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The Influence of Neighborhood Characteristics on Police Officers' Encounters with Persons Suspected to Have a Serious Mental Illness

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Abstract

Objective—Police officers' decisions and behaviors are impacted by the neighborhood context in which police encounters occur. For example, officers may use greater force and be more likely to make arrests in disadvantaged neighborhoods. We examined whether neighborhood characteristics influence police encounters with individuals suspected to have a serious mental illness, addictive disorder, or developmental disability.

Method—We obtained data on 916 encounters from 166 officers in six jurisdictions in Georgia, USA and abstracted geographical data pertaining to the location of these encounters from United States Decennial Census data. Encounters were nested within 163 census tracts. Officer-reported data covered general encounter characteristics, the officer's perception of the subject's condition, subject demographics, use of force, and disposition of the encounter (e.g., arrest *v.* referral or transport to treatment services). Geographical data included 17 variables representing population and housing characteristics of the census tracts, from which three indices pertaining to neighborhood income, stability, and immigration status were derived using factor-analytic techniques. We then examined associations of these indices with various encounter-related variables using multi-level analysis.

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Results—Encounters taking place in higher-income and higher-stability census tracts were more likely to be dispatch-initiated and take place in a private home compared to those in lower-income and lower-stability neighborhoods. In higher-income neighborhoods, encounters were more likely to involve a subject suspected to have a mental illness (as opposed to an addictive disorder or developmental disability) and less likely to involve a subject suspected to have alcohol problems. The officer's level of force used was not associated with neighborhood factors. Regarding disposition, although the likelihood of arrest was unrelated to neighborhood characteristics, encounters taking place in higher-immigrant neighborhoods were more likely to result in referral or transport to services than those in lower-immigrant neighborhoods.

Conclusion—Neighborhood characteristics are important to consider in research on police interactions with individuals with serious mental illnesses, addictive disorders, or developmental disabilities. Such research could inform departmental training policies and procedures based on the needs of the jurisdictions served.

Keywords

census tract; law enforcement; mental illness; neighborhood disadvantage; police encounters

1. Introduction

The over-representation of persons with serious mental illnesses in the criminal justice system in recent decades is a prominent concern in mental health, advocacy, and criminal justice communities. Incarceration of persons with mental illnesses complicates their long-term psychosocial functioning and contributes to overcrowding and resource burdens in detention settings. Overall, serious mental illnesses affect about 5% of the United States (US) adult population (US Department of Health and Human Services, 2008), whereas roughly 16% of inmates in US federal and state prisons, and city and county jails, are thought to be struggling with a serious mental illness (US Department of Justice, 1999). A majority of these inmates are charged with misdemeanors or minor felonies, sometimes due to police officers' or others' misunderstanding of symptomatic behaviors linked to untreated psychotic, mood, or substance use disorders (Lamb, Weinberger, and DeCuir, 2002).

This overrepresentation of persons with mental illnesses has been termed the "criminalization" of mental illnesses. It is thought to partly result from deinstitutionalization, more rigid criteria for civil commitment, stricter drug and zero-tolerance nuisance enforcement, lack of adequate community support for persons with mental illnesses, and offenders with mental illnesses having difficulty gaining access to community treatment, in addition to the attitudes of police officers and society (Lamb et al., 2002). Because police officers are most often the first responders to crises or incidents involving individuals with serious mental illnesses, they have been labeled as "gatekeepers" to the mental health system and even "street-corner psychiatrists" (Teplin and Pruitt, 1992; Borum, 1998). Responding to situations involving someone with a serious mental illness necessitates a great deal of discretionary decision-making, leaving officers to make choices about whether one will enter the mental health or criminal justice system. Yet, police are often unequipped, lacking the knowledge and specialized skills required to effectively manage a situation with a person suspected of having a serious mental illness. These realizations have triggered an initiative to

implement jail diversion programs in various layers of the criminal justice system nationwide (Dupont and Cochran, 2000).

One of the most frequently used pre-booking jail diversion models (facilitating entry into mental health services in lieu of arrest and incarceration when appropriate) is the Crisis Intervention Team (CIT) program, based on the original Memphis model (Dupont and Cochran, 2000). The CIT model is a widely implemented, nationally recognized pre-booking jail diversion program formed through collaboration between the law enforcement, mental health, and advocacy communities. Goals of CIT are to increase knowledge about mental illnesses, reduce stigma, improve safety of both officers and the individuals with whom they interact, and ultimately effect pre-booking jail diversion while facilitating access to mental health services (Dupont and Cochran, 2000; Oliva, Haynes, Covington, Lushbaugh, and Compton, 2006). One facet of CIT is a week-long training program for self-selected patrol officers. Like the CIT curriculum in other cities, counties, and states, Georgia's 40-hour curriculum consists of didactic lectures presented by mental health professionals, site visits to area psychiatric facilities, and de-escalation role-playing (Oliva and Compton, 2008). Research on CIT has shown the model's effectiveness for increasing trained officers' knowledge and confidence in responding to individuals with mental illnesses, reducing stigma, and positively altering preferred use of force (Compton, Broussard, Munetz, Oliva, and Watson, 2011).

