

2014

Aggressive Policing and the Mental Health of Young Urban Men

Amanda Geller
abg2108@columbia.edu

Jeffrey Fagan
Columbia Law School, jfagan@law.columbia.edu

Tom Tyler
tom.tyler@nyu.edu

Bruce Link
bgl1@columbia.edu

Follow this and additional works at: https://scholarship.law.columbia.edu/faculty_scholarship



Part of the [Health Law and Policy Commons](#), and the [Law Enforcement and Corrections Commons](#)

Recommended Citation

Amanda Geller, Jeffrey Fagan, Tom Tyler & Bruce Link, *Aggressive Policing and the Mental Health of Young Urban Men*, AMERICAN JOURNAL OF PUBLIC HEALTH, VOL. 104, P. 2321, 2014; COLUMBIA PUBLIC LAW RESEARCH PAPER NO. 14-382 (2014).

Available at: https://scholarship.law.columbia.edu/faculty_scholarship/1850

This Working Paper is brought to you for free and open access by the Faculty Publications at Scholarship Archive. It has been accepted for inclusion in Faculty Scholarship by an authorized administrator of Scholarship Archive. For more information, please contact scholarshiparchive@law.columbia.edu.

AGGRESSIVE POLICING AND THE MENTAL HEALTH
OF YOUNG URBAN MEN

Amanda Geller
Jeffrey Fagan
Tom Tyler
Bruce Link

October 2014

*Forthcoming in
American Journal of Public Health, 2014*

AGGRESSIVE POLICING AND THE MENTAL HEALTH
OF YOUNG URBAN MEN^{*}

Amanda Geller^{*}

Jeffrey Fagan[†]

Tom Tyler[‡]

Bruce Link[§]

ABSTRACT

We provide the first population-based analysis of the mental health implications of contemporary policing. Many cities have adopted “proactive” policing models, which engage citizens – often aggressively – at low levels of suspicion. We survey young men on their experiences of police encounters and subsequent mental health. We conducted a population-based phone survey of 1,261 young men in New York City. Respondents reported how many times they were approached by New York Police Department (NYPD) officers, what these encounters entailed, any trauma they attributed to the stops, and their overall anxiety. Data were analyzed using cross-sectional regressions. Participants reporting more police contact also reported more trauma and anxiety symptoms, associations tied to not just how many stops they reported but also the intrusiveness of the encounters and their perceptions of police fairness. The intensity of respondent experiences and their associated health risks raise serious concerns, suggesting a need to re-evaluate officer interactions with the public. Less invasive tactics are needed, both for suspects who may display mental health symptoms, and to reduce any psychological harms to individuals stopped.

^{*} This research was supported by Grant No. 69669 from the Public Health Law Research Program of the Robert Wood Johnson Foundation, Grant No. 2010-IJ-CX-0025 from the National Institute of Justice, and Grant No. R24HD058486 from NICHD. All opinions are those of the authors. One of the study’s authors (Fagan) provided expert testimony to the plaintiffs in litigation related to the police practices under study (*Floyd v. City of New York*, *Davis v. City of New York*, and *Ligon v. City of New York*). Another author (Geller) provided research assistance related to the testimony in these cases. This work had no influence on the conduct or conclusions of the survey research. Chintan Turakhia, Dean Williams, Marci Schalk, and Courtney Kennedy at Abt/SRBI led outstanding survey operations. Julien Teitler provided important support in the early stages of the research. Chelsea Davis provided invaluable research assistance. All errors and conclusions are those of the authors alone. Approval for the study was obtained from the Institutional Review Boards at Columbia University, Yale University, and SRBI.

^{*} Associate Clinical Professor, Department of Sociology, New York University

[†] Isidor and Seville Sulzbacher Professor of Law, Columbia Law School; Professor of Epidemiology, Mailman School of Public Health, Columbia University

[‡] Macklin Fleming Professor of Law and Professor of Psychology, Yale Law School

[§] Professor of Epidemiology and Sociomedical Sciences, Mailman School of Public Health, Columbia University

AGGRESSIVE POLICING AND THE MENTAL HEALTH OF YOUNG URBAN MEN

Amanda Geller
Jeffrey Fagan
Tom Tyler
Bruce Link

I. INTRODUCTION

The criminal justice system has been recognized increasingly as a threat to physical and mental health^{1,2,3}. Changes in policing practices in the past two decades have brought a growing number of urban residents into contact with the criminal justice system⁴, making the consequences of such contact increasingly important to understand. In the past 20 years, many cities have shifted to a “proactive” policing model, in which officers actively engage citizens in high-crime areas to detect imminent criminal activity, or disrupt circumstances interpreted as indicia that “crime is afoot”⁵.

One way proactive policing is sanctioned constitutionally is through a tactic known as *Terry stops*⁶, in which police temporarily detain, and perhaps frisk or search, persons they suspect are, were, or are about to be engaged in criminal activity. Between 2004 and 2012, the New York City Police Department (NYPD) recorded more than 4 million such stops⁷. Large cities like Philadelphia⁸ and Los Angeles⁹ have experienced similar practices, and a survey of Chicago public school students¹⁰ found that about half had been stopped and questioned by the police, and “told off or told to move on”. A quarter to a third of these students

¹ Golombeski C, Fullilove R. Criminal (In)Justice in the City and Its Associated Health Consequences. *American Journal of Public Health*. 2005;95(10):1701-1706.

