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Toward a better understanding of racial and ethnic disparities in search and seizure rates

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Abstract

Recent studies demonstrated a consistent research finding that compared to Caucasian motorists, Black and Hispanic motorists were significantly more likely to be subjected to personal and/or vehicle searches during traffic stops, but significantly less likely to be found in possession of contraband. Explanations for these findings were typically based on speculation regarding officers' racial animus, bias, and discrimination. Unfortunately, very little is truly known about the reasons for these disparate patterns in police behavior. This article presents an alternative explanation for the reoccurring findings of racial/ethnic disparities in searches and seizures, based on research findings regarding the accuracy of clues of deception and suspicious behavior taught to officers through highway criminal interdiction training. These research findings are used to develop a hypothesis that could account for the patterns of racial/ethnic disparities in search rates. The implications for future research and policing policies based on this hypothesis are discussed.

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Introduction

One of the most important public policy issues currently facing police administrators involves the actual and perceived differential patterns of police-citizen contacts and outcomes based on citizens' race and ethnicity (Engel, Calnon, & Bernard, 2002). The perception of "racial profiling" has received national attention, undermining police departments' attempts to restore and rebuild trust with their constituents (Harris, 1999; Lundman & Kaufman, 2003; Walker, 2001). Numerous research studies examining traffic stop data collected by departments across the country have generally shown racial and ethnic disparities in rates of traffic stops and

traffic stop dispositions (e.g., citations, arrests, and searches). Particularly problematic was a growing body of research suggesting that minority motorists were significantly more likely to be searched by police during traffic stops, but less likely to be found in possession of contraband compared to Caucasian drivers.

Unfortunately, very little is known about the reasons for these disparate patterns in police behavior. At this point, the research available was only speculative, arguing that racial and ethnic disparities in search and seizure rates were likely due to individual officer biases, and/or pervasive racist attitudes and racial profiling practices that are deeply ingrained within the police subculture (Harris, 1999; Lamberth, 1996; Lundman & Kaufman, 2003). Furthermore, this research did not take into consideration the potential impact that law enforcement training might have on the reported racial/ethnic disparities. Therefore, to examine an alternative explanation for racial/ethnic disparities in search and seizure rates, the

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literature from other academic disciplines regarding cues of deception and/or suspicious behavior was reviewed and compared with actual criminal interdiction training commonly provided to law enforcement personnel. These research findings, combined with descriptions of current officer training in searches and seizures, represent an alternative and perhaps more plausible explanation for patterns of racial/ethnic disparities in search rates. Specifically, in this article, the pattern of racial/ethnic disparities in search and seizure rates for state police and highway patrol agencies is documented. Thereafter, the legal guidelines for searches and seizures are reviewed, followed by a thorough description of the cues of deception and/or suspiciousness used in most current police training. Research findings are then reviewed from the social psychological literature that suggest these higher rates of minority searches may be based in part on officers' inaccurate interpretations of the situational and interpersonal cues present during traffic stops. The article concludes with a discussion of the implications for future research, policy, and police training.

Research examining traffic stops

In recent years, a number of studies had been undertaken to evaluate the traffic stop behaviors of police officers in the United States with regard to the equal treatment of motorists. These studies had produced inconsistent findings with regard to racial/ethnic disparities in traffic stops after considering racial/ethnic differences in traffic patterns and violation rates (e.g., see Alpert Group, 2004; Eck, Liu, & Bostaph, 2003; Engel & Calnon, 2004a; Engel, Calnon, Liu, & Johnson, 2004; Farrell, McDevitt, Bailey, Andersen, & Pierce, 2004; Farrell, McDevitt, Cronin, & Pierce, 2003; Fridell, 2004; Lovrich, Gaffney, Mosher, Pickerill, & Smith, 2003; Novak, 2004; W. R. Smith et al., 2003; Verniero & Zoubek, 1999). Unfortunately, the methodological problems inherent in examining racial/ethnic differences in traffic stops by making comparisons to "benchmarks" of the expected rates of racial/ethnic traffic stops assuming no police bias are plentiful, and the appropriate conclusions researchers are able to make regarding these disparities are quite limited (Engel & Calnon, 2004b; Engel et al., 2002; Fridell, 2004; Walker, 2001).

A second body of research using traffic stop data, however, provided a better opportunity to assess and interpret potential racial/ethnic disparities through the examination of traffic stop dispositions (e.g., warnings, citations, arrests) and coercive action taken by police during traffic stops (e.g., person and vehicle searches, uses of force). In traffic stop studies where information

regarding all traffic stops was recorded regardless of the traffic stop disposition, there was no need to compare these data to benchmark data. Rather, the analytical strategy routinely used is to estimate multivariate statistical models to determine the independent effects of drivers' race/ethnicity over traffic stop dispositions, while simultaneously controlling for other factors known to influence officer decision making (e.g., reason for the stop, severity of the traffic offense, time and location of the stop, etc.). Although this is a stronger analytical strategy than traffic stop comparisons to benchmark data, there are still problems with this technique (e.g., specification error) that limit the interpretation of racial/ethnic disparities (Engel & Calnon, 2004a; Engel et al., 2004; Fridell, 2004).

Nevertheless, researchers can generally be more confident in the findings of statistical analyses that examine traffic stop dispositions because at least some legal and extralegal factors that contribute to officer decision-making are statistically controlled. The majority of studies examining traffic stops have revealed a rather consistent trend of racial and/or ethnic disparities in dispositions (e.g., warnings, citations, and arrests), and coercive police behavior during the traffic stop (e.g., person and vehicle searches, use of force). That is, the bulk of the research examining traffic stop dispositions suggest that after controlling for other factors known to influence police decision making, racial and ethnic minorities are significantly more likely to be the recipients of coercive police action compared to Caucasians (e.g., see Alpert Group, 2004; Engel & Calnon, 2004a; Engel et al., 2004; Engel, Calnon, Tillyer, Johnson, & Liu, 2005; Farrell et al., 2004; Farrell et al., 2003; Lovrich et al., 2003; W. R. Smith et al., 2003).

This pattern of racial/ethnic disparities in post-stop police behavior is especially evident when examining search and seizure rates. Searches are the only form of coercive police behavior where "success" can be readily measured. Although there are several reasons for officers to conduct searches other than for the expressed purpose of confiscating contraband (e.g., for officer safety reasons, entrance into high security areas, mandatory vehicle inventories based on departmental policy, etc.), searches are also often conducted as a criminal interdiction tactic with the primary purpose of seizing contraband (Harris, 1999; Remsberg, 1997). It has been argued that for the purpose of seizing contraband, the "success" of using vehicle and person searches can be readily assessed through a comparison of "hit rates" (Ayres, 2002; Knowles, Persico, & Todd, 2001).

Some researchers have suggested that the racial and ethnic disparities in search and seizure rates are the result of individual officer biases and/or pervasive racist attitudes

and racial profiling practices that are deeply ingrained within the police subculture (Harris, 1999; Lamberth, 1996; Lundman & Kaufman, 2003). Others have argued that it is unrealistic to believe that individual racial bias can account for all of the racial and ethnic disparities reported in search and seizure rates across the country (Engel et al., 2005; MacDonald, 2003; W. R. Smith et al., 2003). Furthermore, police administrators adamantly deny racial profiling allegations and most have written policies against using race as a criterion for determining suspiciousness (Remsberg, 1997). Unfortunately, findings of racial and ethnic disparities in search rates alone cannot address the question of whether or not officers are engaging in racial bias (Engel et al., 2005). Even such interpretations of analyses of search “hit rates” are inappropriate because the economic models upon which these analyses are based have unrealistic and unmet assumptions that limit the interpretation of the findings (Engel, 2005c). There is currently no statistical method available to researchers conducting traffic stop analyses that can determine whether or not the racial and ethnic disparities observed in search and seizure rates are due to individual officer biases, or some other factors. Thus, this article seeks to identify some of the possible explanations of the patterns

of racial and ethnic disparities in search and seizure rates other than racial animus and/or bias displayed by individual officers through a review of research findings not involving traffic stop data, and descriptions of criminal interdiction training many officers receive that likely guide their search decisions. Through this review, some of the possible reasons for racial and ethnic disparities in search and seizures are identified and critiqued.

