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Traffic stops, race, and perceptions of fairness

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Abstract

Traffic stops are the most common reason for face-to-face encounters between police officers and citizens. Contact with police can affect citizens' behaviour toward the police, particularly when citizens perceive unfair treatment by officers during these encounters. Yet, few studies have examined how experiencing a traffic stop affects citizens' decisions to seek assistance from police or report non-crime emergencies. This study analysed data from the Police-Public Contact Survey (PPCS) to examine (a) the relationship between experiencing traffic stops and calling police for help and/or to report non-crime emergencies and (b) why perceptions of fairness and reasons for the traffic stop might affect these outcomes across different racial/ethnic categories. Results from multivariate logistic regression models show that citizens stopped for traffic violations are significantly less likely to seek help from the police and/or to report non-crime emergencies compared to those with other types of face-to-face police contacts. Additionally, those who perceived unfair treatment during traffic stops were less likely to report non-crime emergencies compared to those who felt the police treated them fairly. The effects of perception of fairness and the reason for a stop on reporting non-crime emergencies were significantly different among Hispanic citizens compared to White citizens. Policy implications of the results are discussed and recommendations for future research are provided.

Keywords:

Traffic stops; Police offers; Procedural justice; Non-crime emergencies; race/ethnicity

Statistics on police-citizen encounters have consistently revealed that traffic stops are the most common form of face-to-face encounters between the police and citizens in the US (Langan *et al.* 2001, Eith and Durose 2011, Davis *et al.* 2018). Traffic stops have been (and continue to be) a source of controversy between the police and citizens, with many minority citizens claiming that officers target them unfairly – a practice that has come to be known as racial profiling (Skolnick 2007, Wortley and Owusu-Bempah 2011). Citizens often regard traffic stops

as an intrusion on their rights, especially given the trivial nature of most traffic infractions (Skolnick 1994, Harris 1997, Lundman and Kaufman 2003, Lundman 2004, Engel 2005, Epp *et al.* 2014). Citizens may also enter into encounters with concerns because the criterion used by police for the stop are unclear to them (Tyler and Wakslak 2004). On the other hand, police officers dislike traffic stops because of the hostility they often encounter from citizens (Westley 1970, Skolnick 1994). Thus, an understanding of the implications that traffic stops can have is important for healthy police-citizen relations.

Although police-citizen relations have improved over the years (Decker 1981, Erez 1984, Cao *et al.* 1996, Brown and Benedict 2002, Ren *et al.* 2005), some scholars suggest that relations between the police and minority citizens still need significant improvements (Anderson 2000, Jones-Brown 2000, 2007, Kane 2005, Carr *et al.* 2007, Wu *et al.* 2009, Epp *et al.* 2014, Gau and Brunson 2015, Mazerolle and Wickes 2015). In fact, recent incidents of officer-involved shootings of civilians (e.g. Michael Brown in Ferguson, Missouri and Philando Castile in Falcon Heights, Minnesota), citizen shootings of police (e.g. in Dallas), and race-centered riots (e.g. Baltimore, Maryland, and Ferguson, Missouri) have elevated national debates about the consequences of strained relationships between police and minority citizens.

A recent national survey conducted by the *Pew Research Center* revealed that most police officers (86%) believe that high profile cases involving the fatal shooting of black citizens by police officers have made their jobs harder and increased tension between police officers and black citizens (Morin *et al.* 2017). Many minority citizens continue to hold the view that police officers target them because of their race/ethnicity. Beyond anecdotal evidence, however, studies have revealed that policing in America is neither race-neutral (Harris 1997, 2007, Weitzer 2000, Weitzer and Tuch 2002, Petrocelli *et al.* 2003, Novak 2004, Alpert *et al.* 2007, Gelman *et al.* 2007, Dottolo and Stewart 2008, Alexander 2012) nor place-neutral (Sampson and Bartusch 1998, Anderson 2000, Fagan and Davies 2000, Reisig and Parks 2000, Kane 2005, Tyler and Fagan 2008). Simply put, young minority males and impoverished communities are more likely to be overrepresented in law enforcement activities than others (Mbuba 2010). This overrepresentation might impact citizens' trust in the police (Stoutland 2001). Importantly, it is possible that traffic stop encounters may affect citizens' willingness to contact the police for assistance, particularly for citizens who view such stops as a nuisance (Gibson *et al.* 2010).

It is also possible that the *reason* for the traffic stop may impact citizens' trust in the police (as indicated by calls for service and so forth), and similar to perceptions of fairness, these may vary by citizen race/ethnicity.

A common complaint among minority citizens is that police stop them for minor and invalid reasons (Engel 2005). Citizens' perceptions of their encounters with police during traffic stops and the reasons for being stopped are important antecedents of whether or not they will cooperate with the police (e.g. calling them to report crimes or request services). When citizens feel that they were treated properly and with respect by an officer during a traffic stop, they are more likely to trust the police and show deference toward them (Bayley and Mendelsohn 1969, Reiss 1971, Tyler and Wakslak 2004, Engel 2005, Tyler and Fagan 2008, Gau 2013, Boateng 2018). However, research suggests that being treated fairly by police is not enough for citizens. Epp *et al.* (2014) argued that fair treatment alone is insufficient for winning citizens' (particularly young minority citizens) approval of the police. They articulated that many Black youths despise traffic stops because police officers use them as a pretext to search their vehicles for drugs or to instil fear. According to Epp *et al.* (2014), while traffic stops follow serious traffic violations (e.g. suspicion of driving under the influence, running a red light, or speeding in excess of seven miles per hour over the limit), 'investigatory' stops are for minor traffic violations (e.g. failure to signal when changing lanes, expired license tag) that are used as a pretext to search for contraband in hopes of making an arrest (Epp *et al.* 2014, Nix 2017a). Therefore, it might be expected that the reason for being stopped may also enhance racial disparities in vehicle stops, as investigatory stops do (Engel 2005, Epp *et al.* 2014, Nix 2017a).

The current study seeks a better understanding of citizen race, traffic stops, and perceptions of fairness as they pertain to citizens' behavioural indicators of trust in the police, such as calling for service. We contribute to knowledge on the topic first by controlling for perception of fairness and other important covariates (e.g. prior arrest, receiving a traffic ticket, and demographic characteristics) in multivariate models in order to examine whether experiencing a traffic stop decreases the chances of citizens seeking help from and/or reporting non-crime emergencies to the police. We then examine citizens who have experienced a traffic stop to determine whether the reasons for, and perceived fairness of, the traffic stop are related to seeking help from police, and whether these associations vary significantly across race/ethnic groups. Extant research suggests that minorities are overrepresented in what may be referred to as nuisance stops but less is known about how these encounters may affect minority citizens' ability to call the police for service.