² Johnson RC, Raphael S. The Effects of Male Incarceration Dynamics on Acquired Immune Deficiency Syndrome Infection Rates among African American Women and Men. *Journal of Law and Economics*. May 2009 2009;52:251-293.

³ Western B. *Punishment and Inequality in America*. New York, NY: Russell Sage Foundation; 2006.

⁴ Brame R, Turner MG, Paternoster R, Bushway SD. Cumulative Prevalence of Arrest From Ages 8 to 23 in a National Sample. *Pediatrics*. 2012;129(1):21-27.

⁵ Kubrin CE, Messner SF, Deanne G, McGeever K, Stucky TD. Proactive Policing and Robbery Rates Across U.S. Cities. *Criminology*. 2010;48(1):57-97.

⁶ *Terry v. Ohio*, 392 U.S. 1 (1968) (1968).

⁷ Fagan J. *Second Supplemental Report of Plaintiff's Expert Jeffrey Fagan*. Floyd et al. v. City of New York et al. 08 Civ 1034 (SAS);2012.

⁸ Bailey et al. v. City of Philadelphia et al. Complaint. 2010 Civ 05952. 2010.

⁹ Ayres I, Borowsky J. *A Study of Racially Disparate Outcomes in the Los Angeles Police Department*. American Civil Liberties Union,; American Civil Liberties Union of Southern California,;2008.

¹⁰ Hagan J, Shedd C, Payne MR. Race, Ethnicity, and Youth Perceptions of Criminal Injustice. *American Sociological Review*. 2005;70(3):381-407.

reported having been searched by police. Overall, the burden of police contact in each of these cities falls predominantly on young black and Latino males^{8,10,11}, with significant disparities in police conduct across neighborhoods^{12,13}.

Recent studies suggest that *Terry* stops are often harsh encounters where physical violence, racial degradation, and homophobia are commonplace^{14,15}, raising the potential for adverse mental health effects. We examine associations between involuntary police contact and mental health among young men in New York City, where *Terry* stops and proactive policing (commonly known as “Stop and Frisk” activity) have been the subject of contentious debate and litigation^{11,16,17}. Public perceptions of Stop and Frisk vary widely, with some observers raising concerns about the aggressive nature of many stops¹⁸ and their shaky constitutional grounds¹⁹. Others dismiss these concerns as outweighed by the benefit of crime deterrence²⁰, or inconveniences that should be accepted as a “fact of urban life”²¹. Most of what is known about New Yorkers’ police contact is based on observational incident-level data^{12,16}, journalistic accounts^{18,19,21}, or convenience samples²², and suggests a nuanced and conflicted relationship between community members and the police. However, such accounts provide only limited insight into the broader implications of the practice. We advance understanding of the cumulative experiences of young males with these police encounters using a population-based survey.

¹¹ Fagan J. *Expert Testimony*. Floyd et al. v. City of New York et al. 08 Civ 1034 (SAS);2010.

¹² Fagan J, Geller A, Davies G, West V. Street stops and Broken Windows revisited: The demography and logic of proactive policing in a safe and changing city. In: Rice SK, White MD, eds. *Race, ethnicity, and policing: New and essential readings*. New York, NY: NYU Press; 2010.

¹³ Geller A, Fagan J. Pot as Pretext: Marijuana, Race, and the New Disorder in New York City Street Policing. *Journal of Empirical Legal Studies*. 2010;7(4):591-633.

¹⁴ Brunson RK. "Police Don't Like Black People": African-American Young Men's Accumulated Police Experiences. *Criminology and Public Policy*. 2007;6(1):71-102.

¹⁵ Brunson RK, Weitzer R. Police Relations with Black and White Youths in Different Urban Neighborhoods. *Urban Affairs Review*. 2009;44(6):858-885.

¹⁶ Ridgeway G. Analysis of Racial Disparities in the New York Police Department's Stop, Question, and Frisk Practices. Santa Monica, CA: RAND;2007.

¹⁷ Smith DC. David Floyd et al. v. City of New York, et al.: Report of Dennis C. Smith. 2010.

¹⁸ Rivera R. Police-Stop Data Shows Pockets Where Force Is Used More Often. *New York Times*2012.

¹⁹ Rivera R, Baker A, Roberts J. A Few Blocks, 4 Years, 52,000 Police Stops. *New York Times*. July 12, 2010, 2010.

²⁰ MacDonald H. To See Its Value, See How Crime Rose Elsewhere. *Room for Debate* 2013; <http://www.nytimes.com/roomfordebate/2012/07/17/does-stop-and-frisk-reduce-crime/to-see-its-value-see-how-crime-rose-elsewhere>. Accessed 2/13/2014, 2014.

²¹ Williams V, Fromer E, Fagbenle T, Stein C. The Effect of Stop and Frisk in the Bronx. *Radio Rookies* 2012; <http://www.wnyc.org/story/232447-radio-rookies-kelly/>. Accessed 2/13/14, 2014.

²² Fratello J, Rengifo AF, Trone J. Coming of Age with Stop and Frisk: Experiences, Self-Perceptions, and Public Safety Implications. Vera Institute of Justice;2013.