Search and seizure rates in state police and highway patrol agencies

This article focuses specifically on racial/ethnic disparities in searches and seizures conducted by state police and highway patrols. State police and highway patrols engage in more traffic stops compared to most municipal agencies, and routinely use traffic enforcement as a technique to engage in drug and other forms of criminal interdiction. The literature reviewed below reports empirical findings for thirteen state agencies that have publicly available reports and/or data regarding searches and seizures conducted during traffic stops. The findings of these reports are reviewed in alphabetical order by agency and summarized in Table 1. As Table 1

Table 1
Reported state police and highway patrol search and seizure rates, by drivers' race and ethnicity

| State police/patrol agency (citation) | Percent Caucasian searched | Percent Black searched | Percent Hispanic searched | Percent Caucasian w/evidence seized | Percent Black w/ evidence seized | Percent Hispanic w/evidence seized |
|--|----------------------------|------------------------|---------------------------|-------------------------------------|----------------------------------|------------------------------------|
| Arizona DPS (Engel, 2004) | 3.2 | 7.4 | 7.1 | 24.0 | 22.6 | 17.3 |
| Iowa SP (Iowa Division of Criminal and Juvenile Justice Planning, 2003) | 2.7 | 7.1 | 10.3 | 42.6 | 40.0 | 27.4 |
| Maryland SP ¹ (Knowles et al., 2001) | NA | NA | NA | 28.8 | 28.4 | NA |
| Massachusetts SP (Farrell et al., 2004) | 1.1 | 2.3 | 2.6 | NA | NA | NA |
| Missouri SHP (Missouri Attorney General's Office, 2004) | 3.4 | 5.6 | 8.9 | 32.9 | 27.6 | 18.1 |
| New Jersey SP (Verniero & Zoubek, 1999) | 0.5 | 2.7 | 4.8 | 10.5 | 13.5 | 38.1 |
| North Carolina SHP (W. R. Smith et al., 2003) | 0.1 | 0.2 | NA | 42.6 | 33.4 | NA |
| Ohio SHP ² (Ohio State Highway Patrol, 2003) | 0.3 | 0.9 | 2.3 | 66.1 | 63.7 | 26.1 |
| Pennsylvania SP (Engel et al., 2005) | 0.6 | 2.2 | 2.9 | 30.0 | 21.2 | 14.2 |
| Rhode Island SP ³ (Farrell et al., 2003) | 4.3 | 9.5 | NA | 14.8 | 13.9 | NA |
| Texas Dept of Public Safety ⁴ (Texas Department of Public Safety, 2003) | 2.8 | 5.1 | 5.0 | 14.6 | 3.6 | 3.9 |
| Washington SP ⁵ (Lovrich et al., 2003) | 0.4 | 1.0 | 1.0 | 24.8 | 18.9 | 16.7 |

¹ The Maryland study did not examine stops without searches, so the percentages of drivers searched of those stopped was not reported.

² Search success rate for the Ohio State Highway Patrol was based only on a sample of “discretionary” searches.

³ Search and seizure percentages for Rhode Island were not broken down by specific minority groups. The percentages listed under “Blacks” reflect the number of all non-White drivers.

⁴ The seizure rates reported for Texas were based on drug evidence only.

⁵ Only the discretionary searches conducted by the Washington State Patrol are reported in Table 1. Washington's non-discretionary search success rates, however, follow the same pattern.

documents, all of the state agency reports showed search rates that were disproportionately higher for Black and Hispanic drivers, as compared to Caucasian drivers. Black motorists ranged from being 1.7 to 5.4 times more likely to be searched by state patrol agencies compared to Caucasian motorists. The disproportionality in search rates was even higher for Hispanic motorists, as they were 1.8 to 9.6 times more likely to be searched by various state police agencies compared to Caucasian motorists.

One possible explanation posed by law enforcement officials regarding the racial/ethnic disparities in search rates is racial/ethnic differences in involvement in drug trafficking and other forms of criminal behavior. Yet, the higher propensity to search minority drivers documented by these studies, did not, for the most part, appear to result in the seizure of more contraband from these drivers. Only in New Jersey did the racial/ethnic disproportionalities in searches appear to be at least partially justified by the seizure rates, where Blacks and Hispanics in particular, were more likely than their Caucasian counterparts to be found in possession of contraband.¹ Across the other state agencies, however, lower percentages of searches of Black and Hispanic motorists resulted in contraband seizures, compared to Caucasians. This was most dramatically evident in Texas and Pennsylvania, where the difference between Caucasian search success rates and the search success rates of both Blacks and Hispanics was at least ten percentage points. Elsewhere, in Arizona, Iowa, Missouri, Ohio, and Washington, searches of Hispanic drivers were particularly less fruitful in terms of the discovery of contraband compared to searches of Caucasians.

Findings from these studies suggested a pervasive pattern in state level law enforcement in which minority motorists and their vehicles are searched more often than Caucasians, even though they are less likely than Caucasians to be found in possession of illegal contraband. This article seeks to understand and evaluate possible explanations for these racial and ethnic disparities in search and seizure rates reported for state level law enforcement agencies. Prior to exploring the possible explanations for these disparities, however, it is important to understand both the legal statutes that govern searches of motorists and their vehicles, as well as the previous and current training officers across the country receive regarding the use of motor vehicle stops and searches as a method for highway drug and criminal interdiction.

Laws guiding searches of motorists and vehicles

Vehicle searches may be conducted without a warrant when police officers have sufficient probable cause to

believe that hidden within the vehicle is evidence of a crime (*Carroll v. United States*, 1925). They may search a vehicle as part of a search incident to the lawful arrest of an occupant within the vehicle (*New York v. Belton*, 1981). Police officers may also request voluntary consent to search from the vehicle's occupants if the troopers have a reasonable suspicion that evidence of a crime is hidden inside (*Bumper v. North Carolina*, 1968). Both searches based on probable cause and requests for consensual searches involve some level of evidence interpretation by the investigating officers. Police officers must mentally interpret the facts and circumstances surrounding the stop and determine if these facts and circumstances amount to probable cause or reasonable suspicion that the motorist is transporting illegal contraband. Therefore, it is important to understand the circumstances officers look for as indicators of probable cause or reasonable suspicion.

While the legalities that surround motor vehicle searches in the federal system and most states are relatively clear, there are some notable exceptions at the state level that may present curious departures from the observed trends. For example, the Commonwealth of Pennsylvania does not follow the federal "automobile exception" line of cases that allow for warrantless automobile searches when a police officer has probable cause to search (*Carroll v. United States*, 1925). Rather, in Pennsylvania, automobile searches require a warrant even when the police officer "stumbles" across probable cause in the midst of a routine traffic stop (see *Commonwealth of Pennsylvania v. Casanova*, 2000; *Commonwealth of Pennsylvania v. Labron*, 1995; *Commonwealth of Pennsylvania v. White*, 1995). Therefore, a Pennsylvania State Trooper who observes suspicious behavior on the part of a motorist that amounts to probable cause during a motor vehicle stop must expend the time and trouble to obtain a warrant (which often will require the services of another officer to secure the scene while the first trooper obtains the warrant) before he/she can search the car, unless he/she can obtain consent to search from the motorist. Consent searches, however, require no modicum of suspicion in the state of Pennsylvania; all that is required is that the traffic stop must be concluded before the request for consent is made, and that the consent be freely and voluntarily given (see *Commonwealth of Pennsylvania v. Hoak*, 1999; *Commonwealth of Pennsylvania v. Strickler*, 2000). Thus, the unique development of vehicle search case law in Pennsylvania may account for the large number of consent searches of vehicles conducted by the Pennsylvania State Police when compared to other state agencies (Engel et al., 2005).

