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Living Under Surveillance:

Gender, Psychological Distress, and Stop-Question-and-Frisk Policing in New York City

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ABSTRACT

A growing body of research highlights the collateral consequences of mass incarceration, including stop-and-frisk policing tactics. Living in a neighborhood with aggressive policing may affect one's mental health, especially for men who are the primary targets of police stops. We examine whether there is an association between psychological distress and neighborhood-level aggressive policing (i.e., frisking and use of force by police) and whether that association varies by gender. The 2009-2011 New York City (NYC) Stop, Question, and Frisk Database is aggregated to the neighborhood-level (N=34) and merged with individual data from the 2012 NYC Community Health Survey (N= 8,066) via the United Hospital Fund neighborhood of respondents' residence. Weighted multilevel generalized linear models are used to assess main and gendered associations of neighborhood exposures to aggressive police stops on psychological distress (Kessler-6 items). While the neighborhood stop rate exhibits inconsistent associations with psychological distress, neighborhood-level frisk and use of force proportions are linked to higher levels of non-specific psychological distress among men, but not women. Specifically, men exhibit more non-specific psychological distress and more severe feelings of nervousness, effort, and worthlessness in aggressively surveilled neighborhoods than do women. Male residents are affected by the escalation of stop-and-frisk policing in a neighborhood. Living in a context of aggressive policing is an important risk factor for men's mental health.

1   Media (Balko, 2015; Goodman, 2015; Leovy, 2015; Lewis, 2015; The Associated Press,

2   2015) and scholarly (Author et al., 2014, 2016; Cooper, Moore, Gruskin, & Krieger, 2004;

3   Massoglia, 2008; Massoglia & Pridemore, 2015) attention to the over-policing of neighborhoods

4   has grown. For residents of such neighborhoods, police stops may be a chronic stressor occurring

5   repeatedly over days, weeks, months, and years (Brunson & Miller, 2006; Brunson & Weitzer,

6   2008; Cooper et al., 2004; Engel & Calnon, 2004; Lerman & Weaver, 2014). The health

7   associations of such a stressor are only beginning to be examined. This study uses a multilevel

8   research design to examine the mental health of individuals living in highly surveilled

9   neighborhoods, particularly neighborhoods that are surveilled with aggressive policing tactics of

10   frisking and use of force. Special attention is paid to gender differences in the strength of the

11   association of living in neighborhoods where pedestrian stops are more likely to incur frisking

12   and use of force because men are the primary targets of stop-and-frisk practices. Specifically,

13   individual-level health data from the New York City Community Health Survey (NYC-CHS) is

14   matched to geocoded administrative data from the New York City Stop, Question, and Frisk

15   Database (NYC-SQF), and a cross-level interaction between male gender and living in an

16   (aggressively) surveilled neighborhood is evaluated.

17   The policing of pedestrians is gendered. For instance, an analysis of administrative data

18   from the NYC-SQF indicates that men comprise about 88 percent of pedestrian stop suspects in

19   NYC (Ridgeway, 2007). As such, men's mental health may be especially affected by *direct*

20   contact with the police. Indeed, a recent study of young men in NYC found higher levels of

21   trauma and anxiety symptoms among those men who reported frequent contact with the police,

22   especially if such contact was conceived as "intrusive" or "unfair" (Geller, Fagan, Tyler, & Link,

23   2014). Men living in highly policed neighborhoods, especially men of color, indicate high levels

1

1   of worry and anticipation caused by the possibly being stopped by police at any time, as well as

2   anger, frustration, and resentment caused by the perception that police unfairly target them

3   (Anderson, 1990, 1998, 2003; Dottolo & Stewart, 2008; Goffman, 2009; Jones, 2014; Young,

4   2006).

5   Yet, a burgeoning body of research suggests that *indirect* contact with the criminal justice

6   system is also associated with negative health consequences (Author et al., 2014, 2016;

7   Hatzenbuehler, Keyes, Hamilton, Uddin, & Galea, 2014; Wildeman, Schnittker, & Turney,

8   2012). For instance, living in a neighborhood with high incarceration rates is linked to higher

9   risks of depression and anxiety (Hatzenbuehler et al., 2014) and asthma (Frank, Hong,

10   Subramanian, & Wang, 2013) for men and women. On one hand, living in neighborhoods where

11   pedestrian stops are more likely to incur frisking and use of force may represent a unique stressor

12   for men, who are more likely to be stopped and, therefore, anticipate being stopped. On the other

13   hand, both men and women living in such neighborhoods may experience policing similarly,

14   suggesting that neighborhood policing invokes the same types of stress and coping processes

15   across the gender continuum.

16   Research suggests a palpable relationship between aggressive policing and the risks of

17   psychiatric illness for men (Geller et al., 2014). Living in highly policed areas may be harmful to

18   one's mental health, via the negative effects of hypervigilance and perceived unfairness

19   (Brunson & Miller, 2006; Brunson & Weitzer, 2008; Cooper et al., 2004; Geller et al., 2014;

20   Kessler, Mickelson, & Williams, 1999; McEwen, 2004; Shedd, 2012; Unnever & Gabbidon,

21   2011; Williams & Mohammed, 2009; Williams, Neighbors, & Jackson, 2003; Williams, Yan,

22   Jackson, & Anderson, 1997). When police stops within a neighborhood frequently escalate to

23   frisking and use of force, residents are more likely to perceive stops as discriminatory or unfair

1   (Brunson & Miller, 2006; Brunson & Weitzer, 2008; Cooper et al., 2004; Unnever & Gabbidon,

2   2011). Perceived unfairness not only is linked to poor mental health (Kessler et al., 1999;

3   McEwen, 2004; Williams et al., 2003; Williams et al., 1997) but also creates a "climate of fear"

4   in which residents live with knowledge that they could be criminalized at any moment and in

5   turn feel more vigilant (Shedd, 2012). Moreover, hypervigilance, through the psychological

6   expenses of chronically activating coping mechanisms (Cohen, Evans, Stokols, & Krantz, 1986;

7   Meyer, 1995), can produce changes in the hippocampus, prefrontal cortex, and amygdala that

8   precipitate depression and/or anxiety (Kessler et al., 1999; Lerman & Weaver, 2014; McEwen,

9   2004; Williams et al., 2003; Williams et al., 1997). The climate of fear produced by aggressive

10   policing practices may be especially impactful for male residents who are more likely to feel it is

11   unfair that the police target them on a day-to-day basis. Perceptions of injustice in policing, in

12   turn, may be directly linked to pedestrian stops turning aggressive, such that ill effects are

13   associated with frisking and use of force, but not the rate of pedestrian stops in the neighborhood.

14   To our knowledge, this is the first study to examine the mental health consequences of

15   stop-and-frisk policing at the community-level. We examine (1) the association between

16   psychological distress and the escalation of neighborhood police stops, holding constant key

17   individual- and neighborhood-level correlates of health and (2) gender variation in the

18   association between mental health and community-level escalated police encounters. We propose

19   two hypotheses that are examined using data on pedestrian stops in NYC:

20   1.   Living in (aggressively) surveilled neighborhoods is associated with a greater

21   risk of reporting psychological distress among neighborhood residents.

22   2.   The association between living in such (aggressively) surveilled neighborhoods

23   and psychological distress is stronger for men than for women.

3

1 **METHODS**

2 **Data**

3   This multilevel study merges individual-level data from one data source with

4 neighborhood-level data from multiple data sources.

5   *Individual level.* The analysis is based on a sample of adults (*N*=8,797) participating in

6 the 2012 NYC-CHS collected by the NYC Department of Health and Mental Hygiene (New

7 York City Department of Health and Mental Hygiene, 2012). NYC-CHS is an annual random-

8 digit-dial health survey of non-institutionalized adult (18+) New Yorkers. This survey evaluates

9 the health of New York residents citywide, by neighborhood, and across demographic

10 subpopulations. The survey gathers a broad range of health measures and is based on the national

11 Behavioral Risk Factor Surveillance System coordinated by the U.S. Centers for Disease Control

12 and Prevention. Each year, the NYC-CHS interviews approximately 10,000 people. All data,

13 collected by telephone or cellphone, are self-reported, publicly-available, and include community

14 identifiers for individuals surveyed. Respondents live in 1 of 34 United Hospital Fund (UHF)

15 neighborhoods (NYC Department of Health and Mental Hygiene, 2006); only 303 respondents

16 (0.3%) were missing neighborhood identifiers.

17   *Neighborhood level.* Administrative data from the 2009-2011 NYC-SQF provide

18 pedestrian stop-level data (New York City Police Department, 2009-2011), which are aggregated

19 to UHF neighborhoods by geocoding stop locations for 1,816,871 of the 1,818,465 pedestrian

20 stops (99.9%) occurring during the study period. These data are used to count the number of

21 stops occurring in each UHF neighborhood and the outcome of the stop to create neighborhood-

22 level densities of post-stop outcomes. Data from the American Community Survey (ACS) (2006-

23 2010 estimates), the 2010 decennial census, and the New York City Police Department (NYPD)

1   provide additional neighborhood-level variables. The publicly available data are exempt from

2   IRB review by the authors' institutions.

3   **Measures**

4   *Outcome measures.* Our outcomes of interest are the six items comprising the Kessler-6

5   Psychological Distress Scale (K6) (Kessler et al., 2003), as well as a dichotomous measure of

6   psychological distress based on this scale (Table 1). All NYC-CHS respondents are asked the

7   following questions: "During the past 30 days, how often did you feel: (1) So sad that nothing

8   could cheer you up?; (2) Nervous?; (3) Restless or fidgety?; (4) Hopeless?; (5) That everything

9   was an effort?; and (6) Worthless? The response categories for the items are: (1) All of the time;

10   (2) Most of the time; (3) Some of the time; (4) A little of the time; (5) None of the time.