In addition to the role of training in improving outcomes of police interactions with persons with mental illnesses, it is important to consider other situational and contextual variables that might influence officers' behaviors. Police officers' orientations towards subjects and their responses to crime and deviance may differ by the characteristics of the neighborhoods in which they work (Klinger, 1997; Smith, 1987). (Of note, for brevity and readability, and to be consistent with common policing terminology, we use the term "subject" to denote the individual with whom the officer interacts.) There is a sparse body of research showing that police officers' decisions and behaviors are impacted by individual characteristics, situational variables such as subjects' characteristics, the nature of the encounter, organizational variables like the police department's culture and characteristics, and community-level variables such as features of the neighborhood in which the encounter takes place (Riksheim, 1993).

Smith (1986) examined how coercion, arrest, or reporting of subjects, for example, are influenced by the neighborhood in which police-subject encounters occur. Results revealed that more assistance (operationalized as police-initiated contacts with persons in need of assistance, or about whom police may be concerned), is offered in racially heterogeneous neighborhoods, as well as those with more single-parent households (Smith, 1986). These findings, which highlight the importance of variables pertaining to neighborhood disadvantage, may be due to the fact that police officers initiate more contacts, and are generally more active in disadvantaged neighborhoods. Additionally, police officers are three times more likely to arrest subjects in lower-status neighborhoods as compared to higher-status neighborhoods (Smith 1986). Police officers are also more likely to use increasing levels of force in high-crime and disadvantaged neighborhoods, where higher

levels of police force are used in interactions with minority subjects because they are disproportionately encountered in these neighborhoods (Terrill and Reisig, 2003).

Some neighborhood-context studies include variables related to the mental state of subjects (Terrill and Reisig, 2003), and their influence on police encounters. In disorganized neighborhoods, residents tend to have fewer ties to formal and informal social networks (Bursik & Grasmick, 1993; Sampson & Groves, 1989) to facilitate early intervention for individuals exhibiting overt symptoms of mental illness. As a result of delayed intervention, situations involving these individuals may escalate to a crisis requiring police response. Thus, officers working in disorganized neighborhoods may have more contacts with persons experiencing a mental health-related crisis due to lack of earlier intervention and insufficient treatment services. Currently, there is an obvious lack of neighborhood-related research on police encounters specifically with persons with mental illnesses, addictive disorders, or developmental disabilities. Of concern are the effects that neighborhood characteristics might exert on such encounters and officers' decisions related to disposition in this marginalized population.

The neighborhood in which one resides is a commonly used indicator of socioeconomic status, and neighborhood characteristics have been widely studied by varied approaches and sources of data. In the US, the decennial census data is considered to be a valid representation of the population distribution and the related social, economic, and demographic makeup of predetermined geographical units within US states. The US Decennial Census datasets for the year 2000 present extensive data on numerous population and housing variables for 115.9 million housing units and 281.4 million people across the country (US Census Bureau, 2000). Due to a lack of specific measures of neighborhood deprivation in the US, methods such as principal components analysis using socioeconomic variables of interest have been used to derive "indices of deprivation" for geographically defined areas such as census tracts (Singh, 2003; Eibner and Sturm, 2006). Census tracts are small statistical subdivisions of counties within a state, averaging about 4,000 persons per tract. They generally have stable boundaries, and are considered to have relatively homogeneous demographic characteristics (US Census Bureau, 2000). For example, the state of Georgia in the US (population of 9,815,210) has 159 counties. Fulton County (population of 949,599), an example of an urban county within the Atlanta metropolitan area, contains 247 census tracts within 526.64 square miles. Appling County (population of 18,420) is an example of a rural county in southern Georgia that contains 5 census tracts within its 507.08 square miles (US Census Bureau, 2000).

Census tract data have been used to derive a single composite census-based socioeconomic index or "areal index," to study mortality rate differentials based on area deprivation (Singh, 2003). Others measure deprivation using individual factor scores derived from census data, examining the relationship of each score with outcomes of interest (Eibner and Sturm, 2006). Using the factor score approach, Eibner and Sturm (2006) found that different components of deprivation have varying effects on physical and mental health outcomes. Some studies use standardized census variable data (z-scores) in factor analysis to derive linear indices of deprivation (McManus, Robert, Albanese, Sadek-Badawi and Palta, 2011), whereas others create scales (e.g., the Psychosocial Hazard Scale) from census-derived data

designed to assess social disorganization, physical disorder, public safety, and economic deprivation (Lee, Glass, James, Bandeen-Roche and Schwartz, 2011).