State and federal highway drug interdiction training

The police practice of using routine traffic and pedestrian stops for purposes of drug interdiction was heavily promoted during the 1980s “War on Drugs” era. Vehicle pretext stops targeting particular types of motorists and vehicles were generally regarded as an effective policing tactic to detect drug offenders (Engel & Calnon, 2004b; Harris, 1999; Tonry, 1995). For example, in 1986, the DEA established “Operation Pipeline,” a highway drug interdiction program designed to train federal, state, and local law enforcement officials on the indicators of drug trafficking activities of motorists (Foster, 1992; Grimming & Burwitz, 1988; Remsberg, 1997). Some state and local law enforcement agencies also developed similar drug interdiction training. For example, in 1985 the Florida Department of Highway Safety and Motor Vehicles issued guidelines for police on “The Common Characteristics of Drug Couriers,” which established “profiles” of typical drug couriers. Based on these profiles, law enforcement officers were trained to stop motorists for minor traffic violations as a pretext to search for drugs or other contraband (American Civil Liberties Union, 1999).

One of the indicators of drug courier profiles used in federal, state, and local police training in the 1980s was the race/ethnicity of the driver. Some academics and activist groups argued that the use of these training materials generated a racially and ethnically biased drug courier profile and encouraged the targeting of minority motorists for traffic stops (e.g., American Civil Liberties Union, 1999; Harris, 1999). Due in part to successful civil and criminal litigation (e.g., *State of New Jersey v. Soto*, 1996; *Wilkins v. Maryland State Police*, 1993), citizen outrage, and changes in the political climate, drivers’ race/ethnicity is no longer specifically identified as an indicator of drug courier or criminal profiles in any known formal police training. Rather, highway interdiction training programs now emphasize a “totality of the circumstances” approach, in which the officers look for a number of clues that, taken individually, may not seem suspicious. When considered as a whole, however, multiple cues may add up to reasonable suspicion or even probable cause to conduct a search (M. F. Brown, 2001; Connors & Nugent, 1990; Foster, 1992; Grimming & Burwitz, 1988; Harman, 1993; Remsberg, 1997; Robin, 1993). These clues are generally focused in three areas: the vehicle, the occupants’ appearance, and the circumstantial “stories” surrounding the stop.

The vehicle

Highway drug interdiction training has provided officers with a number of clues to look for while visually

inspecting the vehicles of the traffic law violators they stop. These indicators may include: drug paraphernalia (pipes, syringes, “roach” clips); items in the back seat that should normally be found in the trunk (luggage, spare tire); an overabundance of masking odors (air fresheners, carpet deodorizer, perfume); over-compressed shocks indicating a large amount of weight in the vehicle; fresh paint or visible body repairs (suggesting a hidden compartment); and an excessive number of balancing weights on the rims of the tires, suggesting something is hidden within the tires (Connors & Nugent, 1990; Foster, 1992; Harman, 1993; Remsberg, 1997).

Highway interdiction training also emphasizes that larger sedans and sport utility vehicles (especially luxury vehicles) have larger storage capacities and are more comfortable to drive for long distances, making them vehicles of choice for drug couriers (Connors & Nugent, 1990; Foster, 1992; Harman, 1993; Remsberg, 1997). Finally, interdiction training also suggests that drug couriers often use rental vehicles because they are harder to trace to an individual (especially if a stolen credit card was used to rent it), and if the car is seized the drug dealer will not have lost a vehicle in addition to losing the drugs within (Connors & Nugent, 1990; Remsberg, 1997).

The occupants

Drug interdiction training programs suggest that there are a number of clues that can be detected from the appearance, backgrounds, and behaviors of the vehicle occupants. Some of these suggested indicators have included: the occupants having criminal records that involve drug-related charges; none of the occupants being the owner of the vehicle, having borrowed it from a third party; the occupants’ age and socioeconomic status are “inconsistent” with the value and style of the vehicle; the occupants’ age and socioeconomic status are “inconsistent” with the style and value of the clothes and jewelry they are wearing; the occupants appear to have a large amount of cash; and the occupants appear to have been driving for a long period of time with few stops to rest as evidenced by pillows, blankets, and an accumulation of fast food bags (Connors & Nugent, 1990; Foster, 1992; Harman, 1993; Remsberg, 1997).

Another important clue to the occupants is any signs of nervousness or deception. Both drug interdiction training (Remsberg, 1997) and basic police interrogation training (Inbau, Reid, & Buckley, 1986) teaches officers that one’s nonverbal cues can reveal telltale signs that a person is lying or trying to deceive in some manner.² Police training routinely suggests that increases in the shifting of body

stance or posture, increased leg and foot movements, dramatic hand gestures, touching of one's face or head frequently, avoiding eye contact when speaking, speech disruptions such as stuttering, excessive or inappropriate smiling, and profuse sweating are indicators of suspiciousness (M. F. Brown, 2001; Connors & Nugent, 1990; Inbau et al., 1986; Remsberg, 1997).

In addition to formal training, research has suggested that police officers (Akehurst, Kohnken, Vrij, & Bull, 1996; Stromwall & Granhag, 2003; Vrij & Semin, 1996), corrections officers (Lakhani & Taylor, 2003; Vrij & Semin, 1996), parole officers (Porter, Woodworth, & Birt, 2000), prosecutors (Stromwall & Granhag, 2003), and judges (Stromwall & Granhag, 2003) all perceive that frequent speech disruptions (such as stutters and long pauses), frequent or inappropriate smiles, avoidance of eye contact, and increased hand gestures suggest that a person is trying to be deceptive about something. The display of such behaviors by the vehicle occupants during traffic stops likely will increase an officer's suspicions that they are trying to hide something from the officer.

The stories

Drug interdiction training has generally suggested that a number of clues can be developed from asking the occupants questions about their travel itinerary (Remsberg, 1997). Some examples of these clues include: the occu-

pants give conflicting stories about where, when, and why they are traveling; the occupants are traveling from a "drug source state" through which a large proportion of illegal drugs are suspected of entering the country (primarily southern states) and are traveling to a major metropolitan area in the West, Midwest, or Northeast; the occupants do not have a "good reason" for making such a long trip by car rather than airplane; the occupants do not appear to have a job that would permit them to make such a long trip; the occupants do not know the owner of the car nor do they have any way to contact the owner; and the occupants cannot explain why they have only one key to the ignition and/or no key for the vehicle's trunk (Connors & Nugent, 1990; Remsberg, 1997).

Law enforcement officers are trained to take all of these circumstances into account when deciding if they have sufficient probable cause or reasonable suspicion to conduct or request a search. Table 2 summarizes some of the clues officers are trained to look for during traffic stops while attempting to detect interstate drug smugglers. Some of these clues are undoubtedly more suspicious than others. For example, a driver who is on probation for narcotics dealing being stopped one thousand miles away from home without any luggage and in possession of a car he does not know who legally owns would probably make any reasonable person suspicious of the situation. Yet it also possible that some of the clues taught to police officers are inaccurate predictors of criminal activity.