Traffic stops, trust in the police, and perception of fairness

Theoretical framework

An important goal of the police, and the broader criminal justice system, is to secure citizens' compliance with the law. Tyler (1990) argues that people obey the law for internalised or normative reasons (e.g. personal morality, belief in the legitimacy of legal authorities), and/or because it is in their own self-interest to obey the law (i.e. instrumental reasons for compliance). Normative concerns are theorised to predict legal compliance above and beyond instrumental concerns (Tyler 1990, 2004). Studies examining Tyler's model have focused largely on procedural justice, which falls under the normative approach. Sunshine and Tyler (2003) have stated 'that the legitimacy of the police is linked to public judgments about the fairness of the processes, or the procedure, through which the police make decisions and exercise authority' (Sunshine and Tyler 2003, p. 514). Procedural justice, therefore, emphasises fair procedures during encounters between the public and legal authorities and not the outcomes of such experiences (Tyler and Wakslak 2004). Applying a fair procedure to all citizens should enhance public trust in the police, and thus, compliance with the law (via normative or instrumental reasons).

Perceptions of procedural justice stem from individuals' judgements about the quality of decision-making (i.e. were the decisions made by criminal justice officials neutral? and did citizens have a voice in the decision making?) of police officers and the perceived quality of interpersonal treatment from police (did police officers treat citizens with respect, politeness, and did they give consideration of citizens' views?) (Tyler and Fagan 2008). Proponents of procedural justice theory argue that citizen trust and compliance can be gained through police adopting fair practices and high-quality treatment instead of rigorous law enforcement and fear that underpins deterrence-based policing strategies (e.g. zero tolerance) (see Gau and Brunson 2010, 2015, Gau 2013, Schuck and Martin 2013). Thus, police legitimacy can be enhanced if citizens perceive fair treatment and sound decision making during a traffic stop.

Studies show that police use of fair procedures during police-citizen encounters increase their legitimacy among citizens, which in turn, is related to enhanced compliance with the law and willingness to cooperate with legal authorities (Tyler 1990, 2004, 2005). Police legitimacy refers to 'the belief that legal authorities are entitled to be obeyed and that the individual ought to defer to their judgments' (Tyler and Huo 2002, p. xiv). Thus, perceptions of police legitimacy

may increase citizens' compliance with the law; relevant to the current study, citizens' perceptions of fairness during a police encounter (the most common of which are traffic stops), as well as the reason for the stop, may impact citizens' belief in police legitimacy, as indicated by their willingness to cooperate with the police and ask for help (Tyler and Huo 2002, Sunshine and Tyler 2003, Tankebe 2009, Pryce *et al.* 2017) (see Appendix A for a conceptual diagram of these processes).

Empirical evidence

The public trust in the police is often shown by a willingness to call the police for help and reporting neighbourhood problems to the police (Anderson 2000, Carr *et al.* 2007). Citizens' calls for help represent a behavioural measure of trust in the police because citizens ask for help when they believe that the police will actually help them (Gibson *et al.* 2010). Several factors may influence citizen's decisions to call for help, including prior negative contact with the police and seriousness of the problem. For instance, Desmond *et al.* (2016) examined citizens' crime reporting after witnessing police violence in Milwaukee. They reported that the volume of 911 calls was reduced significantly after the violent beating of Frank Jude was publicised. Further, the effect of police brutality was felt more strongly in African American neighbourhoods than white neighbourhoods – African American neighbourhoods were less likely to report the crime after the police brutality incident was broadcasted (Desmond *et al.* 2016).

Citizens' willingness to call police can be affected by experiences that occur during traffic stops, although the mechanisms through which traffic stops may also be related to citizen cooperation via service calls have yet to be fully explored in research (but see, Gibson *et al.* 2010). Traffic stops present an important type of police and citizens interaction that can be an avenue for how citizens form negative opinions of the police, which can influence the public's level of trust in the police (Reisig and Parks 2000, Weitzer 2002, Weitzer and Tuch 2002, 2004, 2005). Studies have consistently shown that Black and Hispanic citizens' experiences during traffic stops are different from White citizens' (Weitzer and Tuch 2006, Alpert 2007, Alpert *et al.* 2007). For example, while minorities are no more likely to possess contraband than Whites, they are more likely to be stopped by the police, and those who are stopped are more likely to be searched (Harris 1997, 2007, Weitzer and Tuch 2002, Lundman and Kaufman 2003, Alpert 2007, Epp *et al.* 2014). Analysing data from the Police Public Contact Survey (1999), Gibson *et al.* (2010) found that relative to other types of face-to-face encounters, citizens who self-reported experiencing a traffic stop were less likely to contact police for

help and/or to report neighbourhood problems. They also found that White, Black, and Hispanic citizens were similarly impacted by traffic stops – each group was significantly less likely to have contacted the police for assistance or to report neighbourhood problems if they had experienced a traffic stop in the past year.

We build on Gibson and colleagues' original study by addressing several of its limitations. First, we examine the relationship between experiencing a traffic stop and calling the police for help while also controlling for citizens' prior arrests and the reason for the traffic stop. We included both prior arrests and reason for stop as possible confounding variables because prior contacts have been found to negatively influence citizens' attitudes and behaviour toward the police (Fagan and Davies 2000, Rosenbaum *et al.* 2005, Carr *et al.* 2007, Gau and Brunson 2010, Epp *et al.* 2014). Second, studies find that citizens stopped for reasons other than speeding are more likely to perceive injustice during a traffic stop encounters with police (Engel 2005, Epp *et al.* 2014). It is also possible that citizens view stops as a nuisance, irrespective of whether they are legitimate or view them as illegitimate, and this can affect citizens' behaviour toward the police. Moreover, Gibson *et al.* (2010) were unable to examine the issue of fairness and legitimacy of traffic stops – concepts that are closely linked to trust in the police (Tyler 1990, Sunshine and Tyler 2003, Tyler and Fagan 2008). They did, however, use a procedural justice framework to explain why citizens who had experienced traffic stops would be less likely to seek help from police. Indeed, a long line of research has demonstrated that procedural justice measures are closely linked to perceptions of fairness during police-citizen encounters (Engel 2005, Gau and Brunson 2010, Gau 2013).

We further build on Gibson *et al.* (2010) study by including measures of fairness, one possible explanation for why traffic stops are associated with calls for police service. Importantly, data analysed for the current study are more recent relative to those in the Gibson *et al.* study. Prior to the administration of the 2011 PPCS survey, the Bureau of Justice Statistics (BJS) hosted a series of meetings with police experts to investigate ways to more accurately measure police-public contacts and police legitimacy. In 2011, the PPCS instrument was revised to better capture police-public contacts and characteristics of these encounters. The resulting changes were designed to enhance respondent recollection of interactions with the police and to gain a more nuanced understanding of police and public contacts (Berzofsky *et al.* 2017). The PPCS data collection started with a pilot study in 1996, with a national data collection effort in 1999. PPCS data were subsequently collected in 2002, 2005, 2008, and 2011 with improvements made each time data

were collected. Data from the 2011 PPCS are analysed for the current study.