In this study, we addressed the lack of research on neighborhood characteristics and police encounters with persons with mental illnesses, addictive disorders, or developmental disabilities. We replicated the aforementioned factor score analysis methods using data on geographical location of actual police encounters with individuals suspected by the officer to have one or more of these behavioral health disorders. The objective was to examine area-specific socioeconomic data derived from the US census, and to determine whether corresponding neighborhood characteristics influence police officers' encounters with these individuals.

2. Material and methods

This study was conducted in collaboration with six police departments located in metropolitan areas in the state of Georgia, in the US. The overarching parent study assessed the effects of Crisis Intervention Team (CIT) training on police officers' attitudes, behaviors, and referral decisions (Compton et al., 2014a). For the overall study, both CIT-trained and non-CIT-trained officers were administered a cross-sectional survey in order to examine group differences. All officers participating in the parent study ($n=586$) were invited to take part in a second study, in which they would provide a brief record of encounters with individuals who they suspected to have a serious mental illness, addictive disorder, or developmental disability on a paper form (which we refer to as the "encounter form," shown in APPENDIX A), during a period of six weeks. These encounter forms were retrieved from the police officers after the six weeks, and officers were provided monetary compensation for their efforts if allowed based on their departmental policies. The study protocols and all study materials were approved by Emory University's Institutional Review Board, and all participants provided written informed consent prior to study participation.

The encounter form, which was designed to be easy to complete, was given to officers in a spiral-bound notebook to document details of circumstances, events, and outcomes of each encounter. Each notebook consisted of 30 individual double-sided forms that captured detailed information on the encounter from source of initiation to outcome/disposition. The officers were instructed to complete each form immediately after each relevant encounter to ensure recall accuracy. The encounter form included a space for the officer to write down the address of the encounter.

Starting with the source of initiation of the call (e.g., whether self-initiated or dispatch initiated), the form goes on to include documentation of the time and location of the incident, as well as time spent on the scene and in transport. Demographic information about the subject, as well as the officer's assessment of his or her mental state and reported symptoms and behaviors, were recorded. In addition, characteristics of the encounter were captured with items such as level of resistance displayed by the subject and the ensuing use of force employed by the officer. The form also gave officers an opportunity to identify any de-escalation techniques or equipment used to handle the situation, as well as the resulting

disposition (i.e., resolution at the scene, referral to services, transport to a treatment facility, or arrest), as shown in APPENDIX A.

The address for each encounter was validated by verifying the location recorded by the police officers in Google Maps (www.maps.google.com). The BatchGeo mapping tool (www.batchgeo.com) was used to geocode encounter addresses, and create area maps using Google Maps (Figures 1 and 2). For each valid address, a corresponding census tract number and county was obtained from the US Census website: <http://factfinder2.census.gov>. The two data sources used from the 2000 US Census were: (a) Summary File 1 (SF1) (or short form), administered to all citizens, which presents data for variables such as household relationship, sex, race, ethnicity, tenure (whether the home is owned or rented), age, and vacancy characteristics; and (b) Summary File 3 (SF3): Sample Characteristics (or long form), which is administered to 1 in 6 residents, and presents more detailed population and housing characteristic data for the census tract (U.S Census Bureau, 2000). Data for the variables of interest were derived from the SF1 and SF3 for each census tract associated with the police encounters.

3. Objectives

The primary goals of this study were to: (a) identify a methodology guided by past literature to obtain valid measures of neighborhood disadvantage from census tract variables, and (b) determine the relationship between indicators of neighborhood disadvantage and encounter-level and subject-level variables with regard to police encounters with persons suspected to have a mental illness, addictive disorder, or developmental disability. Given the largely exploratory nature of this study, we examined potential associations between indicators of neighborhood disadvantage and a number of encounter- and subject-level variables. Yet, we also had three specific research questions. Specifically, guided by findings from previous literature, which is mostly related to encounter characteristics such as disposition and use of force, the following research questions were posed:

Disposition-related research questions: (1) Do police officers offer less assistance (operationalized as a lower likelihood of referral to services or transport to a treatment facility) in more disadvantaged neighborhoods? (2) Is the likelihood of arrest higher in more disadvantaged neighborhoods?

Use of force-related research question: (3) Do police officers tend to use a greater level of force in more disadvantaged neighborhoods?

3.1 Variables used

3.1.1 Census variables—Guided by previous studies, 17 socioeconomic indicator variables representing population and housing characteristics were selected from the US census datasets.

3.1.2 Encounter-level variables—From the encounter form, 10 variables related to encounter characteristic were used: dispatch-initiated origin of the call, occurring during business hours, encounter taking place in a private home, subject self-report of a mental health or substance abuse diagnosis, subject self-report of current psychiatric medications,

risks identified by the officer, level of force used by the officer, disposition of resolution at the scene, disposition of referral or transport to treatment services, and disposition of arrest.