Table 2
Summary of clues taught in highway criminal interdiction training¹

| The vehicle | The occupants | The stories |
|---|---|--|
| <ul style="list-style-type: none"> • Drug related items (e.g., pipes, syringes, roach clips, marijuana leaf decals, rolling papers, lighters, butane torches, scales, and compact mirrors) • Unusual items in interior (e.g., spare tire and jack, luggage, excessive number of fast food bags and cups, dog biscuits but no dog) • Unusual odors (e.g., odors of marijuana or ether, excessive number of air fresheners, carpet deodorizer, or perfume) • Vehicle modifications (e.g., fresh body work, oversized tires, heavy duty or over-compressed shocks, windows that won't roll down, extra fuel tank, an inoperative fuel gauge) • Vehicle type (large sedan or a sport utility vehicle, rented or borrowed vehicle, inconsistent with occupants' socioeconomic status, license plates from a source state or drug distribution center state) | <ul style="list-style-type: none"> • Record (e.g., criminal record, past drug offenses, gang affiliations, driving record across states on drug transportation routes) • Dress (e.g., shirts and hats with drug themes, gang colors, clothing, and jewelry is inconsistent with socioeconomic status) • Appearance (e.g., needle marks, drug tattoos, burnt fingertips, unshaven stubble, tired, bloodshot eyes, body odor, and wrinkled clothes from sleeping in the car) • Nervous behavior (e.g., fidgeting, trembling, grandiose hand gestures, frequent touching of the face or head, avoidance of eye contact, stuttering or speech pauses, excessive or inappropriate smiles, sweating) • Accessories (e.g., cellular phones, pagers, walky-talky style radios) | <ul style="list-style-type: none"> • Lies (e.g., occupants tell completely different stories about relationships to each other or travel plans, denying criminal history) • Inconsistencies (e.g., not enough luggage for alleged trip plans, somewhat different stories from different occupants) • Unknown vehicle owner (e.g., the occupants do not know who owns the vehicle or only know the owner by a first name or "street" name) • Nonsensical situations (e.g., taking a trip by car when it would have been more economical to fly, occupants' jobs or socioeconomic status seem unlikely to permit such travel plans) • Other unusual circumstances (e.g., occupants have no key to access the trunk, paid in cash to take a car from airport parking lot in one city to a parking lot in another city) |

¹ Compiled from M.F. Brown (2001), Connors and Nugent (1990), Foster (1992), Grimming and Burwitz (1988), Harman (1993), Harris (1999), Remsberg (1997), and Robin (1993).

Furthermore, although drivers' race/ethnicity is no longer an explicit characteristic included in highway interdiction training, many of the clues identified in these trainings are not racially neutral, which could lead to more searches of Black and Hispanic motorists compared to Caucasians.

Inaccuracy and racial/ethnic bias of deception and suspicion cues

Social science research exists that calls the reliability of some of the previously described highway drug interdiction clues into question. Research findings also suggest that many of these indicators, in addition to being inaccurate predictors of criminal activity, are not racially neutral. For example, social psychology and cross-cultural communications research suggests that normal nonverbal communication styles among African Americans are more likely to be identified as "suspicious" by both laypersons and police officers. Research on consumerism and marketing has revealed cultural differences in style of dress, vehicle preferences, and recreational travel practices that could cause noncriminal behaviors by Black motorists to be interpreted as clues of drug smuggling. Finally, demographic research indicates that patterns of residence and vehicle ownership for minorities could cause them to unwittingly fit the characteristics police officers are trained to look for when identifying drug smugglers. These findings are reviewed in detail below.

Verbal and nonverbal communication differences

There is empirical evidence to support the belief that humans tend to instinctively display inappropriate smiles, avoid eye contact, stutter, make long speech pauses, increase their hand and arm movements, and frequently adjust their posture when they are trying to be deceptive (deTurck & Miller, 1990; Fugita, Hogebe, & Wexley, 1980; Horvath, Jayne, & Buckley, 1994). A number of intervening factors, however, have also been discovered to influence the frequency with which these suspicious nonverbal behaviors are displayed. For example, the complexity of the lie being told, the opportunity to rehearse the lie, the interpersonal space between the parties who are speaking, personal awareness about suspicious nonverbal cues, and stress have all been found to significantly influence the degree to which an individual displays these nonverbal indicators of deceit (deTurck & Miller, 1985; Miller, deTurck, & Kalbfleisch, 1983; Vrij & Heaven, 1999; Winkel, Koppelaar, & Vrij, 1988). Furthermore, race and ethnicity substantially influence the baseline for

how frequently these nonverbal behaviors are displayed. These research findings are summarized in Table 3 and described in greater detail below.

Several studies in the United States have found that Blacks and Caucasians display differing levels of nonverbal cues with regards to smiles, eye contact, speech disruptions, and hand gestures during normal conversation. Fugita, Wexley, and Hillery (1974), Ickes (1984), La France and Mayo (1976), and A. Smith (1983) observed Caucasians and Blacks during conversation in same-race and cross-cultural dyads. These studies consistently revealed that Blacks were significantly more likely to smile, have speech disruptions, and make hand gestures and less likely to make eye contact compared to Caucasians. Garratt, Baxter, and Rozelle (1981) reported that Black males respond more favorably to police officers who smile more, avoid steady eye contact, and make frequent hand gestures. These findings suggest that during normal interpersonal interactions, Blacks generally display significantly higher levels of smiles, gaze avoidance, speech disruptions, and hand gestures compared to Caucasians. Thus, officers who are trained to interpret these nonverbal cues as indicators of deception may unnecessarily view interactions with Blacks as suspicious.

Similar findings have occurred in psychological experiments conducted by researchers in the Netherlands. Winkel and Vrij (1990) analyzed the nonverbal behaviors of Black and Caucasian university students undergoing mock police interrogations. The findings revealed that the Black students were significantly more likely than Whites to smile, laugh, avoid eye contact, fidget, and speak with long pauses, compared to White students. Videotaped segments of these mock interrogations were then shown to 284 police officers who were asked to make judgments on the truthfulness of the interviewees based on their nonverbal behaviors. After being instructed to rely primarily on nonverbal cues, the police officers were significantly more likely to suspect the Black interviewees of lying (Winkel & Vrij, 1990). The findings of this experiment were later replicated with another sample of eighty-one White police officers (Vrij, Dragt, & Koppelaar, 1992).

The influence intervening factors such as race have on the display of nonverbal behaviors may make it very difficult to accurately detect when a person is attempting to be deceptive. In fact, a number of authors have begun to question the utility of relying on these nonverbal cues (Hartwig, Granhag, Stromwall, & Vrij, 2004; Mann, Vrij, & Bull, 2004), and call for discontinuation of police training focusing on their use (Blair & Kooi, 2004; Vrij, Edward, & Bull, 2001). It is