Current study

This study aims to answer three research questions by examining the effects of traffic stops, perceptions of fairness, reasons for traffic stops, and citizens' characteristics, on two outcomes – seeking help from the police and reporting non-crime emergencies. *First*, when controlling for perception of fairness, prior arrest, receiving a traffic ticket, and demographic characteristics – is experiencing a traffic stop associated with a significant decrease in the odds of seeking help from the police and/or reporting non-crime emergencies to the police? *Second*, among those who have been stopped, are the reasons for the stop and perceptions of fairness of the stop related to seeking help from and reporting non-crime emergencies to the police? *Third*, do the reasons for the stop and perceptions of fairness predict help seeking and reporting non-crime emergencies, and are there significant differences in these associations across race/ethnic groups? Given that minorities are disproportionately represented in contacts with police officers, it is possible that minority citizens with traffic stops will behave differently toward the police compared to White citizens who have been stopped because minorities are more likely to perceive unfair treatment and illegitimate reasons for being stopped (Harris 1997, 2007, Lundman and Kaufman 2003, Epp *et al.* 2014).

Methods

Data and sample

The study analyzes data from the Police Public Contact Survey (hereafter referred to as the PPCS) administered by the US Bureau of Justice Statistics, and recently the Census Bureau, as a supplement to the National Crime Victimization Survey (NCVS). The PPCS is a nationally representative sample of residents 16 or older who report on various aspects of recent contacts with police. In 2011, the PPCS included interviews with 49,249 of the 62,280 eligible subjects in the NCVS sample. A total of 13,034 subjects were excluded from the 2011 PPCS due to nonresponse. We applied weights to the sample.¹ The analysis sample includes all citizens in the original sample who had face-to-face contacts with the police ($n = 10,056$) (hereafter referred to as the 'face-to-face' sample).² Respondents were asked the following question: 'During the last 12 months, that is, any time since 2010, did you have any face-to-face contact with a police officer?' The first research question (what is the effect of traffic stops on seeking help from the police and/or reporting non-crime

emergencies to the police?) was answered using the 'face-to-face' sample. A subsample of citizens with at least one traffic stop in the past year was then obtained from the 'face-to-face' sample ($n = 4,028$; about 40% of the sample). This 'traffic stops' subsample was further disaggregated by citizen race/ethnicity – 3,059 Whites (76%), 466 Blacks (12%), and 503 Hispanics (12%). Subjects who identified with the Hispanic ethnicity, regardless of their race, were coded as Hispanic. These subsamples were created to address the second and third research questions. We excluded from further analyses respondents who indicated that they had not experienced at least one traffic stop in the past year. The descriptive statistics reported below are based on the weighted data.

Measures

Dependent Variable. Two types of citizen-initiated contacts are used as dependent variables: *seeking help or assistance from the police* and *reporting non-crime emergencies to the police*. For *seeking help*, respondents were asked 'Have you approached or sought help from the police for any of the following reasons in the last 12 months: Reported any kind of crime, disturbance, or suspicious activity to the police?' And for *reporting non-crime emergencies* to the police, respondents were asked 'Have you reported a non-crime emergency such as a traffic accident or medical emergency to the police?'³ These variables were measured dichotomously (0 = no; 1 = yes) and serve as proxies for trust in the police (Gibson *et al.* 2010). Few citizens call the police to report crimes, and even fewer citizens report non-crime emergencies to the police (Gibson *et al.* 2010). In fact, the NCVS has consistently found that citizens call the police to report crimes in less than half (50%) of all possible crime incidences (Trumman and Langton 2013).⁴ Therefore, it is likely that calling the police for help reflects the level of trust citizens have in law enforcement's ability to respond when they are called upon.

Independent Variables. To measure *traffic stops*, respondents were asked the following question: In the last 12 months, have you been stopped by the police while driving a motor vehicle? Responses were coded as yes (1) and no (0). With respect to *perceptions of fairness* (quality of treatment), the PPCS asked respondents: Looking back on this contact, do you feel the police behaved properly? Responses for this item were coded as either 0 (improperly) or 1 (properly). Respondents were also asked, 'Looking back on this contact, do you feel the police treated you respectfully?' Answers to this question also ranged from 0 (disrespectful) to 1 (respectful). These two items were summed to

create a scale ($\alpha = .869$) with values of 0, 1, and 2 (see also Gau 2013). Higher scores on the scale represent greater perceived fairness. Researchers have used these items (i.e. police behaved properly and police treated you respectfully) to tap into the concept of procedural justice (Engel 2005, Gau 2013). Procedural justice comprises of four elements – neutrality, voice [or decision-making], trustworthy motives, and respect or dignity [or quality of treatment] – which can be broadly classified as decision-making and quality of treatment (Blader and Tyler 2003). Few studies examine all the four components at once however, it is common practice to combine these components into a procedural justice scale. Our measure arguably captures behavioural elements such as respect/dignity of procedural justice, and higher scores on the variable indicate that more of the dimensions of procedural justice were evident during the traffic stop. Researchers have also revealed that drivers stopped for reasons other than speeding are significantly more likely to feel poorly about their overall encounter with the police (Engel 2005, Epp *et al.* 2014). Therefore, we included several dichotomous variables reflecting reasons for the traffic stop: *speeding (reference category)*, *vehicle defect*, *record check*, and *other reasons for traffic stops* (e.g. lane change, stop sign violation, suspicious activities, noise violation, issues with registration, obstructed license, seat belt violation, cell phone violation, blocking traffic, driving too slow and so forth).⁵

Control variables. Several citizen characteristics and traffic-stop specific variables were included in the analyses as control variables. The following variables were measured dichotomously: *male*, *White*, *Black*, *Hispanic*, *employed*, *prior arrest*, and *received a traffic ticket*. *Age* is a continuous variable (16–90 years old) with the average respondent in the sample being approximately 42 years old. In addition, a three category *income* variable was created (i.e. less than \$20,000 or NA, \$20,000–\$49,999, and \$50,000 or more). For multivariate models that follow, White, male, and income greater than or equal to \$50,000 are the excluded reference categories that all other groups were compared against. It is important to note here that the cross-sectional nature of the PPCS data (both the predictor and outcome variables came from the 2011 survey) might make it difficult to assess the temporal order of the dependent and independent variables. The assumption and theoretical grounding in this study are that contact with the police comes before calls for help and service. Although these data are limited, the PPCS is the only national dataset that we have available to capture such police-citizen contacts.

Analytic Strategy

First, we conducted a logistic regression model of the ‘face-to-face’ sample to predict whether experiencing traffic stops and perceptions of fairness are related to the odds of calling for police help and reporting non-crime emergencies. We conducted predicted probabilities from these analyses. Second, we examined the influence of perceptions of fairness and reasons for traffic stops on the outcomes among those citizens who had been stopped (the ‘traffic stop subsample’). Third, we conducted these analyses separately for White, Black, and Hispanic citizens, and we performed equality of coefficients tests (Clogg *et al.* 1995, Brame *et al.* 1998) to examine whether these effects were significantly different across race/ethnicities.