II. BACKGROUND

Police contact may threaten the health of individuals stopped in several ways. In New York City, approximately half of recorded stops involve the physical contact of a frisk, and approximately 20% are described by officers as involving the “use of force”¹¹. The physically invasive, often rough manner in which officers approach citizens raises the risk of injury. Qualitative research suggests that young men are often thrown to the ground or slammed against walls in these encounters^{15,23}. Individuals stopped by the police may also face emotional trauma from such treatment in the face of unwarranted accusations of wrongdoing. Proactive police stops are based on low levels of suspicion, and rarely result in arrest, summons, or seizure of contraband¹², suggesting that the vast majority of individuals stopped have done nothing wrong²⁴. Contacts of this nature may trigger stigma and stress responses and depressive symptoms²⁵. These stresses can be compounded when police invoke harsh language, such as racial invective or taunts about sexuality¹⁴. Finally, to the extent that individuals stopped believe that they were targeted because of their race, or may be targeted again, they may experience symptoms tied to the stresses of perceived or anticipated racism^{26,27}.

On the other hand, a visible, proactive police presence can improve individual and population health through improved public safety and feelings of security²⁸. While these benefits may accrue predominantly to those not personally stopped, even youth who experience aggressive police contact may receive safety benefits along with any adverse effects²⁹. In addition, literature on procedural justice^{29,30,31} (PJ) suggests that police encounters conducted fairly and respectfully

²³ Levine HG, Small DP. Marijuana Arrest Crusade: Racial Bias and Police Policy in New York City, 1997-2007. April 2008 2008.

²⁴ Herbert B. Watching Certain People. *New York Times* 2010.

²⁵ Link BG, Phelan JC. Conceptualizing Stigma. *Annual Review of Sociology*. 2001;27:363-385.

²⁶ Freeman Anderson K. Diagnosing Discrimination: Stress from Perceived Racism and the Mental and Physical Health Effects. *Sociological Inquiry*. 2013;83(1):55-81.

²⁷ Sawyer PJ, Major B, Casad BJ, Townsend SSM, Berry Mendes W. Discrimination and the Stress Response: Psychological and Physiological Consequences of Anticipating Prejudice in Interethnic Interactions. *American Journal of Public Health*. 2012;102(5):1020-1026.

²⁸ Powell M. For New York Police, There's No End to the Stops. *New York Times* 2012.

²⁹ Fagan J, Tyler TR. Legal Socialization of Children and Adolescents. *Social Justice Research*. 2005;18(3):217-242.

³⁰ Tyler TR. Procedural justice, legitimacy, and the effective rule of law. *Crime and Justice: A review of research*. 2003;30:431-505.

³¹ Tyler TR. Enhancing Police Legitimacy. *The ANNALS of the American Academy of Political and Social Science*. 2004;593(1):84-99.

can enhance police-community relations and promote the wellbeing of those stopped.

Despite the heated debate around police practices^{18,20,21}, little is known about the health implications of involuntary contact with the police. Shedd³² suggests high rates of distress and perceptions of injustice among Chicago youth who are stopped, while Brunson and Weitzer¹⁵ identify feelings of “hopelessness” and being “dehumanized”. These studies paint a rich picture of aggressive policing experienced by many youth, and suggest the potential for health consequences; however, these links have not been tested. Limited data are available to assess the health implications of police encounters, particularly for the urban youth at greatest risk of contact.

III. METHODS

A. *Survey Design*

We fielded a population-based survey of young men in New York City on the extent and nature of their experiences with the police, and the association between these contacts and dimensions of their mental health. We surveyed men aged 18-26, reflecting the demographic concentration of police stops in that age bracket. Participants were selected using a stratified random sample dividing New York City into 146 “neighborhood clusters,” combinations of the city’s 295 neighborhoods³³ that are geographically adjacent and of comparable racial composition and median income. We stratified these clusters into deciles based on the number of stops recorded in 2008 and 2009, and randomly sampled clusters within deciles. 1,261 participants from 37 clusters were recruited using a combination of random digit dialing (RDD) and consumer phone lists (including both landline and cellphone numbers), and surveyed by telephone. When the person answering the phone was a male resident of New York City aged 18-26, he was invited to participate – others answering the phone were asked to refer a 18-26 year-old male in the household. Participants received a \$25 incentive for their involvement. The AAPOR minimum response rate, (i.e., the number of complete interviews divided by the total number of interviews, non-interviews, and cases of unknown eligibility³⁴), was 32%. The AAPOR minimum cooperation rate (i.e., the proportion of eligible respondents completing the survey) was 52%. The survey lasted approximately 25 minutes, and asked participants about their experiences with the NYPD, their perceptions of police conduct during these encounters, and their recent mental health.

³² Shedd C. Arresting Development: Race, Place, and the End of Adolescence. Feminism Legal Theory Workshop; Feb. 20, 2012, 2012; Columbia Law School.

³³ Community Studies of New York I. Guide to Infoshare Online. 2007; file://C:%5CDocuments%20and%20Settings%5CAmanda%20Geller%5CMy%20Documents%5CLibrary%5Cinfoshare%20guide.pdf Accessed February 14, 2007.

³⁴ American Association for Public Opinion Research. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys, 7th Edition. AAPOR;2011.