Table 3
Summary of studies on cross-cultural nonverbal communication

| Study | Methods | Sample | Findings |
|---------------------------|---|--|---|
| Fugita et al. (1974) | Detailed analysis of nonverbal behavior in filmed mock job interviews of Black and White students. | 20 Black and 20 White college students | Black students exhibited significantly less eye contact and more speech disruptions than the White students. |
| Garratt et al. (1981) | Subjects rate their perceptions of police officers based on nonverbal behaviors during a mock police-citizen interaction. | 30 Black college students | Students had more positive perceptions of the officer who avoided eye contact, smiled, and made hand gestures the most. |
| Ickes (1984) | Detailed analysis of nonverbal behavior in filmed cross-racial conversational dyads. | 40 Black and 40 White college students | Black students exhibited significantly less eye contact, more speech pauses, and more smiles during conversation than the White students. |
| La France and Mayo (1976) | Covert observation of nonverbal behavior displayed during conversations between same-race dyads in a public setting. | 126 Black and 126 White subjects covertly observed in a public setting | Black subjects observed displayed significantly less eye contact and more smiles when engaged in conversation than did the White subjects. |
| A. Smith (1983) | Observation of the nonverbal behavior displayed by women in same-race conversational dyads. | 44 White and 74 Black female college students | Black female subjects observed displayed significantly less eye contact and more smiles during conversation compared to the White female subjects. |
| Vrij and Winkel (1991) | Detailed analysis of the nonverbal behaviors displayed by student test subjects engaged in videotaped mock criminal suspect interrogations with a real police investigator. | 41 Black and 51 White male college students | Black students displayed significantly more speech pauses, smiles, laughs, pitch variations, and body movements than the White students. The Black students also took more speech pauses and made less eye contact. |
| Vrij et al. (1992) | Detailed analysis of the nonverbal behaviors displayed by student test subjects engaged in videotaped mock criminal suspect interrogations with a real police investigator. | 25 Black and 31 White male college students | Black students displayed significantly more speech pauses, smiles, laughs, pitch variations, and body movements than the White students. The Black students also took more speech pauses and made less eye contact. |
| Winkel and Vrij (1990) | Detailed analysis of the nonverbal behaviors displayed by student test subjects engaged in videotaped mock criminal suspect interrogations with a real police investigator. | 41 Black and 51 White male college students | Black students displayed significantly more speech pauses, smiles, laughs, pitch variations, and body movements than the White students. The Black students also took more speech pauses and made less eye contact. |

possible that the more frequent displays of these “suspicious” nonverbal cues by minorities have been a contributing factor to their disproportionate rate of being searched by the police during traffic stops. Even some police practitioners themselves have suggested to the authors during informal inquiries that the lower rates of contraband finds on Hispanic motorists may be due to poorly trained law enforcement officers who misinterpret cues of nervousness that are more culturally linked (i.e., Mexican–Americans with a heritage of police abuse) as cues for criminal activity.

People with distinct accents or who speak English as a second language also display communication styles that match some of the deceptive clues police officers are trained to detect. Foreign language speakers generally pause longer before answering questions, avoid eye contact while they pause, and speak at a varying pace. They also are less likely to answer questions directly (Fuertes, Potere, & Ramirez, 2002; Vrij et al., 1992; Vrij & Winkel, 1994). Americans of all

racers who speak with a “ghetto Black” accent popular with urban and rap music culture tend to speak at a high rate with dramatic pitch variation (Fuertes et al., 2002). Targeting these traits as clues of deception and a basis for reasonable suspicion are bound to produce false conclusions.

Differences in consumerism

Marketing research has illustrated racial differences between Caucasians and Blacks that may make the latter group more likely to display the characteristics officers have been trained to use to identify drug couriers. For example, highway drug interdiction training teaches officers that interstate drug smugglers frequently use large luxury sedans and sport utility vehicles for their large cargo capacities and comfort on long distance drives (Connors & Nugent, 1990; Remsberg, 1997). Consumer preference surveys, however, indicated that African–American consumers are more likely than

Caucasians to purchase a large luxury vehicle (R. Brown & Washton, 2002). In recent years Jaguar, Mercedes Benz, Cadillac, and Chrysler, among others, have specifically targeted marketing campaigns on young African–American professionals, encouraging them to purchase their large luxury cars and sport utility vehicles (R. Brown & Washton, 2002). This survey research suggests that African–Americans, especially those who are affluent professionals, are more likely than Caucasians to be found driving a large luxury vehicle similar to the type that interdiction training would cause police to expect drug couriers to be utilizing.

Some highway drug interdiction training programs have taught officers to look for vehicle occupants who are wearing clothing and jewelry “inconsistent” with their socioeconomic status (Connors & Nugent, 1990; Harris, 1999; Remsberg, 1997). Surveys of racial differences in purchasing preferences, however, have found that African–American men tend to be more style conscious than Caucasian men with regard to clothing and jewelry, especially focusing on the most popular name brands. This racial disparity in consumerism is greatest in footwear purchases, with African–American men spending more money on shoes (e.g., expensive athletic shoes) than any other race-sex combination. This research has also shown that African–Americans are also slightly more likely than Caucasians to have annual expenditures greater than their net income, relying heavily on credit card purchases (R. Brown & Washton, 2002). Based on these racial differences in consumerism, it is possible that African–Americans are more likely than Caucasians to be perceived as wearing flashy or stylish clothing “inconsistent” with their financial status.

Some highway interdiction training has taught officers to observe for the carrying of cellular phones and pagers with an assumption that such electronic devices are used by drug couriers to arrange drug transactions (Connors & Nugent, 1990; Harris, 1999; Remsberg, 1997). The proliferation of cellular phone and pager use in the United States over the last two decades should cast doubt on the accuracy of such an indicator of drug trafficking, as many Americans of all races and socioeconomic levels possess these items. Nevertheless, in the case of *People v Murray* (1999) it was revealed that troopers with the Michigan State Police used the possession of pagers and cellular phones as an indicator for developing reasonable suspicion that vehicle occupants were carrying drugs. Again, marketing research suggests that African–American consumers are at higher risk of displaying these characteristics, as they place a high priority on personal electronics equipment. In fact, African–Americans spend more than any other

racial group on cellular telephone services (R. Brown & Washton, 2002).

Differences in demographics

Highway drug interdiction training frequently suggests that drug couriers will be found traveling from states where drugs are believed to frequently enter the country (i.e., Florida, Texas, New Mexico, and Arizona) to urban centers in the West, Midwest, and Northeast (Connors & Nugent, 1990; Harris, 1999, Remsberg, 1997). Larger proportions of African–American and Hispanic populations, however, reside in these source states and destination areas. According to the 2000 Census, 54.8 percent of all African–Americans live in southern states, and almost one-third of African–Americans reside in urban centers in the North (U.S. Bureau of Census, 2001). Therefore, since almost approximately 85 percent of African–Americans reside in a source state or an urban area in the north, it is extremely likely that any African–American motorist encountered on a trip on a public highway would be traveling to or from a “source state” or an “urban distribution center” due simply to residency, regardless of whether or not they are in possession of contraband.

U.S. Census data have also revealed that African–Americans are more likely than any other racial group to reside in urban central cities. These individuals, however, are less likely than citizens of other races to own motor vehicles and more likely to rely on forms of urban public transportation (Federal Highway Administration, 2000). Therefore, when African–Americans make cross-country trips by motor vehicle, they are more likely than other races to either borrow a vehicle or use a rented vehicle. Both renting and borrowing vehicles have been used as part of developing a “totality of circumstances” to establish reasonable suspicion and/or probable cause to conduct searches.

Discussion

A number of studies examining traffic stop data have reported patterns of differential treatment in post-stop outcomes for minority drivers, particularly for search and seizure rates. That is, the bulk of the available research examining traffic stops have reported that although minority motorists are stopped and searched at higher rates compared to Caucasian motorists, contraband is less likely to be discovered on searched minority motorists compared to Caucasians. The potential consequences of these racial and ethnic disparities include citizens’ perceptions of injustice and illegitimacy

of law enforcement, criminal and civil litigation in the form of selective enforcement claims, and continued drug trafficking and other forms of criminal activity that remain undetected on the roadways.

