Examining Racial Profiling from a Cognitive Perspective

Key Sun
Law and Justice Department
Central Washington University
CWU-Pierce Center
9401 Farwest Dr., S. W., Lakewood, WA, 98498
United States of America

Abstract

This paper examines the issue of racial profiling from a cognitive perspective. This approach emphasizes that misunderstanding of probability regarding the correlation between race and crime plays a role in prompting racial profiling. The misunderstanding consists of the confusion of relative frequency and absolute frequency of the correlation and ignoring the probability of committing the statistical Type I error. In addition, it analyzes two cognitive errors that may contribute to the false probability thinking.

Keywords: Racial profiling; cognitive distortions, probability, law enforcement, discrimination

1. Introduction

Racial profiling is one of the most significant issues confronting law enforcement today (Smith and Alpert, 2002). Research has shown that racial profiling has both the behavioral and mental components. Behaviorally, it refers to any police-initiated action that relies on a person's category membership (race, ethnicity, or national origin) as an indicator of criminal propensity, rather than the behavior of an individual. Mentally, it involves a prejudiced state or an intrusion of racial/ethnic biases into officers' decision-making processes, thus violating the civil rights (e.g., Gumbhir, 2007; Withrow, 2006). In response to the practice, most pertinent research focuses on either documenting the frequency of racial profiling (e.g., traffic stop data) or on examining the issue from the ethical, legal, and/or policy perspective (e.g., Banks, 2008; Ramirez, McDevitt, & Farrell, 2000; Scott, 2010; Withrow, 2006). Some State legislatures have passed laws outlawing the practice of racial profiling (Smith and Alpert, 2002).

This paper maintains, however, that the issue of racial profiling needs to be analyzed from the cognitive perspective, which suggests that misunderstanding of the probability regarding the correlation between race (ethnicity, religion, national origin, etc) and crime and relevant cognitive errors play a role in prompting the practice, even though there is no intentional bias involved in the process. Understanding how the cognitive misrepresentations regulate and influence racial profiling is important because one's social cognition, which includes knowledge structures (schemas) about the self, others, and the world, regulates cognitive processes (e.g., encoding, evaluating, perceiving, explaining and decision-making) and behavior concerning the social entities (Sun, 2008). This article examines two types of misunderstanding about the probability: (1) the confusion between the relative frequency and the absolute frequency regarding the correlation between race and crime, and (2) ignoring the probability of committing the statistical Type I error in racial profiling. In addition, this paper examines two cognitive errors that may contribute to the false probability thinking, including the use of a single variable to explain criminal behavior and the use of cognitive heuristics.

2. Confusion of two types of frequency

The first type of misunderstanding of probability in racial profiling involves the confusion of two types of frequency regarding the correction between race and crime: The relative frequency and the absolute frequency. Each denotes a numerical assessment of likelihood of the event on a scale from 0 (impossibility) to 1 (absolute certainty). Research demonstrates that the police, including many minority officers and administrators, truly regard the use of race profiles as an effective way to allocate their limited resources for most likely offenders. They maintain that racial profiling is not based on prejudice but on probabilities (Withrow, 2006). The confusion between the two frequencies can be explained with an example. Several officers told this author that race-based (or ethnicity, national origin) profiling in law enforcement is not biased, because it is true that "about half of those who have committed crimes are Black males," or "more than 90% of passengers carrying foods at the U.S. ports of entry are foreign-born."

Their misunderstanding of the probability involves mistaking the relative frequency for the absolute frequency. Namely, they think that if half of the offenders are Black males, each Black male has 50% chance to be an offender. If 90% of passengers who carry food at the U.S. ports of entry are foreign-born, each foreign-born passenger they stop has 90% chance of carrying foods. The relative frequency refers to estimated percentage of offenders with a particular attribute in a distribution or condition according to some reported statistical surveys or personal observations. In the above example, the 50% and 90% can be seen as two examples of the relative frequency. The absolute frequency, however, refers to the frequency of an offender with the particular attribute in the entire population. The absolute frequency is what the calculation of probability need to be based on. To calculate the absolute frequency of the foreign-born passengers carrying food at the ports of entry in the U.S., for example, we need to use the number of food-carrying people against the total number of foreign-born passengers (there are about 50 million international tourists annually according the American Tourist Association, not including the number of foreign born legal U.S. residents) entering the U.S. to get the true probability.