Results

The effect of traffic stops and perception of fairness

Table 1 displays the descriptive statistics (means and standard deviations) of the face-to-face sample ($n = 10,056$), the traffic stops subsample ($n = 4,028$), and the three racial/ethnic categories – non-Hispanic White ($n = 3,059$), non-Hispanic black ($n = 466$), and Hispanic ($n = 503$). Tables 2–5 show results from multivariate logistic regression models examining the effect of traffic stops, perception of fairness, and reasons for traffic stops (while controlling for citizen characteristics and other important covariates) on seeking help from the police and reporting non-crime emergencies to the police. Tables 4 and 5 show results from the corresponding equality of coefficients test. Only the equality of coefficients tests that resulted in significant differences between coefficients are reported. Due to space limitations, we were only able to report predicted probabilities comparing the effect of traffic stops on help seeking and reporting non-crime emergencies and the influence of perceptions of fairness on reporting non-crime emergencies for the traffic stops subsample.

Table 2 provides the logistic regression model predicting the likelihood of seeking help and reporting non-crime emergencies for the ‘face-to-face’ sample of citizens who had at least one police contact in the past 12 months. Figures 1 and 2 present predicted probabilities of seeking help and reporting non-crime emergencies for those reporting at least one traffic stop. Consistent with Gibson *et al.* (2010), we found that citizens who had experienced traffic stops were less likely to seek help and/or report non-crime emergencies (67% versus 50%) relative to those who had other types of contacts with the police. Figure 1 reveals that the probability of seeking help from the police among those with traffic stops (who score a ‘1’ on traffic stops) is 16%, while the

Table 1. Descriptive statistics for sample and subsamples.

	Face-to-Face contacts		Traffic stops		Traffic stops subsample (n = 4,028)					
	Mean	(SD)	Mean	(SD)	NH White		NH Black		Hispanic	
					Mean	(SD)	Mean	(SD)	Mean	(SD)
<i>Outcome Variables</i>										
Sought Help	.31	(.46)	.15	(.35)	.15	(.35)	.14	(.35)	.15	(.35)
Reported Non-crime Emergencies	.20	(.40)	.11	(.32)	.11	(.32)	.11	(.32)	.10	(.30)
<i>Citizen Characteristics</i>										
Age	42.24	(16.70)	39.40	(15.60)	40.48	(16.09)	38.27	(13.85)	34.45	(13.30)
NH White ^a	.76	(.43)	.74	(.44)	100.00	-	-	-	-	-
NH Black	.12	(.33)	.13	(.34)	-	-	100.00	-	-	-
Hispanic	.12	(.32)	.13	(.34)	-	-	-	-	100.00	-
Male ^a	.51	(.50)	.58	(.49)	.58	(.49)	.57	(.50)	.61	(.49)
Female	.49	(.50)	.42	(.49)	.42	(.49)	.43	(.50)	.39	(.49)
Income < \$20,000	.32	(.47)	.30	(.46)	.29	(.45)	.36	(.48)	.34	(.47)
\$20,000 to \$49,999	.26	(.44)	.25	(.43)	.22	(.41)	.34	(.48)	.32	(.47)
>= \$50,000 ^a	.43	(.50)	.45	(.50)	.49	(.50)	.30	(.46)	.34	(.47)
Employed	.67	(.47)	.73	(.44)	.74	(.44)	.72	(.45)	.74	(.44)
Prior Arrest	.03	(.16)	.03	(.18)	.03	(.16)	.05	(.22)	.05	(.23)
Received a Ticket	.19	(.39)	.43	(.50)	.41	(.49)	.46	(.50)	.50	(.50)
<i>Predictor Variables</i>										
Traffic Stops	.41	(.49)	-	-	-	-	-	-	-	-
Perception of Fairness	1.74	(.63)	1.77	(.59)	1.79	(.57)	1.67	(.70)	1.74	(.62)
<i>Reason for Traffic Stops</i>										
Speeding ^a	-	-	.40	(.49)	.42	(.49)	.33	(.47)	.34	(.48)
Vehicle Defect	-	-	.12	(.33)	.11	(.31)	.17	(.38)	.14	(.35)
Record Check	-	-	.08	(.27)	.07	(.26)	.12	(.32)	.08	(.27)
Other Reasons	-	-	.22	(.42)	.22	(.41)	.22	(.41)	.27	(.45)
N	10,056		4,028		3,059		466		503	

^aThese variables serve as the reference groups; NH = Non-Hispanic.

Table 2. Logistic regression for outcomes (Face-to-Face Contacts).

	Sought help		Reported non-crime emergencies	
	Coef.	Odds Ratios	Coef.	Odds Ratios
Traffic Stops	-1.12**	.33	-.69**	.50
Perception of Fairness	.23**	1.26	.43**	1.53
Age	.004**	1.00	.004*	1.00
NH Black ^a	-.01	.99	-.06	.95
Hispanic ^a	.15*	1.16	-.16*	.85
Female ^b	.08 ⁺	1.09	.05	1.05
Income < \$20,000 ^c	.24**	1.27	-.37**	.69
\$20,000 to \$49,999 ^c	.08	1.08	-.10	.91
Employed	.07	1.07	.24**	1.28
Prior Arrest	-.55**	.58	-.64**	.53
Received Ticket	-1.13**	.32	-1.33**	.26
N	10,056		10,056	

** = $p \leq .01$.

* = $p \leq .05$.

^aNH White serves as the reference group.

^bMale serves as the reference group.

^c\$50,000 or more serves as the reference group.

Table 3. Logistic regression for outcomes (Traffic Stops Subsample).

	Sought help		Reported non-crime emergencies	
	Coef.	Odds Ratio	Coef.	Odds Ratios
Perception of Fairness	-.03	.97	.20*	1.22
Age	-.01*	.99	-.003	1.00
NH Black ^a	.08	1.08	.23	1.25
Hispanic ^a	.10	1.11	.06	1.10
Female ^b	-.08	.92	-.01	1.00
Income < \$20,000 ^c	.17	1.18	-.30*	.74
\$20,000 to \$49,999 ^c	.04	1.04	.16	1.18
Employed	-.06	.94	.33**	1.39
Prior Arrest	-.22	.81	-.66*	.52
Received a Ticket	-1.06**	.35	-1.35	.26
<i>Reason for Traffic Stop</i>				
Vehicle Defect ^d	-1.10**	.33	-.92**	.40
Record Check	-.85**	.43	-1.00**	.37
Other Reasons	-.97**	.35	-.61**	.54
N	4,028		4,028	

** = $p \leq .01$.

* = $p \leq .05$.

+ = $p \leq .10$.

^aNH White serves as the reference group.

^bMale serves as the reference group.