3.1.3 Subject-level variables—From the encounter form, eight subject-level variables were used: suspected mental illness, suspected alcohol problem, suspected drug problem, suspected developmental disability, subject gender, subject age, subject race, and level of resistance.

3.2 Data analysis

SPSS (Version 18) was used to examine distributional properties of variables, create recoded and transformed variables from raw data, and conduct descriptive analyses. Given that encounters were nested within officers, MPlus (Version 6.1)—a statistical software package that can accommodate multi-level models including those with binary outcomes—was used to test the statistical significance of the effects of the neighborhood factors on encounter- and subject-level variables. Due to the number of analyses, we use $p < .01$ as our criterion for statistical significance and refer to effects significant at the .05 but not the .01 level as “marginal.”

Factor analysis was conducted using 17 census-tract variables. The Kaiser-Meyer-Olkin statistic was .83, suggesting that these variables were excellent candidates for factor analysis (values $> .60$ are regarded as good). A scree plot indicated three factors (the fourth had an eigenvalue of 1.13 and the remaining had eigenvalues < 1). A principal-components extraction followed by varimax rotation indicated that all variables but one (% unemployed civilians) loaded $> |.50|$ on one of the three factors. The names assigned to the three factors and the 16 variables associated with them are shown in Table 1.

All but three variables were percentages and all but one had positive loadings (the loading for % living in same house 5 years was negative); before computing factor scores its values were subtracted from 100. The other three variables were in dollars and had negative loadings. Before computing factor scores, these three were converted into percentages of their maximum value and subtracted from 100 so that higher percentages indicated lower income. Factor scores were then computed as the average percentage for the variables assigned to the factor. Three distinct factor scores were derived based on the variables loading on each factor:

1. Neighborhood income. Higher scores indicate higher-income neighborhoods. This factor score was formed by subtracting the low-income neighborhood index from 100. Its mean and median for the 163 census tracts are both 69 and its range is 39–58 (25th and 75th percentiles of 61 and 77).
2. Neighborhood stability. A higher score means more stable neighborhoods (same reasoning as above). This factor score was formed by subtracting the neighborhood stability index from 100. Its mean and median for the 163 census tracts are both 64 and its range is 33–84 (25th and 75th percentiles of 56 and 75).

3. Immigrant neighborhood. This was a binary variable, as 68% of the immigrant neighborhood index scores fell in a well-defined non-immigrant hump below 4%. Consequently, this variable was coded 1 (<4%) for non-immigrant and 0 (4%) for immigrant neighborhood.

4. Results

The analysis included data from 916 encounters (30 encounters without disposition information and 152 with no address or an invalid address were excluded). The resulting 916 encounters occurred in 163 different census tracts, and the median number of encounters per census tract was 3. As shown in Table 2, 26% of the 163 census tracts corresponded to only one encounter, 25% to 2–3 encounters, 19% to 4–6 encounters, etc. These 163 census tracts were located in six jurisdictions within the state of Georgia (Table 3). The percentage of encounters across the six jurisdictions varied prominently, with three providing very few encounters and one (Savannah/Chatham County) providing just over half of the total numbers of encounters. Figures 1 and 2 show maps for the areas of occurrence of the encounters. A total of 943 encounters are geographically represented on the maps, including 27 encounters without disposition information.

A total of 166 officers were involved in the 916 encounters. The present study focuses on analyzing the effects of neighborhood characteristics derived for the 163 census tracts on those encounters; effects of officers' characteristics on those encounters is the focus of a different report (Compton et al., 2014b), and so are not discussed here.

4.1 Results pertaining to the neighborhood income index

As shown in Table 4, encounters taking place in higher-income tracts were more likely to be dispatch initiated, less likely to occur during normal business hours, and more likely to take place in a private home. Subjects were more likely to be suspected of having a mental illness (marginal), and less likely to be African American in higher-income census tracts. Regarding our three specific research questions (pertaining to the effects of neighborhood characteristics on referral to services or transport to a treatment facility, arrest, and use of force), the neighborhood income index was unrelated to these three outcomes.

4.2 Results pertaining to the neighborhood stability index

As shown in Table 5, encounters taking place in higher-stability census tracts were more likely to be dispatch initiated and to occur in a private home. Subjects were more likely to be suspected of having a mental illness, less likely to be suspected of alcohol problems (marginal), and less likely to be male or African American in more stable census tracts. Regarding our three specific research questions, the neighborhood stability index was unrelated to the three outcomes of most interest: referral to services or transport to a treatment facility, arrest, and use of force.

4.3 Results pertaining to the immigrant neighborhood index

As shown in Table 6, encounters in non-immigrant neighborhoods (i.e., those census tracts in which <4% of residents are immigrants) were more likely to occur during business hours

(marginal), and were more likely to involve subjects suspected of drug problems. Encounters occurring in immigrant neighborhoods were more likely to involve subjects suspected of having a developmental disability (marginal). Regarding our three specific research questions, the non-immigrant neighborhood factor was unrelated to arrest or use of force; however, encounters that involved referral or transport were more likely to occur in immigrant neighborhoods, though this was a marginal effect.