We can see the absurdity of the confusion of the two frequencies by using more examples. More than 90% convicted criminals have never finished high school. The 90% statistics looks impressive but it is quite misleading. The number only represents the relative frequency of the tendency in comparison. It does not suggest that 90 % of the people who have not got high school diploma will commit crime, because the absolute frequency (the number of offenders with the attribute out of the total population with the same attribute in the United States) is extremely low. Another example may make the distinction more clear. Statistically, more than 80% serial killers are white males (Bartol & Bartol, 2008), but it does not suggest that being a while male makes the person 80% more likely to become a serial killer, because the absolute frequency is so low. In fact, it is clear that the relative frequency of an attribute (say education or race) has little connection with the absolute frequency of the same attribute.

By evaluating the supportive logic for racial profiling, it can be speculated that a reason for the confusion involves misperceiving the relation between the relative frequency and absolute frequency as the relation between a "sample" and the "population." In reality, such analogy is false. A population is the theoretically specified grouping of study elements (people or things), whereas a sample of the population involves a portion or subset of the population (people or other things). Random sampling techniques enable us to make relatively few observations and then generalize from those observed findings to a much wider population (Maxfield & Babbie, 2009). However, the relative frequency of an event (say 90% of food-carrying passengers are foreign-born or 80% of serial killers are white males) has nothing to do with the absolute frequency of the same target group.

3. Ignoring the probability of committing the Type I error

The second type of misunderstanding of the probability in racial profiling involves focusing on increasing the probability of catching the law violators, but overlooking the probability of harming the innocent by targeting selected groups of people. Not only some criminal justice personnel but also some recent studies (e.g., Kadane & Lamberth, 2009; Mosher, Pickerill, Pratt, & Lovrich, 2008) that indicate that racial profiling is proportional to the crime seem to only focus on the probability of catching the guilty as the result of the practice. However, they appear to overlook the practice-produced probability of harming/harassing the innocent people by violating their legal rights. Statistically speaking, calculating probability must consider its dichotomy related to two types of errors, type I and type II errors (Bluman, 2005; Hinton, 1995; Murphy, Myors, & Wolach, 2009). Both generate negative consequences that need to minimize. To apply the issue of the type I and type II error to the practice of racial profiling, we can see that the type I error is the error of false positive of thinking. Namely, an officer believes a person guilty of a crime that he or she *did not* actually commit.

On the other hand, the type II error occurs in enforcing the law when an officer lets go a person by believing his innocence when he/she has actually committed a crime. Some officers' rationalization for racial profiling is apparently related to the intention to avoid the type II error. However, they forget to avoid the probability of committing the false positive or the type I error. Research findings show that regardless of the locations, airports or on highways, racial profiling has harmful effects to those targeted. Racial profiling is an ineffective method of crime prevention, and has deleterious effects on the already fragile bond between law enforcement and its citizenry. Because of its negative impact on innocent people, catching some offenders does not justify its practice (e.g., Ramirez, McDevitt, & Farrell, 2000; Withrow, 2006). Officers must pay attention to and decrease the probability of committing the type I error (targeting innocent persons) because protecting the legal rights of the innocent people are as important as apprehending the guilty.

The basic mission of the American criminal justice system and the police involves protecting the freedom for all citizens to exercise their constitutional rights without fear or threat of endangerment. The foremost goal of police is to remain mindful of the citizens they 'serve and protect' in the process (Scott, 2010). Public trust can exist only when the police execute their duties with fairness, equity, professionalism, and rigor (Gaffigan & McDonald, 1997). Racial profiling has violated the principle of protecting innocent individuals by turning thousands of innocent people across the country into the victims, thus violating the fundamental mission of the justice system, including the 4th and the 14th Amendments to the Constitution, which compel to end racial profiling--officers' abuse of discretion (Oliver, 2000). The additional negative outcomes of racial profiling include creating a self-fulfilling prophecy, because when officers only focus on certain categories of individuals (yes, they will catch some criminals among them), they will also bypass many criminals about whom they do not do profiling, because the time and energy can only be focused on selected groups of people.

4. Two error-prone cognitive habits that contribute to the false probability thinking

There are typically two cognitive errors that may abet the misunderstanding of the probability: (1) the use of a single variable (e.g., race) for explaining criminal behavior, and (2) resorting to the use of cognitive heuristics as the basis for making decisions in the practice of racial profiling.