B. Measurement

Participants were asked about their experiences with the police – whether, and how many times, they had been stopped, where the encounters took place, and police conduct during the encounter – whether officers asked them to show identification, frisked or searched them, used harsh or racially tinged language, or threatened or used physical force. Individuals stopped multiple times were asked to report on their most memorable incident (hereafter their *critical encounter*). We combined these indicators into an additive scale of police intrusion ($\alpha=.68$) in the respondent's critical encounter. Police intrusion and other scale items are provided in Appendix A. Participants also reported their perceptions of PJ – the procedural fairness, interpersonal respect, and ethicality with which the police exercised their authority – in their critical encounter³⁵ and globally³⁶, with higher values indicating more just procedures ($\alpha=.94$ and $\alpha=.83$, respectively).

Respondents reported on two domains of mental health. Those stopped by the police completed an Impact of Event Scale–Revised (IES-R), which assessed symptoms of trauma related to recent stressful events³⁷. The IES-R contains three subscales (intrusion, avoidance, and hyperarousal), summed to measure Post-Traumatic Stress Disorder (PTSD, $\alpha=.78$). In addition, all participants, with and without police experience, reported their anxiety levels using the Brief Symptom Inventory (BSI)³⁸ anxiety subscale ($\alpha=.84$), with high scores indicating more distress.

Finally, because mental health outcomes are multiply determined, and many factors predicting health are also correlated with police contact, our analyses controlled for several demographic and socioeconomic covariates, including self-reported race, educational attainment, residence in public housing, and criminal activity, based on a 5-item variety score^{39,40} ($\alpha=.61$).

³⁵ Tyler TR, Fagan J. Legitimacy and Cooperation: Why Do People Help the Police Fight Crime in Their Communities? *Ohio State Journal of Criminal Law*. 2008;6(1):173-229.

³⁶ Sunshine J, Tyler TR. The Role of Procedural Justice and Legitimacy in Shaping Public Support for Policing. *Law and Society Review*. 2003;37(3):513-547.

³⁷ Weiss DS. The Impact of Event Scale-Revised. In: Wilson JP, Keane TM, eds. *Assessing Psychological Trauma and PTSD: A Practitioner's Handbook*. 2nd Edition ed. New York, NY: Guilford Press; 2004.

³⁸ Derogatis L, Melisaratos N. The Brief Symptom Inventory: An Introductory Report. *Psychological Medicine*. 1983;13:595-615.

³⁹ Knight GP, Little M, Losoya SH, Mulvey EP. The Self-Report of Offending among Serious Juvenile Offenders: Cross-Gender, Cross-Ethnic/Race Measurement Equivalence. *Youth Violence and Juvenile Justice*. 2004;2(3):273-295.

⁴⁰ Thornberry TP, Krohn MD. The Self-Report Method for Measuring Delinquency and Crime. In: Duffee D, Crutchfield RD, Mastrofski S, Mazerolle L, McDowall D, Ostrom B, eds. *CJ 2000: Innovations in Measurement and Analysis*. Vol 4. Washington, DC: National Institute of Justice; 2000:33-83.

C. Analytical Approach

We first estimated the probability that participants experienced the “treatment” of contact with the police in the year leading up to their interview, based on their race, age, education, criminal participation, public housing residence, and neighborhood cluster. In subsequent models we followed Bang and Robins⁴¹ by predicting mental health controlling for the inverse probability of treatment as a proxy for selection into police contact.

All mental health models were estimated using Ordinary Least Squares regressions with robust standard errors and fixed effects for neighborhood cluster. Standard errors were estimated to reflect the multiple imputation described below. We next examined the associations between self-reported police contact and mental health. In Model 1, we estimated the extent to which mental health (anxiety or PTSD) was predicted by the number of times respondents were stopped by the police, controlling again for covariates (race, education, residence in public housing, and criminal activity) and neighborhood fixed effects, as well as the selection parameter.

In Model 2, we assessed the implications of both the volume of contact participants experienced, and how they were treated in their critical encounter. This model replicated the first, estimating an effect of intrusive treatment in reported critical stops. In the anxiety model, which included respondents not stopped in the previous year, those not stopped were identified by a dummy variable and had an “intrusion” index of zero, as well as their estimated selection parameter.

Finally, we assessed the role of the PJ context in predicting mental health – particularly, whether perceived PJ moderated the associations between stop conduct and mental health. Model 3 replicated Model 2, adding controls for perceived PJ, in the respondents’ critical encounter, and globally. Model 3 also included interactions between both measures of PJ and the indicator of invasive treatment.

We hypothesized that both health outcomes were linked to stop experience, but that these links were largely tied to how respondents were treated in the course of stops. We expected people reporting more intrusive critical stops would experience more mental health symptoms; however, we expected fewer symptoms among those who perceived more PJ in police activity. Moreover, we hypothesized that perceived PJ would attenuate any adverse associations between health and invasive stop activity.

⁴¹ Bang H, Robins JM. Doubly Robust Estimation in Missing Data and Causal Inference Models. *Biometrics*. 2005;61(1):962-972.

D. Analysis Samples

Each model was estimated for all respondents reporting the outcome of interest. Missing data on predictor variables were imputed using the *mi* procedure in Stata⁴². Results are reported based on imputed data, with sensitivity to complete case analysis discussed below. Results are reported based on an unweighted sample, with subsequent discussion of sensitivity to a weighting strategy that reflects the oversample of high-stop neighborhoods, and the mix of RDD and list-based sampling.