^c\$50,000 or more serves as the reference group.

^dspeeding serves as the reference group.

Table 4. Logistic regression for sought help from the police (Traffic Stops Subsample).

	NH White		NH Black		Hispanic		<i>Equality of coefficients</i>		
	Coef.	Odds Ratios	Coef.	Odds Ratios	Coef.	Odds Ratios	W/B	W/H	B/H
Perception of Fairness	-.11	.90	.12	1.13	.11	1.12			
Age	-.01*	.99	.01	1.01	-.002	1.00			
Female	-.13	.88	.08	1.09	.17	1.18			
Income < 20,000	.28*	1.32	.51	1.66	-.85*	.43	3.16**	2.77**	
\$20,000 to \$49,999	.06	1.07	.31	1.37	-.39	.68			
Employment	-.07	.93	-.14	.87	-.01	.99			
Prior arrest	-.46	.63	.28	1.33	.19	1.21			
Received a Ticket	-1.12**	.33	-.64*	.53	-1.31**	.27	2.04*		
<i>Reasons for stop</i>									
Vehicle Defect	-.93**	.39	-1.56**	.21	-1.50**	.22			
Record Check	-.86**	.42	-.77+	.46	-.73	.48			
Other Reasons	-1.12**	.33	-.56	.57	-.64+	.53			
N	3,059		466		503				

Notes: Significant equality of coefficients' test results reported.

* $p \leq .10$.

* $p \leq .0$.

** $p \leq .01$.

Table 5. Logistic regression for reported non-crime emergencies to the police (Traffic Stops Subsample).

	NH White		NH Black		Hispanic		Equality of coefficients		
	Coef.	Odds Ratios	Coef.	Odds Ratios	Coef.	Odds Ratios	W/B	W/H	B/H
Perception of Fairness	.11	1.12	.25	1.28	.70 ⁺	2.01			-1.66 ⁺
Age	-.002	1.00	-.01	1.00	-.004	1.00			
Female	-.15	.86	.53 ⁺	1.69	.26	1.29			
Income < 20,000	-.24	.79	-.20	.82	-.80 [*]	.45			
\$20,000 to \$49,999	.17	1.19	.35	1.42	-.09	.91			
Employment	.35 [*]	1.41	.23	1.26	.53	1.71			
Prior arrest	-.46	.63	-.93	.39	-1.31	.27			
Received a Ticket	-1.33 ^{**}	.27	-1.68 ^{**}	.19	-1.30 ^{**}	.27			
<i>Reasons for stop</i>									
Vehicle Defect	-.78 ^{**}	.46	-1.10 [*]	.33	-1.52 [*]	.22			1.88 ⁺
Record Check	-1.02 ^{**}	.36	-1.02 [*]	.36	-.97	.38			
Other Reasons	-.64 ^{**}	.53	-.86 ⁺	.42	-.32	.73			
N	3,059		466		503				

Notes: Significant equality of coefficients[†] test results reported.

⁺p ≤ .10.

^{*}p ≤ .05.

^{**}p ≤ .01

probability of seeking help among those without traffic stops (who have a '0'), is approximately 38%. More specifically, experiencing at least one traffic stop in the past year decreased the odds of seeking help from the police by approximately 67%. Moreover, Figure 2 shows that the probability of reporting non-crime emergencies among citizens without traffic stops is about 22%, while the probability of reporting non-crime emergencies among those with stops is only 12%.⁶

Further, perception of fairness had a statistically significant positive effect on seeking help and reporting non-crime emergencies to the police, indicating that citizens who perceive fair treatment by the police during their encounters were significantly more likely to contact police for assistance. The likelihood of seeking assistance and/or reporting non-crime emergencies to the police increased by 26% and 53%, respectively, among citizens who perceived fair treatment during their encounters with the police. Table 2 also indicates that the odds of asking help from the police and/or reporting non-crime emergencies were higher for older citizens relative to younger citizens. Gender had a marginal effect on calling the police for help – females with face-to-face encounters were more (9%) likely than males to call the police for help. Hispanics had higher odds (16%) of calling the police for help compared to Whites but they were less (15%) likely to report non-crime emergencies to the police. Relative to citizens with incomes above \$50,000, low-income status (income below \$20,000) was associated with higher odds (27%) of seeking help from the police but lower odds (31%) of reporting non-crime emergencies to the police for the face-to-face sample. Additionally, Table 2 reveals that those who reported that

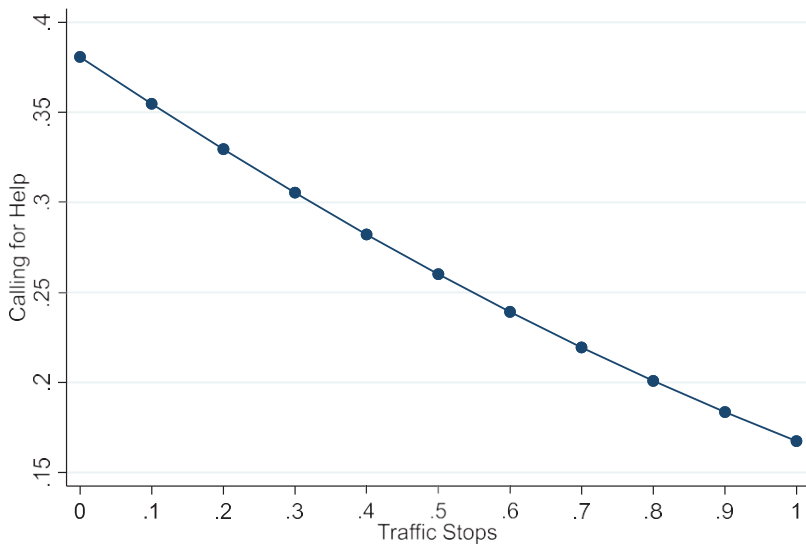


Figure 1. Predicted probabilities for help (Face-to-Face).

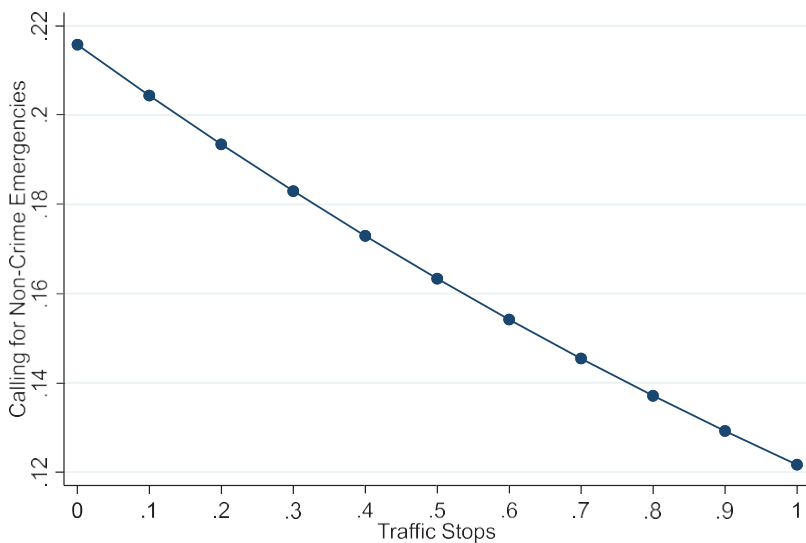


Figure 2. Predicted probabilities for non-crime emergencies (Face-to-Face).

they were employed were more likely (28%) to report non-crime emergencies. Results from these analyses also demonstrate that having been previously arrested reduced the odds that citizens with face-to-face encounters with the police would seek help or call to report non-crime emergencies (42% and 47%, respectively). Receiving a traffic ticket was associated with lower odds of calling for help and to report non-crime emergencies (68% and 74%, respectively).