11   Individuals who responded "don't know", "not sure", or refused to provide a response are

12   classified as missing data. As is convention (Kessler et al., 2003), summary scale scores (Range:

13   6-30) were converted to a dichotomous measure of non-specific psychological distress (NSPD)

14   (1: K6=12+; 0: K6≤12). We treat NSPD as a binary response outcome, while we treat the six

15   constituent items of the K6 as five-level ordinal outcomes.

16   [Table 1 about here]

17   Prior research using the 2002-2003 NYC-CHS found that K6 items are distributed

18   differentially across the urban environment, with feelings of effortfulness being most prevalent

19   among New Yorkers and feeling of hopelessness being least prevalent (McVeigh et al., 2006).

20   As such, this study examines the dichotomous indicator of NSPD separately from the ordinal

21   measures of its constituent items. Figure 1 provides a visualization of the spread of the

22   dichotomous NSPD indicator in NYC.

23   [Figure 1 about here]

1   *Neighborhood policing measures*. We examine two neighborhood-level post-stop

2   policing characteristics using NYC-SQF data: frisking and use of force. All neighborhood-level

3   variables are centered at their means and standardized (Table 2). Figure 2 provides a map of the

4   distribution of the neighborhood post-stop policing measures.

5   [Table 2 about here]

6   [Figure 2 about here]

7   The post-stop policing characteristics portray the culture of aggressive policing tactics in

8   a neighborhood. Frisk is reported per stop by officers and includes quickly passing the hands

9   over a pedestrian's clothes or through a pedestrian's pockets. Nine types of physical force by the

10   officer are also reported per stop by officers and includes the use of the officer's hands, placing a

11   suspect on the ground, placing a suspect against the wall, drawing the officer's weapon, pointing

12   the weapon at the suspect, and use of baton, handcuffs, pepper spray, or other physical object. If

13   a stop involves any one of the nine types of physical force by the officer, then that stop is

14   considered a stop involving use of force. Two measures are created based off of all stops in a

15   neighborhood: (1) the proportion of stops that involve frisking, and (2) the proportion of stops

16   that involve any use of physical force. As there is a strong relationship between frisking and use

17   of force at the neighborhood-level (r=0.64; p<0.001), the health associations of these two post-

18   stop outcomes are evaluated independently.

19   *Neighborhood-level covariates*. A measure of stop productivity (the proportion of stops

20   that result in an arrest being made) per UHF from NYC-SQF data is included, as is the NYPD

21   reported average count of robbery complaints between 2010 and 2012 in a neighborhood and the

22   2010 decennial Census reported total number of persons living in a neighborhood that are

23   currently incarcerated (i.e., living in correctional facilities). Several measures of ethnoracial and

6

1 economic segregation from the 2010 decennial Census are included as well: (1) the proportion of

2 the population that identifies as Black or Latino; (2) the proportion of households with incomes

3 below the federal poverty line; and (3) a measure of affluence concentration. Affluence

4 concentration is measured using a *z*-score that captures the relatedness of the proportion of

5 owner-occupied homes in a neighborhood and the proportion of households with incomes above

6 $50,000 a year in a neighborhood (Browning & Cagney, 2003). These two indicators of

7 neighborhood affluence are highly correlated (r=0.73). Table 2 provides descriptive statistics for

8 neighborhood-level covariates in their native form.

9   *Individual-level Covariates*. At the individual level, we consider key sociodemographic

10 (gender, age, race/ethnicity, nativity, marital status, household size, language spoken at home),

11 socioeconomic (educational attainment, income, work status), and healthcare access (health

12 insurance status, unmet medical care needs) variables of importance to health. Except for age and

13 household size, all individual-level variables are categorical as described in Table 1. Age is

14 mean-centered at 52.6 years. Household size is median-centered at 2 people; household size is

15 top-coded at 6 (the 97th percentile) to lessen the impact of outliers.

16 **Statistical Analysis**

17   The statistical modeling framework employed in this study anticipates that individual

18 reports of illness are partly a function of the UHF to which an individual belongs (Bryk &

19 Raudenbush, 1992). UHF-level variables are appended to each individual observation in the

20 NYC-CHS database, and post-stratification survey weights are applied. Individuals are seen as a

21 representative sample of NYC residents. The UHF, meanwhile, is seen as the population of

22 neighborhoods in NYC. As such, inferences are made about the population of individuals living

23 in NYC neighborhoods.

7

1   Stata 14.0 is used for all analyses. Weighted multilevel models for binary and ordinal

2   response outcomes are employed that allow for a random-intercept and assume an unstructured

3   covariance structure. A logit-link is used for the NSPD indicator, whereas a cumulative logit-link

4   is used for the constituent items of the K6 scale, which each has 5 levels. After excluding the

5   missing data on the outcome and predictor variables, we evaluate the relationship between

6   mental health and policing with and without considering individual- and neighborhood-level

7   characteristics. We conduct and report on three sets of regression analyses on 8,066 individuals

8   (91.7 percent of sample) nested within 34 NYC UHFs for each outcome-policing pair. The first

9   set of regressions (Overall) evaluates the association between mental health and policing patterns

10   while controlling for gender to answer Hypothesis 1. The next two sets of regressions pertain to

11   Hypothesis 2. The second set of regressions (Stratified) enables estimates of the health

12   associations of policing to be stratified by gender while assuming that the impacts of control

13   variables are not gender-specific; and a third set of regressions (Interaction) evaluates moderated

14   relationships – that is, whether the mental health associations of policing with psychological

15   distress are different for men and women.

16   For each set of regressions, four main models are computed. The first model adjusts for

17   race/ethnicity. The second model adjusts for compositional effects by including controls for

18   race/ethnicity and individual-level covariates (Table 1). The third model adjusts for other types

19   of contextual effects by including controls for race/ethnicity and neighborhood-level covariates

20   (Table 2). The fourth model adjusts for race/ethnicity, individual- and neighborhood-level

21   covariates. Statistical significance is assessed for all models at $p<0.05$.

22   Supplemental analysis, shown in Appendix A, repeats these sets of regressions and

23   models to assess the mental health associations of the neighborhood stop rate. This analysis

1 shows different relationships than observed for post-stop outcomes. First, there is inconsistency

2 in the main effect of the neighborhood stop rate on mental health. Second, the neighborhood stop

3 rate demonstrates no gendered associations with mental health, as does the neighborhood frisk

4 and use of force proportions.

5 **RESULTS**

6 **Descriptive Statistics**

7 　　　　Tables 1 and 2 provide an unweighted summary of the final data considered for analysis.

8 On average, there are approximately 22 pedestrian stops per 100 non-institutionalized residents

9 of a neighborhood (Table 2). Well over half of pedestrian stops in NYC involve frisking by a

10 police officer, and 22.2 percent involve the use of some kind of force. While a substantial portion

11 of pedestrian stops can be considered "aggressive", the proportion of stops that are productive is

12 much lower. Only 6.8 percent of pedestrian stops produce an arrest.

13 　　　　Figure 3 indicates that gender differences in the distribution of NSPD are minute. Women

14 are more likely than men to report feeling sad "all of the time" or "most of the time" within the

15 past 30 days. However, on other dimensions of NSPD, men and women exhibit similar

16 probabilities of reporting distress.

17 　　　　　　　　　　　　　　　　[Figure 3 about here]

18 **The Neighborhood Frisking Proportion**

19 　　　　Table 3 examines the association between psychological distress and the neighborhood

20 frisking proportion. Weighted odds ratios for the association of frisking with the dichotomous

21 NSPD indicator and the six constituent ordinal psychological distress items are shown under

22 different model specifications described above. Each odds ratio includes, in brackets, the 95%

23 confidence interval for the odds ratio. The first column shows the average association of the

1   stop-question-and-frisk measure using an overall sample of males and females. The second

2   column shows the association of the stop-question-and-frisk measure for males. The third

3   column shows the association of the stop-question-and-frisk measure for females. The fourth

4   column evaluates the statistical significance of the male gender X neighborhood stop rate

5   interaction term and shows the gender difference in the mental health association of the stop-

6   question-and-frisk measure; this column shows differences in size or direction of effect for men

7   compared to women. For each column and each outcome, the four models are shown vertically,

8   with the naïve model controlling for race/ethnicity (Model 1) shown first and the fully-adjusted

9   model (Model 4) shown last. Models 2 and 3 indicate the mental health associations of

10   neighborhood policing patterns, holding constant individual-level and neighborhood-level

11   covariates, respectively.

12

13   [Table 3 about here]

14   In the overall analysis, the neighborhood proportion of pedestrian stops that involve

15   frisking is associated with the dichotomous indicator of NSPD for all models computed ($p<0.05$).