IV. RESULTS

A. Sample Description

Table 1 shows that consistent with the neighborhood sampling strategy, respondents were predominantly racial and ethnic minorities (80% nonwhite), young (average age = 22), more likely to have completed high school than 18-26 year olds citywide (87.71%, vs. 82.86% of 18-26 year olds in New York City³³), but less likely to have completed college (19.19% vs. 24.57%³³). Nearly 13% reported living in public housing. The measure of respondents' self-reported criminal activity was highly skewed, with 78% of respondents reporting no criminal activity, and a small number of respondents (~3%) reporting three or more types of illegal activities.

Respondents reported high rates of police contact; 85% reported at least one police stop, and 46% reported being stopped at least once in the year they were surveyed. Like the distribution of criminal involvement, the distribution of police contact was highly skewed. Although 80% of respondents reported being stopped 10 times or fewer, more than 5% of respondents reported being stopped more than 25 times, and the top 1% of respondents reported more than 100 stops.

B. Probability of Police Contact

Individuals reporting more extensive criminal histories faced a greater probability of having been stopped ($p < .001$); differences in stop probability by race, educational attainment, and public housing residence were not statistically significant at traditional levels. The lack of observed race differences in Model 1 was notable, given the extreme racial differences in observed in citywide stop patterns, but largely explained by the control for neighborhood cluster, an association that has also been observed citywide¹¹.

⁴² University of Wisconsin Social Science Computing Cooperative. Multiple Imputation in Stata. 2012; http://www.ssc.wisc.edu/sscc/pubs/stata_mi_intro.htm. Accessed January 24, 2014, 2014.

Table 1: Summary Statistics of Analysis Sample (observed cases only)

	Mean or %	[SD]
<i>Health Outcomes</i>		
Anxiety (BSI subscale, asked of all)	8.53	[6.89]
Trauma (IES-R, asked if stopped in the past year)	3.49	[2.58]
<i>Sample Demographic, Socioeconomic, and Behavioral Characteristics</i>		
<i>Race/Ethnicity</i>		
White	20%	
Black	30%	
Hispanic	35%	
Other/Unknown Race	15%	
Respondent Age	22.03	[2.5]
<i>Education</i>		
Not completing High School	12%	
High School Graduates (only)	31%	
Some college/tech training	37%	
College graduate (or more)	19%	
Public Housing Residents	13%	
Self-Reported Criminal Activity	0.32	[0.75]
<i>Experience with the Police</i>		
Ever Stopped	85%	
Number of Stops (lifetime)	8.64	[17.86]
Stopped Past Year	46%	
Perceived PJ (global)	17.84	[6.23]
<i>Critical Stop Experience (asked if stopped in the past year)</i>		
Perceived PJ (Critical Encounter)	28.57	[13.40]
Intrusion Scale	3.43	[2.38]

Note: Percents may not total 100% due to rounding.

C. Health Outcomes

Tables 2 and 3 and Figure 1 show the associations between reported police contact and mental health. Model 1 shows that young men reporting more police contact also reported higher anxiety scores, controlling for their demographic characteristics and criminal involvement. Other observed factors were also significant predictors: respondents reporting higher levels of criminal involvement reported more anxiety, while black and Hispanic respondents reported significantly less anxiety than did white respondents. Differences by race and criminal involvement were robust across models.

Model 2 shows that anxiety symptoms were significantly related to the number of times the young men were stopped, but also to how they perceived the

Table 2: Estimated Predictors of Anxiety Symptoms (BSI subscale)
OLS Regression Coefficients and Standard Errors

	Model 1	Model 2	Model 3
Total Lifetime Stops	0.05** [0.02]	0.04* [0.01]	0.02 [0.01]
Any Past-Year Stops (Y/N)		-0.96 [0.59]	0.15 [1.44]
Stop Intrusion		0.43*** [0.14]	0.55 [0.28]
PJ (Global)			-0.12* [0.05]
PJ (Critical stop)			-0.01 [0.04]
PJ Global x Intrusion			-0.01 [0.02]
PJ Critical x Intrusion			-0.01 [0.01]
Selection Parameter (IPT)	-0.41 [0.78]	-0.34 [0.77]	-0.16 [0.77]
Black	-2.05** [0.76]	-2.11** [0.76]	-2.36** [0.75]
Hispanic	-1.81** [0.64]	-1.84** [0.64]	-1.80** [0.62]
Other/Unknown Race	-0.55 [0.79]	-0.64 [0.79]	-0.76 [0.77]
<HS Education	0.88 [0.77]	0.77 [0.76]	0.65 [0.74]
Some College/Tech School	0.16 [0.48]	0.18 [0.64]	0.08 [0.48]
College Graduate	-0.89 [0.58]	-0.78 [0.76]	-0.91 [0.58]
Self-Reported Criminal Activity	1.58*** [0.47]	1.44** [0.46]	1.37** [0.45]
Public Housing	0.80 [0.77]	0.58 [0.76]	0.48 [0.76]
Neighborhood FE included?	Yes	Yes	Yes
Number of observations (per imputation)	1229	1229	1229

Note. Analyses based on multiply imputed data (m=50 imputations)

*P<=.05 **P<=.01 ***P<=.001

critical encounter had been conducted. In Model 2, respondents reporting more police intrusion reported higher anxiety scores. Model 3 also suggested greater anxiety among respondents reporting more police intrusion, a relationship whose magnitude increases when considering PJ, but marginally loses statistical significance ($P=.053$). In Model 3, significantly less anxiety was reported by respondents perceiving greater “global PJ;” however, PJ in respondents’ critical encounters was not significantly related to anxiety. Any PJ attenuation of the relationship between stop intrusion and anxiety was small in magnitude and statistically insignificant (as indicated by the two negative interaction terms). Panel A of Figure 1 presents predicted levels of anxiety as a function of stop intrusion (adjusted for the covariates and interactions of Model 3), and suggests an association that grows stronger among respondents reporting more intrusive critical encounters.