5. Discussion

Contrary to what we had expected, neighborhood characteristics did not appear to have an effect on the likelihood of: (1) referral to services or transport to a treatment facility, (2) arrest, or (3) use of force in these encounters. In this vulnerable population, these preliminary findings can be seen as encouraging. Though not part of the original hypotheses, the findings of this study show that neighborhood characteristics have potentially interesting associations with some encounter-level variables (e.g., the encounter being dispatch initiated, occurring during business hours, and taking place in a private home) and with some subject-level variables (e.g., individuals being suspected of having a mental illness or suspected of having an alcohol problem).

The findings that encounters occurring in higher income and higher stability neighborhoods were more likely to be dispatch initiated, and more likely to take place in a private home, are likely explained by the fact that officers are less likely to informally come across persons in crisis situations “in the streets” in such areas. Additionally, higher income and more stable areas are likely to have more private residences; hence encounters are more likely to take place in private homes, in response to residents’ emergency phone calls. The increased likelihood of suspected mental illness in higher income/more stable tracts is probably because officers are more likely to attribute subjects’ behaviors to mental illness in these areas, and less likely to attribute such behaviors to alcohol or drugs. On the contrary, officers may be more likely to suspect substance abuse in lower income areas, where they are more likely to encounter vagrant behavior, or persons using alcohol or other substances.

The increased likelihood of encounters with African American subjects in low-income and less stable neighborhoods is consistent with previous findings (Terrill and Reisig, 2003), and due to higher minority populations in these neighborhoods. The relatively high number of encounters with African American subjects in this study is a function of the racial makeup in these areas, as most of the jurisdictions included in this study had sizeable African American populations (US Census Bureau, 2000).

Officers may provide more referral or transport to services in immigrant neighborhoods due to a lack of access to mental health services in these communities. It has been found that neighborhood disadvantage related to racial composition, language barriers, and household crowding is associated with worse mental health outcomes (Eibner and Sturm, 2006). The mental health care needs of racial and ethnic minorities are largely unmet, and there may be a greater burden of untreated or undiagnosed mental illnesses in minority communities due to stigma and barriers to treatment-seeking (Center for Mental Health Services, 1999). For more impoverished areas, it has been found that African Americans and Hispanics are more

likely than Caucasians to be referred by law enforcement officials, possibly due to lower tolerance of minorities with mental illnesses and higher visibility of minorities in these areas (Chow, Jafee, Snowden, 2003).

There are a few limitations to be considered when interpreting results of this study. At the time of census data retrieval for this study (in April 2011), the most current and complete decennial census data available was for the year 2000. Because encounters took place between April 2010 and December 2010, 2000 decennial census tract data might not perfectly represent the characteristics of the neighborhoods involved. About 152 addresses for which census tracts could not be located, and about 30 encounters with no disposition information were excluded from this study; however, there is no reason to believe that this relatively sparse missing data would bias results. Also to be noted is the fact that unless an encounter occurred in a private home, it does not necessarily reflect the residence of the subject; addresses and their corresponding census tracts pertain to the neighborhood in which the encounter occurred, rather than the subject's home address. Finally, all address and encounter information was self-reported by police officers and based on their knowledge of the encounter and perceptions of subjects involved. It is also important to acknowledge that because the study was based on voluntary participation, there may have been some selection bias involved based on the characteristics of participating officers.