Effect of reasons for traffic stops

Table 3 displays results for the effect of traffic stops on citizens' calls to

the police. As shown, the pattern of results is somewhat different when the analysis was restricted to only citizens with at least one traffic stop. Age remained statistically significant with younger people being less (1%) likely to call the police for help. Receiving a traffic ticket continued to have a significant negative effect on help seeking – those who received traffic tickets were 65% less likely to seek help from the police. Interestingly, all of the *reasons for the traffic stop* (relative to speeding) variables were negatively and significantly associated with help seeking. Our analyses revealed that relative to those stopped for *speeding*, those stopped for *vehicle defect*, *record check* and *other reasons* for traffic stop were significantly less likely to seek help from the police (67%, 57%, and 65%, respectively). With regards to reporting non-crime emergencies, [Table 3](#) indicates that those who perceived fair treatment during traffic stop encounters reported higher odds (22%) of reporting non-crime emergencies compared to those who felt the police did not treat them fairly.

As shown in [Figure 3](#), the probability that citizens who perceived fair treatment during traffic encounters reported non-crime emergencies was about 8% and about 6% for those who perceived unfair treatment during such encounters. Similar to the seeking help outcome, citizens stopped for reasons other than speeding (i.e. vehicle defect, record check, and other reasons) had lower odds of reporting non-crime emergencies to the police (60%, 63%, and 46% respectively) for this subsample. Relative to those with incomes above \$50,000, those with low-income status (less than \$20,000) were less likely to call the police (26%) for non-crime

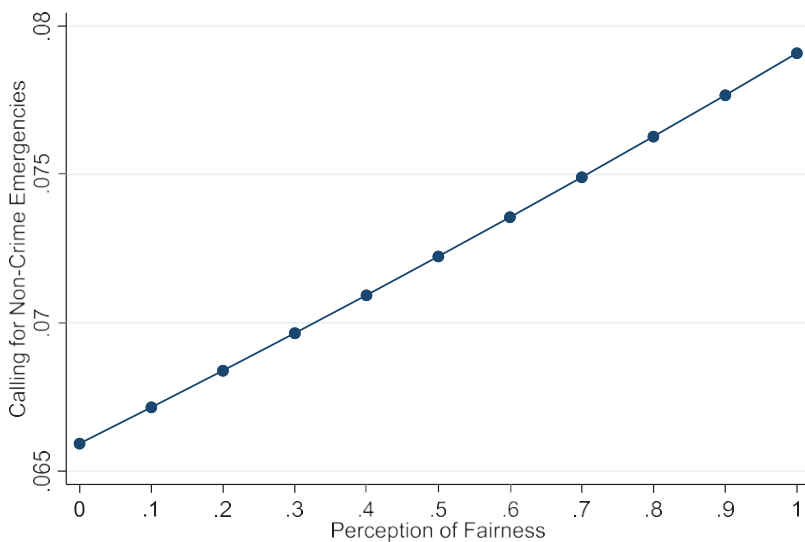


Figure 3. Predicted probabilities for non-crime emergencies (Traffic Stops).

emergencies. Additionally, prior arrest was associated with lower odds (48%) of citizens' reporting non-crime emergencies to the police for the traffic stops subsample. Lastly, those who received traffic tickets were less (74%) likely to report non-crime emergencies to the police.

Racial/Ethnic differences

Table 4 provides the effects of perception of fairness, citizen characteristics, and reasons for a traffic stop on seeking help separately for White, Black, and Hispanic citizens. Overall, these results indicate that there are some differences across the three racial/ethnic groups. White citizens stopped for reasons other than *speeding* were less likely to seek help from the police – *vehicle defect* (61%), *record check* (58%), and *other reasons* (67%). Relative to those with an income above \$50,000, Whites with income less than \$20,000 were 32% more likely to call the police for help. Age and receiving a traffic ticket had an inverse association with calls for help among Whites with traffic stops. Among Black citizens, the odds of seeking help from the police were lower for those stopped for *vehicle defect* (79%) and *record check* (54%) compared to those who were stopped for *speeding*. Receiving a traffic ticket was associated with lower (47%) calls for help among Blacks with traffic stops. We also found that compared to being stopped for speeding, Hispanics who were stopped for *vehicle defects* and *other reasons* were less likely to call the police for help (78% and 47%, respectively). Hispanics who received a ticket and those with an income less than \$20,000 were less likely to call the police for assistance than those with an income above \$50,000. There were relatively few significant differences in these effects across racial/ethnic groups, however. The equality of coefficients tests reveals that the effect of low income status (below \$20,000) on help seeking was stronger for Whites with traffic stops compared to low income Hispanics with traffic stops, whereas the effect of low income status on calling for help was stronger for Hispanics with traffic stops relative to low income Blacks. Lastly, the effect of receiving a ticket on seeking help from the police was stronger for Whites compared to Blacks who had experienced at least one traffic stop in the past year.

Table 5 displays logistic regression and equality of coefficients test results for Whites, Blacks, and Hispanics who had reported experiencing at least one traffic stop in the past year. Compared to *speeding*, the other three reasons for traffic stops – *vehicle defect*, *record check*, and *other reasons* – were associated with reduced (54%, 64% and 47%, respectively) odds of reporting non-crime

emergencies among Whites with traffic stops. Being *employed* was associated positively with reporting non-crime emergencies among White citizens. Whites who received a traffic ticket during their encounter with the police were less (73%) likely to report non-crime emergencies to the police. Compared to Blacks who were stopped for *speeding*, those stopped for *vehicle defects*, *record checks*, and *other reasons* had lower odds (67%, 64%, and 58%, respectively) of calling to report non-crime emergencies. Receiving a traffic ticket had an inverse association with reporting non-crime emergencies among Blacks with traffic stops. Lastly, Hispanics who perceived fair treatment during traffic stops were 101% more likely to call the police for non-crime emergencies. Being stopped for *vehicle defect* compared to being stopped for *speeding* was associated with lower (78%) likelihood of reporting non-crime emergencies among the Hispanics with a traffic stop. Relative to Hispanics with an income above \$50,000, those with an income below \$20,000 had lower (55%) odds of reporting non-crime emergencies to the police.