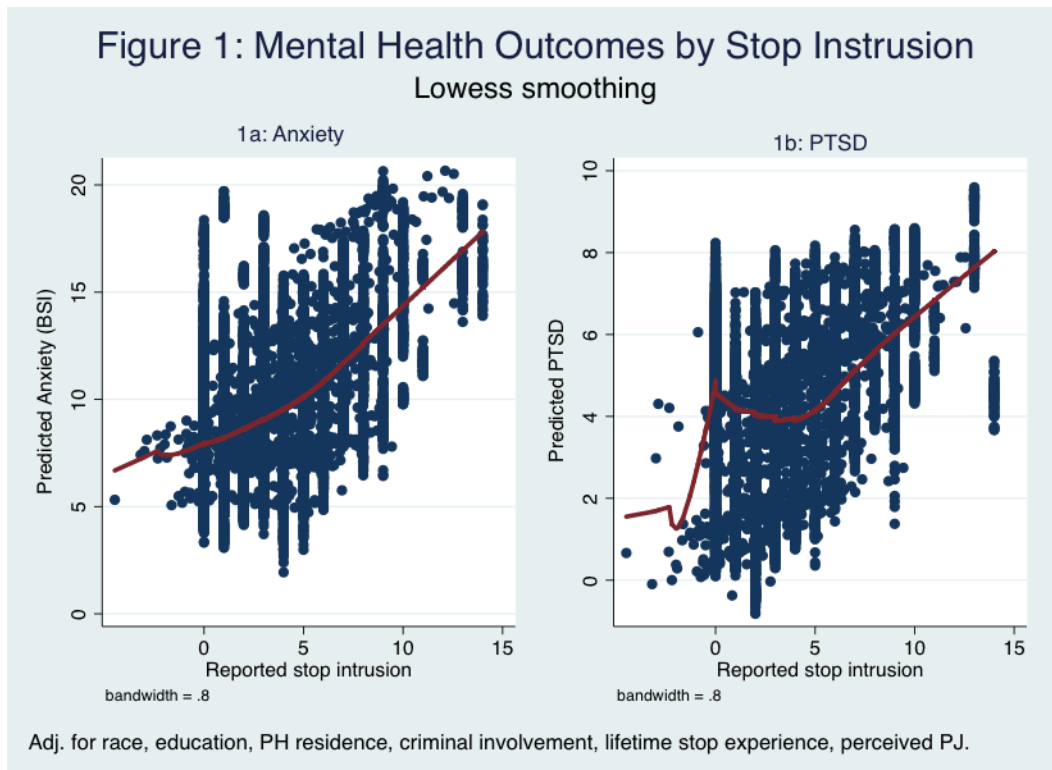
Table 3 presents estimates from models predicting PTSD (i.e., the IES-R) associated with respondents’ critical encounters with the police. Model 1 indicated more trauma symptoms among respondents reporting more lifetime stops. In this model, trauma levels were also significantly higher among public housing residents. The significance of these relationships was robust to a control for stop intrusion, presented in Model 2, though their magnitudes were attenuated. In Model 2, stop intrusion was a significant predictor of PTSD, with more invasive stops predictive of higher levels of trauma. Model 3, which also considered the role of PJ, suggests that the stop intrusion remained a statistically significant predictor of PTSD, but lost more than one-third of its magnitude. Perceived PJ in respondents’ critical encounters (though not global PJ), was inversely related to trauma – young men who reported fair treatment in these encounters reported fewer PTSD symptoms. As with the anxiety models, the extent to which PJ moderated the association between stop intrusion and related trauma was relatively small. Although statistically significant, the interaction effects of global and critical stop PJ were in offsetting directions. As shown in Panel B of Figure 1, the association between stop intrusion and predicted PTSD is particularly strong at high levels of intrusion (greater than 5 out of 14).

Table 3: Estimated Predictors of PTSD Symptoms (IES-R)
OLS Regression Coefficients and Standard Errors

	Model 1	Model 2	Model 3
Total Lifetime Stops	0.03*** [0.01]	0.02*** [0.01]	0.01* [0.01]
Stop Intrusion		0.33*** [0.05]	0.21** [0.10]
PJ (Global)			0.03 [0.04]
PJ (Critical stop)			-0.09*** [0.02]
PJ Global x Intrusion			-0.02* [0.01]
PJ Critical x Intrusion			0.01* [0.01]
Selection Parameter (IPT)	-0.27 [0.39]	0.06 [0.36]	0.34 [0.35]
Black	0.61 [0.38]	0.51 [0.36]	0.21 [0.32]
Hispanic	-0.08 [0.32]	-0.15 [0.31]	-0.12 [0.29]
Other/Unknown Race	0.31 [0.43]	-0.01 [0.41]	-0.26 [0.40]
<HS Education	0.35 [0.42]	0.06 [0.41]	-0.08 [0.38]
Some College/Tech School	0.04 [0.26]	0.06 [0.25]	-0.06 [0.23]
College Graduate	0.17 [0.31]	0.32 [0.29]	0.14 [0.27]
Self-Reported Criminal Activity	0.37 [0.21]	0.36 [0.19]	0.38* [0.18]
Public Housing	0.91* [0.38]	0.73* [0.36]	0.69* [0.32]
Neighborhood FE included?	Yes	Yes	Yes
Number of observations (per imputation)	547	547	547