First, some people prefer racial profiling because they false believe that race (or another social category) alone is responsible for criminal behavior (see Withrow, 2006). They are unaware that criminal behavior results from the interaction of many social, environmental, legal, psychological factors. As shown by research in criminology and psychology, each person is interacting with multiple systems and numerous variables that jointly influence the individual's tendency to commit crime. These variables range from social disorganization, dysfunctional environments, crime learning conditions, developmental problems, lack of social control, lack of education, stigmatization, cognitive deficiencies, impulsivity, childhood trauma, as well as some associated demographic variables such as gender, social class and race (Adler, Mueller, & Laufer, 2007; Lanie and Henry, 2008). Accurate predictions about probability regarding criminal propensity should be based on taking into considerations of all the variables.

In fact, criminal profiling, which is a common law enforcement technique, has some predictive validity and probability. This is because criminal profiling is based on the combination of behavioral, physical and psychological characteristics of the offenders and some demographic variables (gender, age, ethnicity, education, etc), including geographic location based on the characteristics of previous offenders who have committed similar offenses. The most well-known type of criminal profiles is developed to identify serial murderers and rapists. This offender profiling has certain validity in helping law enforcement personnel to detect and investigate serial offenders, because it is based on the understanding of the multiple factors based probability for criminal behavior. That is, the probability of a suspect as a serial killer is a product of race, gender, intelligence, marital status, childhood deviant behavior, and other factors. In other words, because the variables are independent from one another, an individual attribute alone on the list (e.g., race, intelligence) has no predictive value about the criminal likelihood of the target person. With the combined variables, to predict and detect serial killers still has limitations, because not all identified attributes on the profiling list can be generalized to all serial killers (Bartol & Bartol, 2008). Racial profiling does not have the integrated characteristics of the criminal profiling.

Second, social psychological research on cognitive heuristics (see Tversky & Kahneman, 1973, 1974) can shed light on another cognitive error that may prompt the false probability thinking. The cognitive heuristics refer to mental shortcuts one uses in making judgments about social targets. The two common forms of the heuristics include availability heuristics and representative heuristic.

The *availability heuristic* denotes a mental shortcut by which one estimates the likelihood of an event by how easy the instances of that event can be brought to mind (Riddle, 2010). For example, people overestimate the likelihood that members of a minority member as offenders because the media (news media, television in particular) are inundated with vivid stories and images about them as criminals, thereby skewing our perceptions of the probability of happening (Dixon & Linz, 2002; Gilens, 1996; Glassner, 2009; Judson & Bertazzoni, 2002; Klein & Naccarato, 2003). If examples can be quickly brought to mind, one assumes that there must be many of them. The same can be said about any events. Most people remember and overestimate their quantities because they receive disproportionate press coverage thus become more available to the mind. The availability heuristic is certainly related to racial profiling practice.

If police officers think of offenders and they can bring to the mind many instances of African Americans (made more available by the mass media), they are more likely to believe that African Americans commit more crimes and act accordingly. In general, people's learning experiences are responsible for their cognitive distortions of social reality, which regulate their prejudiced practices. The deficient learning involves both the lack of access to accurate information and frequent exposure to false information. Research has shown that that the media's biased reports and portrayals about minorities in the society play an important role in developing people's cognitive distortions of social reality (Sun, 2008). The *representative heuristic* is another mental shortcut through which people make a judgment about the probability of an event or person. It influences the evaluation of the probability by classifying the event (or person) as belonging to a certain category (Tversky & Kahneman, 1973, 1974). For example, if an officer believes that all people in a category (e.g., a minority group) have a tendency to make a living by criminal behavior, then their decision making about a target person is based on how the person's characteristics is similar to those of the group. The more overlapping between the individual and the category, the more likely that the officer's reaction to the person is based on their mental stereotype of the group, rather than based on the individual's actions.

5. Summary and implications

This article analyzes racial profiling from the cognitive perspective, indicating that the cognitive components of racial profiling include the two types of misunderstanding of the probability (the confusion of the relative and absolute frequencies, and overlooking the type I error). In addition, recognizing the two cognitive errors, including the use of a single variable (e.g., race) as the explanation for crime and the use of cognitive heuristics may shed light on the persistence of the misunderstanding of the probability. The issues examined in the article have an implication for improving ethics training programs in police agencies. In addition to teaching antidiscrimination and anti-prejudice from the moral perspective, staff may integrate the cognitive approach to the understanding of the probability into the training curriculums. In addition, the issues examined, such as the type I error, and cognitive heuristics, can be further examined in empirical research to see the effect of their interaction on racial profiling.