Considering that officers' use of force is related to the subject's level of resistance, it is indeed encouraging to find that the neighborhood context does not appear to have an effect on police officers' use of force when dealing with psychiatric populations. From this, we can conclude that police officers do not unnecessarily use excessive force simply because they encounter persons in disadvantaged neighborhoods, but instead use discretion with actions related to their use of force. However, based on our aforementioned findings related to encounter-level and subject-level variables, neighborhood characteristics may be an important aspect to consider in research on police interactions with persons with mental illnesses, addictive disorders, and developmental disabilities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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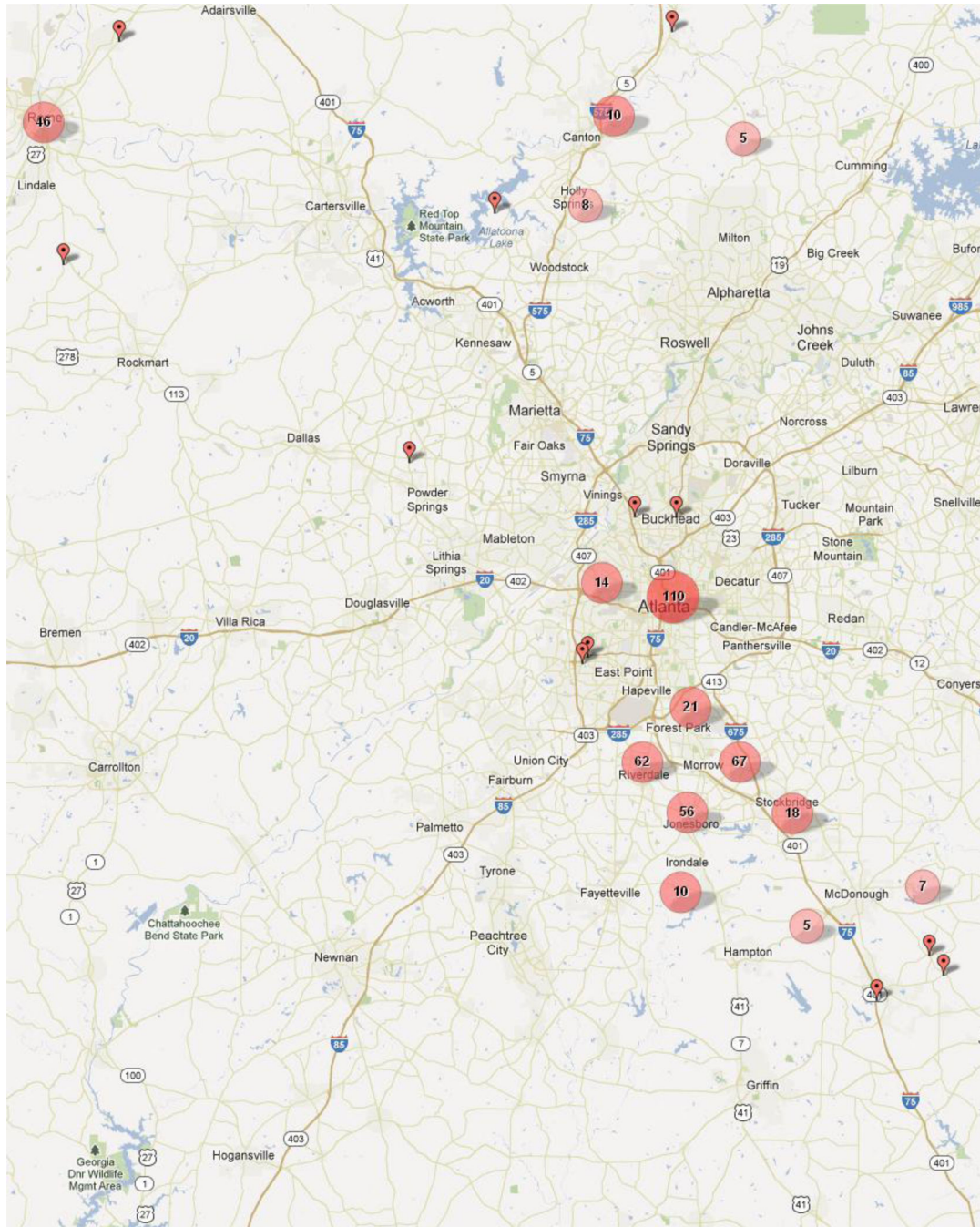


Figure 1. BatchGeo View of Encounter Locations in Northern Georgia. For example, the 48 encounters taking place in the Rome/Floyd County jurisdiction are shown in the upper left. This figure includes all study jurisdictions except Savannah/Chatham County in Southeast Georgia, which is shown in Figure 2.