16   Holding constant both individual- and neighborhood-level characteristics (Model 4), living in a

17   neighborhood where pedestrians are more likely to be frisked increases the odds of reporting

18   NSPD in the past month (AOR=1.08; 95% CI:1.01-1.15). A standard deviation increase in living

19   in a neighborhood characterized by stops that involve frisking increases the odds of NSPD by 8

20   percent.

21   Naïve estimates (Model 1) indicate that the mental health associations of the

22   neighborhood frisking proportion appear to be isolated to select items of the K6 – sadness

23   (OR=1.12; 95% CI:1.07-1.17), nervousness (OR=1.04; 95% CI:1.00-1.08), and worthlessness

10

1   (OR=1.16; 95% CI:1.08-1.24). Yet, these particular associations do not tend to hold when

2   considering individual-level correlates of mental health and policing patterns (Model 2). The

3   association between worthlessness and the neighborhood frisking proportion is independent of

4   neighborhood-level correlates of mental health and policing patterns (Model 3), but the

5   relationship between neighborhood frisking proportion and sadness and nervousness is

6   attenuated when comparing people in similarly-situated neighborhoods. Holding constant both

7   individual- and neighborhood-level characteristics (Model 4), there is no relationship between

8   the neighborhood frisking proportion and constituent psychological distress items outcomes.

9   The mental health profiles of men and women (Second and Third Column) are not

10   similarly associated with the neighborhood frisking proportion. For instance, men report more

11   NSPD and more sadness, nervousness, hopelessness, and worthlessness if they live in a

12   neighborhood where pedestrians are more likely to be frisked by police. Naïve estimates (Model

13   1) for men indicate that a standard deviation increase in the neighborhood frisk proportion

14   (SD=0.093) is associated with a 20 percent increase in the odds of having NSPD (OR= 1.20;

15   95% CI:1.07-1.35), a 17 percent increase in the odds of reporting severe feelings of sadness

16   (OR=1.17; 95% CI:1.07-1.29), a 13 percent increase in the odds of reporting severe feelings of

17   nervousness (OR= 1.13; 95% CI:1.07-1.21), a 19 percent increase in the odds of reporting severe

18   feelings of hopelessness (OR=1.19; 95% CI:1.10-1.29), and a 25 percent increase in the odds of

19   reporting severe feelings of worthlessness (OR=1.25; 95% CI:1.15-1.36). The relationships

20   between the neighborhood frisking proportion and sadness and hopelessness are not independent

21   of either compositional or other contextual factors. However, when adjusting for individual- and

22   neighborhood-level characteristics (Model 4), men remain 11 percent more likely to report more

23   severe feelings of nervousness (*p*<0.001) and 17 percent more likely to report more severe

1   feelings of worthlessness ($p<0.05$) in neighborhoods with a 9 percentage point increase in the

2   risk of frisking among pedestrians. The psychological profiles of women generally are not

3   shaped by the neighborhood frisking proportion.

4   The association between neighborhood frisking proportions and psychological distress is

5   differentiated by gender (Fourth Column). Male gender moderates the psychological associations

6   of the neighborhood frisking proportion for nervousness ($p<0.001$) and worthlessness ($p<0.05$).

7   Holding all else constant (Model 4), a standard deviation increase in the neighborhood frisk

8   proportion has a stronger association with the likelihood of men, compared to women, reporting

9   more severe feelings of nervousness (AOR=1.16; 95% CI:1.07-1.26) and worthlessness

10   (AOR=1.16; 95% CI:1.00-1.34).

11   **The Neighborhood Use of Force Proportion**

12   Table 4 examines the association between psychological distress and the neighborhood

13   proportion of stops that involve use of force, following the same sequence of models as Table 3.

14   [Table 4 about here]

15   In the overall analysis, the neighborhood proportion of pedestrian stops that involve use

16   of force is not associated with the dichotomous indicator of NSPD for all models computed.

17   Naïve estimates (Model 1) indicate that the mental health associations of the neighborhood

18   frisking proportion appear to be isolated to select items of the K6 Psychological Distress Scale –

19   nervousness (OR=1.06; 95% CI:1.02-1.10), effortfulness (OR=0.95; 95% CI:0.91-0.99), and

20   worthlessness (OR=1.11; 95% CI:1.04-1.19). Yet, these particular associations do not hold when

21   considering individual-level correlates (Model 2). Model 3 indicates the association between

22   worthlessness and the neighborhood use of force proportion is independent of neighborhood-

23   level correlates, but the relationship between neighborhood use of force proportion and

1   nervousness and effortfulness is attenuated when comparing people in similarly-situated

2   neighborhoods. For sadness and restlessness, comparing people in similarly-situated

3   neighborhoods (Model 3) reveals a protective association between the neighborhood use of force

4   proportion and psychological distress ($p<0.05$). Holding constant both individual- and

5   neighborhood-level characteristics (Model 4), there is a protective association between the

6   neighborhood use of force proportion and both sadness and effortfulness.

7   Still, the mental health profiles of men and women are not similarly associated with the

8   neighborhood use of force proportion (Second and Third Columns). Naïve estimates indicate that

9   men report more NSPD and more sadness, nervousness, hopelessness, and worthlessness if they

10   live in a neighborhood where pedestrians are more likely to have force used against them by

11   police. Model 1 indicates that for men a standard deviation increase in the neighborhood use of

12   force proportion (SD=0.077) is associated with a 23 percent increase in the odds of having NSPD

13   (OR= 1.23; 95% CI:1.11-1.37), a 10 percent increase in the odds of reporting severe feelings of

14   sadness (OR=1.10; 95% CI:1.01-1.19), a 13 percent increase in the odds of reporting severe

15   feelings of nervousness (OR=1.13; 95% CI:1.06-1.22), a 15 percent increase in the odds of

16   reporting severe feelings of hopelessness (OR=1.15; 95% CI:1.02-1.28), and a 23 percent

17   increase in the odds of reporting severe feelings of worthlessness (OR=1.23; 95% CI:1.08-1.40).

18   The relationship between the neighborhood use of force proportion and worthlessness is

19   independent of neighborhood-level covariates but attenuates when comparing people with

20   similar demographic characteristics. When adjusting for individual- and neighborhood-level

21   characteristics (Model 4), men remain 7 percent more likely to report more severe feelings of

22   nervousness in neighborhoods with a 7.7 percentage point increase in the risk of use of force

23   among pedestrians.

13

1   Meanwhile, the psychological profiles of women are generally not shaped by the

2   neighborhood use of force proportion. If anything, women in similarly-situated neighborhoods

3   report less severe feelings of sadness and effortfulness if they live in neighborhoods where

4   pedestrians face a higher risk of having force used against them. Holding all else constant

5   (Model 4), a standard deviation increase in the neighborhood use of force proportion decreases

6   severe feelings of sadness by 13 percent (AOR= 0.87; 95% CI:0.80-0.94) and severe feelings of

7   effortfulness by 14 percent (AOR= 0.80; 95% CI:0.80-0.92).

8   The association between neighborhood use of force proportions and psychological

9   distress is differentiated by gender (Fourth Column). In fact, gender differences in the

10   relationship between the neighborhood use of force proportion and psychological distress are

11   more pronounced than gender differences in the relationship between the neighborhood frisking

12   proportion and psychological distress. Holding all else constant (Model 4), male gender

13   moderates the psychological associations of the neighborhood use of force proportion for the

14   dichotomous NSPD indicator, nervousness, effortfulness, and worthlessness ($p<0.05$). Compared

15   to women, a standard deviation increase in the neighborhood use of force proportion has a

16   stronger association with men reporting high levels of NSPD (AOR=1.21; 95% CI:1.02-1.43)

17   and more severe feelings of nervousness (AOR=1.14; 95% CI:1.03-1.26), effortfulness (AOR

18   =1.12; 95% CI:1.02-1.24), and worthlessness (AOR=1.18; 95% CI:1.01-1.38). Living in a

19   community where pedestrian stops are likely to involve use of force by police is associated with

20   NSPD and more severe reports of nervousness, effortfulness, and worthlessness more so for male

21   than for female respondents.

DISCUSSION

This paper provides a starting point to evaluate the relationship between psychological distress and the escalation of pedestrian stops across the 34 UHF neighborhoods of NYC. Underreporting of frisking and use of force by police (Spitzer, 1999) may attenuate the mental health associations of neighborhood-level policing patterns. Yet, we identify an association between escalated police encounters, measured at the neighborhood-level, and higher psychological distress for men, measured at the individual-level, using multilevel models that adjust for complaints of criminal activity, racial/ethnic/class composition, and known sociodemographic correlates of mental health. This study indicates that police surveillance matters not only for men who have contact with police (Geller et al., 2014), but also for men living in highly policed areas. Living in a neighborhood with a higher density of frisking is associated with experiencing more severe psychological distress for all residents, while living in a neighborhood with a higher density of use of force is associated with experiencing fewer feelings of sadness and effortfulness.

The psychological associations of living under surveillance, however, are gendered. Men who live in neighborhoods where pedestrians are more likely to be frisked by police are more likely to report feelings of nervousness and worthlessness and more severe psychological distress. Men who live in neighborhoods where pedestrians are more likely to have force used against them by police are more likely to report feelings of nervousness, effortfulness, and worthlessness and more severe psychological distress. Women, however, are not affected psychologically by living in a neighborhood with a high density of frisking, and, in some cases, living in a high use of force neighborhood is protective of women's mental health.