Equality of coefficients tests revealed that some of the observed differences between Whites and Hispanics were statistically significant. The effect of perception of fairness on reporting non-crime emergencies was stronger for Hispanic citizens with traffic stops compared to White citizens and the effect of vehicle defect on reporting non-crime emergencies was stronger for Hispanics compared to Whites among the traffic stops sub-sample.

Discussion and conclusion

The purpose of this study was to understand the impact of traffic stops and citizens' perceptions of fairness on their willingness to call the police (an indicator of cooperation and trust), whether the reasons for traffic stops mattered in this regard, and whether there were differences in these effects across various racial/ethnic groups. We sought to answer three research questions: (1) Controlling for perceptions of fairness and other important covariates, what is the effect of traffic stops on seeking help and reporting non-crime emergencies?; (2) Among those who have been stopped, do the reasons for the stop, perceptions of fairness, and other covariates predict help seeking and reporting non-crime emergencies?; and (3) Among Whites, Blacks, and Hispanics who have been stopped, do the reasons for the stop and perceptions of fairness predict help seeking and reporting non-crime emergencies, and are there significant differences in their effects across races/ethnicities? We discuss our findings below.

We argued here that experiencing a traffic stop would have an

inverse association with future calls to the police, and we found evidence that indeed those with traffic stops were significantly less likely to report non-crime emergencies or seek help from the police. However, this effect appears to be largely driven by Hispanic – literature supports the notion that Hispanic citizens are less likely to call the police compared to White and African American citizens (Ammar *et al.* 2005). From a procedural justice standpoint, it is likely that those with traffic stops may have perceived unfair treatment during traffic stop encounters with the police, thus hindering their cooperation via calling the police. Accordingly, we examined the effect of perception of fairness on contacting the police and found that citizens who perceived fair treatment (i.e. police treated them with respect and behaved properly) were more likely to seek help and report non-crime emergencies. Further, perceptions of fairness continued to matter when examining only those who had been stopped by the police for a traffic violation, with citizens who perceived fair treatment during their traffic stop encounters being more likely to report non-crime emergencies (but not more likely to seek help from the police). Our findings align with process-based/procedural justice models, which suggest that citizens are more likely to trust the police when they perceive they were treated properly and with respect (Tyler 1990, 2004). A majority of police work relies on citizens to call for assistance, report crimes, or cooperate with investigations (Reiss 1971). Therefore, it is necessary for police executives in law enforcement agencies to encourage their officers to behave properly and respectfully during encounters with citizens to avoid misunderstanding and feelings of resentment.

Equally important, researchers have distinguished between voluntary police-citizen contacts (i.e. initiated by the citizen) and involuntary contacts (i.e. initiated by the police). Generally, researchers report that citizens who experience voluntary encounters (e.g. calling police to get information) are more likely to report that they were treated properly and with respect by the police compared to citizens who experience involuntary contacts (e.g. traffic stops) with police officers (Reiss 1971, Black 1980, Decker 1981, Brown and Benedict 2002). This is important for our study because we found that even among citizens whose contact with police was not voluntary (e.g. in the traffic stops sample), perceptions of fairness still mattered with regard to reporting non-crime emergencies to the police. Moreover, this effect was evident even when we controlled for the reason for the traffic stop (which some scholars have suggested are linked to perceived fairness) (see Gau 2013, Epp *et al.* 2014).

Although we expected that the effect of perception of fairness would

impact both help seeking and reporting non-crime emergencies, the results suggest that only reporting non-crime emergencies was impacted. We suspect that there are a few potential explanations for why perception of fairness mattered only for reporting non-crime emergencies. First, it is possible that receiving a ticket is more important than perceived fairness when it comes to citizens' help-seeking and may mediate the effect of perceived fairness on this outcome. Perhaps receiving a ticket increases citizens' perceptions that the stop and/or ticket were illegitimate and this affects their willingness to contact police for services (Engel 2005, Gau 2013). It is also possible that our measure of perceived fairness does not capture the elements of procedural justice that would be more strongly related to seeking help. Procedural justice is comprised of at least four elements – neutrality, voice, trustworthy motives, and respect/dignity – however, only two items related to trustworthy motives and respect were available in the PPCS dataset and were therefore included in the current study (i.e. did the police behave properly and did they treat you respectfully) (Lee *et al.* 2015, Nix 2017b, Pryce 2018). It is very possible that the other elements (i.e. neutrality and voice) are more important for help seeking. Lastly, there is a difference between calling for help and calling to report non-crime emergencies; the former involves crime while the latter involves non-crime (Gibson *et al.* 2010). Therefore, it is possible that perception of fairness is unrelated to calling the police about more serious events like crime, rather than less serious events, such as non-crime emergencies (Fleury *et al.* 1998). In other words, some events may be too serious to ignore, regardless of one's perceptions of the fairness of police. That said, we encourage continued research to better understand the types of outcomes that are most closely related to perceptions of fairness among citizens, as our results suggest a potential moderating effect by the seriousness of outcome.

We also examined differences in the effects of perceptions of fairness and other covariates across the three racial/ethnic categories. We found that perception of fairness was not related to seeking help among Whites, Blacks, or Hispanics, but was positively related to whether Hispanics reported non-crime emergencies to the police. These are interesting findings and warrant some explanation. As outlined above, we anticipated to see some differences across the three racial and/or ethnic categories. Researchers have long argued that African American and Hispanic citizens tend to perceive more unfair treatment by police officers (Fagan and Davies 2000, Brunson and Miller 2006, Brunson and Stewart 2006, Brunson 2007, Carr *et al.* 2007). They have suggested that while many citizens view police-initiated traffic stops negatively, racial/ethnic minorities tend to view these encounters even more negatively relative to Whites

(Cheurprakobkit 2000, Lundman and Kaufman 2003, Lundman 2004, Epp *et al.* 2014, Desmond *et al.* 2016).

However, we did not observe racial/ethnic differences in the effect of perceived fairness on calling the police for help – perceptions of fairness were unrelated to help seeking for *all* races. Further, perceptions of fairness were only significantly related to reporting non-crime emergencies among Hispanics, and it exerted a stronger effect on reporting non-crime emergencies for Hispanics relative to Whites. This was the only significant race/ethnic difference uncovered relative to perceptions of fairness, and suggests that perceived fairness may not be as racially tinged as previously thought – especially after relevant covariates, like receiving a ticket and the reasons for the stop, are controlled.