Although some academics have argued that these racial and ethnic disparities in search and seizure rates are due directly to officer bias, this explanation is unlikely because the trends in racial/ethnic disparities in searches and seizures do not appear to be concentrated within a handful of departments with a “few bad apples.” Rather, the bulk of the research suggests that minority drivers across the country are more likely than Caucasians to be subjected to vehicle and person searches, but less likely to be found in possession of contraband. While it is possible that officers conducting searches in police departments across the country are acting based on racial prejudice, there has been no evidence to support an assumption of “systematic discrimination,” defined by Walker, Spohn, and DeLone (2000) as discrimination at all stages of the criminal justice system, at all times, and in all places. For example, findings regarding the influence of citizens’ race and/or ethnicity over police behaviors are substantively weak and generally mixed, suggesting that the impact of citizens’ race over police behavior differs significantly across jurisdictions (Riksheim & Chermak, 1993; Sherman, 1980). Contemporary research also suggests that the influence of individual prejudice in the criminal justice system has been declining for some time (Bernard, Calnon, Engel, & Hays, 2005). For example, current research shows that the individual level behavior of criminal justice agents is primarily predicted by legal and situation-specific factors rather than nonlegal factors, prejudiced or otherwise (Blumberg, 1982; Engel & Silver, 2001; Engen & Gainey, 2000; Hofer, Blackwell, & Ruback, 1999; Klinger, 1994; Mastfroski, Snipes, Parks, & Maxwell, 2000; Mastfroski, Worden, & Snipes, 1995). In fact, many researchers and practitioners today conclude that the present distribution of official crime rates largely reflects the actual distribution of offending behavior (Bernard et al., 2005).

Academics routinely suggest that police training should better reflect empirical findings, under the implicit assumption that police training influences police behavior. Few academics, however, have examined the impact that police training has over police behavior. Based on the literature provided in this article, it appears that a more plausible explanation for racial and ethnic disparities in search and seizure rates is based in part on the criminal interdiction training officers received. This training, coupled with officers’ own perceptions of the “symbolic assailant” (Skolnick, 1966), or in this case, the “symbolic drug courier” has much potential explanatory power. As the literature reviewed in this article demonstrates, some

of the indicators of deception and suspiciousness routinely taught to police officers are inaccurate at best, and racially biased at worst. Although a number of the clues that state troopers and other law enforcement officers are trained to look for are highly suspicious and probably accurate at indicating illegal activities, certain verbal and nonverbal behaviors and contextual information may be far less unusual for minority drivers, and have been shown to be inaccurate clues of criminal activity.

Unfortunately, very little is known about the specific factors involved in officers’ search decisions, and what types of citizens’ behaviors are more or less likely to arouse their suspicion. Official traffic stop data collection efforts currently being conducted across the country simply cannot address this research question. Rather, the best analytical strategies to gain insight into officer decision-making involve qualitative data collection designs (e.g., systematic social observation with a debriefing component, focus group research, etc.). Research must be conducted that is specifically designed to determine what suspicion clues are routinely used by police officers, and the accuracy and potential racial and/or ethnic bias associated with these clues. Such research efforts are currently being planned or have been implemented in at least four state police agencies known to the authors—New Jersey, North Carolina, Pennsylvania, and Ohio (Engel, 2005a, 2005b; New Jersey State Police Advisory Group, 2004; W. R. Smith et al., 2003) and one municipal agency—Savannah, Georgia (Alpert, MacDonald, & Dunham, 2005). These types of qualitative research designs will add insight into why minorities are often searched more often than Caucasians and why these searches of minorities are often less likely to result in contraband seizures. It will likely also provide information for law enforcement agencies to alter their training to enhance both the effectiveness and equity of search activities during traffic stops.

Conclusion

Despite the constitutionality of pretextual stops and the aggressive use of traffic stops for further investigatory purposes (*Whren v. United States*, 1996), many police administrators across the country have recognized the need to formally sanction such behavior. Vehicle and person searches in the U.S. (the majority of which are unfruitful in the collection of contraband) have been shown to increase citizens’ perceptions of distributive and procedural injustice at the hands of the police (Engel, 2005d; Lundman & Kaufman, 2003). Several studies had found that the majority of searches conducted by police were based solely on the drivers’ consent and that consent searches had lower success rates compared to

searches based on other factors (e.g., plain view, probable cause, canine alerts, etc.) (see Engel & Calnon 2004b for a review). Other studies had questioned the legality of the majority of searches conducted by law enforcement agencies (e.g., Gould & Mastrofski, 2004). These findings suggest that in order to increase citizens' perceptions of legitimacy and fairness of the police, law enforcement officials may need to reconsider their policies guiding the use of discretionary searches. On the other hand, the use of searches during traffic stops remains a critical and potentially effective tool for criminal interdiction purposes. Thus, it is imperative that police officials better understand which specific verbal, behavioral, and contextual clues are more successful than others in determining reasonable suspicion or probable cause.

Research findings suggest that many of the clues of criminal activity used in law enforcement training are inaccurate predictors of deception and suspiciousness. Furthermore, many of these clues are not racially neutral. Therefore, it is likely that officers who utilize these clues are more likely to inaccurately predict criminal behavior, and further, are more likely to inaccurately predict criminal behavior for Blacks and Hispanics compared to Caucasians. This hypothesis must be empirically tested. The importance of understanding why police agencies across the country continue to demonstrate racial and ethnic disparities in search and seizure rates cannot be understated. Citizens' perceptions of selective enforcement lead to negative attitudes and resulting tensions between officers and citizens that can potentially jeopardize the effectiveness of legal authorities (Tyler, 1990). In addition, determining what are accurate clues of illegal drug and weapons smuggling will also be extremely useful in improving criminal enforcement efforts on the nation's highways. Given the prevalence of racial and ethnic disparities in search and seizure rates demonstrated through traffic stop studies in state police and highway patrol agencies, researchers must alter their research methodologies to better understand how and why officers make search and seizure decisions. This information must then be translated into more effective criminal interdiction training. It is only with this knowledge that the rate of successful seizures during searches will increase, while racial and ethnic disparities in search and seizure rates will decrease.

Notes

1. It has also been argued that the search success rates across racial/ethnic groups searched by the Maryland State Police justify the racial/ethnic differences in search rates (Knowles et al., 2001).

Findings from this study, however, only reported the percentage of searches that were Caucasian, Black, and Hispanic, rather than the percentage of Caucasian, Black, and Hispanic motorists stopped who were subsequently searched. For example, it was reported that of 1,590 searches conducted by the Maryland State Police, 29 percent were of Caucasians, 63 percent were of Blacks, and 6 percent were of Hispanics. The study did not report, however, what percentage of Caucasians stopped by police were searched, what percentage of Blacks stopped by police were searched, and what percentage of Hispanics stopped by police were searched (i.e., the search rates for each racial/ethnic group). Also note that the search success rates for Massachusetts State Police were not available.

2. More specifically, Remsberg's (1997) book is one of a three-volume series written by this author that has over 300,000 copies in circulation and is widely used as training texts in law enforcement academies. Training curriculum based on these textbooks is delivered to more than 200,000 municipal, county, state, federal, and special law enforcement officers annually. For more information about this resource, see <http://www.police.com/writes/columnists/CharlesRemsberg/>.