15

1   The reasons why some patterns of police surveillance may be protective for women is

2   unclear and cannot be discerned from this study design. While women may also be frustrated

3   about police neglect and abuse (Author et al., 2013; Cooper et al., 2004), Black mothers, in

4   particular, report wanting a stronger police presence in their neighborhood, so as to mitigate

5   against concerns about neighborhood violence and safety (Dias & Whitaker, 2013). Ideally, we

6   would have been able to include individual-level measures of perceived neighborhood safety and

7   crime in this analysis, but such measures were not available. Nonetheless, women may feel safer

8   in neighborhoods where police are more likely to aggressively treat pedestrians. Possibly, when

9   police have a strong presence in a neighborhood, men may be less likely to exhibit aggressive

10   behavior towards women, such as cat-calling. However, such feelings of safety among women, if

11   present, do not transfer to men living in such neighborhoods. Moreover, these analyses suggest

12   that the protective association of stop-and-frisk policing is specific to certain dimensions of

13   mental health, such as feelings of restlessness and worthlessness.

14   Another possibility for these counterintuitive findings is that women may be more

15   vulnerable to clinical indicators of mental health than men. For instance, a recent study of the K6

16   found men endorsed items less often than women with similar underlying levels of distress

17   (Drapeau et al., 2010). Future research should explore additional measures of mental health and

18   well-being to ascertain the dimensionality of stop-and-frisk policing on women's mental health.

19   Combining different racial and ethnic status groups obscures points of vulnerability

20   among women of color, who are not immune to police stops. Specifically, previous research

21   indicates that the health effects of stop-question-and-frisk policing may vary by race (Author et

22   al. 2015). Moreover, incarceration is associated with a loss to the family, so it will have

23   repercussive effects on all family members, particularly women who take on a larger care-taking

16

1   burden (Author et al., 2013, 2014). Given the disproportionate representation of minorities in the

2   criminal justice system and the tendency of police to stop minority men on the street, future

3   research should examine whether race or ethnicity buffers or amplifies the gendered mental

4   health associations of neighborhood stop-question-and-frisk policing. Still, minority men may be

5   more vulnerable to the mental health associations of neighborhood frisking and use of force

6   proportions, thus leading to strengthened associations for Black, Latino, and Asian men. Yet,

7   because police contact is so frequent for minority men, they may normalize this experience,

8   leading to weakened associations. Such findings would align with research showing attenuated

9   relationships between perceived discrimination and mental health for minorities (Kessler et al.,

10   1999).

11   While this study demonstrates an association between contextual patterns of policing and

12   emotional well-being for the community at-large, this study has limitations. First, the NYC-CHS

13   does not include measures of police contact for respondents. It is possible that police are more

14   likely to stop the mentally ill (Engel & Silver, 2001; Fisher, Silver, & Wolff, 2006) or that

15   displays of emotionality and erratic behavior may precipitate police aggression. However, time

16   ordering the policing measures to occur within the three years prior to the collection of mental

17   health data situates our results as useful for understanding the association between current health

18   status and living in neighborhoods that have been highly surveilled.

19   Second, this analysis relies on police-reported data. It is possible that police may

20   underreport their use of force, particularly against Black and Latino individuals. Should this be

21   the case, this would likely bias our results towards a null hypothesis and, thus, would not

22   threaten the validity of our observation that policing associates with indicators of distress.

1   Third, community factors not considered in this study, such as the density of parks or the

2   quality of available social services, may affect the relationship between police stop-and-frisk

3   actions and psychological distress. While we do not directly control for specific measures of

4   neighborhood quality, we do attempt to control for neighborhood socioeconomic status to help

5   lessen this concern. However, the absence of individual-level perceptions of neighborhood crime

6   and safety, as well as individual-level perceptions of collective efficacy and social cohesion,

7   represent important subjective measures missing from this study. Although these measures were

8   not available for inclusion in our analyses, we do include an objective measure of neighborhood

9   crime (robbery complaints) that may help explain how neighborhood safety and social disorder

10   could affect relationships between policing and psychological distress.

11   Fourth, this study explores a limited range of neighborhood policing patterns. Adjusted

12   and unadjusted analyses showed that the stop rate itself is not associated with indicators of

13   NSPD. However, other patterns to consider are the relative risk of being searched, receiving a

14   summons, and undergoing an arrest. Moreover, exposure in this study is considered in relation to

15   the number of stops executed in a community. Exposure could also be calculated relative to the

16   population size or land area. Relatedly, a wider range of localities should be considered in future

17   research. Each UHF neighborhood represents a large swath of people and landmass. In all, NYC

18   has over two thousand census tracts covering nearly one hundred acres. There may be substantial

19   variation in the association of neighborhood policing patterns within UHF neighborhoods across

20   smaller locales or egocentric neighborhoods.

21   Nonetheless, this study uses a multilevel design with distinct data sources corresponding

22   to separate levels, and draws attention to the relationship between neighborhood policing

23   patterns and psychological distress. Just as mass incarceration has broader consequences beyond

1 incarcerated individuals (Frank et al., 2013; Hatzenbuehler et al., 2014), police actions within a

2 neighborhood also affect the health of the community at-large. Our findings are consistent with

3 recent research that identifies ill health associations of stop-and-frisk policing (Geller et al.,

4 2014). The actions and inactions of police spillover to shape the health and well-being of

5 communities. Our findings show that living in aggressively policed communities is of detriment

6 to the health of male residents in the neighborhood. As such, this study highlights an important

7 tension between violence prevention, which is a public health issue, and over-policing, which we

8 argue is a health risk factor.

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7

FIGURE CAPTIONS

Figure 1. Distribution of Non-Specific Psychological Distress by United Hospital Fund Neighborhoods.

Source: 2012 New York City Community Health Survey; Weighted distributions.

Figure 2. Distribution of Neighborhood Post-Stop Characteristics by United Hospital Fund Neighborhoods.

Source: 2009-2011 New York City Stop, Question, and Frisk Database; Raw distributions.

Figure 3. Gender Differenes in the Distribution of Reporting Signals of Distress "All the Time" or "Most of the Time" (Percent).

Source: 2009-2011 New York City Stop, Question, and Frisk Database; Raw distributions.

Note: * p < 0.05 (two-tailed test for statistically significant gender difference); For constituent items (Columns 1-6) of the non-specific psychological distress indicator (Column 7), the percentage of respondents reporting feeling a specific type of distress "all the time" or "most of the time" in the past 30 days is reported.

Table 1. Descriptive Statistics for Individual-Level Covariates: 2012 NYC Community Health Survey (*N* = 8,066) and 2009-2011 NYC Stop, Question, and Frisk (*N* = 34).

	Mean	Median	SD	Min	Max
Psychological Distress (*N* = 8,066)					
Non-Specific Psychological Distress (NSPD)[a]	0.23			0	1
Sadness	1.56	1	0.94	1	5
Nervousness	1.78	1	0.96	1	5
Restlessness	1.73	1	1.01	1	5
Hopelessness	1.36	1	0.79	1	5
Effortfulness	1.89	1	1.19	1	5
Worthlessness	1.30	1	0.75	1	5
Individual-Level Covariates (*N* = 8,066)					
Black Non-Latino	0.23			0	1
Latino	0.26			0	1
Asian/Pacific Islander	0.09			0	1
White (Reference Category)	0.42			0	1
Male (0 = Female)	0.41			0	1
Age (in Years)	52.57	52	17.44	18	98
Less than High School (Reference Category)	0.15			0	1
High School	0.21			0	1
Some College	0.20			0	1
College Degree	0.43			0	1
Employed (0 = Unemployed)	0.55			0	1
US Born (0=Not US Born)	0.60			0	1
Insured (0 = Not Insured)	0.88			0	1
Unmet Medical Care Last Year (0=Met)	0.10			0	1
Household Size	2.50	2	1.49	1	6
Currently Married/Cohabitating (Reference Category)	0.44			0	1
Formerly Married	0.29			0	1
Never Married	0.27			0	1
Primarily English at Home (Reference Category)	0.73			0	1
Primarily Spanish at Home	0.16			0	1
Primarily Other Language at Home	0.11			0	1

Note: SD = Standard Deviation

[a] NSPD is indicated by a K6 Score of 12 or higher (Min: 6; Max: 30), where the K6 Score is a summation of K6 items (sadness, nervousness, restlessness, hopelessness, required effort, worthlessness)

Table 2. Descriptive Statistics for Neighborhood-Level Covariates: 2009-2011 NYC Stop, Question, and Frisk (*N* = 34).

	Mean	Median	SD	Min	Max
Neighborhood-Level Covariates (*N* = 34)					
Stop Rate Per 100 Non-Institutionalized Persons, 2009-2011	22.79	17.76	14.95	6.32	65.11
Proportion of Stops Resulting in Frisking, 2009-2011	0.54	0.54	0.09	0.35	0.73
Proportion of Stops Resulting in Use of Force, 2009-2011	0.22	0.20	0.08	0.10	0.36
Proportion of Stops Resulting in Arrest, 2009-2011	0.07	0.06	0.02	0.04	0.12
Average Robbery Complaint Rate, 2010-2012	49.19	0.00	115.32	0.00	477.00
Total Persons Incarcerated, 2010	553.74	24.00	1924.40	0.00	11101.00
Proportion Black or Latino, 2010	0.51	0.52	0.29	0.11	0.97
Proportion Below Federal Poverty Line, 2010	0.19	0.16	0.09	0.06	0.39
Affluence Concentration, 2010	7.73	7.00	5.48	0.70	23.09
Proportion of Households More than $50K, 2010	0.50	0.50	0.13	0.22	0.76
Proportion of Housing Units Owner-Occupied, 2010	0.32	0.31	0.17	0.07	0.73

Note: SD = Standard Deviation

Table 3. Weighted Generalized Linear Multilevel Regression of Neighborhood Frisking Proportion on Psychological Distress for Overall Sample and for Men and Women.