The table of descriptive statistics reveals that whites, Blacks, and Hispanics in this sample had somewhat similar perceptions of fairness, and it is important to note that the measure of perception in this study specifically asks if citizens felt that the police behaved properly and with respect during their encounter. Because police departments continue to make concerted efforts to train their officers to behave in a procedurally just manner when interacting with citizens, it is possible that most citizens perceive fair treatment during traffic stops as a result of these efforts (Epp *et al.* 2014, Skogan *et al.* 2015). It is also possible that our measure of perception of fairness does not tap into the elements that may reveal racial and ethnic differences. More research is certainly needed to confirm this pattern of findings, and we encourage future scholarship on this topic. At a minimum, our results suggest that police agencies can enhance cooperation with citizens, Hispanics in this case, through fair treatment during encounters.

The current study has notable limitations that provide opportunities for future research. These limitations include the reliance on self-reported measures, using temporally accurate data, a proxy measure for citizen trust, the use of 2011 data, and missing important measures. The PPCS data were collected as a supplement of the NCVS therefore the shortcoming of the NCVS may also apply to the PPCS. Nonetheless, interviewers for the PPCS attempted to overcome this limitation by asking respondents to focus only on their most recent contact with the police when responding to questions about the incident. The cross-sectional nature of the data collection also introduces a potential ambiguous temporal ordering into the outcome models. Specifically, the traffic stop may not necessarily have taken place prior to the reported request for assistance. Like other empirical applications utilising survey data, it is not possible to confirm the extent to which this potential threat is a plausible one. However, we believe

that the primary implication of this ambiguity is that this analysis has greater potential to underestimate the true impact of traffic stops on citizen's subsequent behaviour. On the other hand, however, no study has provided evidence that calls for help can result in traffic stops. In fact, given the cross-sectional nature of the data, we believe our findings are conservative regarding the true impact of traffic stops on citizens' subsequent behaviour. If we were able to restrict our analyses to only those citizens who first experienced a stop and then track their calls to the police (thereby excluding those citizens who called the police first), both theory and logic would suggest that the impact of traffic stops on later behaviour would be stronger than what we uncovered here. More research is needed to ascertain how experiencing a traffic stop may influence citizens' behavioural indicators of trust in the police. Additionally, a limitation of using calls for help as a proxy for trust is that calls for help may be impacted by neighbourhood and other structural problems that were unaccounted for in this study (e.g. neighbourhood problems, crime rates, etc.). Certain neighbourhoods tend to have higher percentages of calls for assistance owing to high crime rates. This would imply that citizens from high crime communities might be more likely to call for assistance regardless of how they were treated during traffic stop encounters, and we were unable to control for these circumstances in the current analyses.

Another potential limitation of our study is the use of 2011 PPCS data to examine the effect of traffic stops on calls for help. Although the 2011 PPCS data are the most recent national data we have on traffic stops, they may not be reflective of current processes of police-citizen relationships in the wake of many recent cases of police brutality and citizen riots. Indeed, it is quite possible that the effect of traffic stops today is actually worse than we uncovered with the 2011 data. Relatedly, and to further emphasise this point, researchers have shown that African American respondents were significantly less likely to self-report the outcome of their traffic encounter (e.g. whether they had received a ticket) compared to White respondents (Engel 2005, Tomaskovic-Devey *et al.* 2006). It is unknown if this trend of systematic underreporting by race reported in the North Carolina data is also a problem with the PPCS. If, however, African Americans do systematically underreport being stopped by police or receiving traffic citations, the analyses presented here would then represent a more conservative test of hypotheses regarding differential effects of traffic stops and reasons for stop by race/ethnicity (Engel 2005). Finally, other measures known to influence the likelihood of citizens' calls to the police – such as legal cynicism, satisfaction with police encounter,

immigration status, language barriers – were not included in this study (Herbst and Walker 2001, Kirk *et al.* 2012, Weitzer 2014). Future researchers can include variables like these in their analyses in order to more fully understand whether traffic stops impact the likelihood of calling the police.

The findings from this study have several important implications. The results suggest that traffic stops can negatively affect citizens' behaviour toward the police. We contend that more research is needed to uncover the complex relationship between traffic stops, citizen characteristics, procedural justice measures, reasons for traffic stops, and behavioural indicators of the public's trust in the police. Traffic stops represent a major avenue through which citizens and law enforcement officers interact and, therefore, present an ideal opportunity to study citizens' behavioural indicators of trust in the police. Although Gibson *et al.* (2010) were the first to examine the influence of traffic stops on calling the police, more research is needed to better understand the relationship between traffic stops, perception of fairness, and behavioural indicators of trust. As was observed in this study, it is not enough to only examine demographic characteristics such as race/ethnicity, age, income, and employment status, when it comes to examining traffic stops and citizens' calls for service. We believe that other important covariates, such as receiving a ticket for violating a traffic code, and the reasons for a traffic stop, are important to take into account for better specified models. We suggest that future research should examine potential moderators and/or mediators to the relationship between traffic stops, perception of fairness, and calls to the police. Our finding that perception of fairness was only related to reporting non-crime emergencies might also allude to mediating and/or potential moderating effects. In addition, our study revealed that perception of fairness mattered to citizens with face-to-face contacts. This finding is consistent with procedural justice research where citizens are likely to cooperate with the police if they believe that they were treated fairly during encounters (Tyler 2004, Sunshine and Tyler 2003). Finally, we found very few race effects, indicating that the effect of perceptions of fairness and the reasons for traffic stops largely did not vary for White, African American, and Hispanics in terms of calling the police for help or to report non-crime emergencies. As noted before, these outcomes have not been previously explored in the literature, and more research is needed in order to understand why there might be differences across these racial and ethnic categories with respect to traffic stops and behavioural indicators of citizens' trust in the police.

Notes

1. The PPCS involved a complex sampling design; however, weights were created to reflect the inverse of each participant's odds of selection (Lohr 1999). The weights were normalised and applied to the analyses reported in this study.
2. The data used for this study is comprised of information gathered on all citizens who indicated that they had a face-to-face contact with the police in the 2011 version of the PPCS survey ($n = 10,620$). Respondents who were not White, Black, or Hispanic were excluded from the analyses ($n = 564$), therefore the final total sample was comprised of 10,056 White, Black, and Hispanic individuals with face-to-face encounters.
3. Calls for help refer to calling the police to report crime and reporting non-crime emergencies refers to service calls. This is how these variables are labelled in the PPCS.
4. 2013 NCVS estimates that only about 46 percent of violent victimizations are reported to the police-refer to Criminal Victimization, 2013 by Jennifer L. Truman, Ph.D., and Lynn Langton, Ph.D., BJS Statisticians.
5. The cross-sectional nature of the PPCS data makes it difficult to assess the causal ordering of the dependent and independent variables. In other words, it may be impossible to determine whether citizens called the police prior to experiencing face-to-face contacts with the police or after they experienced these stops.
6. Recall that odds ratios that range from 0 to 1 represent inverse relationships between predictor variables and outcomes, 1 indicates no real relationship between predictor and outcome variables, scores below 1 indicate negative relationships, and scores above 1 indicate positive relationships between predictors and outcome variables.

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Disclosure statement

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Appendix A

Simple conceptual model