References

Adler, F., Mueller, G. O. W., & Laufer, W. S. (2007). *Criminology* (6th ed.).

Boston: McGraw Hill.

Banks, C. (2008). Criminal Justice Ethics: *Theory and Practice* (2nd ed.).Los Angeles, CA: Sage.

Bartol, C. R., & Bartol, A. M. (2008). *Criminal behavior: A psychosocial approach* (8th ed.). Upper Saddle River, NJ: Person/Prentice Hall.

Bluman, A. G. (2005). *Probability demystified.* New York, NY: McGraw-Hill.

Dixon, T. L., & Linz, D. (2002). Television news, prejudicial pretrial publicity,and the depiction of race. *Journal of Broadcasting & Electronic Media, 46*,112-136

Gaffigan, S. J., & McDonald, P. P. (1997). *Police integrity* (NCJ 163811). Washington DC: U.S. Department of Justice. Retrieved from http://www.ncjrs.gov/pdffiles/163811.

Gilens, M. (1996). Race and poverty in America: Public misperceptions and the American news media. *Public Opinion Quarterly, 60*, 515-541.

Glassner, B. (2009). *The culture of fear*. New York: Basic Books.

Gumbhir, V. K. (2007). *But is it racial profiling? Policing, pretext stops, and the color of suspicion.* New York: LFB Scholarly Publishing LLC.

Hinton, P. R. (1995). *Statistics explained: A guide for social science students*. New York: Routledge.

Judson, J. L., & Bertazzoni, D. M. (2002). *Law, media, and culture: The landscape of hate*. New York: Peter Lang.

Kadane, J. B., & Lamberth, J. (2009). Are blacks egregious speeding violators at extraordinary rates in New Jersey? *Law, Probability & Risk, 8*, 139-152. doi:10.1093/lpr/mgp014

Klein, R. D., & Naccarato, S. (2003). Broadcast news portrayal of minorities. *American Behavioral Scientist, 46*, 1611-1616.

Lanier, M. M., & Henry, S. (2010). *Essential criminology* (3rd ed.). Philadelphia, PA: Westview Press.

Maxfield, M. G., & Babbie, E. (2009). *Basic of research methods for criminal justice and criminology*. Belmont, CA: Wadsworth.

Mosher, C., Pickerill, J., Pratt, T., & Lovrich, N. (2008). The importance of context in

understanding biased policing: state patrol traffic citations in Washington State. *Police Practice & Research, 9*, 43-57. doi:10.1080/15614260801969920

Murphy, K., Myors, B., & Wolach, A. (2009). *Statistical power analysis: a simple and general model for traditional and modern hypothesis tests* (3rd ed.). New York: Routledge.

Oliver, W. M. (2000). With an evil eye and an unequal hand: Pretextual stops and doctrinal remedies to racial profiling. *Tulane Law Review, 4*, 1409-1481.

Ramirez, D., McDevitt, J., & Farrell, A. (2000). *A Resource guide on racial profiling data collection systems* (NCJ 184768). Washington, DC: U.S. Department of Justice. Retrieved from http://www.ncjrs.gov/pdffiles1/bja/184768.pdf.

Riddle, K. (2010). Always on my mind: Exploring how frequent, recent, and vivid television portrayals are used in the formation of social reality judgments *Media Psychology, 13*, 155-179. doi: 10.1080/15213261003800140

Scott, J. E. (2010). Evolving Strategies: A Historical Examination of Changes in Principle, Authority and Function to Inform Policing in the Twenty-First Century. *Police Journal, 2*, 126-163. DOI: 10.1350/pojo.2010.83.2.490

Smith, M. R., & Alpert, G. P.(2002). Searching for direction: Courts, social science, and the adjudication of racial profiling claims. *Justice Quarterly, 19*, 673-703. doi:10.1080/07418820200095391

Sun. K. (2008). *Correctional counseling: A Cognitive growth perspective.* Sudbury, MA: Jones & Bartlett Publishers.

Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and

probability. *Cognitive Psychology, 5*, 207-232.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science, 185*, 1124-1131.

Withrow, B. L. (2006). *Racial Profiling: From Rhetoric to Reason*. Upper Saddle River, NJ: Pearson-Prentice Hall.