	Overall	Stratified		Interaction
		Men	Women	Men x Policing
NSPD				
Model 1	1.13 ***	1.20 **	1.07	1.12
	[1.08,1.18]	[1.07,1.35]	[0.96,1.18]	[0.93,1.36]
Model 2	1.10 **	1.19 *	1.05	1.12
	[1.03,1.16]	[1.03,1.38]	[0.93,1.19]	[0.92,1.36]
Model 3	1.14 ***	1.21 ***	1.08	1.12
	[1.09,1.20]	[1.08,1.36]	[0.97,1.20]	[0.93,1.35]
Model 4	1.08 *	1.15 +	1.02	1.11
	[1.01,1.15]	[1.00,1.33]	[0.90,1.16]	[0.92,1.35]
Sadness				
Model 1	1.12 ***	1.17 ***	1.07 +	1.11
	[1.07,1.17]	[1.07,1.29]	[1.00,1.15]	[0.96,1.27]
Model 2	1.02	1.06 +	0.98	1.08
	[0.96,1.08]	[1.00,1.13]	[0.89,1.09]	[0.95,1.24]
Model 3	1.00	1.07	0.98	1.10
	[0.95,1.06]	[0.98,1.17]	[0.90,1.06]	[0.96,1.26]
Model 4	1.00	1.05	0.97	1.09
	[0.95,1.06]	[0.96,1.16]	[0.89,1.05]	[0.95,1.25]
Nervousness				
Model 1	1.04 *	1.13 ***	0.97	1.17 ***
	[1.00,1.08]	[1.07,1.21]	[0.93,1.01]	[1.07,1.28]
Model 2	1.03	1.11 ***	0.95 +	1.17 ***
	[0.98,1.07]	[1.05,1.18]	[0.90,1.01]	[1.07,1.27]
Model 3	0.99	1.10 ***	0.94 *	1.17 ***
	[0.96,1.03]	[1.05,1.15]	[0.89,0.99]	[1.07,1.27]
Model 4	1.02	1.11 ***	0.95 +	1.16 ***
	[0.98,1.05]	[1.06,1.16]	[0.90,1.01]	[1.07,1.26]
Restlessness				
Model 1	1.04 +	1.05	1.03	1.01
	[1.00,1.08]	[0.97,1.13]	[0.96,1.12]	[0.90,1.14]
Model 2	1.02	1.03	1.01	1.02
	[0.98,1.06]	[0.94,1.12]	[0.93,1.09]	[0.91,1.14]
Model 3	0.94 **	0.94	0.93 +	1.01
	[0.89,0.98]	[0.86,1.03]	[0.86,1.01]	[0.90,1.14]
Model 4	0.96	0.97	0.95	1.02
	[0.92,1.01]	[0.89,1.06]	[0.88,1.03]	[0.91,1.14]
Hopelessness				
Model 1	1.02	1.19 ***	1.02	1.17
	[0.97,1.08]	[1.10,1.29]	[0.89,1.18]	[0.96,1.43]
Model 2	1.02	1.12 +	0.94	1.17 +
	[0.96,1.08]	[1.00,1.25]	[0.81,1.09]	[0.97,1.41]

29

Model 3	1.04	1.14 *	0.97	1.17
	[0.99,1.10]	[1.01,1.28]	[0.86,1.09]	[0.96,1.43]
Model 4	1.02	1.12	0.94	1.17
	[0.96,1.08]	[0.96,1.30]	[0.83,1.07]	[0.96,1.42]
Effortfulness				
Model 1	1.01	0.99	0.93 +	1.07
	[0.95,1.06]	[0.92,1.06]	[0.86,1.00]	[0.97,1.19]
Model 2	0.94 ***	0.97	0.91 *	1.07
	[0.90,0.97]	[0.89,1.05]	[0.84,0.99]	[0.96,1.19]
Model 3	0.97	1.00	0.94 +	1.07
	[0.92,1.02]	[0.92,1.10]	[0.87,1.01]	[0.97,1.18]
Model 4	0.97	1.00	0.94 +	1.06
	[0.92,1.01]	[0.90,1.10]	[0.87,1.01]	[0.96,1.18]
Worthlessness				
Model 1	1.16 ***	1.25 ***	1.07	1.17 *
	[1.08,1.24]	[1.15,1.36]	[0.97,1.18]	[1.03,1.34]
Model 2	1.07 +	1.13 +	0.95	1.17 *
	[0.99,1.15]	[0.99,1.30]	[0.87,1.04]	[1.01,1.35]
Model 3	1.12 ***	1.23 ***	1.05	1.17 *
	[1.05,1.19]	[1.12,1.36]	[0.97,1.15]	[1.03,1.33]
Model 4	1.06	1.17 *	0.98	1.16 *
	[0.97,1.15]	[1.03,1.31]	[0.87,1.11]	[1.00,1.34]

Source: NYC Community Health Survey (N_i = 8,066 Residents); NYC Stop, Question, and Frisk Database (N_j = 34 United Health Fund Neighborhoods). Model 1 includes for race/ethnicity and, where appropriate (Overall and Interaction), gender. Model 2 adds individual-level controls to Model 1, including age, education, employment, nativity, insurance, unmet medical need, household size, marital status, and language. Model 3 adds neighborhood-level controls to Model 1, including the proportion of stops resulting in arrest, average robbery complaint rate, total persons incarcerated, proportion Black or Latino, proportion below federal poverty line, and affluence concentration. Model 4 adds individual-level and neighborhood-level controls to Model 1.
+ *p*<0.10; * *p*<0.05; ** *p*<0.01; *** *p*< 0.001 (two-tailed test; 95% confidence interval shown in brackets)

Table 4. Weighted Generalized Linear Multilevel Regression of Neighborhood Use of Force Proportion on Psychological Distress for Overall Sample and for Men and Women.

	Overall	Stratified		Interaction
		Men	Women	Men x Policing
NSPD				
Model 1	1.02	1.23 ***	1.01	1.22 *
	[0.95,1.08]	[1.11,1.37]	[0.92,1.11]	[1.04,1.43]
Model 2	0.99	1.10 +	0.90	1.20 *
	[0.92,1.06]	[0.99,1.22]	[0.79,1.03]	[1.02,1.41]
Model 3	1.01	1.12 *	0.92	1.21 *
	[0.94,1.09]	[1.02,1.24]	[0.82,1.04]	[1.03,1.42]
Model 4	1.05	1.17 **	0.95	1.21 *
	[0.98,1.12]	[1.05,1.31]	[0.84,1.08]	[1.02,1.43]
Sadness				
Model 1	1.06 +	1.10 *	0.99	1.13 +
	[1.00,1.12]	[1.01,1.19]	[0.89,1.09]	[0.99,1.30]
Model 2	1.03	1.07 +	0.96	1.12
	[0.97,1.09]	[0.99,1.15]	[0.86,1.07]	[0.96,1.29]
Model 3	0.92 **	0.99	0.88 **	1.14 +
	[0.88,0.97]	[0.90,1.08]	[0.80,0.96]	[0.99,1.31]
Model 4	0.91 ***	0.97	0.87 ***	1.12
	[0.87,0.96]	[0.88,1.07]	[0.80,0.94]	[0.97,1.30]
Nervousness				
Model 1	1.06 **	1.13 ***	1.00	1.14 *
	[1.02,1.10]	[1.06,1.22]	[0.94,1.06]	[1.02,1.27]
Model 2	0.98	1.10 **	0.97	1.14 *
	[0.93,1.02]	[1.03,1.18]	[0.90,1.04]	[1.03,1.27]
Model 3	1.00	1.08 *	0.95 +	1.14 *
	[0.97,1.03]	[1.01,1.15]	[0.89,1.00]	[1.02,1.27]
Model 4	1.00	1.07 **	0.94 +	1.14 *
	[0.97,1.04]	[1.02,1.13]	[0.88,1.01]	[1.03,1.26]
Restlessness				
Model 1	1.02	1.05	0.99	1.06
	[0.97,1.06]	[0.96,1.15]	[0.92,1.06]	[0.93,1.20]
Model 2	1.01	1.04	0.98	1.06
	[0.96,1.05]	[0.95,1.15]	[0.91,1.05]	[0.94,1.20]
Model 3	0.96 *	0.99	0.94 +	1.05
	[0.93,1.00]	[0.91,1.08]	[0.88,1.00]	[0.93,1.19]
Model 4	0.96 +	1.02	0.95	1.06
	[0.93,1.00]	[0.93,1.11]	[0.89,1.03]	[0.94,1.20]
Hopelessness				
Model 1	1.05 +	1.15 *	0.94	1.22 +
	[1.00,1.11]	[1.02,1.28]	[0.83,1.07]	[0.99,1.50]
Model 2	1.00	1.12	0.91	1.21 +
	[0.94,1.06]	[0.97,1.28]	[0.78,1.05]	[0.97,1.49]