References

- Akehurst, L., Kohnken, G., Vrij, A., & Bull, R. (1996). Lay persons' and police officers' beliefs regarding deceptive behavior. *Applied Cognitive Psychology, 10*, 461–471.
- Alpert, G. P., MacDonald, J., & Dunham, R. (2005). Police suspicion and discretionary decisions making during citizen stops. *Criminology, 43*, 407–434.
- Alpert Group. (2004). *Miami-Dade Police Department racial profiling study*. Miami, FL: Author.
- American Civil Liberties Union. (1999). Arrest the racism: Racial profiling in America. Retrieved from <http://www.aclu.org/profiling/index.html>
- Ayres, I. (2002). Outcomes tests of racial disparities in police practices. *Justice Research and Policy, 4*(4), 131–142.
- Bernard, T. J., Calnon, J. M., Engel, R. S., & Hays, Z. R. (2005). Efficiency and the new differential processing. *Journal of Crime and Justice, 28*(1), 79–105.
- Blair, J., & Kooi, B. (2004). The gap between training and research in the detection of deception. *International Journal of Police Science and Management, 6*(2), 77–83.
- Blumberg, M. (1982). *Use of firearms by police officers: The impact of individuals, communities, and race*. Unpublished doctoral dissertation, State University of New York, Albany.
- Brown, M. F. (2001). *Criminal investigation: Law and practice* (2nd ed.). Boston: Butterworth-Heinemann.
- Brown, R., & Washton, R. (Eds.). (2002). *The U.S. African American market*. New York: Market Research Inc.
- Connors, E. F., & Nugent, H. (1990). *Street-level narcotics enforcement*. Washington, DC: U.S. Bureau of Justice Assistance.
- deTurck, M., & Miller, G. (1985). Deception and arousal: Isolating the behavioral correlates of deception. *Human Communication Research, 12*(2), 181–201.
- deTurck, M., & Miller, G. (1990). Training observers to detect deception: Effects of self-monitoring and rehearsal. *Human Communication Research, 16*(4), 603–620.
- Eck, J. E., Liu, L., & Bostaph, L. G. (2003). *Police vehicle stops in Cincinnati: July-December 31, 2001*. Cincinnati, OH: University of Cincinnati.
- Engel, R. S. (2004). *Arizona Department of Safety traffic stop data report, January 2003-December 2003* (Rep. submitted to the U. S. District Attorney's Office, District of Arizona in the matter of *U. S. v. Gayle*,

- and the Coconino County, Arizona Prosecutor's Office in the matter of *Arizona v. Palacios*. Cincinnati, OH: University of Cincinnati.
- Engel, R. S. (2005a). *Project on police-citizen contacts, year 4*. Harrisburg: Pennsylvania State Police.
- Engel, R. S. (2005b). *Search and seizure: Best practices*. Columbus: State of Ohio, Office of Criminal Justice Services.
- Engel, R.S. (2005c, June 6). *A critique of the KPT principle*. Paper presented at the Criminology and Economics Summer Workshop, Programs on the Economics of Crime and Justice Policy, University of Maryland, Elkridge.
- Engel, R. S. (2005d). Citizens' perceptions of procedural and distributive injustice during traffic stops with police. *Journal of Research in Crime and Delinquency*, 42(4), 445–481.
- Engel, R. S., & Calnon, J. M. (2004a). Comparing benchmark methodologies for police-citizen contacts: Traffic stop data collection for the Pennsylvania State Police. *Police Quarterly*, 7(1), 97–125.
- Engel, R. S., & Calnon, J. M. (2004b). Examining the influence of drivers' characteristics during traffic stops with police: Results from a national survey. *Justice Quarterly*, 21(1), 49–90.
- Engel, R. S., Calnon, J. M., & Bernard, T. J. (2002). Theory and racial profiling: Shortcomings and future directions in research. *Justice Quarterly*, 19(2), 249–273.
- Engel, R.S., Calnon, J.M., Liu, L., & Johnson, R.R. (2004). *Project on police-citizen contacts: Year 1 final report*. (Tech. Rep. prepared for the Pennsylvania State Police). Retrieved from the University of Cincinnati Web site: <http://www.uc.edu/criminal-justice/ProjectReports/PAPoliceCitizensContact0203.pdf>
- Engel, R.S., Calnon, J.M., Tillyer, R., Johnson, R.R., & Liu, L. (2005). *Project on police-citizen contacts: Year 2 final report*. (Tech. Rep. prepared for the Pennsylvania State Police). Retrieved from the University of Cincinnati Web site: http://www.uc.edu/criminaljustice/ProjectReports/PSP_Year_2_Report.pdf
- Engel, R. L., & Gainey, R. R. (2000). Modeling the effects of legally relevant and extralegal factors under sentencing guidelines: The rules have changed. *Criminology*, 38(4), 1207–1229.
- Engel, R. S., & Silver, E. (2001). Policing mentally disordered suspects: A reexamination of the criminalization hypothesis. *Criminology*, 39(2), 225–252.
- Farrell, A., McDevitt, J., Bailey, L., Andersen, C., & Pierce, E. (2004). *Massachusetts racial and gender profiling study*. Retrieved from the Northeastern University Web site: http://www.racialprofilinganalysis.neu.edu/IRJsite_docs/finalreport.pdf
- Farrell, A., McDevitt, J., Cronin, S., & Pierce, E. (2003). *Rhode Island Traffic Stop Statistics Act, final report*. Retrieved from the Northeastern University Web site: http://www.racialprofilinganalysis.neu.edu/IRJ_docs/RIFinalReport.pdf
- Federal Highway Administration. (2000). *Travel patterns of people of color*. Washington, DC: U.S. Department of Transportation.
- Foster, J. A. (1992). Narcotics interdiction at the street level. *Law Enforcement Technology*, 19(5), 20–21.
- Fridell, L. A. (2004). *By the numbers: A guide for analyzing race data from vehicle stops*. Washington, DC: Police Executive Research Forum.
- Fuertes, J. N., Potere, J. C., & Ramirez, K. Y. (2002). Effects of speech accents on interpersonal evaluations: Implications for counseling, practice, and research. *Cultural Diversity and Ethnic Minority Psychology*, 8(4), 346–356.
- Fugita, S., Hoglebe, M., & Wexley, K. (1980). Perceptions of deception: Perceived expertise in detecting deception, successfulness of deception and nonverbal cues. *Personality and Social Psychology Bulletin*, 6(4), 637–643.
- Fugita, S., Wexley, K., & Hillery, J. (1974). Black-White differences in nonverbal behaviour in an interview setting. *Journal of Applied Social Psychology*, 4(4), 343–350.
- Garratt, G. A., Baxter, J. C., & Rozelle, R. M. (1981). Training university police in Black-American nonverbal behaviors. *Journal of Social Psychology*, 113, 217–229.
- Gould, J. B., & Mastrofski, S. D. (2004). Suspect searches: Assessing police behavior under the U.S. Constitution. *Criminology and Public Policy*, 3(3), 315–362.
- Grimming, R. H., & Burwitz, R. (1988). Illinois' development of a total drug interdiction program. *Police Chief*, 54(6), 42–44.
- Harman, A. (1993). State police drug team. *Law and Order*, 41(3), 81–85.
- Harris, D. A. (1999). *Driving while Black: Racial profiling on our nation's highways*. New York: American Civil Liberties Union.
- Hartwig, M., Granhag, P., Stromwall, L., & Vrij, A. (2004). Police officers' lie detection accuracy: Interrogating freely versus observing video. *Police Quarterly*, 7(4), 429–456.
- Hofer, P. J., Blackwell, K. R., & Ruback, R. B. (1999). Effect of the sentencing guidelines on inter-judge sentencing disparity. *Journal of Criminal Law and Criminology*, 90(1), 239–306.
- Horvath, F., Jayne, B., & Buckley, J. (1994). Differentiation of truthful and deceptive criminal suspects in behavior analysis interviews. *Journal of Forensic Sciences*, 39(3), 793–807.
- Ickes, W. (1984). Compositions in Black and White: Determinants of interaction in interracial dyads. *Journal of Personality and Social Psychology*, 47, 497–512.
- Inbau, F. E., Reid, J. E., & Buckley, J. B. (1986). *Criminal interrogation and confessions*. Baltimore: Williams and Wilkins.
- Iowa Division of Criminal and Juvenile Justice Planning. (2003). *An examination of Iowa State Patrol traffic stops 10/00-3/02*. Des Moines: Iowa Division of Criminal and Juvenile Justice.
- Klinger, D. A. (1994). Demeanor or crime? Why hostile citizens are more likely to be arrested. *Criminology*, 32(3), 475–493.
- Knowles, J., Persico, N., & Todd, P. (2001). Racial bias in motor vehicle searches: Theory and evidence. *Journal of Political Economy*, 109(1), 203–299.
- La France, M., & Mayo, C. (1976). Racial differences in gaze behavior during conversations: Two systematic observational studies. *Journal of Personality and Social Psychology*, 33, 547–552.
- Lakhani, M., & Taylor, R. (2003). Beliefs about the cues to deception in high- and low-stake situations. *Psychology, Crime, and Law*, 9(4), 357–369.
- Lamberth, J. (1996). *A report to the ACLU*. New York: American Civil Liberties Union.
- Lovrich, N., Gaffney, M., Mosher, C., Pickerill, M., & Smith, M. R. (2003). *Washington State Patrol traffic stop data analysis project report*. Pullman: Washington State University.
- Lundman, R. J., & Kaufman, R. L. (2003). Driving while Black: Effects of race, ethnicity, and gender on citizen self-reports of traffic stops and police actions. *Criminology*, 41(1), 195–220.
- MacDonald, H. (2003). *Are cops racist? How the war against police harms Black Americans*. Chicago: Ivan R. Dee.
- Mann, S., Vrij, A., & Bull, R. (2004). Detecting true lies: Police officers' abilities to detect suspects' lies. *Journal of Applied Psychology*, 89(1), 137–139.
- Mastrofski, S. D., Snipes, J. B., Parks, R., & Maxwell, C. D. (2000). Helping hand of the law: Police control of citizens on request. *Criminology*, 38(2), 307–342.
- Mastrofski, S. D., Worden, R. E., & Snipes, J. B. (1995). Law enforcement in a time of community policing. *Criminology*, 33(3), 539–563.