Note. Analyses based on multiply imputed data (m=50 imputations). PTSD only measured for respondents stopped once or more in the year leading up to survey.

*P<=.05 **P<=.01 ***P<=.001



V. DISCUSSION

A. *Summary of Findings and Robustness Checks*

Although proactive policing practices target high-crime, disadvantaged neighborhoods, affecting individuals already facing severe socio-economic disadvantage, our findings suggest that young men stopped by the police face a parallel but hidden disadvantage – compromised mental health. We found that young men reporting police contact, particularly more intrusive contact, also display higher levels of anxiety and trauma associated with their experiences. While respondents perceiving greater PJ from the police report fewer symptoms, stop intrusion remains tied to mental health (marginally in the case of anxiety, and significantly in the case of PTSD).

Observed health implications are strongest in the most intrusive encounters – this can be seen most clearly in Figure 1b, where predicted PTSD symptoms rise sharply at intrusion levels of 5 or more. Notably, the skewed distribution of stop intrusion suggests that this association is driven by the 25% of respondents recently stopped who report intrusion in this range. While this represents a minority of our sample (10% overall), the group is non-negligible; that so many respondents reported police intrusion levels predictive of PTSD symptoms is troubling.

The associations between reported stop experience and mental health were robust to missing data analysis strategy, with findings substantively similar in

both the multiply imputed and complete case samples. However, in the complete case sample, the relationship between respondent perceptions of global PJ and anxiety, statistically significant in the imputed models, was stronger in magnitude but lost statistical significance. In addition, in the PTSD model considering stop conduct in the context of PJ, the number of total stops respondents reported experiencing was statistically insignificant in the complete case estimate (though similar in magnitude to the imputed estimate).

We note sensitivity to sample weighting through several small differences in our weighted and unweighted model results. The association between anxiety and stop intrusion in Model 2 was only marginally significant in the weighted sample (though the magnitude remained comparable). In both samples, the association increased in magnitude but lost further significance in Model 3, considering the context of PJ. In both samples, respondents perceiving greater global PJ (but not critical stop PJ) reported reduced anxiety symptoms; PJ was also associated with a slight but insignificant reduction of the link between anxiety and intrusion.

Examining PTSD in the weighted sample, findings also diverged slightly – in Models 1 and 2 the selection parameter was much larger in magnitude and at least marginally significant, suggesting that respondents at greatest risk of being stopped at least once were also at the greatest risk of PTSD from these stops. Finally, race coefficients were larger and statistically significant in the weighted sample, suggesting higher PTSD prevalence among black respondents.

It is notable, however, that despite these differences, the substantive associations between respondents' experiences with the police and their mental health were strong and largely robust across samples and models – particularly among respondents reporting stops carried out in an intrusive fashion. This raises concerns that the aggressive nature of proactive policing may have implications not only for police-community relations, but also for local public health. In fact, the significant associations between both health outcomes and respondent perceptions of PJ suggest that police-community relations and local public health are inextricably linked.

B. Limitations

Our analysis, particularly our collection of population-based data, represents significant progress toward understanding the implications of policing for population health. However, our findings must be interpreted with caution. First, our conclusions are limited by the cross-sectional nature of our data, and we make no causal claims. In fact, causal direction is uncertain. For example, it is possible that men's mental health influenced their perceptions of their interactions, and that those facing the greatest anxiety and stress tended to exaggerate their experiences. Likewise, respondents displaying mental health symptoms might have attracted greater reasonable suspicion, or responded to police questioning in ways that escalated their situations. The statistically significant relationships between anxiety, criminal involvement, and stop experience further underscore the complexity of relationships linking police

activity and its correlates. However, the strong associations between police conduct and population health raise serious concerns about potential unintended consequences of police activity, suggesting a need for longitudinal research disentangling the causal nature of these associations.

Our conclusions are also circumscribed by somewhat low reliability of two key measures (police intrusion and criminal activity, $\alpha=.68$ and $.61$, respectively), and challenges in sampling young urban men, generally understood to be a hard-to-reach population. Although our population-based sampling procedures are innovative, our cooperation rate of 52% suggests that many young men eligible for our survey declined to participate. While this is to be expected given the sensitive nature of police contact, our respondents reported significantly more contact with the police than expected in a random sample of young men in New York City. Higher-than-average contact rates were observed across races, and with and without weighting to reflect the oversample of high stop neighborhoods. It is likely that young men without police experience had less interest in the study and were less likely to participate, and our participants' stop experiences therefore cannot be assumed to generalize citywide. Nonetheless, the links between police intrusion and mental health, observed in a population-based sample reporting high rates of contact, raise public health concerns for the individuals and communities most aggressively targeted by the police.