Model 3	1.00	1.11	0.91 +	1.22 +
	[0.95,1.05]	[0.97,1.27]	[0.81,1.01]	[0.99,1.51]
Model 4	0.99	1.11	0.90	1.21 +
	[0.94,1.05]	[0.95,1.30]	[0.80,1.02]	[0.97,1.50]
Effortfulness				
Model 1	0.95 *	0.99	0.87 ***	1.13 **
	[0.91,0.99]	[0.92,1.06]	[0.81,0.93]	[1.03,1.24]
Model 2	1.00	1.08	0.94 +	1.13 *
	[0.95,1.05]	[0.97,1.19]	[0.88,1.01]	[1.02,1.25]
Model 3	0.99	1.07 +	0.94 +	1.13 **
	[0.95,1.04]	[0.99,1.16]	[0.88,1.00]	[1.03,1.24]
Model 4	0.91 ***	0.97	0.86 ***	1.12 *
	[0.87,0.95]	[0.89,1.06]	[0.80,0.92]	[1.02,1.24]
Worthlessness				
Model 1	1.11 **	1.23 **	1.02	1.21 *
	[1.04,1.19]	[1.08,1.40]	[0.96,1.08]	[1.05,1.41]
Model 2	1.02	1.14 +	0.93	1.20 *
	[0.95,1.09]	[0.99,1.30]	[0.85,1.02]	[1.02,1.40]
Model 3	1.10 **	1.22 ***	1.02	1.20 *
	[1.03,1.17]	[1.10,1.36]	[0.94,1.11]	[1.04,1.39]
Model 4	0.99	1.10 +	0.91	1.18 *
	[0.91,1.08]	[0.98,1.23]	[0.80,1.04]	[1.01,1.38]

Source: NYC Community Health Survey (N_i = 8,066 Residents); NYC Stop, Question, and Frisk Database (N_j = 34 United Health Fund Neighborhoods). Model 1 includes for race/ethnicity and, where appropriate (Overall and Interaction), gender. Model 2 adds individual-level controls to Model 1, including age, education, employment, nativity, insurance, unmet medical need, household size, marital status, and language. Model 3 adds neighborhood-level controls to Model 1, including the proportion of stops resulting in arrest, average robbery complaint rate, total persons incarcerated, proportion Black or Latino, proportion below federal poverty line, and affluence concentration. Model 4 adds individual-level and neighborhood-level controls to Model 1.

+ $p<0.10$; * $p<0.05$; ** $p<0.01$; *** $p< 0.001$ (two-tailed test; 95% confidence interval shown in brackets)

Figure 1. Distribution of Non-Specific Psychological Distress by United Hospital Fund Neighborhoods.
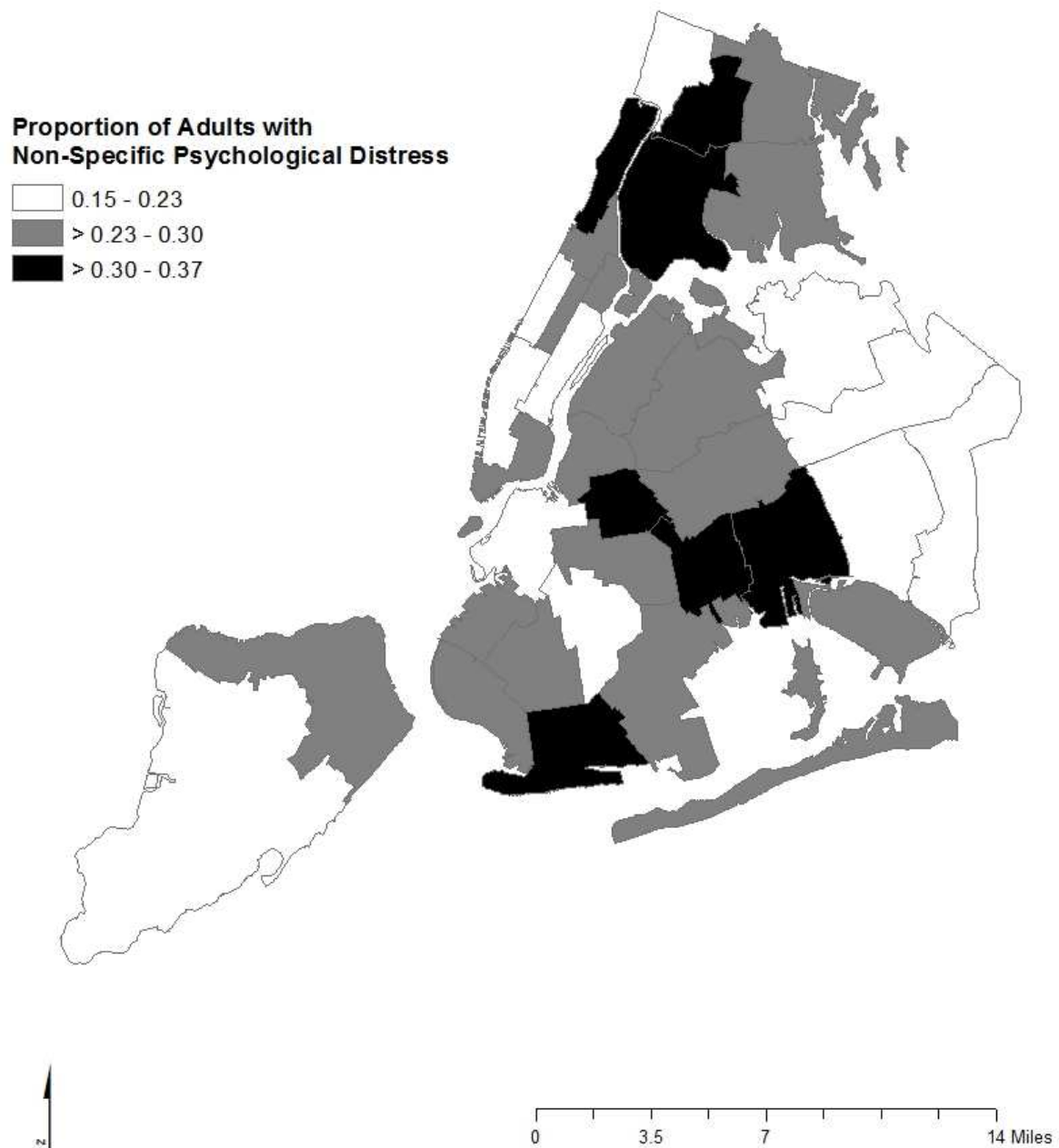
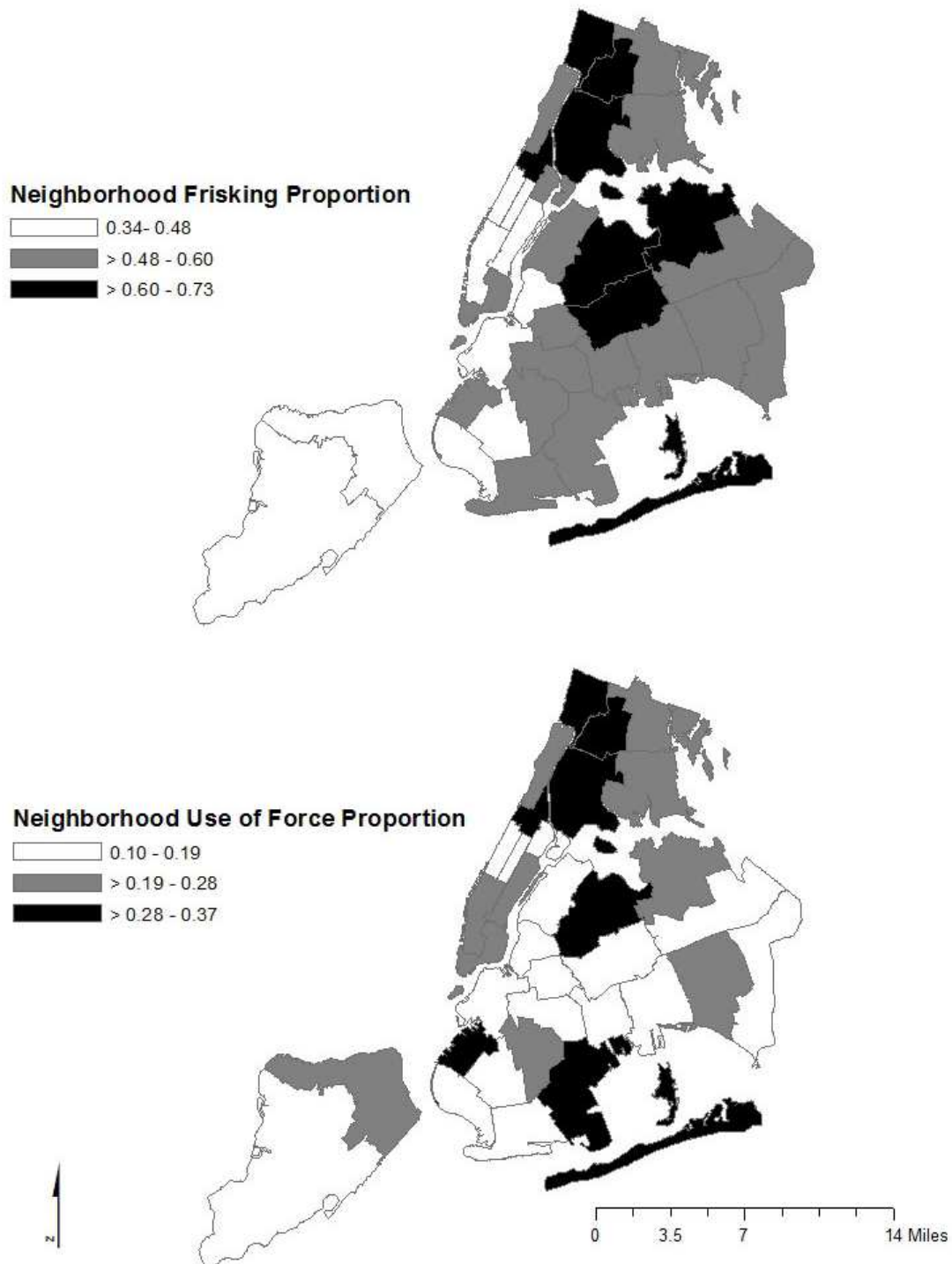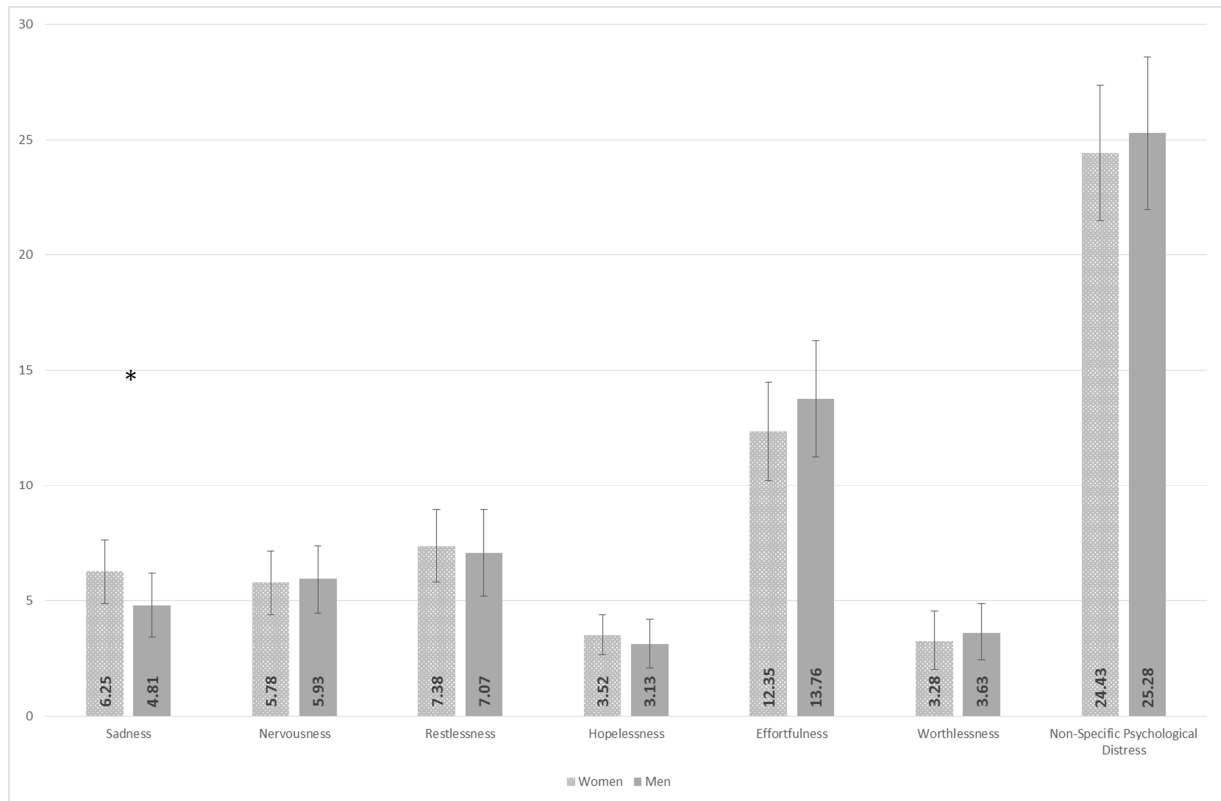**Figure 2. Distribution of Neighborhood Post-Stop Characteristics by United Hospital Fund Neighborhoods.**