- Miller, G., deTurck, M., & Kalbfleisch, P. (1983). Self-monitoring, rehearsal, and deceptive communication. *Human Communication Research, 10*(1), 97–117.
- Missouri Attorney General's Office. (2004). *Racial profiling data, 2003*. Columbia: Missouri Division of Criminal Justice.
- New Jersey State Police Advisory Group. (2004, February 6). *Police discretion guidelines meeting*. Newark, NJ: Rutgers University Center for Law and Justice.
- Novak, K. J. (2004). Disparity and racial profiling in traffic enforcement. *Police Quarterly, 7*(1), 65–96.
- Ohio State Highway Patrol. (2003). *Search data*. Retrieved from the Ohio State Highway Patrol Web site: http://statepatrol.ohio.gov/statistics/data/2003_4S.htm
- Porter, S., Woodworth, M., & Birt, A. (2000). Truth, lies, and videotape: An investigation of the ability of federal parole officers to detect deception. *Law and Human Behavior, 24*(6), 643–658.
- Remsberg, C. (1997). *Tactics for criminal patrol: Vehicle stops, drug discovery, and officer survival*. Northbrook, IL: Calibre Press.
- Riksheim, E. C., & Chermak, S. M. (1993). Causes of police behavior revisited. *Journal of Criminal Justice, 21*, 353–382.
- Robin, G. D. (1993). Inquisitive cops, investigative stops and drug courier hops: Returning to the scene of the crime. *Journal of Contemporary Criminal Justice, 9*(1), 41–55.
- Sherman, L. W. (1980). Causes of police behavior: The current state of quantitative research. *Journal of Research in Crime and Delinquency, 17*, 69–100.
- Skolnick, J. (1966). *Justice without trial-Law enforcement in a democratic society*. New York: John Wiley and Sons.
- Smith, A. (1983). Nonverbal communication among Black female dyads: An assessment of intimacy, gender, and race. *Journal of Social Issues, 39*(3), 55–67.
- Smith, W. R., Tomaskovic-Devey, D., Zingraff, M. T., Mason, H. M., Warren, P. Y., & Wright, C. P. (2003). *The North Carolina highway traffic study*. Retrieved from the North Carolina State University Web site: http://www.chass.ncsu.edu/justice/reports/hwy_traffic_study_03.htm
- Stromwall, L., & Granhag, P. (2003). How to detect deception: Arresting the beliefs of police officers, prosecutors and judges. *Psychology, Crime, and Law, 9*(1), 19–36.
- Texas Department of Public Safety. (2003). *Traffic stop data report*. Retrieved from the Texas Department of Public Safety Web site: http://www.txdps.state.tx.us/director_staff/public_information/trafrep/2001totals.pdf
- Tonry, M. (1995). Racial politics, racial disparities, and the war on crime. *Crime and Delinquency, 40*(4), 475–494.
- Tyler, T. (1990). *Why people obey the law*. New Haven, CT: Yale University Press.
- U.S. Bureau of Census. (2001). *U.S. census, 2000*. Washington, DC: Author.
- Verniero, P., & Zoubek, P. H. (1999). *Interim report of the State Police Review Team regarding allegations of racial profiling*. Trenton: New Jersey Attorney General's Office.
- Vrij, A., Dragt, A., & Koppelaar, L. (1992). Interviews with ethnic interviewees: Nonverbal communication errors in impression formation. *Journal of Community and Applied Social Psychology, 2*, 199–208.
- Vrij, A., Edward, K., & Bull, R. (2001). Police officers' ability to detect deceit: The benefits of indirect deception detection measures. *Legal and Criminological Psychology, 6*(2), 185–196.
- Vrij, A., & Heaven, S. (1999). Vocal and verbal indicators of deception as a function of lie complexity. *Psychology, Crime, and Law, 5*(3), 203–215.
- Vrij, A., & Semin, G. R. (1996). Lie experts' beliefs about nonverbal indicators of deception. *Journal of Nonverbal Behavior, 20*(1), 65–80.
- Vrij, A., & Winkel, F. W. (1991). Cultural patterns in Dutch and Surinam nonverbal behavior: An analysis of simulated police citizen encounters. *Journal of Nonverbal Behavior, 5*(3), 169–184.
- Vrij, A., & Winkel, F. W. (1994). Perceptual distortions in cross-cultural interrogations: The impact of skin color, accent, speech, style, and spoken fluency on impression formation. *Journal of Cross-Cultural Psychology, 25*(2), 284–295.
- Walker, S. (2001). Searching for the denominator: Problems with police traffic stop data and an early warning system solution. *Justice Research and Policy, 3*(1), 63–95.
- Walker, S., Spohn, C., & DeLone, M. (2000). *The color of justice: Race, ethnicity, and crime in America* (2nd ed.). Belmont, CA: Wadsworth.
- Winkel, F. W., Koppelaar, L., & Vrij, A. (1988). Creating suspects in police-citizen encounters: Two studies on personal space and being suspect. *Social Behaviour, 3*(4), 307–318.
- Winkel, F. W., & Vrij, A. (1990). Interaction and impression formation in a cross-cultural dyad: Frequency and meaning of culturally determined gaze behavior in a police interview setting. *Social Behavior, 5*(5), 335–350.

Cases cited

- Bumper v. North Carolina*, 391 U.S. 543 (1968).
- Carroll v. United States*, 267 U.S. 132 (1925).
- Commonwealth of Pennsylvania v. Casanova*, 2000 WL 144371, (Pa. Super., 2000).
- Commonwealth of Pennsylvania v. Hoak*, 734 A. 2d 1275 (1999).
- Commonwealth of Pennsylvania v. Labron*, 669 A. 2d 917 (1995).
- Commonwealth of Pennsylvania v. Strickler*, 757 A. 2d 884 (2000).
- Commonwealth of Pennsylvania v. White*, 669 A. 2d 896 (1995).
- New York v. Belton*, 453 U.S. 454 (1981).
- People v. Murray*, 234 Mich App 46 (1999).
- State of New Jersey v. Soto*, Docket No. A-5534-95T3 (1996).
- Whren v. United States*, 135 L. Ed. 2d 89 (1996).
- Wilkins v. Maryland State Police*, Docket No. MJG-93-468 USDC, MD (1993).