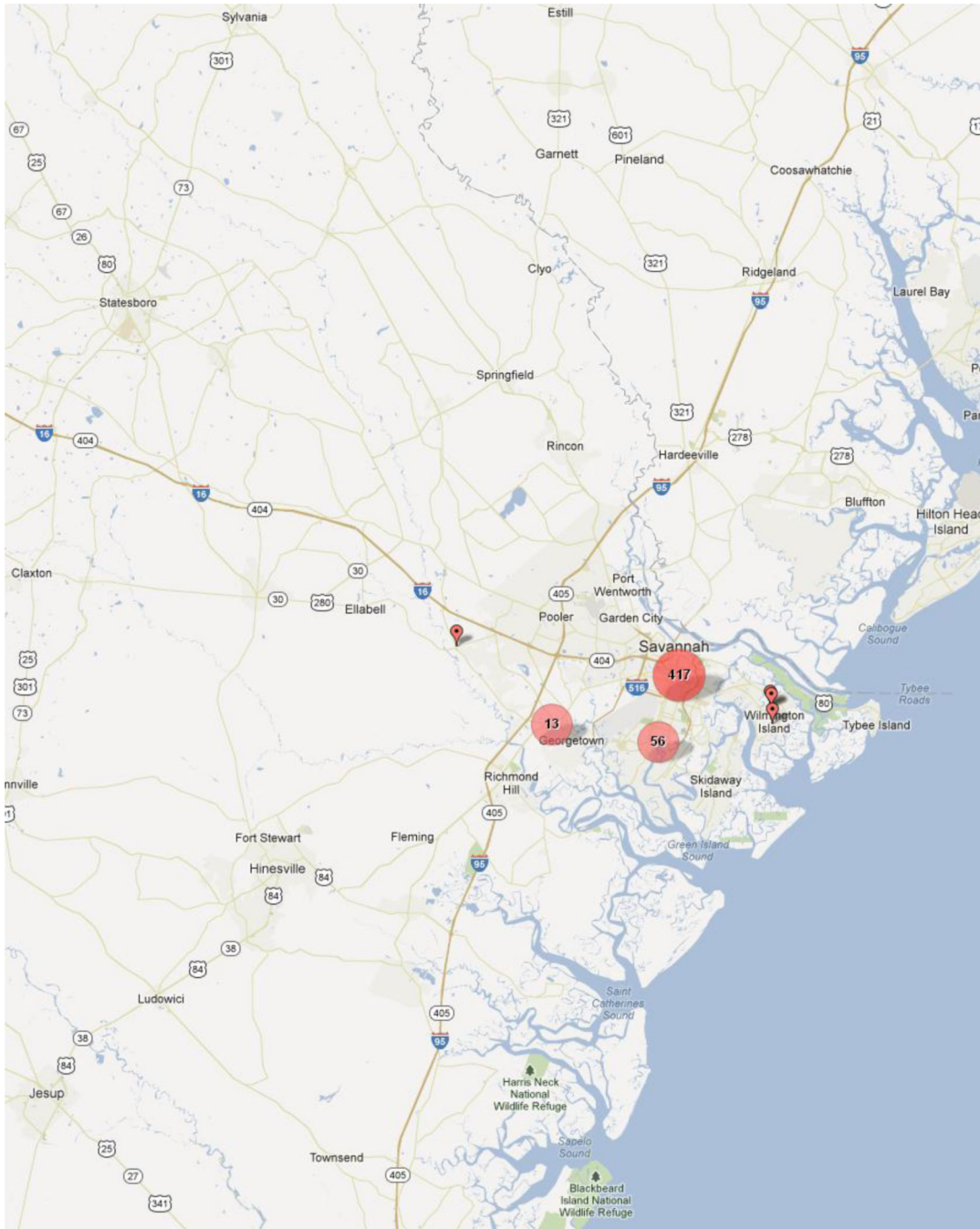


Figure 2. BatchGeo View of Encounter Locations in Southeast Georgia. This figure includes the study jurisdiction of Savannah/Chatham County; the other five jurisdictions are shown in Figure 1.

Table 1

Sixteen Variables Loading onto Three Factors

Factor and variable	Definition
“Low-income neighborhood”	
Rent (negative)	Median rent value (dollars)
Income (negative)	Median household income (dollars)
Mortgage (negative)	Median mortgage value (dollars)
SSI-PA	% receiving Supplemental Security Income + % receiving public assistance
Poverty	% families below poverty level
Low education	% education <9 th grade
Single parent	% single parent households
Race	% African American
No telephone	% housing units with no telephone service
“Neighborhood stability”	
Unmarried	% never married
Renters	% renter-occupied housing units
Vacant units	% vacant housing units
Home-years (negative)	% living in same house 5 yrs
“Immigrant neighborhood”	
Limited English	% who speak English not very well
Immigrant	% foreign born
Housing crowded	% >1.5 occupants/room (of occupied housing units)

Note for Table 1: (a) Low-income medians were converted to a 0–100 index. Factor scores were computed as the mean of the items. Higher income neighborhood index = 100 – low-income index. (b) More stable neighborhood index = 100 – transitory neighborhood index. (c) Non-immigrant neighborhood index = 1 if immigrant neighborhood index < 4 (68% of the sample), 0 otherwise.

Table 2

Number of Encounters Taking Place in the 163 Represented Census Tracts

# encounters	# census tracts	% census tracts
1	43	26
2-3	40	25
4-6	31	19
7-10	25	15
11-20	18	11
21-39	6	4
total	163	100

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Table 3

Participating Jurisdictions, and Numbers of Encounters and Census Tracts Represented*

Jurisdiction	# census tracts	# encounters	% encounters
Atlanta	40	127	14
Henry County	11	39	4
Cherokee County	11	25	3
Rome/Floyd County	12	48	5
Clayton County	33	203	22
Savannah/Chatham County	56	474	52
total	163	916	100

* Refer to Figures 1 and 2 for geographic mapping of encounters by jurisdiction.