C. Implications

The contentious policy debate around Stop and Frisk in New York City has largely focused on whether aggressive police scrutiny is a justifiable approach to crime detection and deterrence^{20,21} – or if racial disparities in policing are justified by disparities in offending^{16, 43}. Another debate focuses on the constitutionality of Stop and Frisk tactics with respect to racial discrimination^{11,17} and suspicionless stops and searches¹¹. Notwithstanding the dearth of evidence to justify a crime-control claim, and the constitutional concerns these arguments raise, our findings suggest that any benefits achieved by aggressive proactive policing tactics may be offset by serious costs to individual and community health. Although more work is needed to fully understand these associations, our findings are consistent with a growing literature identifying criminal justice practices as a threat to physical and mental health. Moreover, our findings suggest that these risks are not limited to individuals formally processed through an arrest or incarceration. Rather, the low levels of contact that many urban residents face on a regular basis – without formal sanctions – risks serious adverse consequences.

⁴³ Fermino J., Mayor Bloomberg on stop-and-frisk: It can be argued 'We disproportionately stop whites too much. And minorities too little' *New York Daily News*. 6/28/13, 2013.

Appendix A: Scale Items*Police Intrusion ($\alpha=.68$)*

- 1) Did the officer ask your name?
- 2) Did the officer ask for identification?
- 3) Did the officer ask you to explain what you were doing?
- 4) Did the officer frisk you/pat you down?
- 5) Did the officer search your bags or clothing?
- 6) Did the officer give you a Desk Appearance Ticket, written warning, or summons?
- 7) Did the officer use harsh or insulting language?
- 8) Did the officer threaten physical force?
- 9) Did the officer use physical force?
- 10) Did the officer handcuff you?
- 11) Did the officer take out a weapon?
- 12) Did the officer threaten to use a weapon?
- 13) Did the officer take you to the police station?
- 14) Did the officer arrest you?

*Procedural Justice - Critical Stop ($\alpha=.94$)**How strongly do you agree or disagree that... (4-point items)*

- 1) The police had a legitimate reason to stop you
- 2) You received the same treatment as people in other neighborhoods?
- 3) You received a fair outcome?
- 4) You received the outcome you deserved according to the law?
- 5) The police used fair procedures when making decisions about what to do?
- 6) The police treated you fairly?
- 7) The way the police acted was influenced by what you said or did?
- 8) The way the police acted was influenced by your race or ethnicity?
(reverse coded)
- 9) The police let you tell your side of the story?
- 10) The police explained why they stopped you in a way that was clear to you?
- 11) The police got the facts they needed to make a good decision?
- 12) The police made their decisions in a neutral and unbiased way?
- 13) The police gave consideration to your views when deciding what to do?
- 14) The police tried to do what was right?
- 15) The police treated you with dignity and courtesy?
- 16) The police respected your rights?

*Procedural Justice - Critical Stop ($\alpha=.83$)**How often do the police... (4-point items)*

- 1) Stop people on the street to ask them questions? (reverse coded)
- 2) Stop people in cars to ask them questions? (reverse coded)
- 3) Physically search people (reverse coded)
- 4) Use harsh or insulting language? (reverse coded)
- 5) Threaten physical force (reverse coded)
- 6) Take out weapons such as a gun, club, or taser? (reverse coded)
- 7) Treat people disrespectfully? (reverse coded)
- 8) Bully or intimidate people? (reverse coded)
- 9) Follow the law in deciding who to stop?
- 10) Stop people without a good reason? (reverse coded)
- 11) Use fair procedures when making decisions?
- 12) Treat people fairly?
- 13) Treat people with courtesy and respect?
- 14) Consider race when deciding who to stop and question on the street? (reverse coded)

*Anxiety ($\alpha=.84$)**In the past 7 days, how often have you... (5-point items)*

- 1) Been jumpy and easily upset?
- 2) Had trouble concentrating?
- 3) Felt watchful and on guard?
- 4) Been bothered by nervousness?
- 5) Been suddenly scared for no reason?
- 6) Felt tense and wound up?
- 7) Had episodes of panic or terror?
- 8) Felt so restless that you could not sleep?

*PTSD ($\alpha=.78$)**Thinking back to the stop that stands out most in your mind, do you agree or disagree with the following (Agreement/Disagreement reported as a binary indicator):*

- 1) Remembering this experience brings back your feelings about the time you were stopped.
- 2) Other events in your life lead you to think about the time you were stopped.
- 3) You think about the time you were stopped even when you do not mean to.
- 4) Pictures of the time you were stopped sometimes pop into your mind.
- 5) You try not to remember and think about the time you were stopped.
- 6) Your feelings about the time you were stopped are kind of numb.
- 7) You have tried to remove the time you were stopped from your memory.
- 8) You try not to talk about the time you were stopped.

- 9) Reminders about the time you were stopped cause you to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.

Criminal Activity ($\alpha=.61$)

In the past twelve months, how often have you (INSERT ITEM): frequently, sometimes, seldom, almost never, or never? (Responses coded to 0 if “never”, 1 otherwise, and summed)

- 1) Injured someone in a fight?
- 2) Taken money or goods from someone by force or threat of force?
- 3) Carried a weapon such as a gun or knife?
- 4) Stolen something worth over \$50?
- 5) Sold marijuana or other drugs?