/Sum%C3%A1rio-Executivo\\_FINAL\\_01.04.2014.pdf](http://www.ufscar.br/gevac/wp-content/uploads/Sum%C3%A1rio-Executivo_FINAL_01.04.2014.pdf)
- Souza, J. L. C. D., & Reis, J. F. G. (2014). A discricionariedade policial e os estereótipos suspeitos [Police discretion and suspect stereotypes]. *Revista do NUFEN*, 6(1), 125–166 <http://pepsic.bvsalud.org/pdf/rnufen/v6n1/a07.pdf>.
- \*Svensson, J. S., & Saharso, S. (2015). Proactive policing and equal treatment of ethnic-minority youths. *Policing & Society*, 25(4), 393–408. <https://doi.org/10.1080/10439463.2013.875015>
- \*Taniguchi, T. A., Hendrix, J. A., Levin-Rector, A., Aagaard, B. P., Strom, K. J., & Zimmer, S. A. (2017). Extending the veil of darkness approach: An examination of racial disproportionality in traffic stops in Durham, NC. *Police Quarterly*, 20(4), 420–448. <https://doi.org/10.1177/1098611117721665>
- \*Vito, A. G., Grossi, E. L., & Higgins, G. E. (2017). The issue of racial profiling in traffic stop citations. *Journal of Contemporary Criminal Justice*, 33(4), 431–450. <https://doi.org/10.1177/1043986217724537>
- \*Voigt, R., Camp, N. P., Prabhakaran, V., Hamilton, W. L., Hetey, R. C., Griffiths, C. M., Jurgens, D., Jurafsky, D., & Eberhardt, J. L. (2017). Language from police body camera footage shows racial disparities in officer respect. *Proceedings of the National Academy of Sciences*, 114(25), 6521–6526. <https://doi.org/10.1073/pnas.1702413114>