Figure 3. Gender Differenes in the Distribution of Reporting Signals of Distress "All the Time" or "Most of the Time" (Percent).

Note: * *p* < 0.05 (two-tailed test for statistically significant gender difference); For constituent items (Columns 1-6) of the non-specific psychological distress indicator (Column 7), the percentage of respondents reporting feeling a specific type of distress "all the time" or "most of the time" in the past 30 days is reported.

APPENDIX A.

Mental Health, Gender, and the Neighborhood Stop Rate.

As stopping pedestrians is the most basic action necessary to implement NYC's Stop, Question, and Frisk policy, we also consider the mental health associations of the neighborhood stop rate. The neighborhood stop rate is calculated as the number of pedestrian stops per 100 non-institutionalized residents of a neighborhood. Figure A-1 provides a map of the distribution of the neighborhood stop rate.

[Figure A-1 about here]

Table A-1 examines the association between psychological distress and the neighborhood rate of pedestrian stops per the non-institutionalized population, following the same sequence of models as Tables 3 and 4.

[Table A-1 about here]

In the overall analysis, the neighborhood rate of stopping pedestrian is not associated with the dichotomous indicator of NSPD for any of the models computed. However, the neighborhood stop rate is associated with five of the six constituent items, but not always in the expected direction. Controlling for race/ethnicity and gender (Model 1), a standard deviation increase in the neighborhood stop rate (SD = 14.95) increases the odds of reporting more severe feelings of sadness, restlessness, hopelessness, and effortfulness by at least 6 percent and decreases the odds of reporting more severe feelings of nervousness by 7 percent. Living in a neighborhood with a higher stop rate is associated with a higher odds of reporting sadness (OR=1.06; 95% CI:1.01-1.12), restlessness (OR=1.06; 95% CI:1.01-1.11), hopelessness (OR=1.13; 95% CI:1.06-1.20), and effortfulness (OR=1.06; 95% CI:1.01-1.11) but a lower odds of reporting feelings of nervousness (OR=0.93; 95% CI:0.89-0.97) in the past month.

These relationships do not hold when considering compositional attributes of highly surveilled neighborhoods or other contextual characteristics. Specifically, when individual level covariates (Model 2) or neighborhood level covariates (Model 3) are added the associations between the neighborhood stop rate and sadness, restlessness, hopelessness, and effortfulness dissipate. The aforementioned protective association between the neighborhood stop rate and nervousness also dissipates once both individual- and neighborhood-level correlates are considered (Model 4). While a protective association between the neighborhood stop rate and restlessness in the past month appears (OR=0.89; 95% CI:0.84-0.94), this association may be an artifact of comparing people in similarly-situated neighborhoods (Model 3) and holds when further controlling for the demographic composition of people living in neighborhoods with higher stop rates (Model 4).

Moreover, contrary to expectation, the psychological associations of the neighborhood stop rate are not differentiated by gender. In models that adjust for race/ethnicity only (Model 1), there are gender-specific psychological distress associations with the neighborhood stop rate. For instance, men (Second Column) do report more sadness (OR=1.11; 95% CI:1.02-1.21), hopelessness (OR=1.14; 95% CI:1.03-1.26), and worthlessness (OR=1.14; 95% CI:1.02-1.28). Furthermore, women (Third Column) do report less severe feelings of nervousness (OR=0.89; 95% CI:0.83-0.96). Yet, women also report more severe feelings of hopelessness (OR=1.12; 95% CI:1.03-1.21) and effortfulness (OR=1.08; 95% CI:1.01-1.15) in neighborhoods with a higher stop rate. Nevertheless, these associations are attenuated once individual- and neighborhood-level covariates are included in Models 2 and 3, respectively.

Holding all else constant, men are not affected by the neighborhood stop rate (Model 4). Meanwhile, women report less severe feelings of restlessness (OR=0.87; 95% CI:0.81-0,93) and

worthlessness (OR=0.90; 95% CI:0.82-0.98) in neighborhoods with higher stop rates. Yet, the

absence of a statistically significant multilevel association for the male gender X neighborhood

stop rate interaction term (Men-Women: Fourth Column) indicates there is not enough evidence

to suggest a difference between men and women.

Table A-1. Weighted Generalized Linear Multilevel Regression of Neighborhood Stop Rate on Psychological Distress for Overall Sample and for Men and Women.