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Table 4

Effect of Neighborhood Income on Encounter- and Subject-Level Variables

Variable	% for variable at given income percentile			OR	p
	25pct	50pct	75pct		
Encounter Dispatch initiated	50	58	65	1.46	.002
Occurred during business hours	50	45	40	0.78	.009
Took place in a private home	28	39	50	1.79	<.001
Officer aware of a psychiatric diagnosis	48	48	48	1.00	.990
Officer aware of psychiatric medication	21	20	19	0.93	.541
One or more risks identified	50	50	50	0.99	.859
Force level 5 or greater	27	26	26	0.96	.731
Resolved on the scene	51	48	45	0.86	.176
Referred or transported to services	25	27	30	1.16	.060
Arrest executed	22	23	24	1.07	.645
Subject Suspected of having a mental illness	43	47	52	1.25	.028
Suspected of having alcohol problems	31	28	25	0.82	.062
Suspected of having drug problems	22	20	18	0.85	.150
Suspected of having a developmental disability	12	12	13	1.09	.389
Male subject	59	57	55	0.91	.295
Age 40 or above	55	52	50	0.88	.154
African American (vs. Caucasian)	80	65	46	0.38	<.001
Resistance displayed by the subject	17	16	16	0.94	.537

Note for Table 4: The first three columns are encounter variable percentages estimated by a multilevel model for income index values of 61%, 69%, and 77% (the 25th, 50th, and 75th percentile values). Odds ratios indicate the effect of the income index, a Level 2 or census-tract variable, on each of the Level 1 encounter variables (as computed by MPLus). Odds ratios greater than one indicate that encounter variable percentages were higher in higher-income census tracts, whereas values less than one indicate that encounter variable probabilities were higher in lower-income census tracts. The income index was centered at the census tract median (69%) and scaled in increments of 10%.

Table 5

Effect of Neighborhood Stability on Encounter- and Subject-Level Variables

Variable	% for variable at given stability percentile			OR	p
	25pct	50pct	75pct		
Encounter Dispatch initiated	51	57	64	1.34	.003
Occurred during business hours	48	46	43	0.89	.142
Took place in a private home	23	37	59	2.25	<.001
Officer aware of a psychiatric diagnosis	47	49	51	1.09	.322
Officer aware of psychiatric medication	19	20	22	1.07	.395
One or more risks identified	49	50	52	1.06	.351
Force level 5 or greater	27	26	24	0.92	.395
Resolved on the scene	48	49	50	1.04	.654
Referred or transported to services	26	26	26	0.99	.828
Arrest executed	23	22	21	0.96	.704
Subject Suspected of having a mental illness	42	47	52	1.23	.010
Suspected of having alcohol problems	31	28	25	0.87	.050
Suspected of having drug problems	21	20	19	0.94	.486
Suspected of having a developmental disability	12	12	11	0.95	.489
Male subject	61	57	51	0.80	.002
Age 40 or above	54	53	51	0.93	.274
African American (vs. Caucasian)	78	69	54	0.56	<.001
Resistance displayed by the subject	17	17	16	0.95	.521

Note for Table 5: The first three columns are encounter variable percentages estimated by a multilevel model for stability index values of 56%, 64%, and 75% (the 25th, 50th, and 75th percentile values). Odds ratios indicate the effect of the stability index, a Level 2 or census-tract variable, on each of the Level 1 encounter variables (as computed by MPLus). Odds ratios greater than one indicate that encounter variable percentages were higher in more stable census tracts, whereas values less than one indicate that encounter variable probabilities were higher in less stable census tracts. The stability index was centered at the census tract median (64%) and scaled in increments of 10%.

Table 6

Effect of Non-Immigrant Neighborhood on Encounter- and Subject-Level Variables

Variable	% for variable by neighborhood		OR	p
	Immigrant	Non-immigrant		
<u>Encounter</u> Dispatch initiated	62	55	0.83	.520
Occurred during business hours	43	54	1.57	.041
Took place in a private home	41	38	1.08	.803
Officer aware of a psychiatric diagnosis	57	59	1.22	.351
Officer aware of psychiatric medication	39	35	0.94	.746
One or more risks identified	56	53	0.93	.692
Force level 5 or greater	25	24	1.06	.840
Resolved on the scene	40	51	1.26	.267
Referred or transported to services	43	31	0.64	.015
Arrest executed	17	18	1.24	.406
<u>Subject</u> Suspected of having a mental illness	54	47	0.77	.137
Suspected of having alcohol problems	27	31	1.18	.388
Suspected of having drug problems	14	29	2.26	.001
Suspected of having a developmental disability	15	10	0.64	.019
Male subject	59	61	1.04	.797
Age 40 or above	45	54	1.35	.123
African American (vs. Caucasian)	68	65	0.59	.114
Resistance displayed by the subject	31	31	1.00	.989

Note for Table 6: The first two columns are encounter variable percentages computed for encounters in immigrant and non-immigrant neighborhoods. Odds ratios indicate the effect of the immigrant versus non-immigrant neighborhood, a Level 2 or census-tract variable, on each of the Level 1 encounter variables (as computed by MPlus). Odds ratios greater than one indicate that encounter variable percentages were higher in non-immigrant census tracts, whereas values less than one indicate that encounter variable probabilities were higher in immigrant census tracts.