	Overall	Stratified		Interaction
		Men	Women	Men x Policing
NSPD				
Model 1	1.04	1.07	1.02	1.04
	[0.99,1.10]	[0.94,1.21]	[0.92,1.14]	[0.85,1.28]
Model 2	0.94+	0.96	0.93	1.04
	[0.88,1.01]	[0.81,1.14]	[0.85,1.03]	[0.83,1.30]
Model 3	0.97	1.00	0.96	1.04
	[0.90,1.05]	[0.87,1.15]	[0.86,1.09]	[0.84,1.28]
Model 4	0.97	1.00	0.96	1.04
	[0.92,1.04]	[0.86,1.16]	[0.86,1.08]	[0.83,1.30]
Sadness				
Model 1	1.06*	1.11*	1.05	1.05
	[1.01,1.12]	[1.02,1.21]	[0.96,1.14]	[0.95,1.17]
Model 2	0.98	1.01	0.95+	1.06
	[0.93,1.02]	[0.93,1.09]	[0.90,1.01]	[0.96,1.17]
Model 3	1.02	1.05	0.99	1.06
	[0.96,1.08]	[0.96,1.15]	[0.91,1.08]	[0.95,1.17]
Model 4	1.00	0.98	0.92+	1.06
	[0.94,1.07]	[0.88,1.09]	[0.85,1.01]	[0.96,1.17]
Nervousness				
Model 1	0.93***	0.97	0.89**	1.07
	[0.89,0.97]	[0.90,1.04]	[0.83,0.96]	[0.97,1.19]
Model 2	0.91***	0.94	0.86***	1.09+
	[0.86,0.95]	[0.87,1.01]	[0.80,0.92]	[0.99,1.21]
Model 3	1.05*	1.09*	1.01	1.08
	[1.00,1.10]	[1.01,1.19]	[0.95,1.07]	[0.97,1.19]
Model 4	0.97	1.08+	0.99	1.09
	[0.92,1.03]	[1.00,1.17]	[0.93,1.05]	[0.98,1.21]
Restlessness				
Model 1	1.06*	1.07	1.02	1.05
	[1.01,1.11]	[0.98,1.17]	[0.96,1.09]	[0.93,1.20]
Model 2	0.98	1.02	0.97	1.06
	[0.93,1.02]	[0.92,1.13]	[0.91,1.03]	[0.93,1.21]
Model 3	0.94***	0.97	0.92*	1.06
	[0.91,0.98]	[0.89,1.05]	[0.86,0.99]	[0.93,1.20]
Model 4	0.89***	0.91	0.87***	1.06
	[0.84,0.94]	[0.82,1.02]	[0.81,0.93]	[0.93,1.22]
Hopelessness				
Model 1	1.13***	1.14**	1.12**	1.02
	[1.06,1.20]	[1.03,1.26]	[1.03,1.21]	[0.90,1.16]
Model 2	1.01	1.03	1.00	1.03
	[0.96,1.06]	[0.92,1.15]	[0.93,1.07]	[0.91,1.17]
Model 3	1.06+	1.07	1.05	1.02

39

	[0.99,1.13]	[0.96,1.19]	[0.97,1.14]	[0.90,1.16]
Model 4	0.99	0.97	0.94	1.03
	[0.93,1.06]	[0.86,1.08]	[0.87,1.02]	[0.91,1.17]
Effortfulness				
Model 1	1.06*	1.09+	1.08*	1.02
	[1.01,1.11]	[0.99,1.21]	[1.01,1.15]	[0.89,1.17]
Model 2	1.02	1.04	1.02	1.04
	[0.97,1.08]	[0.93,1.16]	[0.95,1.09]	[0.90,1.19]
Model 3	0.97	0.94	0.93*	1.02
	[0.93,1.03]	[0.84,1.05]	[0.87,1.00]	[0.89,1.17]
Model 4	0.98	0.99	0.97	1.03
	[0.94,1.03]	[0.90,1.09]	[0.90,1.06]	[0.90,1.19]
Worthlessness				
Model 1	1.07+	1.14*	1.03	1.11
	[0.99,1.15]	[1.02,1.28]	[0.93,1.13]	[0.96,1.29]
Model 2	1.00	1.05	0.96	1.09
	[0.93,1.07]	[0.91,1.21]	[0.90,1.03]	[0.92,1.30]
Model 3	0.88***	0.90+	0.81***	1.11
	[0.83,0.93]	[0.79,1.02]	[0.73,0.89]	[0.96,1.29]
Model 4	0.93	0.98	0.90*	1.09
	[0.85,1.02]	[0.85,1.13]	[0.82,0.98]	[0.92,1.29]

Source: NYC Community Health Survey (N_i = 8,066 Residents); NYC Stop, Question, and Frisk Database (N_j = 34 United Health Fund Neighborhoods). Model 1 includes for race/ethnicity and, where appropriate (Overall and Interaction), gender. Model 2 adds individual-level controls to Model 1, including age, education, employment, nativity, insurance, unmet medical need, household size, marital status, and language. Model 3 adds neighborhood-level controls to Model 1, including the proportion of stops resulting in arrest, average robbery complaint rate, total persons incarcerated, proportion Black or Latino, proportion below federal poverty line, and affluence concentration. Model 4 adds individual-level and neighborhood-level controls to Model 1.
+ p<0.10; * p<0.05; ** p<0.01; *** p< 0.001 (two-tailed test; 95% confidence interval shown in brackets)

Figure A-1. Distribution of Neighborhood Stop Rate by United Hospital Fund Neighborhoods
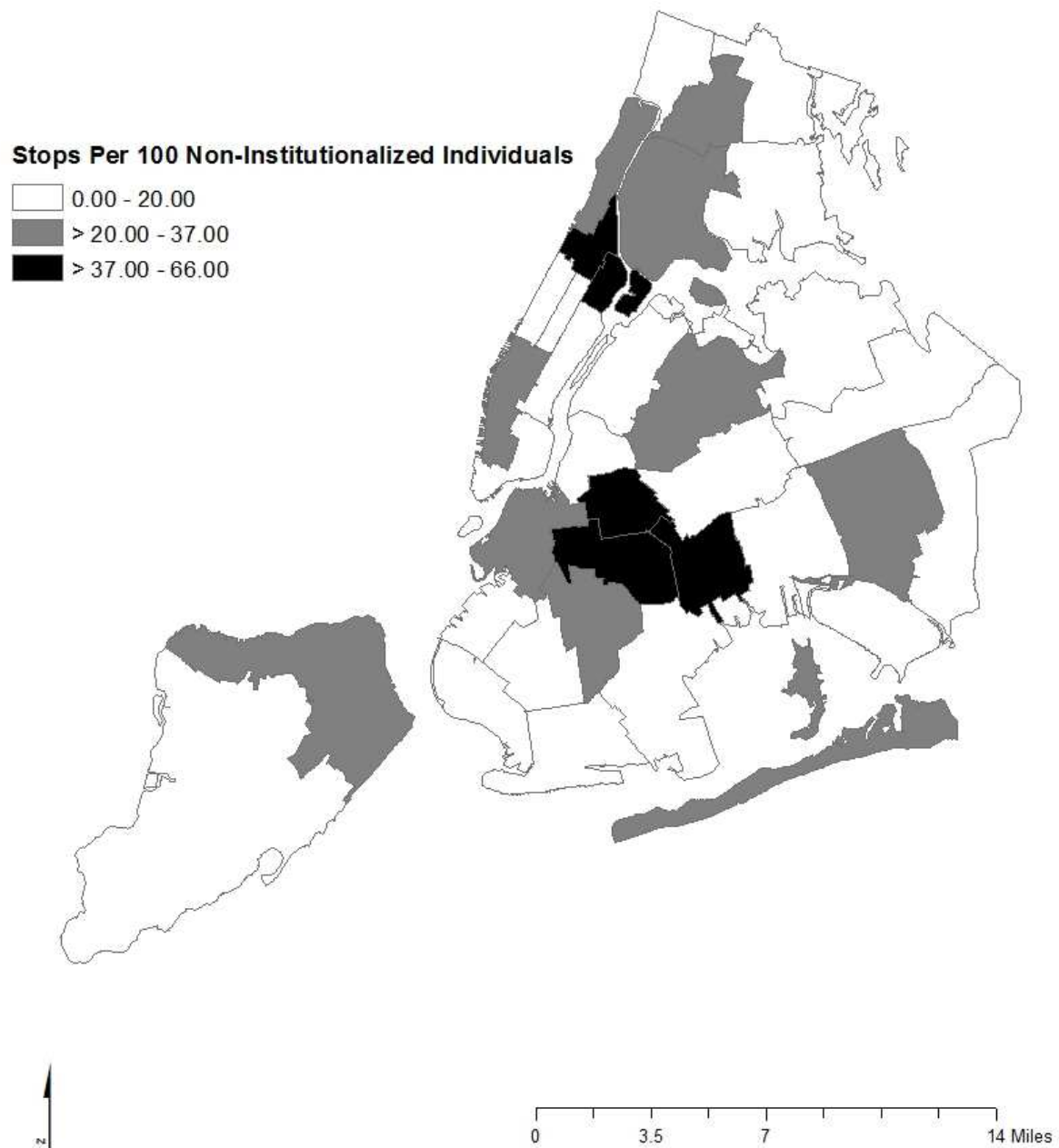
Living Under Surveillance:

Gender, Psychological Distress, and Stop-Question-and-Frisk Policing in New

York City

Acknowledgments

Living Under Surveillance:

Gender, Psychological Distress, and Stop-Question-and-Frisk Policing in New York City

Neighborhood policing patterns are associated with poorer psychological health.

Men report more nervousness and worthlessness when living in highly surveilled areas.

Frisking and use of force by police represent a stronger mental health risk for men.